

EESTI MAJANDUSPOLIITILISED VÄITLUSED

Arengud Euroopa Liidu riikides
Artiklid (CD-ROM) * Kokkuvõtted * Kroonika

ESTNISCHE GESPRÄCHE ÜBER WIRTSCHAFTSPOLITIK

Neueste Entwicklungen in den EU-Mitgliedstaaten
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DISCUSSIONS ON ESTONIAN ECONOMIC POLICY

Developments in the EU Member States
Articles (CD-ROM) * Summaries * Chronicle

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KONTAKT - CONTACT: Matti Raudjärv

Tartu Ülikool (Pärnu Kolledž)

University of Tartu (Pärnu College) **or** Mattimar OÜ

Ringi 35

Kose tee 79

80012 Pärnu

12013 Tallinn

Estonia

Estonia

matti.raudjarv@ut.ee

mattir@hot.ee

www.mattimar.ee

TARTU ÜLIKOOI UNIVERSITÄT TARTU UNIVERSITY OF TARTU
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VÕLAKRIIS EUROOPA LIIDUS¹

Sissejuhatavaid mõtteid aktuaalsetest probleemidest

Kui minevikku tagasi vaadata, siis pole ükski aastakümme niimoodi majanduskriisidest räsida saanud kui see, mis hiljuti lõppes. Kõik algas New Economy mulli lõhkemisega aastatuhandevahetusel, sellele järgnes katastroof subprime võlakirjade sektoris², mille kõrgpunktiks oli 2008. aasta finantskriis, mis omakorda põhjustas pankade kriisi ja viis praeguse riigivõla- ja eurokriisini. Ikka ja jälle olid finantsturud need, millest lähtusid tugevad destruktiivsed jõujooned. V. Cerra ja S. C. Saxena³ uurimused näitavad, et tõrked reaalmajanduses, mida saadavad pööristormid finantssektoris, on eriti arenenud tööstusmaades ülimalt püsivad ja visad taanduma. See on avalikus arutelus viinud selleni, et üha suureneva osa ühiskonna jaoks – kaasa arvatud majandusteadlased – muutub järjest küsitavamaks Läänemaailma majandussüsteemide efektiivsus. Teooria vabaturu isereguleerivatest jõududest, mida Adam Smith võrdles 'nähtamatu käega', sellega kogu teooriale nurgakivi pannes, on osutunud majandusajaloo eksituseks. Turumajandus, mille abil loodeti saavutada üldist korda, tasakaalustatust ja stabiilsust, on tegelikkuses osutunud äärmiselt ebatäiuslikuks süsteemiks. Teisisõnu: turumajandus on oma loomult tasakaalustamatuse süsteem. Siiski tuleb aga Winston Churchilli tuntud ütlusele toetudes möönda: turumajandus on kõige halvem majandussüsteem, välja arvatud kõik ülejäänud. Turust mõistlikumat alternatiivi ei eksisteeri, hädavajalik on aga turu piiride tundmine, et õigeaegselt väärarengute vastu võitlema hakata.

Juba enne üleilmset finantskriisi oli arvukate riikide võlakoorem mõtlemapanevalt kõrge. Miljarditesse ulatuvad avalikud kulutused süsteemi funktsioneerimise seisukohalt tähtsate pankade päästmiseks ja konjunktuuri toetamiseks on lasknud riigivõlad kasvada kriitilise piirini, nii et finantsturgudel kardetakse riiklike pankrottide ahelreaktsiooni. Majanduskoostöö ja arengu organisatsiooni ehk OECD-riikide võlakoorem ulatus 2007. aastal juba 73 %-ni sisemajanduse koguproduktist ja kasvab käesoleval aastal ilmselt veelgi, ületades 100 % piiri. USA majandusteadlased Kenneth S. ("Kenn") Rogoff ja Carmen M. Reinhard väidavad oma analüüsides⁴, et juba 90 %-ga ületatakse see piir, millest alates riiklikud võlad ähvardavad majanduskasvu halvata.

Suur riigivõlg ahendab poliitilist tegutsemisruumi. Mida kõrgemad on võlast tulenevad intressimaksed, seda vähem saab raha suunata kasvu jaoks olulistele valdkondadele nagu haridus ja infrastruktuur, seejuures antitsükliliste

¹ Eesti keelse artikli (mis oli aluseks ka inglise keelse artikli tõlkele) terminoloogiast konsulteeris Eesti Panga Nõukogu esimees (1998-2008), Tartu Ülikooli emeritprofessor Mart Sõrg

² USA kinnisvarakriis, mis tekkis kinnisvaravõlakirjade aastatepikkuste väärhinnangute tõttu Ameerika pankade poolt, millesse lõpptulemusena haarati ka rahvusvahelised pangad.

³ Cerra, V., Saxena, S. C. Growth. Dynamics: The Myth of Economic Recovery, IMF Working Paper, 07.08.2005.

⁴ Rogoff, K. S., Reinhard, C. M. Growth in a Time of Debt, American Economic Review, May 2010, pp. 573 – 578; edaspidi: needsamad, Dieses Mal ist alles anders, FinanzBuch Verlag, Kulmbach, 2010.

konjunktuurprogrammide rakendamist mitte arvestades. Sel põhjusel tuleb järgnevatel aastatel riiklike finantside konsolideerimine tõsta ülimalt prioriteediks. Kui silmas pidada praeguste riigivõlgade suurust, siis ilmselt õnnestub ainult väga vähestel riikidel lähemas tulevikus oma võlakooormat märkimisväärselt vähendada. Otsustava tähtsusega on aga riigivõla tase langemine, niisiis võlgade suhe antud riigi majanduslikku võimsusse, st sisemajanduse koguprodukti. Sissetulekute tõstmise ja väljaminekute kärpimisega saab takistada uute võlgade võtmist. Tugevam majanduskasv seevastu aga suurendab SKP-d ja seega ka alandab võlataset SKP suhtes. Kuidas nende kolme lähtekoha puhul raskuspunkte asetada, sõltub olulisel määral maksusüsteemidest, kulutuste struktuuridest ning kasvuressurssidest ja lõppkokkuvõttes ka poliitilistest raamtingimustest.

Riigi sissetulekute suurendamine – siinkohal mõeldakse eelkõige makse – puudutab eriti jaotamisprobleematikat. Siinjuures peavad poliitikud eelkõige silmas kaudseid makse, kuna need kogemustekohaselt pärast suhteliselt lühikest harjumise faasi enamike maksumaksjate teadvuses peagi tahaplaanile kaovad ja seega tarbimisnõudlust minimaalsel määral mõjutavad. Selles mõttes tuleb kaudsete maksude soodsam mõju majanduskasvule paremini ilmsiks kui see on otsete maksude puhul, mis püsivalt vähendavad ettevõtjate kasumit⁵ ja annavad seega põhjust ettevõtte asukoha muutmiseks.

Otsesed progressiivsed maksud on küll poliitilises mõttes atraktiivsed, aga majanduslikult seisukohast ohtlikud. Teisest küljest räägib kaudsete maksude vastu nende erakordselt regressiivne mõju ümberjaotamisele. Erandiks on siinkohal tubaka-, alkoholi- ja muude sõltuvusainete aktsiis, mille puhul nihkuvad esiplaanile inimeste tervist mõjutavad kaalutlused. Maksude tõstmise kõrval on olemas veel võimalus muuta riiklike ettevõtete omandivormi ja need erastada. Sellist sammu võib täiesti kaaluda, kuivõrd seeläbi riigivõimu ülesannete täitmine ei halvene, mis oleks üldsusele kahjuks.

Ainuüksi sissetulekute suurendamisega ei saa siiski võlaprobleeme lahendada. Riigid peavad ka oma kulutusi kärpima. Siin asub eriliste probleemide allikas, kuna riiklikes eelarvetes moodustavad sotsiaalkulutused kõige suurema osa. Seepärast on kokkuhoid selles valdkonnas mõõdapäasmatu, olgu seda siis kui tahes raske läbi viia, silmas pidades nii mõnegi ühiskonnakihi näiliselt õigustatud ja kivistunud varanduslikku staatust. Miinimumülesandeks peaks olema kärpmete tegemine seal, kus eesmärgid, mida ümberjaotamise poliitika käigus tahetakse saavutada, on liialdatud ja viinud tasakaalustamata olukorraneni nagu näiteks kõrgemates riigiametites, kaasa arvatud parlamendid ja valitsused. Täielikult tuleks lõpetada sotsiaaltoetuste maksmine (nt lastetoetus) juhul, kui sissetulek on teatud ülempiirist suurem, kusjuures see piir võiks olla paindlik. Samuti tuleks uurida, kuivõrd on ajaga suureks paisunud bürokraatiat võimalik mõistliku mahuni kahandada. Säästupotentsiaal eksisteerib eelkõige relvatööstuse valdkonnas. Siiski tuleb tõdeda, et kriisiriikide suhtes rakendatav range kokkuhoiupoliitika üksi ei kujuta endast veel pääseteed võlaprobleematikast. Sügavuti läbimõtle mata, lausa askeetlikkust taotlev

⁵ kui puudub võimalus veeretada maksutõus nõ teiste, st klientide kanda

säästupoliitika pigem teravdab probleeme, kuna selle ähvardava tagajärjena võib majanduskasv pidurduda ja tööpuudus suureneda.

Riigieelarve puudujääkide kõrval tuleb kriitiliselt analüüsida ka mõnede EL riikide maksebilansi jooksevkonto defitsiite. Negatiivsed maksebilansi jooksevkontod tähendavad põhimõtteliselt seda, et nende riikide rahvamajanduses kasutatakse teenuseid ja kaupu rohkem, kui neid ise suudetakse toota ning sellevõrra ollakse sunnitud välismaalt laenu võtta. Kui laenudega finantseeritavate kaupade ja teenuste suurema hulga abil luuakse ja arendatakse välja omamaist konkurentsivõimelist tööstust, siis on see igati teretulnud, kuna seeläbi pannakse alus tulevasele majanduskasvule. Kui aga tegu on kaupadega, mis teenivad üksnes kohaliku elanikkonna tarbimishuve, siis elavad niisugused riigid nii-öelda üle oma jõu. Sel viisil tõuseb nende riikide kriisitundlikkus ja sunnib neid varem või hiljem läbi tegema valulisi kohanemisprotsesse. Siis pole tihti enam võimalik vahet teha era- ja riigivõlgade vahel, kui päästefondide abil süsteemi funktsioneerimiseks oluliste võlgnike eramajanduslikud kohustused riigivõlaks muutuvad.

Majanduskasv on kolmas lähtekoht riigivõla taseme vähendamiseks. Selleks on vajalikud põhjapanevad struktuurireformid, et jagu saada konkurentsivähesusest Euroopas ja hoida Euroopa Liidu rahvusvaheline konkurentsivõimelisus jätkuusuutlikuna.

Konkreetselt tähendab see infrastruktuuri väljaarendamist ja hariduse edendamist, eelkõige niisuguste õppeainete edendamist nagu matemaatika, informaatika, loodusteadused ja tehnika, kuna teaduslikule uurimistöölle ja tehnoloogiale orienteeritud majandusharudel on mängida eriline roll. See nõuab küll suurenevaid riiklikke kulutusi, niisiis võetakse suund riigivõla suurendamisele, seda aga kompenseerib edukat majanduskasvu soosiva poliitika puhul veelgi kiirem SKP kasv, mistõttu võlatase kokkuvõttes isegi langeb.

Euroopa tulevik ei sõltu mitte ainult finantsturgude⁶ arengust, otsustav roll on mängida ka tööjõuturgudel. Võlgadest tulenevaid probleeme saab lahendada ainult siis, kui õnnestub jagu saada drastiliselt suurenevast tööpuudusest enamikes EL liikmesriikides. Eriti puudutab see noorte tööpuuduse ärevust tekitavalt suurt kasvu. Noored on Euroopa tulevik ja fundamentaalne kasvupotentsiaal. Neile tuleb luua hariduse ja kvalifikatsiooni andmiseks hästi läbimõeldud eesmärkidega kontseptsioonid, et kirjeldatud potentsiaali ära kasutada. Kui seda ei tehta, siis lastakse käest otsustava tähtsusega šansid. Saksa liidukantsleri Angela Merkeli Euroopa kohta käiv juhtmõte – „Kui europiirkond, siis laguneb ka Euroopa Liit“, tuleks konkreetsemalt ümber sõnastada nii: Kui Euroopa unustab oma noored, siis hääbub ka Euroopa idee.

⁶ Võrdle siinkohal: Eesti majanduspoliitilised väitlused – 18/ Estnische Gespräche über Wirtschaftspolitik - 18/ Discussions on Estonian Economic Policy – 18. Berlin, Tallinn: BWV, Mattimar, 2010, lk 9.

Fiskaalliitu ja selle päästefonde tuleb üleminekuperioodil pidada Euroopa Liidu aktuaalsete probleemide lahendamise tähtsaks eelduseks. Sellest üksi aga ei piisa. Siia peavad lisanduma majanduskasvu agenda ja paindlik tööturupoliitika, mille sisuks olgu esmajoones noorte tööpuuduse vähendamine.⁷ Mõtlemata peab seejuures keelte õppimisele liikmesriikides, erialaste kvalifikatsioonide ehabürokratlikule tunnustamisele kõikide kutsealade puhul, kutseomandamisprogrammide ühtlustamisele ja samuti Euroopasisestele vahendus- ja vahetusprogrammidele.

Nende liikmesriikidele, kes võitlevad võlgadega ja kellelt madalate reitingute tõttu võetakse kõrgeid võlaprotsente, meeldib väga eurovõlakirjade idee, kohati seda isegi nõutakse. See on täiesti arusaadav. Kui enne eurole üleminekut juhtis kapitali liikumist veel riske arvestav vahetuskursside areng, siis tänapäeva euroalal mõjutavad seda üksnes kõrvalekalded intressides. Kui võtta kasutusele eurovõlakirjad, siis kehtiks riiklikele võlakirjadele⁸ ühtne intress, mis juhinduks geuroala riikide keskmisest krediitdikõlbulikkusest. Finantsturgude distsiplineeriv funktsioon, mis avaldub intressierinevustes vastavalt võlgniku krediitdiväärsusele, langeks ära. Selle tulemusena tuleks kriisiriikidel maksta tunduvalt madalamaid intresse. Kas võla teenindamisest vabaks jäävaid vahendeid tööpoolest majanduskasvu stimuleerivate meetmete jaoks kasutatakse, pole sugugi kindel. Sundus ellu viia riigieelarve konsolideerimiseks vajalikke niigi ebapopulaarseid meetmeid pigem kaob. Eurovõlakirjad vabastaksid suurtes võlgades vaevlevad riigid eelarvedistsipliinist kinnipidamise kohustusest ja jätaaksid praktiliselt nende minevikus tehtud patud kõikide kanda. Tunduvalt väiksemate võlgadega maadel tuleks aga maksta keskmisest kõrgemaid intresse. Põhjustaja printsiip, mille kohaselt mingi tegevuse või tegematajätmise tõttu tekkinud kulud on põhjustaja kanda, muutub seeläbi kehtetuks. Ebasoliidset eelarvepoliitikat ei karistataks enam kõrgemate intresside nõudmisega.

Veebruar – märts 2012

Manfred O. E. Hennies
Kiel/Warder,
Saksamaa

Matti Raudjärvi
Tallinn/Pirita-Kose ja Pärnu,
Eesti

⁷ Võrdle siinkohal: Clement, W. (endine Saksamaa LV majandus- ja tööminister), Ohne die Jugend ist Europa verloren, Handelsblatt – Deutschlands Wirtschafts- und Finanzzeitung, 10.-11.02.2012, lk.10.

⁸ See kehtib vähemalt nn *Blue Bonds* kohta

SCHULDENKRISE IN DER EUROPÄISCHEN UNION

Gedanken zur gegenwärtigen Problematik

Kein Jahrzehnt in der Vergangenheit ist durch mehr Wirtschaftskrisen gekennzeichnet als das abgelaufene. Es begann mit der New-Economy-Blase um die Jahrtausendwende, gefolgt vom Subprime-Desaster¹, das über den Höhepunkt der Finanzkrise 2008 zur Banken- und gegenwärtig zur Staatsschulden- und Eurokrise geführt hat. Immer wieder waren es die Finanzmärkte, welche ihre destruktive Kraft ausübten. Untersuchungen von V. Cerra und S. C. Saxena² zeigen, dass Störungen in der Realwirtschaft, die mit Turbulenzen im Finanzsektor einhergehen, besonders in entwickelten Industrieländern hochgradig persistent sind. Das hat in den öffentlichen Diskussionen dazu geführt, dass in immer breiteren Kreisen der Bevölkerung – auch der Wirtschaftswissenschaftler – die Effizienz westlicher Wirtschaftssysteme zunehmend infrage gestellt wird. Die Theorie von den selbstheilenden Kräften freier Märkte, wozu Adam Smith mit seiner Metapher der 'unsichtbaren Hand' den Grundstein legte, hat sich als Irrtum in der Geschichte der Ökonomie herausgestellt. Die Marktwirtschaft, mit der man Ordnung, Gleichgewicht und Stabilität zu erreichen glaubte, ist in Wirklichkeit ein höchst unvollkommenes System. Mit anderen Worten: Sie ist ein natürliches Ungleichgewichtssystem. Dennoch: In Anlehnung an die bekannte Aussage von Winston Churchill kann man sagen: Die Marktwirtschaft ist das schlechteste Wirtschaftssystem mit Ausnahme aller übrigen. Zum Markt gibt es eben keine bessere Alternative, man muss nur seine Grenzen kennen, um seine Auswüchse rechtzeitig bekämpfen zu können.

Bereits vor der globalen Finanzkrise war die Schuldenlast in zahlreichen Staaten bedenklich hoch. Die öffentlichen Ausgaben in Billionenhöhe zur Rettung systemrelevanter Banken und zur Stützung der Konjunkturen haben die Staatsschulden mittlerweile in so kritische Höhen getrieben, dass die Finanzmärkte eine Kette von Staatspleiten befürchten. Der Schuldenberg der OECD-Staaten betrug vor der Krise im Jahre 2007 bereits 73 Prozent des Bruttoinlandsproduktes (BIP) und wird voraussichtlich im laufenden Jahr auf deutlich über 100 Prozent steigen. Nach Analysen³ der US-Ökonomen Kenneth S. ("Kenn") Rogoff und Carmen M. Reinhart wird bereits bei 90 Prozent jene Grenze überschritten, ab der öffentliche Schulden das Wirtschaftswachstum zu lähmen drohen.

Hohe Staatsschulden schränken die Handlungsspielräume der Politik ein. Je höher die daraus resultierenden Zinszahlungsverpflichtungen sind, desto weniger kann für die wachstumsrelevante Bildung und Infrastruktur ausgegeben werden, ganz

¹ US-Immobilienkrise, auf Grund jahrelanger Fehlbewertungen verbriefter Immobilienkredite durch US-amerikanische und schließlich auch internationale Banken.

² Cerra, V., Saxena, S. C. Growth Dynamics: The Myth of Economic Recovery, IMF Working Paper, 07.08.2005.

³ Rogoff, K.S., Reinhart, C. M. Growth in a Time of Debt, American Economic Review, May 2010, pp. 573 – 578; ferner: dieselben, Dieses Mal ist alles anders, FinanzBuch Verlag, Kulmbach, 2010.

abgesehen von der Möglichkeit des Einsatzes antizyklischer Konjunkturprogramme. Deshalb wird der Konsolidierung der Staatsfinanzen in den kommenden Jahren die höchste Priorität einzuräumen sein. In Anbetracht der gegenwärtigen Höhen von Staatsschulden wird es wohl den wenigsten Ländern gelingen, kurzfristig ihren Schuldenberg in nennenswertem Umfang abzubauen. Entscheidend ist aber, dass die Quoten der Staatsschulden sinken, also die Relationen von Schulden zur Wirtschaftsleistung des jeweiligen Landes, dem BIP. Durch Erhöhung der Einnahmen und Senkung der Ausgaben kann zumindest zunächst einmal die Neuverschuldung und damit der weitere Anstieg des Zählers im Schuldenquotienten reduziert werden. Ein stärkeres Wirtschaftswachstum wiederum erhöht den Nenner und senkt damit deutlich die Quote. Wie die Gewichte dieser drei Ansatzpunkte zu setzen sind, hängt im Wesentlichen von den Steuersystemen, den Ausgabenstrukturen und Wachstumsressourcen sowie letztendlich auch von den politischen Rahmenbedingungen ab.

Steigerungen der Staatseinnahmen – hierbei geht es vor allem um Steuern – tangieren in besonderer Weise Verteilungsfragen. Politiker denken dabei in erster Linie an indirekte Steuern, weil diese erfahrungsgemäß nach einer relativ kurzen Gewöhnungsphase beim breiten Publikum wieder in Vergessenheit geraten und dann die Konsumnachfrage kaum noch beeinflussen. Insofern erscheinen indirekte Steuern wachstumsfreundlicher als direkte Steuern, wenn Letztere die Unternehmergewinne⁴ nachhaltig reduzieren und Anlass zu Standortverlagerungen geben. Direkte Progressivsteuern sind zwar politisch attraktiv, aber wirtschaftlich gefährlich. Andererseits sprechen gegen indirekte Steuern deren ausgesprochen regressive Verteilungswirkungen, mit Ausnahme von Steuern auf Tabak, Alkohol und sonstige Suchtmittel, bei denen gesundheitliche Gesichtspunkte im Vordergrund der Überlegungen stehen sollten. Neben Steuererhöhungen gibt es noch Möglichkeiten, öffentliche Unternehmungen in Privateigentum zu überführen. Das ist vertretbar, soweit dadurch nicht hoheitliche Aufgaben zum Nachteil für die Allgemeinheit beeinträchtigt werden.

Durch höhere Einnahmen allein können die Schuldenprobleme allerdings nicht gelöst werden. Die Staaten müssen auch die Ausgaben kürzen. Hier ergeben sich besondere Probleme, weil in den öffentlichen Budgets die Sozialausgaben oft den größten Posten ausmachen. Deshalb sind Einsparungen in diesen Bereichen unumgänglich, so schwer das auch aufgrund vermeintlicher Besitzstände durchzusetzen sein wird. Zumindest sollten dort Kürzungen vorgenommen werden, wo überzogene verteilungspolitische Zielvorstellungen zu unausgewogenen Verhältnissen geführt haben, wie z. B. im höheren öffentlichen Dienst einschließlich Parlamente und Regierungen. Ersatzlos zu streichen sind Transferzahlungen (z. B. Kindergeld) an Bezieher von Einkommen oberhalb bestimmter Einkommengrenzen, wobei die Übergänge fließend gestaltet werden können. Zu prüfen ist, inwieweit eine im Laufe der Zeit aufgeblähte Bürokratie auf ein angemessenes Ausmaß zurückgeführt werden kann. Vor allem im Bereich der Rüstungsindustrie sind erhebliche Einsparungspotenziale vorhanden. Dennoch: Eine rigorose Sparpolitik,

⁴ bei fehlenden Überwälzungsmöglichkeiten

welche den Krisenländern verordnet wird, kann allein kein Ausweg aus der Schuldenproblematik sein. Eine unreflektierte Austeritätspolitik verschärft eher noch die Probleme, weil sie das Wirtschaftswachstum zu bremsen und die Erwerbslosigkeit zu erhöhen droht.

Neben den Haushaltsfehlbeträgen müssen auch die zum Teil gewaltigen Leistungsbilanzdefizite einiger EU-Länder kritisch analysiert werden. Negative Leistungsbilanzen bedeuten grundsätzlich, dass die betreffenden Volkswirtschaften mehr Leistungen in Anspruch nehmen, als sie selbst produzieren, und sich insoweit gegenüber dem Ausland verschulden. Handelt es sich bei diesem Mehr um Waren und Dienstleistungen zum Auf- und Ausbau einer wettbewerbsfähigen Industrie, ist das unbedenklich, weil dadurch die Grundlagen für ein zukünftiges Wirtschaftswachstum geschaffen werden. Handelt es sich dabei allerdings um Güter, die ausschließlich dem Konsum der inländischen Bevölkerung dienen, leben diese Länder gewissermaßen 'über ihre Verhältnisse'. Dadurch steigt deren Krisenanfälligkeit und zwingt sie früher oder später zu einschneidenden Anpassungsprozessen. Dann lassen sich private und öffentliche Schulden oft nicht mehr voneinander trennen, wenn durch Bailouts private Verbindlichkeiten systemrelevanter Schuldner zu Staatsschulden werden

Das Wirtschaftswachstum ist der dritte Ansatzpunkt zur Reduzierung der öffentlichen Schuldenquoten. Dazu bedarf es durchgreifender Strukturformen, um Wettbewerbsdefizite in Europa zu überwinden und die internationale Wettbewerbsfähigkeit der Europäischen Union nachhaltig zu erhalten. Konkret heißt das: Ausbau der Infrastruktur und Förderung der Bildung, vor allem in den Fächern Mathematik, Informatik, Naturwissenschaften und Technik, weil die forschungs- und technologieorientierten Branchen von besonderer Bedeutung sind. Das erfordert zwar steigende Staatsausgaben, also tendenziell steigende Zählerwerte im Verschuldungsquotienten, dem aber bei erfolgreicher Wachstumspolitik kompensierende Erhöhungen des Nenners gegenüberstehen.

Die Zukunft Europas entscheidet sich nicht nur auf den Finanzmärkten⁵, auch die Arbeitsmärkte spielen eine entscheidende Rolle. Die Verschuldungsprobleme werden nur zu lösen sein, wenn es gelingt, die derzeit in den meisten Mitgliedstaaten der Europäischen Union drastisch ansteigende Erwerbslosigkeit zu überwinden. Das gilt ganz besonders für die beängstigende Eskalation der Jugendarbeitslosigkeit. Die Jugend Europas stellt das zukünftige, fundamentale Wachstumspotenzial dar. Dieses muss durch zielgerichtete Bildungs- und Qualifikationskonzepte erhalten und genutzt werden. Wird das versäumt, werden entscheidende Chancen verpasst. Der Leitsatz der deutschen Bundeskanzlerin Angela Merkel zu Europa, 'wenn der Euro scheitert, scheitert Europa', sollte konkreter heißen: Wenn Europa die Jugend vergisst, scheitert der europäische Gedanke.

⁵ Vgl. hierzu: Estnische Gespräche über Wirtschaftspolitik – 18. Berlin, Tallinn: BWV, Mattimar, 2010, S. 9 ff.

Eine Fiskalunion mit Rettungsschirmen in der Übergangsphase ist zwar eine wichtige Voraussetzung zur Lösung der gegenwärtigen Probleme in der Europäischen Union. Das allein reicht aber nicht. Sie muss ergänzt werden durch eine Agenda für Wachstum und eine flexible Arbeitsmarktpolitik, welche vor allem die Rückführung der Jugendarbeitslosigkeit zum wesentlichen Inhalt hat.⁶ Zu denken ist dabei an Sprachförderungen in den Mitgliedstaaten, unbürokratische Anerkennung von Qualifikationen in allen Berufssparten, Vereinheitlichung von Ausbildungsprogrammen sowie innereuropäische Vermittlungs- und Austauschprogramme.

Von jenen Mitgliedländern, die mit Schuldenproblemen zu kämpfen haben und aufgrund ihrer niedrigen Ratings hohe Anleihenzinsen zu zahlen haben, wird die Einführung von Euro-Bonds favorisiert, vielerorts sogar gefordert. Das ist durchaus verständlich. Waren es vor Einführung des Euros noch die Wechselkurse, welche die Kapitalbewegungen durch die Wechselkursunsicherheiten risikoorientiert steuerten, sind es heute im Euro-Raum nur noch die Zinsdivergenzen. Nach Einführung von Euro-Bonds gäbe es für die staatlichen Schuldtitel⁷ einen einheitlichen, an der gemeinsamen Bonität aller Euro-Länder orientierten Zins. Die disziplinierende Funktion der Märkte mit ihren Zinsspreizungen nach der Bonität der Schuldner gäbe es nicht mehr. Das hätte zur Folge, dass die Krisenländer deutlich geringere Zinsen zu zahlen hätten. Ob dann die beim Schuldendienst eingesparten Mittel für wachstumsstimulierende Maßnahmen ausgeben würden, ist nicht sicher. Vielmehr schwindet der Zwang, unpopuläre Maßnahmen zur Konsolidierung der Staatshaushalte durchzuführen. Euro-Bonds würden den Zwang zur Haushaltsdisziplin von den hoch verschuldeten Ländern nehmen und praktisch deren Sünden aus der Vergangenheit vergemeinschaften. Länder mit weitaus geringeren Verschuldungsproblemen hätten dann vergleichsweise höhere Durchschnittszinsen zu zahlen. Das Verursacherprinzip würde außer Kraft gesetzt. Unsolide Haushaltspolitik würde nicht mehr mit hohen Zinsen bestraft.

Februar/März 2012

Manfred O. E. Hennies
Kiel/Warder,
Deutschland

Matti Raudjärv
Tallinn/Pirita-Kose und Pärnu,
Estland

⁶ Vgl. hierzu: Clement, W. (früherer Wirtschafts- und Arbeitsminister der Bundesrepublik Deutschland), Ohne die Jugend ist Europa verloren, in: Handelsblatt – Deutschlands Wirtschafts- und Finanzzeitung, 10.-11.02.2012, S.10.

⁷ zumindest für die sog. Blue Bonds

DEBT CRISIS IN THE EUROPEAN UNION

Introductory thoughts on topical issues

Looking back at the past, no other decade has been devastated so much by economic crises as the one that recently ended. It all started with the bursting of the New Economy bubble at the turn of the millennium and was followed by a catastrophe in the subprime bonds sector¹, which eventually led to the financial crisis of 2008, which in its turn caused a crisis in the banking sector and led to the current government debt and euro crisis. Over and over again, strong destructive lines of force originated in the financial markets. According to the studies by V. Cerra and S. C. Saxena,² failures in real economy accompanied by hurricanes in the financial sector are extremely lasting and hard to alleviate, particularly in the developed industrial countries. Therefore the effectiveness of the economic systems of the Western countries is increasingly regarded as questionable by an increasing part of the society – including economists – in public discussions. The theory of self-regulating forces of the free market, compared by 'an invisible hand' by Adam Smith who laid the cornerstone for the whole theory, has proved to be a mistake in the economic history. Market economy with which it was hoped to achieve general order, balance and stability, has proved to be an extremely imperfect system in reality. In other words: market economy is a system of imbalance by its nature. We have to admit according the well-known quote of Winston Churchill, however: The market is the worst system of economic and social development – except for all the others that have been tried from time to time. There is no alternative more reasonable than the market but it is absolutely necessary to know the limits of the market in order to start fighting against wrong developments in time.

Already before the global financial crisis the high debt burden of numerous countries made people wonder. Public expenditures in billions to rescue banks that are essential for the functioning of the system and to support the economic cycle have allowed government debts to increase to critical limits so that chain reactions of government bankruptcies are dreaded in financial markets. The debt burden of the OECD (Organisation for Economic Co-operation and Development) countries reached already 73% of their GDP in 2007 and will probably increase even more this year and will exceed the limit of 100%. The U.S. economists Kenneth S. ("Kenn") Rogoff and Carmen M. Reinhard state in their analyses³ that already 90% will exceed the limit starting from which government debt may start paralyzing the economic growth.

¹ The U.S. real estate crisis caused by wrong evaluation of real estate bonds by U.S. banks for many years and which eventually involved also international banks.

² Cerra, V., Saxena, S. C. Growth. Dynamics: The Myth of Economic Recovery, IMF Working Paper, 07.08.2005.

³ Rogoff, K. S., Reinhard, C. M. Growth in a Time of Debt, American Economic Review, May 2010, pp. 573 – 578; hereinafter: the same, Dieses Mal ist alles anders, FinanzBuch Verlag, Kulmbach, 2010.

A large government debt restricts the political scope of action. The higher are the interest payments arising from the debt, the less funds can be directed to such areas important for growth as education and infrastructure, without taking into account here the implementation of any anti-cyclic programmes during recession periods. Therefore consolidation of state finances should be regarded as the first priority in the next few years. Considering the size of current government debts, probably only a few countries will be able to reduce their debt burden considerably in the near future. However, reduction of the level of government debt, i.e. the proportion of debt to the economic performance of a particular state, i.e. its GDP, is of critical importance. By increasing revenues and cutting expenditures it is possible to avoid new borrowing. Stronger economic growth, on the other hand, increases the GDP and therefore also reduces the debt level with respect to GDP. The division of focus among these three basic starting points depends to a large extent on the taxation system, structure of expenditures and resources of growth and eventually also on the political framework.

Increasing the government revenues – bearing in mind above all taxes here – is particularly related to the problems of distribution. Here politicians focus above all on indirect taxes as these will recede to the background soon in the minds of most taxpayers after a relatively short period of getting used to them, and will have a minimal effect on demand by consumers. In that sense, the more favourable impact of indirect taxes on economic growth is more evident than in the case of direct taxes which reduce the profits of businesses permanently⁴ and are therefore a reason for changing the location of an enterprise.

While direct progressive taxes are politically attractive, they are risky from economic aspects. On the other hand, a negative aspect of indirect taxes is their extremely regressive effect on redistribution. The excise tax on tobacco, alcohol and other addictive substances is an exception here as their relation to human health is considered above all. Besides raising taxes there is also the option of changing the ownership form of state-owned enterprises and privatising them. Such a step can really be considered as it would not impair the fulfilment of state functions that would be a disadvantage to the general public.

However, it will not be possible to solve the debt problems by only increasing revenues. The states will also have to cut their expenditures. This is a source of particular problems as social expenditures take up the largest share of state budgets. Therefore saving costs in this field will be unavoidable, no matter how hard it would be, considering the apparently justified property status cast in stone of quite a few social strata. The minimum task should be to make cuts in areas where the intended aims of the redistribution policy are exaggerated and have led to an imbalanced situation, such as at higher government posts, including parliaments and governments. Payment of social benefits (e.g. child benefit) should be stopped if the income exceeds a certain limit, and this limit should be flexible. It should also be analysed to what extent the bureaucracy that has expanded in the course of time

⁴ If there is no possibility for passing the tax increase burden on to others, i.e. clients

could be reduced to a reasonable volume. There is a savings potential above all in the field of arms industry. We have to admit, however, that the policy of strict economy applied to countries in crisis alone will not relieve the debt problems. If a policy of economy which is even oriented to austerity is not well-considered, it will rather make the problems more acute as there is a risk of deceleration of economic growth and increase in employment as a consequence.

Besides deficits of state budgets also deficits of the balance of payments on current account should be critically analysed for certain EU Member States. Negative balances of payments on current accounts essentially mean that more services and goods are used in the national economy of these countries than they are able to produce themselves and they have to borrow from abroad to that extent. If the larger quantity of goods and services financed with loans is used for the creation and development of competitive domestic industry, it is quite welcome as this lays the basis for future economic growth. But if these are goods which only serve the interests of consumption by the local population, such countries are living beyond their means. This makes such countries more susceptible to crisis and they will have to undergo painful adjustment processes sooner or later. Then it will often not be possible to distinguish between private and public debt when the private obligations of important debtors essential for the functioning of the system become government debt through the system of bailouts.

Economic growth is the third starting point for the reduction of the level of government debt. This assumes carrying out fundamental structural reforms to overcome the lack of competition in Europe and keep the international competitiveness of the EU on the sustainable level.

This specifically means the development of infrastructure and promotion of education, above all the promotion of studying such subjects as mathematics, computer science, natural sciences and technology as the economic sectors oriented to scientific research and technology have a particular role. Although it requires an increase in government expenditure and tends to increase the government debt, this is compensated by even faster growth of GDP in the case of policy which favours successful economic growth, and therefore the debt level will even decrease as a consequence.

The future of European will not only depend on the development of financial markets⁵ – also labour markets have a critical role. Problems caused by debts can only be solved if the dramatic increase in unemployment in most EU countries can be alleviated. This concerns particularly the alarming increase in unemployment of young people. Young people are the future of Europe and its fundamental growth potential. Concepts with well-considered objectives should be developed for the provision of education and qualification to them in order to make use of the potential

⁵ Cf here: Eesti majanduspoliitilised vältlused - 18/ Estnische Gespräche über Wirtschaftspolitik - 18/ Discussions on Estonian Economic Policy - 18. Berlin, Tallinn: BWV, Mattimar, 2010, p. 9.

described. Otherwise, chances of critical importance are lost. The statement of the German Chancellor Angela Merkel about Europe – „If the euro zone breaks apart, so will the European Union“, should be more specifically restated as follows: If Europe forgets its young people, also the idea of Europe will fade away.

The fiscal union and its bailout funds should be considered an important precondition for the solution of the topical problems of the EU during the transition period. But only this will not be enough. It has to be supplemented by the economic growth agenda and the flexible labour market policy which focuses above all on the reduction of unemployment among young people.⁶ Studying languages in Member States, unbureaucratic recognition of professional qualifications in all fields, harmonisation of professional qualification programmes and also intermediation and exchange programmes within Europe should be promoted.

The Member States which are fighting with debts and are charged high interest rates during to their low ratings like the idea of eurobonds very much, sometimes even demand them. This is quite understandable. While before the transition to euro the movement of capital was directed by the developments in exchange rates which take into account risks, only deviations in interest rates have an effect on these in the current eurozone. If we introduce eurobonds, government debts⁷ will have a common interest rate depending on the average creditworthiness of the eurozone countries. There would be no function that would discipline financial markets and would be manifested by differences in interest rates according to the creditworthiness of the debtor. As a result, countries in crisis would have to pay much lower interest rates. It will not be certain whether any funds left from servicing the loan would indeed be used for measures stimulating economic growth. There is no longer such pressure for the implementation of measures that are unpopular anyway in order to consolidate the state budget. Eurobonds would relieve the countries which are suffering from a high debt burden from their obligation to follow the budgetary discipline and would actually leave their past sins to everybody to bear. Countries with considerably lower debt levels would have to pay higher than average interest rates, however. This invalidates the causer principle according to which any costs incurred due to an action or omission should be born by those who caused them. Unsolid budgetary policy would no longer be punished by requiring higher interest rates.

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Manfred O. E. Hennies
Kiel/Warder,
Germany

Matti Raudjärv
Tallinn/Pirita-Kose and Pärnu,
Estonia

⁶ Cf here: Clement, W. (former Minister of Economics and Labour of the Federal Republic of Germany), Ohne die Jugend ist Europa verloren, Handelsblatt – Deutschlands Wirtschafts- und Finanzzeitung, 10.-11.02.2012, p.10.

⁷ This applies at last to the so-called *Blue Bonds*.

DETERMINANTEN INSTITUTIONELLER VIELFALT

Clemens Buchen

EBS Universität für Wirtschaft und Recht, Wiesbaden

Universität Tartu

Abstract

The paper attempts to assess the validity of competing theories of institutional determinants and change using a sample of both transition countries and non-transition countries. Economic theory explains the determinants of institutions as results of political economy approaches, legal origin theory or culture differences between societies. As dependent institutional variables investor protection, labor market institutions and a composite index of coordination are chosen. In order to allow for different slopes and intercepts of transition countries several interaction terms are included. All variables are able to explain some of the variation across countries, but it seems that for transition countries political and cultural approaches are most applicable.

Keywords: institutions, institutional determinants, political economy, legal origins

JEL Classification: P16, P21, P26, G20

1. Einleitung

Institutionelle Vielfalt ist klar dokumentiert. Während Rankings beispielsweise von Weltbank oder dem World Economic Forum zu Arbeitsmarktgesetzgebung oder Produktmarktregulierung besonderes Augenmerk auf Unterschiede in der Güte von Institutionen legen, gibt es eine Reihe von Ansätzen, die institutionelle Vielfalt als Manifestierung multipler Gleichgewichte sehen. Diese können unterschiedliche Auswirkungen auf Strukturdaten wie Arbeitslosigkeit, komparativen Vorteil oder Staatsverschuldung haben oder auch durch sie bedingt werden. A priori geben diese Ansätze aber nicht unbedingt eine Wertung über die relative Güte von Institutionen ab. Folgt man dieser Sichtweise, ergeben sich zwei zusammenhängende Fragestellungen. Erstens, gibt es Komplementaritäten oder andere Verbindungen zwischen Institutionen in dem Sinne, dass die Wirkung einer Institution in einem bestimmten Bereich von der Existenz anderer Institutionen abhängt? Und zweitens, wie werden unterschiedliche Institutionen determiniert? In diesem Beitrag möchte ich versuchen, auf die zweite Frage eine Antwort zu formulieren.

Die ökonomische Literatur kennt drei konkurrierende Ansätze, Determinanten von Institutionen zu entwickeln: politische Ökonomie, die Theorie der Rechtssysteme (*legal origins*) und kulturelle Einflussfaktoren. Diese drei Ansätze sollen hier empirisch untersucht werden. Dabei nehme ich sowohl OECD-Länder als auch mittel- und osteuropäische post-kommunistische Länder in die Analyse auf. Das Studium der Transformationsländer erscheint besonders fruchtbar, da hier die Entstehung und Entwicklung von Institutionen von ähnlichen Startbedingungen

gleichfalls wie in einem Labor wahrgenommen werden können. Um zu überprüfen, inwieweit die Transformationsländer sich anders verhalten, wird in der empirischen Analyse mit Interaktionstermen gearbeitet. Die zu erklärenden Variablen sind Arbeitsmarktgesetzgebung gemessen anhand des EPL-Indikators der OECD und Corporate Governance-Institutionen in Form des Investorschutz sowie ein zusammen gesetzter Indikator, der den Grad von Korporatismus misst.

Die grundlegende Frage ist also: inwieweit können bestehende theoretische Ansätze zum Einfluss von politischen Institutionen, der Rechtstradition eines Landes und kultureller Begebenheiten die Existenz und Entstehung ökonomischer Institutionen im Sinne von North erklären. Diese Frage ist von einer ähnlichen Frage zu unterscheiden, inwieweit politische oder rechtliche Institutionen auf strukturelle Daten wie Arbeitslosigkeit oder Staatsverschuldung wirken können. Letzteres ist nicht das Interesse meiner Untersuchung.

Der Beitrag ist wie folgt gegliedert. Der folgende Abschnitt gibt Umriss der zugrunde liegenden theoretischen Literatur, die es ermöglicht, Hypothesen für die empirische Analyse zu erarbeiten. Danach werden die zu analysierenden institutionellen Größen kurz vorgestellt, die Variablen der linken Seite der Gleichung. Der dritte Teil beschreibt die Daten, während das vierte Kapitel die empirische Strategie und die Ergebnisse präsentiert und diskutiert.

2. Determinanten von Institutionen

Im folgenden erarbeite ich die erklärenden Variablen, die von den verschiedenen theoretischen Ansätzen als Basis für institutionelle Entwicklung angesehen werden.

2.1. Politische Ökonomie

Die Beiträge zur politischen Ökonomie von Institutionen lassen sich grob in zwei Strömungen einteilen. Auf der einen Seite wird ein direkter Zusammenhang zwischen politischen Präferenzen und ökonomischen Institutionen wie Arbeitsmarktgesetzgebung in einer Volkswirtschaft modelliert. Alternativ können in einem Zwischenschritt politische Institutionen (z. B. Wahlgesetze) eingefügt werden, die Auswirkungen auf Koalitionsbildung und damit das Bündeln verschiedener Präferenzen haben.

Pagano und Volpin (2005) entwickeln ein Modell mit Arbeitern, Managern und Investoren. Manager präferieren einen geringen Investorschutz, da dies ihnen ermöglicht, private Vorteile aus der Firma zu ziehen. Sie können nun die politische Unterstützung der Arbeiter erlangen, indem sie ihnen wenig inflexible Arbeitsgesetze im Gegenzug zu geringem Investorschutz anbieten. Wenn das Wahlsystem des Landes Koalitionsbildungen begünstigt durch ein Verhältniswahlsystem, sollte man diese Koalitionen beobachten. Das Modell ist also zu verstehen als eine stilisierte Form des Korporatismus, in dem Manager und Arbeiter gegenseitig Zugeständnisse machen. Herrscht in einem Land das Mehrheitswahlrecht ist die Möglichkeit zur Koalition nicht oder nur unter sehr

speziellen Bedingungen gegeben. Die Hypothese des Modells von Pagano und Volpin ist also, dass man *ceteris paribus* in Ländern mit Verhältniswahlrecht inflexiblere Arbeitsmärkte und schlechteren Investorschutz und in Ländern mit Mehrheitswahlrecht flexiblere Arbeitsmarktinstitutionen und hohen Investorschutz beobachten kann. In einem Sample von OECD Ländern können die Autoren dies aus empirisch zeigen. Allgemein wird in der politischen Wissenschaft davon ausgegangen, dass das Verhältniswahlrecht Politikmaßnahmen für eine breitere Wählerschaft begünstigt, während das Mehrheitswahlrecht kleinere Gruppen begünstigt (Gourevitch und Shinn 2005, Kapitel 4).

Andere Ansätze gehen von einem direkteren Wirkungsmechanismus von Präferenzen zu Institutionen aus. Präferenzen können verschiedene Ursachen haben: je größer das Humankapital von Arbeitern, desto höhere Arbeitsplatzsicherheit werden sie fordern (Perotti und von Thadden 2006). Herrscht eine gewisse Monopolisierung in der Ökonomie vor, könnten vorhandene Firmen einen besseren Investorschutz ablehnen aus Sorge vor dem Verlust von Renten durch Markteintritte (Rajan und Zingales 2003). Ähnlich sieht Roe (2006) die Situation in Nachkriegseuropa: hier herrschte eine konzentrierte Eigentümersituation vor. Erhöhter Investorschutz könnte dann die Kapitalquote gegenüber Arbeit verschlechtern durch die Verbreitung von Streubesitz.

Für diese Analyse beschränke ich mich auf die Untersuchung des Einflusses des Wahlrechts. Für post-kommunistische Länder muss hier allerdings eine Besonderheit beachtet werden. Vergleicht man die Disproportionalität von Wahlergebnissen, also die Relation zwischen Parlamentsmandaten und erreichter Stimmen, ist diese in Mittel- und Osteuropa signifikant höher als in wahlrechtlich vergleichbaren Ländern (Roberts 2006). Der Hauptgrund ist die hohe Anzahl neuer Parteien, die zu Wahlen antreten und die Sperrklausel nicht überschreiten. Das führt dazu, dass eine vergleichsweise hohe Anzahl von Stimmen keine Repräsentation im Parlament findet. In der empirischen Analyse werde ich für die Disproportionalität kontrollieren.

2.2. Legal Origins

Die zugrundeliegende Theorie, dass *Legal Origins*, also Rechtstraditionen oder – kreise, Institutionen in einer Reihe von Bereichen fundamental determinieren, basiert zunächst auf einer empirischen Beobachtung (La Porta et al. 1997, 1998). Es gibt eine starke Korrelation zwischen Rechtstraditionen und Finanzmarktinstitutionen. Auf der einen Seite findet sich das *Common Law*, das einhergeht mit hohem Gläubiger- und Anlegerschutz, und auf der anderen Seite stehen die Traditionen des *Civil Law*, wo dieser institutionelle Schutz schlechter ausgearbeitet ist. In der Gruppe der letzteren steht das deutsche BGB am besten dar während der französischen *Code civil* die schlechtesten Werte aufweist und die skandinavische Tradition eine Mittelstellung einnimmt. Die anfänglichen Publikationen zu diesem Thema werden in zwei Richtungen weiter entwickelt. Ein theoretischer Rahmen zum Vergleich von Institutionen wird entwickelt (Djankov et al. 2003) und die empirische Analyse wird ausgeweitet zu Arbeitsmarktinstitutionen

(Botero et al. 2004), Regulierung von Markteintritt (Djankov et al. 2002) und eine Reihe weiterer Institutionen. Einen Überblick zu Theorie und Empirie gibt La Porta et al. (2008). Die theoretischen und empirischen Ansätze wurden zudem überführt in das *Doing Business*-Ranking der Weltbank, das jährlich eine große Anzahl von Ländern zu Institutionen bewertet. Auch bestätigt sich das Bild, dass Common Law-Länder bessere Institutionen vorweisen als Civil Law-Länder.

In historisch-theoretischen Ansätzen werden zwei Kanäle aufgezeigt, durch die Rechtstraditionen Einfluss auf Finanzmarktinstitutionen haben (Beck et al. 2003). Politisch ist das *Common Law* in der historischen Entwicklung vorgesehen, das Individuum gegen materielle Enteignung durch staatliche Organe zu schützen. Das heißt auch, dass die gesamte Justiz unabhängiger als in *Civil Law*-Ländern ist. Dies hat zur Folge, dass der einzelne Investor besser geschützt wird. Ein zweiter Wirkungsmechanismus wirkt durch die Anpassungsfähigkeit des Rechts. Es wird argumentiert, dass das Fallrecht des *Common Law* besser dazu geeignet ist, sich an neue Umstände anzupassen und effizientes Recht zu generieren. Diese Sichtweise ist ein alte in der amerikanischen Rechtsliteratur, siehe z. B. Priest (1977), und ist auch aktuell in modernen *Law and Economics*-Ansätzen (Gennaioli und Shleifer 2007).

Zusammenfassend lässt sich sagen, dass die *Legal Origins* Literatur vor allem ein empirisches Projekt ist, das von der großen Anzahl der Studien und umfassenden Ländersamples lebt. Kritik an dem Projekt gibt es vor allem in Hinblick auf die Art, wie Recht aus verschiedenen Ländern kodiert wird. Indem Fragebogen vorbereitet werden, die von örtlichen Juristen ausgefüllt werden, besteht die Gefahr, dass lokale institutionelle Äquivalente zu Rechtsfiguren des *Common Law* schlichtweg übersehen werden (Siems 2007, Spamann 2009)

Für meinen empirischen Ansatz, der eine Reihe von post-kommunistischen Ländern beinhaltet, ist das Ergebnis wichtig, dass sie sich in das Schema Common Law-Civil Law einreihen. Während in den ersten Publikationen einige Transformationsländer mit der Kodierung „sozialistisches Recht“ aufgenommen wurden, ging man in späteren Studien dazu über, die traditionelle Zugehörigkeit der mittel- und osteuropäischen Staaten zum deutschen oder französischen Rechtskreis zu übernehmen. Die Ergebnisse ändern sich dadurch nicht.

2.3. Kultur

Der dritte Ansatz zur Erklärung divergierender Institutionen basiert auf kulturellen Unterschieden zwischen Ländern, die letztendlich als ursächlich für institutionellen Vielfalt gesehen werden. Diese Literatur ist hauptsächlich eine empirische.

Zentral hier sind die Arbeiten von Licht, Goldschmidt und Schwartz (2005, 2007). Sie können zeigen, dass bestimmte kulturelle Ansichten über die Rolle des einzelnen in einer Gesellschaft einen Einfluss auf *Corporate Governance*-Institutionen haben. Eine detaillierte Beschreibung der Variablen würde den Rahmen meines Beitrags sprengen, eine Zusammenfassung findet sich in Licht et al. (2005, Tabelle 1A). Kurz zusammengefasst sind die Werte das Ergebnis von Fragebögen, die drei

Gegensatzpaare zur relativen Wichtigkeit von Individuum und Gruppe in drei Dimensionen erfragen. Mit den gleichen kulturellen Daten findet Schwartz (2007) Korrelationen zwischen kulturellen Einstellungen und einem zusammengesetzten Indikator zu Arbeitsmarktinstitutionen und *Corporate Governance* von Hall und Gingerich (2004). Kurz, je wichtiger das Individuum in der Gesellschaft angesehen wird, desto marktorientierter sind Institutionen ausgestaltet. Auf der anderen Seite findet man in Gesellschaften, die mehr Wert auf die Gemeinschaft legen stärker koordinierende Institutionen, d.h. Institutionen, die den Markt ersetzen oder ergänzen. In einem umfassenden systemischen Ansatz kann Pryor (2005, 2007) zeigen, dass auf Basis des World Value Survey fünf weltweite kulturelle Cluster gibt, die mit fünf Clustern unterschiedlicher marktwirtschaftlicher Systems korrelieren.

3. Daten

In diesem Kapitel beschreibe ich kurz die unabhängigen und abhängigen Variablen der Analyse.

3.1. Abhängige Variablen

Es werden drei institutionelle Indikatoren verwendet, die in der Literatur üblicherweise untersucht werden, Investorschutz als Variable aus dem Bereich Finanzmarktinstitutionen und ein Indikator zur Arbeitsmarktgesetzgebung. Der Investorschutz kommt von Djankov et al. (2008) und aus dem Doing Business Report 2009 (World Bank 2009). Von dort und von Botero et al. (2004) kommen die Daten zur Flexibilität der Arbeitsmärkte.

Darüber hinaus verwende ich einen zusammengesetzten Indikator, der das Ausmaß von Umverteilung und die Rigidität von Arbeitsmarktgesetzgebung vereint (nach Knell und Srholec 2007). Dieser Index ist in Abbildung 1 dargestellt. Positive Werte deuten auf ein hohes Maß von Umverteilung und rigide Arbeitsmarktinstitutionen hin, während negative Werte wenig Umverteilung und flexible Arbeitsmärkte bedeuten.

Das Konzept hinter diesem Index kann auf Ansätze der vergleichenden institutionellen Analyse (Aoki 2001) und der *Varieties of Capitalism* Literatur nach Hall und Soskice (2001) zurückgeführt werden. Im Mittelpunkt dieser Ansätze steht die Idee institutioneller Komplementaritäten. Das hat zur Folge, dass man tendenziell ähnliche Institutionenmixe im Vergleich von Ländern finden wird. Der allgemeine institutionelle Charakter eines Landes wird durch einen Mix von Institutionen bestimmt.

Man kann erkennen, dass die Transformationsländer im unteren Teil der Abbildung ebenso wie die OECD-Länder des oberen Teils institutionelle Vielfalt aufweisen. Das Spektrum reicht von stark koordinierenden Ländern wie Slowenien und Kroatien zu vergleichsweise liberalen Ländern wie Estland oder die Slowakei.

In allen Schätzungen, in denen politische Variablen (Proportionalität) vorkommen, werden nur jene Länder aufgenommen, die im Durchschnitt der Gesamtperiode von Freedom House (2009) als mindestens teilweise politisch frei eingeschätzt werden.

Um für die Einschätzung kultureller Einflüsse einen brauchbaren Indikator zu entwickeln, wird aus vier Dimensionen der Variablen von Licht et al. (2005) ein eindimensionaler Indikator konstruiert. Dazu führe ich eine Faktoranalyse durch und nutze die Ladungen als Gewichtung der vier Werte pro Land. Die Faktorladungen der vier kulturellen Dimensionen sind in Tabelle 1 dargestellt.

Tabelle 1. Faktorladungen der kulturellen Indikatoren

	Faktorladung	Uniqueness
Hierarchy	0.8578	0.2812
Egalitarianism	-0.6505	0.5768
Mastery	0.6650	0.5578
Harmony	-0.7120	0.4930

Daraus ergeben sie Länderwerte, die im Anhang in Tabelle A1 aufgelistet werden. Die Faktorladungen deuten auf die zwei Paardimensionen hin: niedrigere Werte des Indikators deuten auf eine größere Wertschätzung von egalitären Verhältnissen und eine höheren Stellenwert für die Gemeinschaft gegenüber dem Individuum hin und umgekehrt.

Die einzigen weiteren Kontrollvariablen sind das BNP pro Kopf von der Weltbank und ein Transformationsdummy. Alle Werte gehen als Durchschnittswerte über die längst mögliche Periode zwischen 1989 und 2008 ein. Die Liste der im gesamten Sample enthaltenden Länder des Samples und ein Übersicht über einige Lageparameter der Daten sind im Anhang, Tabelle A2, zu sehen.

4. Ergebnisse

Das Grundmodell kann durch die Gleichung

$$y_i = b_1 + b_2 L_i + b_3 P_i + b_4 C_i + \mathbf{bx} + e_i$$

dargestellt werden. Die unterschiedlichen Institutionen y in Land i sind eine Funktion von der Rechtstradition L in i , der Proportionalität P und der kulturellen Variable C . Dazu kommen weitere Kontrollvariablen wie BNP, Disproportionalität und Interaktionsterme, die hier durch den Vektor \mathbf{x} dargestellt werden. Dieser Ansatz erlaubt es nicht, mehr als eine der erklärenden Variablen L , P oder C zusammen zu schätzen, da dies klare Endogenitätsprobleme hätte. Die Ergebnisse zu den einzelnen Schätzungen sind in den folgenden Tabellen 2-4 dargestellt. Die Wirkung der Interaktionsterme ist in Abbildung 2 zu erkennen.

In Tabelle 2 sind die Ergebnisse für den Einfluss der Proportionalität auf die drei verschiedenen institutionellen Variablen aufgeführt. Für jede der abhängigen Variablen wird ein Modell ohne Transformationsländer (Spalten 1, 4 und 7), ein Modell mit Transformationsländern und einem Interaktionsterm (2, 5 und 8) sowie ein Modell mit der durchschnittlichen Disproportionalität der Transformationsländer anstatt der Dummy-Variable (3, 6 und 9) geschätzt. Zunächst ist zu erkennen, dass das Vorzeichen der Proportionalität in jedem der Modelle der theoretischen Erwartung entspricht. Je höher die Proportionalität, desto schlechter ist der Investorschutz, desto unflexibler sind die Arbeitsmarktinstitutionen und je mehr korporatistisch ist das Land organisiert. Zudem ist der Koeffizient in jedem Modell signifikant. Es scheint jedoch, dass dieses Ergebnis von den Nicht-Transformationsländern im Sample getrieben ist, was ein Blick auf den nicht signifikanten marginalen Effekt für Transformationsländer in den Modellen 2, 5 und 8 bestätigt. Vorherige Überlegungen zum mittel- und osteuropäischen Sonderfall in Hinblick auf die hohe Disproportionalität der Wahlergebnisse sprechen dafür, diese herauszurechnen um etwas sagen zu können über den Einfluss der *de facto* Proportionalität. Dies geschieht in der jeweils dritten Spalte. Statt der Dummyvariable für Transformationsländer werden die durchschnittliche Disproportionalität sowie ein Interaktionsterm zwischen Disproportionalität und Proportionalität geschätzt. Das heißt, dass der marginale Effekt für Proportionalität jetzt eine Funktion der Disproportionalität ist. Dieser ist in Abbildung 2 für alle drei abhängigen Variablen geplottet. Es ist zu erkennen, dass für kleine Werte von Disproportionalität das Vorzeichen der Proportionalität signifikant und wie erwartet negativ ist. Die Interpretation ist, dass für kleine Werte von Disproportionalität das Wahlsystem den erwarteten Effekt aufweist, dieser jedoch für große Werte verschwindet.

In Tabelle 3 sind die Ergebnisse für den Einfluss der Rechtstradition aufgeführt. Länder mit *Common Law* Tradition sind die Referenzgröße für die drei Dummyvariablen zu deutschem, französischem und skandinavischem Rechtskreis. Die jeweils erste Spalte beinhaltet keine Transformationsländer, während sie in der zweiten mit Dummy und Interaktionsterm hinzugefügt werden. Zunächst ist festzustellen, dass das Vorzeichen in allen Modellen dem entspricht, was die *Legal Origins* Literatur üblicherweise findet. Ein Mitglied des *Civil Law* Rechtskreises tendiert zu schlechterem Investorschutz, rigideren Arbeitsmärkten und einem insgesamt stärker korporatistisch orientierten Wirtschaftssystem als ein *Common Law*-Land. Auffällig ist aber, dass im Fall des Investorschutzes die deutschen *Civil Law*-Länder schlechter da stehen als die französischen.

Tabelle 2. Proportionalität

	1	2	3	4	5	6	7	8	9
	Investorschutz			Arbeitsmarkt rigidität			Koordinationsindex		
Proportionalität	-0.14** (0.06)	-0.14*** (0.05)	-0.14*** (0.05)	0.28*** (0.07)	0.27*** (0.07)	0.29*** (0.07)	0.37*** (0.13)	0.39*** (0.13)	0.37*** (0.12)
Transformation		-0.16** (0.07)			0.19* (0.10)			-0.02 (0.22)	
Prop. x Trans.		0.17* (0.10)			-0.19 (0.13)			-0.29 (0.20)	
Marginaler Effekt für Transf. = 1		0.03 (0.08)			0.08 (0.11)			0.10 (0.15)	
log BNP p.c.	0.39* (0.22)	0.29 (0.18)	0.38** (0.19)	-0.61** (0.28)	-0.36 (0.25)	-0.57** (0.25)	-2.42* (1.28)	-0.11 (0.64)	-1.33* (0.77)
Disproportionalität			-0.57*** (0.19)			0.33 (0.25)		0.04 (0.37)	
Disprop. ✓ Proportionalität			0.63** (0.28)			-0.40 (0.39)		-1.43** (0.53)	
Konstante	0.36* (0.19)	0.44*** (0.15)	0.36** (0.16)	0.75*** (0.23)	0.55** (0.21)	0.73*** (0.22)	2.58** (1.20)	0.43 (0.61)	1.56** (0.72)
Beobachtungen	41	62	56	41	62	56	23	44	38
R ²	0.18	0.21	0.29	0.33	0.26	0.32	0.39	0.30	0.37
F	4.22	3.73	5.23	9.18	5.05	5.99	6.50	4.23	4.76

OLS Ergebnisse. Robuste Standardfehler in Klammern.

***p<0.01, **p<0.05, *p<0.1.

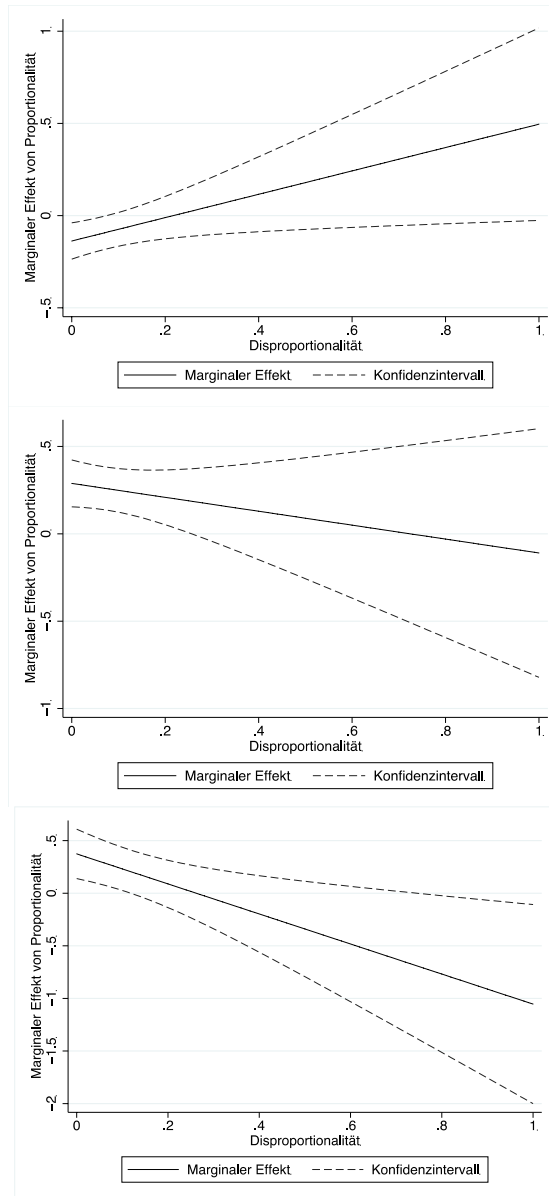


Abbildung 2. Marginaler Effekt der Proportionalität für verschiedene Werte von Disproportionalität auf von oben nach unten Investorschutz, Arbeitsmarktrigidität und den Koordinationsindex.

Die Transformationsländer in diesen Modellen sind entweder Mitglieder der deutschen oder französischen Tradition. Das bedeutet, dass mit einer Dummyvariable die Transformationsländer mit deutscher Tradition auf der einen Seite gegen die Nicht-Transformationsländer mit deutscher Tradition gemessen werden und gleichzeitig auch den Transformationsländern mit französischer Rechtstradition gegenüber gestellt werden. Ersteres wird geschätzt durch den marginalen Effekt von Deutsch wenn der Dummy gleich Eins gesetzt ist und letzteres lässt sich an dem marginalen Effekt des Transformationsdummys erkennen, wenn der Dummy Deutsch gleich Eins gesetzt ist. Auf den Punkt gebracht, deutet das Ergebnis darauf hin, dass Transformationsländer einen besseren Investorenschutz aufweisen als Nicht-Transformationsländer, zumindest wenn sie der deutschen Rechtstradition angehören. Dies ist ein Ergebnis, dass auch schon von Pistor et al. (2000) gefunden wurde. Auch scheinen Transformationsländer mit deutschem Rechtshintergrund besseren Investorschutz aufzuweisen als solche mit französischem. In Hinblick auf die Arbeitsmarktgesetzgebung wird zunächst das Ergebnis von Botero et al. (2004) weitgehend bestätigt: im Vergleich zu Ländern des Common Law finden wir in *Civil Law*-Ländern weniger flexible Arbeitsmärkte. Deutsche Transformationsländer haben in diesem Modell vergleichsweise rigidere Gesetze als ihre deutschen Nicht-Transformationsländer. Für Transformationsländer als solche scheint die Zugehörigkeit zu einem Rechtskreis für Arbeitsmärkte aber keine Rolle zu spielen, die jeweiligen marginalen Effekte weisen keine Signifikanz auf. Betrachtet man den allgemeinen Grad der Koordinierung oder des Korporatismus in den letzten beiden Spalten in Tabelle 3, finden wir, dass vor allem französisch geprägte Länder mehr Koordinierung aufweisen, für deutsche lässt sich das nicht sagen. Interessant wird es wenn nun die Transformationsländer hinzu gefügt werden, denn hier scheint sich das Muster umzudrehen. Ein französisch geprägtes Transformationsland ist weniger korporatistisch als ein deutsches, was am signifikant negativen Transformationsdummy zu erkennen ist.

Tabelle 3. Rechtstradition

	1	2	3	4	5	6
	Investorschutz		Arbeitsmarktrigiditt		Koordinationsindex	
Deutsch	-0.34*** (0.07)	-0.34*** (0.07)	0.21 * (0.10)	0.20* (0.10)	0.23 (0.14)	0.22 (0.15)
Franzsisch	-0.22*** (0.04)	-0.22*** (0.04)	0.33*** (0.06)	0.33*** (0.06)	0.46*** (0.13)	0.48*** (0.12)
Skandinavisch	-0.22*** (0.07)	-0.22*** (0.07)	0.33*** (0.11)	0.32*** (0.10)	0.31 * (0.15)	0.28* (0.15)
log BNP p.c.	0.60*** (0.15)	0.61 *** (0.14)	-0.42* (0.23)	-0.36 (0.22)	-1.59 (1.44)	-0.67 (1.05)
Transformation		-0.00 (0.05)		0.01 (0.07)		-0.54** (0.20)
Deutsch ´ T.		0.13 (0.08)		0.12 (0.13)		0.34* (0.19)
Marginaler Effekt von Deutsch fr Transf. = 1		-0.21*** (0.07)		0.32*** (0.10)		0.56*** (0.17)
Marginaler Effekt von Transformation fr Deutsch = 1		0.13* (0.07)		0.13 (0.11)		-0.20 (0.19)
Konstante	0.24* (0.13)	0.24** (0.12)	0.55*** (0.19)	0.50*** (0.18)	1.80 (1.35)	0.94 (0.98)
Beobachtungen	47	64	47	64	23	40
R ²	0.55	0.54	0.47	0.46	0.52	0.42
F	12.74	11.33	9.25	7.94	4.85	3.92

OLS Ergebnisse. Robuste Standardfehler in Klammern, ***p<0.01, **p<0.05, *p<0.1.

Tabelle 4. Kulturelle Unterschiede

	1	2	3	4	5	6
	Investorschutz		Arbeitsmarktrigidität		Koordinationsindex	
Kultur	0.52*** (0.13)	0.48*** (0.12)	-0.75*** (0.18)	-0.68*** (0.18)	-0.93*** (0.27)	-0.78*** (0.27)
Transformation		0.02 (0.06)		0.05 (0.09)		-0.41** (0.15)
Kultur ´ Transformation		-0.13 (0.35)		-0.72 (0.52)		-1.32* (0.69)
Marginaler Effekt für Transf. = 1		0.35 (0.35)		-1.40*** (0.52)		-2.10*** (0.69)
log BNP p.c.	1.35*** (0.31)	1.21*** (0.29)	-1.85*** (0.43)	-1.59*** (0.43)	-4.73*** (1.36)	-2.94** (1.14)
Konstante	-0.61** (0.28)	-0.48* (0.26)	2.06*** (0.39)	1.82*** (0.38)	4.93*** (1.26)	3.28*** (1.06)
Beobachtungen	33	42	33	42	22	31
R ²	0.42	0.37	0.42	0.36	0.47	0.47
F	10.87	5.38	10.85	5.23	8.27	5.80

OLS Ergebnisse. Robuste Standardfehler in Klammern.

***p<0.01, **p<0.05, *p<0.1

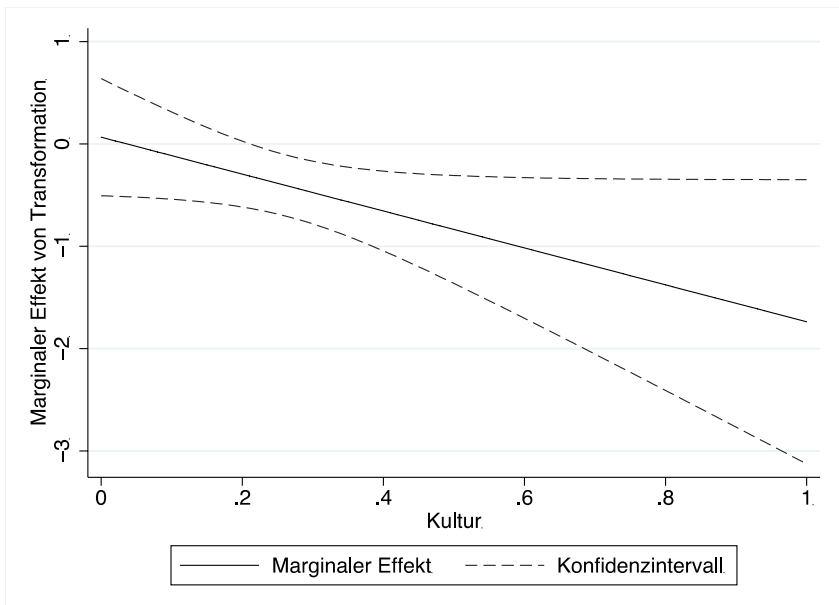


Abbildung 3. Marginaler Effekt von Transformation.

Nun zur Interpretation der Ergebnisse zur kulturellen Variable in Tabelle 4. Das Vorzeichen ist für alle drei abhängigen Variablen wie erwartet. Gesellschaften, die relativ mehr Wert legen auf Individualismus zeigen besseren Investorschutz, flexiblere Arbeitsmärkte und allgemein korporatistischere Wirtschaftssysteme. In Transformationsländern scheint dies keine Rolle für Investorschutz, wohl aber für Arbeitsmärkte und den Koordinierungsgrad zu gelten. Hier ist der Effekt der Kultur sogar stärker ausgeprägt. Einen leicht anderen Blickwinkel erhält man, wenn man den marginalen Effekt der Änderung der Transformationsvariable von 0 zu 1 für verschiedene Werte der kulturellen Präferenzen errechnet. Das Ergebnis für die Koordinationsvariable der Spalte 6 ist in Abbildung 3 zu sehen. Die Interpretation der Abbildung 3 ist die folgende: für stark individualistisch geprägte Länder spielt die Tatsache, dass sie Transformationsländer sind, eine signifikante Rolle. Anders ausgedrückt, ist bei gleicher kultureller Einstellung ein Transformationsland weniger korporatistisch organisiert als ein Nicht-Transformationsland. Dies gilt jedoch nicht für Gesellschaften, die eher egalitär eingestellt sind, hier ist der Transformationseffekt nicht signifikant. Gerade die Interpretationen der kulturellen Variablen sollten jedoch mit Vorsicht behandelt werden, da die Anzahl der Beobachtungen für OLS gefährlich niedrig wird.

5. Zusammenfassung

Die vorangegangene Analyse bestätigt, dass verschiedene Ansätze die Entstehung und Änderung von Institutionen zu erklären möglichen Erklärungsgehalt besitzen.

Sowohl die politische Institution der Wahlgesetze als auch die Rechtstradition und kulturelle Präferenzen sind in der Lage institutionelle Vielfalt über Länder hinweg zu erklären. Die Besonderheit dieses Ansatzes hier ist, dass auch Transformationsländer in die Analyse aufgenommen wurden. Durch Interaktionsterme konnte überprüft werden, ob andere marginale Effekte in den Ländern aufzufinden sind, die in der Bildung von ökonomischen Institutionen und Regeln teils am Anfang stehen oder standen. Die politischen Systeme der neu (wieder)gegründeten Staaten weisen im Vergleich zu älteren Demokratien signifikant höhere Disproportionalitäten der Wahlergebnisse auf. Kontrolliert man in der Analyse dafür, hat das Wahlsystem einen signifikanten Einfluss auf verschiedene Institutionen. Die Rechtstraditionen scheinen weniger Erklärungsgehalt zu haben; die Transformationsländer mit deutschen und französischen Rechtssystemen haben andere Institutionen als ihre Gegenüber. Kulturelle Präferenzen haben einen starken Einfluss, auch in Transformationsländern. Es scheint, dass vor allem jene Präferenzen, die auf Individualismus Wert legen, in Transformationsländern besonders wichtig sind.

Es sollte auf verschiedene Verbesserungsmöglichkeiten dieser Art von Analyse hingewiesen werden. Zunächst ist es immer von Vorteil, die Anzahl der Beobachtungen zu erhöhen. Dies gilt vor allem in Hinblick auf kulturelle Eigenschaften; hier ist die Anzahl der Länder, die in konsistenten, vergleichbaren empirischen Untersuchungen aufgenommen werden können, begrenzt. Eine höhere Länderzahl würde es auch erlauben, weitere erklärende Variablen in die Analyse aufzunehmen, wie zum Beispiel Wahlergebnisse. Weitere Eigenarten des Transformationsprozesses wie Arten von Privatisierungen und mögliche Interdependenzen mit politischen Entscheidungen in anderen Bereichen könnten sowohl theoretisch als auch empirisch untersucht werden. Welche Einflüsse kann eine Massenprivatisierung in einem Land auf Forderungen nach Investorschutz haben? Wie ist der Einfluss von äußeren Faktoren wie die Ansprüche von EU und internationalen Organisationen auf die entstehenden Institutionen? Diese und weitere Fragen eröffnen weiteren Forschungsbedarf.

Literaturverzeichnis

1. **Aoki, Masahiko** (2001) *Toward a Comparative Institutional Analysis*. Cambridge, Massachusetts: The MIT Press.
2. **Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer, und Patrick Walsh** (2001) New Tools in Comparative Political Economy: The Database of Political Institutions. *The World Bank Economic Review* 15, 165-76.
3. **Beck, Thorsten, Asli Demirgüç-Kunt, und Ross Levine** (2003) Law and finance: why does legal origin matter? *Journal of Comparative Economics* 31, 653-75.
4. **Botero, Juan C., Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, und Andrei Shleifer** (2004) The Regulation of Labor. *The Quarterly Journal of Economics* 119, 1339-82.
5. **Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, und Andrei Shleifer** (2002) The Regulation of Entry. *The Quarterly Journal of Economics*

- 117, 1-37.
6. **Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, und Andrei Shleifer** (2003) The new comparative economics. *Journal of Comparative Economics* 31, 595-619.
 7. **Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, und Andrei Shleifer** (2008) The Law and Economics of Self-Dealing. *Journal of Financial Economics* 88, 430-65.
 8. Freedom House (2009) *Freedom in the World 2009: The Annual Survey of Political Rights and Civil Liberties*. Lanham: Rowman & Littlefield.
 9. **Gallagher, Michael** (1991) Proportionality, Disproportionality and Electoral Systems. *Electoral Studies* 10, 33-51.
 10. **Gennaioli, Nicola und Andrei Shleifer** (2007) The Evolution of Common Law. *Journal of Political Economy* 115, 43-68.
 11. **Gourevitch, Peter A. und James Shinn** (2005) *Political Power & Corporate Control: The new global politics of corporate governance*. Princeton: Princeton University Press.
 12. **Hall, Peter A. und David Soskice** (2001) An Introduction to Varieties of Capitalism, in: Peter A. Hall und David Soskice (Hrsg): *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press, 1-68.
 13. **Hall, Peter A. und Daniel W. Gingerich** (2004) Varieties of Capitalism and Institutional Complementarities in the Macroeconomy: An Empirical Analysis. *MPIfG Discussion Paper* 04/5, Cologne.
 14. **Knell, Mark und Martin Srholec** (2007) Diverging Pathways in Central and Eastern Europe, in: David Lane und Martin Myant (Hrsg): *Varieties of Capitalism in Post-Communist Countries*. Houndmills, New York: Palgrave Macmillan, 40-62.
 15. **La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, und Robert W. Vishny** (1997) Legal Determinants of External Finance. *The Journal of Finance* 52, 1131-50.
 16. ——— (1998) Law and Finance. *Journal of Political Economy* 106, 1113-55.
 17. **La Porta, Rafael, Florencio Lopez-de-Silanes, und Andrei Shleifer** (2008) The Economic Consequences of Legal Origins. *Journal of Economic Literature* 46, 285-332.
 18. **Licht, Amir N., Chanan Goldschmidt, und Shalom H. Schwartz** (2005) Culture, Law, and Corporate Governance. *International Review of Law and Economics* 25, 229-55.
 19. ——— (2007) Culture rules: The foundations of the rule of law and other norms of governance. *Journal of Comparative Economics* 35, 659-88.
 20. **Pagano, Ugo und Paolo F. Volpin** (2005) The Political Economy of Corporate Governance. *American Economic Review* 95, 1005-30.
 21. **Perotti, Enrico C. und Ernst-Ludwig von Thadden** (2006) The Political Economy of Corporate Control and Labor Rents. *Journal of Political Economy* 114, 145-74.
 22. **Pistor, Katharina** (2000) Patterns of legal change: shareholder and creditor rights in transition economies. *EBRD Working Paper* 49, London.
 23. **Priest, George L.** (1977) The Common Law Process and the Selection of

- Efficient Rules. *Journal of Legal Studies* 6, 65-82.
24. **Pryor, Frederic L.** (2005) Market economic systems. *Journal of Comparative Economics* 33, 25-46.
 25. ——— (2007) Culture and Economic Systems. *American Journal of Economics and Sociology* 66, 817-55.
 26. **Rajan, Raghuram G. und Luigi Zingales** (2003) The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics* 69, 5-50.
 27. **Roberts, Andrew** (2006) What Kind of Democracy Is Emerging in Eastern Europe? *Post-Soviet Affairs* 22, 37-64.
 28. **Rubin, Paul H.** (1977) Why is the Common Law efficient? *Journal of Legal Studies* 6, 51-63.
 29. **Schwartz, Shalom H.** (2007) Cultural and Individual Value Correlates of Capitalism: A Comparative Analysis. *Psychological Inquiry* 18, 52-7.
 30. **Siems, Mathias M.** (2007) Legal Origins: Reconciling Law & Finance and Comparative Law. *McGill Law Journal* 52, 55-81.
 31. **Spamann, Holger** (2009) The “Antidirector Rights Index” Revisited. *Review of Financial Studies* 23, 467-86.
 32. World Bank (2009) *Doing Business 2009*. Washington D.C.: World Bank.

Anhang

Tabelle 1A

Country	Value	Country	Value
Italy	-1.32	New Zealand	.06687
Norway	-1.1515	Ireland	.1161
Austria	-.9191	Mexico	.2992
Finland	-.8174	Hungary	.308
Germany	-.8146	Australia	.3517
Spain	-.7867	Slovak Republic	.38178
France	-.7643	Bulgaria	.4602
Sweden	-.7585	United Kingdom	.57676
Portugal	-.6735	Venezuela	.6475
Denmark	-.6408	United States	.7356
Slovenia	-.6183	Russia	.8365
Switzerland	-.4782	Japan	.8989
Greece	-.4199	Poland	.9176
Argentina	-.3179	Georgia	.9316
Canada	-.2254	Philippines	1.0885
Netherlands	-.1957	Turkey	1.1397
Estonia	-.1816	Singapore	1.2503
Chile	-.1648	Israel	1.291
Czech Republic	-.0675	Brazil	1.2978
		Indonesia	1.623
		Hong Kong	1.644
		India	2.089

Die Gewichtungen des Index sind das Ergebnis einer Hauptkomponentenanalyse von 4 kulturellen Variablen von Licht et al. (2005). Siehe auch die Erklärung im Text.

Tabelle 2A

Länderliste:

Albanien, Argentinien, Australien, Österreich, Belgien, Bosnien, Brasilien, Bulgarien, Kanada, Chile, Kolumbien, Kroatien, Tschechien, Dänemark, Ecuador, Ägypten, Estland, Mazedonien, Finnland, Frankreich, Deutschland, Griechenland, Hong Kong, Ungarn, Indien, Indonesien, Irland, Israel, Italien, Japan, Jordanien, Kasachstan, Kenia, Lettland, Litauen, Malaysia, Mexiko, Niederlande, Neuseeland, Nigeria, Norwegen, Pakistan, Peru, Philippinen, Polen, Portugal, Rumänien, Russland, Simbabwe, Singapur, Slowakische Republik, Slowenien, Südafrika, Spanien, Sri Lanka, Schweden, Schweiz, Thailand, Türkei, Ukraine, Großbritannien, USA, Uruguay, Venezuela.

Übersicht des Datensatzes

Variable	Beob.	Mittel	Standardabw.	Min	Max
Investorschutz	64	.57	.16	.27	.97
Arbeitsmarktrig.	64	.43	.226	0	1
Koordinationsind.	40	.50	.2806	0	1
Proportionalität	63	.58	.437	0	1
Kultur	41	.058	.248	-.362	.573
Log BNP p.c.	64	.815	.114	.574	1

THE EUROPEAN PRIVATE COMPANY: DO WE NEED ANOTHER 28TH PRIVATE COMPANY LAW FORM IN THE EU? ON REGULATORY COMPETITION OF CORPORATE LAW

Martina Eckardt
Andrássy University Budapest

Abstract

Small and medium-sized enterprises (SMEs) are of vital importance for employment, innovation and growth in the EU member states. However, so far only a rather small number participates in international business activities. The European private company is intended to support SMEs' internationalization. In this paper we analyse whether such an additional supranational company law form is necessary. In a first step we show that from the normative point of view of interjurisdictional competition arguments from welfare economics, public choice and evolutionary economics are mainly in favour of it. In a next step we ask from a positive point of view whether it is nevertheless necessary at all. We discuss to what extent horizontal competition on company law forms is already working within the EU. We find that there is some competition taking place, however, so far it does not address specifically the needs of SMEs when doing business internationally.

Keywords: corporate law, internationalization of small and medium-sized enterprises, regulatory competition, European integration

JEL Classification: F15, H77, K22

1. Introduction

With the pending passing of the regulation on the European Private Company (EPC) finally, also for SMEs a supranational EU corporate law form could be available some day (EU Council 2011). The EPC would complete the available set of EU company law forms, consisting to date of the European Company, the European Economic Interest Grouping and the European Corporative Society (Fleischer 2010). It thus would fill the gap still open in that so far there is no supranational EU company law form available which is tailored especially to the needs of small and medium-sized enterprises (SMEs).

According to the classification of the EU Commission (EU Com 2003), a company is called a SME, if it meets one of the following three criteria: up to 250 employees, a turnover of not more than 50 mio € a year or its balance sheet totaling up to 43 mio € a year. Given this definition, 99.8% of all 20 mio EU companies are SMEs, employing 65% of the EU workforce and contributing to 58% of the gross value added per year (own calculation according to Wymenga 2011).

About 40% of SMEs are involved in some form of international business activity, be it import, export or foreign direct investment (EU Com 2010a, 46). On average

about 2% of all EU SMEs invest abroad, which amounts to around 500.000 enterprises (EU Com 2010a, 10). In general, SMEs from smaller member states are more internationalized than SMEs from larger member states. If asked what the main barriers to internationalization are, both internal and external obstacles are identified, with high costs of internationalization and lack of capital, adequate information and adequate public support as the most prominent ones (EU Com 2010a, 8). Taking the structural characteristics of SMEs into account, this comes to no surprise (EU Com 2011; Mugler 1999). Problems in gaining access to finance and scarce resources both in human and financial capital due to their size enhance the difficulties to acquire the necessary information to successfully enter foreign markets and thus to realise the gains from larger markets and increased specialization and division of labour.

SMEs in the EU do clearly favour limited liability corporate forms. 50% of all SMEs are private limited enterprises, with additional 9% even being public limited enterprises (EU Com 2010b). This is even more pronounced when looking at those 2% which are engaged in foreign direct investment. Among these, 68% are incorporated as private limited companies and 19.5% as public limited companies (own calculation according to EU Com 2009).¹

An internationalization friendly corporate law form for SMEs should fulfill the following three criteria: It should (1) be inexpensive, involving low transaction and coordination costs, (2) provide secure property rights for its shareholders and (3) reduce information asymmetries and mitigate agency conflicts between its different constituencies (shareholders, managers, employees, creditors, related parties) (Eckardt 2012, Knoth 2008, Kraakman et al. 2009). It can be shown that the draft regulation of the European Private Company does broadly meet these criteria (Eckardt 2012). The question, however, is whether this is a problem at all. Do we really need another 28th (!) private company law form in the EU in addition to the already existing 27 from each member state?

Until quite recently, company law was largely confined to the member state where a company incorporated. There was neither free movement of legal persons nor free choice of law from different member states. A company doing business in another member state had either the choice of establishing a branch there or of setting up a new company according to the corporate law of the host member state. In the first case, the home company is directly liable for the branch, increasing the risk from doing business internationally. In the second case, additional costs have to be incurred due to the foreign law system, involving additional uncertainty as to the implications of a foreign law form and legal adjudication as well.

However, following its *Centros* decision in 1999 the European Court of Justice (ECJ) has opened up national boundaries in regard to free choice of company law to

¹ For more on the relation between internationalization of SMEs and corporate law form see Eckardt (2012).

a large degree.² It is now widely held, that this comes close to having a common market in the EU also in regard to company law forms. Following this, a number of scholars argued that no additional forms of supranational EU corporate law are necessary, since the jurisdiction of the ECJ has opened the way for horizontal regulatory competition (Armour 2005, Gelter 2008/2005, Kirchner/Painter/Kaal 2005, Scharper 2012). Although it would not result in the same outcome as regulatory competition on public limited corporate law forms in the US, where it has a long tradition, there should be incentives strong enough to induce member states to implement new or to modify existing corporate law forms so as to better meet the needs of the actors involved – so the main argument.

With the EPC draft regulation pending, in this paper we turn to these issues again. As the EU is a multi-layered jurisdiction, firstly, we discuss in *section 2* what arguments support a supranational supply of corporate law forms from the normative point of view of interjurisdictional competition. In *section 3* we then ask from a positive point of view whether such an additional supranational private company law form is necessary at all. We analyse to what extent horizontal regulatory competition on company law forms is already working within the EU. *Section 4* concludes by summarizing our main findings and by giving an outlook on open research questions.

2. Supranational EU Company Law Forms – the Normative View

Within the framework of the theory of interjurisdictional competition a number of criteria have been derived for the assignment of competencies to either the central or lower levels of multi-layered jurisdictions. In the following we discuss whether these criteria are in favour or against a supranational private limited liability corporate law form like the EPC in the EU. We distinguish between arguments from welfare economics, political economics and evolutionary economics, as *table 2.1* shows (Eckardt 2007 and Kerber/Eckardt 2007 with additional references).

The focus of *Welfare Economics* is on the efficient allocation of scarce resources. Thus, the main function attributed to interjurisdictional competition is that of coordinating independent economic activities so as to achieve this objective. The main justification for assigning competencies to a more central jurisdictional level then is to prevent and limit market failure because of the ensuing inefficiencies. While the presence of heterogeneous preferences of the economic actors is the main argument in favour of decentralized competence assignment, market failure arguments like externalities, incomplete and asymmetric information (resulting in additional information and transaction costs), and economies of scale (allowing for market power and strategic behaviour) support a centralized solution. Besides,

² See *Centros Ltd v Erhvervs- og Selskabsstyrelsen* (Case C-212/97) [1999] ECR 1459, as well as *Überseering* 2002 (*Überseering BV v Nordic Construction Company Baumanagement GmbH* (Case C-208/00) [2002] ECR 9919 and *Inspire Art* 2003. For an overview of the more recent restrictive rulings of the ECJ see Korom/ Metzinger (2009), Scharper (2012).

bringing about a common playing field also is a strong argument in favour of a centralized assignment of competencies.

In regard to these efficiency considerations, the arguments in favour of the presence of a EU-wide uniform limited-liability corporate law form for SMEs apply to the EPC. With such a supranational company law form, incomplete information diminishes and transaction costs are reduced. Economies of scale and scope imply additional cost reductions if SMEs intend to do business in several member states and adopt the EPC corporate law form for establishing more than one independent subsidiary. Accordingly, market access to several EU member states becomes less expensive, too. Besides, founding establishments in other EU member states becomes accessible more easily for SMEs, since with a uniform corporate law form obstacles of entering foreign markets are reduced and a more equal playing field emerges.

In contrast to that the main point against the EPC are heterogeneous preferences of SMEs' owners on what corporate law form to adopt. However, since the EPC is not the only corporate law form available, entrepreneurs can still chose among the broad variety of the 27 (!) other EU private limited-liability corporate law forms plus other corporate forms available (like partnership or sole proprietor). Accordingly, the EPC does not reduce the choice set available, but on the contrary, it increases it.

Table 2.1. Criteria for vertical assignment of competencies

	Welfare Economics	Public Choice	Evolutionary Economics
Focus	Efficiency	Distribution	Innovations
Main function of competition	Coordination	Control	Discovery
Objective of competence assignment	to prevent and limit market failure	to prevent and limit political failure	to promote innovation and imitation
Arguments for decentrali-sation	<ul style="list-style-type: none"> • Heterogeneous preferences 	<ul style="list-style-type: none"> • Preventing rent-seeking • Political information costs • Economies on political transaction costs 	<ul style="list-style-type: none"> • Decentralised knowledge about problems and their solutions • Adaptive flexibility
Arguments for centralisation	<ul style="list-style-type: none"> • Externalities • Economies of Scale • Transaction costs economies • Incomplete information • Strategic behaviour • Level playing-field 	<ul style="list-style-type: none"> • Preventing rent-seeking • Political information costs • Economies on political transaction costs 	<ul style="list-style-type: none"> • Economies in innovation activities • Promotion of innovations and their dissemination • Overcoming reform blockades

Source: Own composition according to Eckardt (2007).

Public Choice approaches of interjurisdictional competition focus primarily on distributional questions. They center on the incentives set for rent-seeking activities and ask what assignment of competences can best control a misuse of market and political power. For this it is claimed that the main rules of the game should be provided on the constitutional level. In this way they are out of reach of the players and cannot be manipulated while the game is being played. However, to control for the (mis-)use of political power to the advantage of individual interest groups, there are arguments both in favour and against a decentralized allocation of competencies. On the one hand it is argued that a decentralized allocation of competences reduces political information and transaction costs and ensures a more effective control of rent-seeking behaviour. On the other hand, one has to remember that corporate law sets up the basic constitution of economic entities as legal personalities. Taking this into account, the corporate constitution of companies should be out of reach for the players while the game is being played - like it is the case with political constitutions. This would make up for a level playing-field and create legal certainty and reliability for long-term planning by the economic actors. Accordingly, the public choice approach can be seen as favouring the central provision of corporate legal forms as they withdraw the basic constitutional rules of a corporation from the influence of interested parties.

Finally, *Evolutionary Economics* stresses the importance of competition for the generation and dissemination of innovations. They are based on a number of different approaches, with Hayekian and Schumpeterian notions being most prominent (Kerber/Eckardt 2007). Arguments in favour of a decentralized assignment of competencies refer to its greater adaptive flexibility and to its superior problem-solving capacity due to the resulting advantages in knowledge about the underlying problems and the potential for a more flexible response to newly emerging issues. But there are also arguments in favour of a centralized assignment of competencies. They rely on economies of scale and scope achievable in innovation activities, problems in regard to the promotion and dissemination of innovations which stem from the uncertainties related to innovations and to externalities linked to their diffusion. Besides, innovations might also be hindered by reform blockades, which are preserved by interested parties that fear to realize disadvantages from the innovation under question. In addition, due to the large uncertainties of genuine innovations, a secure framework within which economic activity takes place is of special importance.

In regard to these evolutionary arguments there can be made no clear statement either for or against the provision of corporate law forms at the supranational EU level. However, one has to take into account that the European Private Company is not the only corporate law form available for doing business internationally. In fact, it extends the choices available at the horizontal level at the member states to just another alternative. Accordingly, it indeed competes with all other 27 EU private limited liability corporate law forms plus every other corporate law form available for a certain business.

As a summary we find that all three approaches discussed on the assignment of competencies in multi-layered jurisdictions are in favour of additional supranational European corporate law forms. This is supported by the fact that the EPC does not prevent the other 27 limited liability company forms at the level of the member states from being adopted. Accordingly, since there are additional decentral corporate solutions available, the provision of company law forms at the supranational level does not stand against the decentralization arguments either.

3. Competition among Company Law Forms – the Positive View

Our discussion so far has shown that from a normative point of view there are no arguments against the introduction of a supranational private company law form. However, this result alone does not imply by itself that there is actually the need for an additional private limited-liability corporate legal form provided by the EU level. Therefore, in the following we ask whether indeed additional gains can be expected from such a 28th law form for SMEs in the EU, in particular given that the companies are already able to choose among 27 different corporate forms. To put it differently: would not horizontal regulatory competition suffice to achieve the desired outcome of a SME-friendly corporate law? To this end in *section 3.1* we first summarize the main arguments on the working of regulatory competition among corporate law forms. In *section 3.2* we look at the empirical evidence available so far on horizontal regulatory competition among the existing 27 private company forms in the EU.

3.1. The Framework of Horizontal Regulatory Competition

Following Armour (2005, 5) regulatory competition takes place, when “national legislators compete to attract firms to operate subject to their laws.” For this to happen there must not only be some form of arbitrage available setting incentives for firms to incorporate in that member state which provides the highest net benefits. In addition, member states themselves must realize gains or losses high enough so that they have incentives, too, to modify their company laws so as to attract enterprises for incorporation (for an overview see Scharper 2012).

With this concept in mind, then the question is whether incentives for both firms and states are strong enough so that competition does take place indeed. There are a number of factors discussed in the literature which might reduce incentives (Armour 2005, Gelter 2008, Kirchner/Painter/Kaal 2005). They are mostly derived from the US experience, since there is a longstanding tradition of regulatory corporate competition with the state of Delaware having obtained a quasi monopolistic position in regard to public companies (for an overview see Gelter 2008).

On the side of the *firms*, one has to take into account the following factors lowering incentives to switch to another member state’s corporate law form (Kirchner/Painter/Kaal 2005). There are mobility costs, switching costs and transaction costs involved in (re-) incorporating in another member state. These costs might be direct and indirect, pecuniary and non-pecuniary. For example,

besides differences in costs stemming directly from the incorporation procedures, there are also additional information costs for legal advice and services as well as for language services (like translations) when incorporating under a foreign law regime. Besides, there might be costs resulting from differences in the reputation of the state of incorporation which transfers to the company law form it provides. Incomplete and asymmetric information not only about a foreign company law form but about the adjudication system, too, may also reduce firms' incentives to incorporate under a foreign law form. Besides the costs of setting up incorporation, the ongoing costs of complying with a member state's regulatory regime also have to be taken into account (Becht/Mayer/Wagner 2008).

Another potential source of restricting competition results from *intermediaries* like lawyers, specialized in the law of a particular legal system (Armour 2005). Because of fear of loss of revenues and the devaluation of their specific human capital investment in particular legal systems, it is argued that they would rather recommend firms not to incorporate under corporate law forms foreign to them. However, one may as well argue that there is extra profit to be obtained by intermediaries like international law firms that specialize exactly in reducing such information asymmetries.

With respect to *member states*, additional revenues generated by incorporation and lobbying from local lawyers are discussed as the main incentives to engage in company law form competition (Gelter 2008). Since in the EU national franchise taxes are not allowed (like it is the case in Delaware where it constitutes one of the major sources of public revenue) there should be no incentive resulting from this source for member states engaging in competition about corporate law form. Besides, it is also a question whether there will be a group of lawyers strong enough to form an influential interest group in any member state. Only then they will have at least some impact to influence national policy-making in such a way that reforms are made so as to attract additional firms to incorporate in this member state. Besides, a specialized adjudication system experienced in company law is seen as another vital condition for the success of Delaware. However, to provide an effective judicial system for adjudication of corporate law issues implies huge investment and thus additional costs for member states. Referring to the Delaware case again, this – so the argument – should give member states with Common Law systems, like the UK, presumably a competitive advantage in contrast to her Civil Law competitors (Armour 2005, Kirchner/Painter/Kaal 2005).

Despite these factors, which restrict the extent of competition, the main view in the literature is that the jurisdiction of the ECJ has not only remove legal barriers for regulatory competition, but that the incentives both from supply and demand side will be strong enough for horizontal regulatory competition to actually taking place (Armour 2005, Gelter 2008). Moreover, the mere threat of intervening by a higher level jurisdiction should suffice so that lower level jurisdictions will modify their corporate law. Accordingly, potential vertical competition through the supranational EU level should also attribute to intensify competition among member states (Gelter 2008, 41 ff., Roe 2003, Röpke/ Heine 2005).

Therefore, the question arises as to the direction of such regulatory competition, and in particular whether it might result in a “race-to-the-bottom” or in a “race-to-the-top”. There is a hot debate in the US about whether the quasi monopolistic position of Delaware in regard to public corporate law is a sign of either its efficiency or, quite on the contrary, of the deficiencies of the competitive process. But even in the US with its long experience with corporate law competition, no US state has gained a dominant position in regard to private limited company law – as compared to public limited company law (Gelter 2008, 29, Kahan/ Kamar 2001, 2002/2003). In regard to the EU, the opinion is prevailing that due to the strong differences among member states, no “one-size-fits-all” solution to corporate law form will evolve, thus leaving scope for heterogeneity and specialization (Armour 2005, Gelter 2008).

3.2. The Empirical Evidence

So far, there are only few empirical studies on horizontal regulatory competition with regard to limited liability companies. In the following we first provide some data on EU member states and recent reform activities, following the ECJ’s *Centros* decision in 1999, before discussing the econometric evidence available.

Since incorporation costs are seen as a decisive factor for companies when deciding on where to incorporate, *table 3.1* shows the minimum shares required in the EU-27 for setting up a limited liability company. Still, there is a broad span, ranging from 1 € in some countries to 35,000 € in Austria. But as *table 3.1* also reveals, since 2003 the minimum share requirements were lowered in 10 of the EU-27 member states, with a reform in Austria being on the political agenda. In addition, Germany and Belgium introduced two special limited corporate forms for start-ups, where the standard minimum share required for incorporation is just 1 €, but has to be raised to that of the standard private company law form of the respective country within the first few years of its operation. All in all, the reductions in minimum shares required can be said to be substantial, ranging from 35% to 100%.

Times spend on activities necessary to incorporate in a country and the costs associated with these have also decreased over the last years. The data collected by the EU Commission presented in *table 3.2* show that this was the case in 18 resp. in 15 of the member states. Between 2007 and 2011 the reduction amounts on average to 15% in regard to costs resp. to 5% in respect to the time necessary for completing incorporation.

This decrease in time and costs for starting a business becomes even more pronounced when looking at the more comprehensive World Bank data in *table 3.3*. They show that between 2004 and 2011 the procedures required as well as time, costs and paid-in minimum share requirements (the latter two as percentage of income per capita) for starting a business decreased on average by about 45%. And indeed, according to these data member states with higher costs for starting a business took more efforts to reduce the burdens for companies to start business than those with lower costs.

Table 3.1. Minimum shares required for limited liability companies in the E-27 (2012)

	Minimum share required (MSR)	Reform	Date	MSR before reduction	Reduction of MSR	Reduction of MSR in %
AT	35 000 €	reduction of MSR	on the agenda			
BE	18 550 €	introduction of special limited company	01.06.2011	1€ (1)	18 549 €	100
BG*	2 556 €					
CY	1 €	reduction of MSR		2 €	2 €	
CZ*	8 133 €					
		introduction of special limited company	23.10.2008	1 € (1)	25 000 €	100
DE	25 000 €					
DK*	10 737 €	reduction of MSR	12.06.2009	16 777 €	6 040 €	36
EE	2 500 €					
EL	4 500 €	Reduction of MSR		18 000 €	13 500 €	75
ES	3 000 €					
FI	2 500 €	reduction of MSR	01.06.2006	8 000 €	5 500 €	69
FR	1 €	reduction of MSR	01.08.2003	7 500 €	7 500 €	100
HU*	1 790 €	Reduction of MSR	15.06.2007	10 738 €	8 948 €	83
IE	1 €					
IT	10 000 €					
LT*	2 896 €					
LU	12 395 €					
LV*	2 822 €					
MT	1 165 €					
NL	18 000 €					
PL*	1 213 €	Reduction of MSR	23.10.2008	12 134 €	10 921 €	90
PT	1 €	Reduction of MSR	07.03.2011	5 000 €	4 999 €	100
RO*	47 €					
SE*	5 537 €	Reduction of MSR	01.04.2010	11 074 €	5 537 €	50
SI	7 500 €					
SK	5 000 €					
UK*	1 €	Reduction of MSR		2 €	2 €	
Mean	6 698 €			Sum	106 498 €	
				Mean	8 875 €	

*) exchange rate 2011 according to ECB

(1) but: increase to the minimum share required of the standard private company form within the first few years of operation

Source: according to German Trade and Invest (2012), Becht/Mayer/Wagner (2008), Braun et al. (2011).

Table 3.2. Costs and time required for start-ups in the EU-27 (2007-2011)

Member state	Costs in €		Time in days	
	2007	2011	2007	2011
AT	400	385	18.5	11
BE	517	517	1.5	1.5
BG	155	56	21.0	5
CY	265	265	7	5
CZ	345	345	49	15
DE	783	226	7	5
DK	0	89	3	1
EE	190	185	2	2
EL	1366	910	30	5
ES	617	115	35	17.5
FI	330	330	14	8
FR	84	84	4	4
HU	392	392	2.5	2
IE	50	50	3.5	3.5
IT	2673	2673	4	1
LT	210	209.5	8	4
LU	1000	1000	14	14
LV	205	205	4	4
MT	450	210	8.5	6.5
NL	1040	1040	3	2
PL	735	428.5	30	22.5
PT	330	330	1	1
RO	112.5	113	3	3
SE	222	185	21	16
SI	250		3	3
SK	330	335	14	12
UK	54	33	1	6
Mean	485	412	83	78
Change in %		-15		-5

Source: According to EU Commission (2010c) with own calculations.

Table 3.3. Starting a Business in the EU-27 (2004-2011)

	Procedures (number)		Time (days)		Costs (% of income per capita)		Paid-in Min. Capital (% of income per capita)	
	2004	2011	2004	2011	2004	2011	2004	2011
AT	8	8	28	28	6.1	5.2	65.6	52
BE	7	3	56	4	11.1	5.2	24.1	18.9
BG	11	4	32	18	10.4	1.5	86.7	0
CY	..	6	..	8	..	13.1	..	0
CZ	10	9	40	20	10	8.4	47.4	30.7
DK	5	4	7	6	0	0	49.8	25
EE	6	5	72	7	8	1.8	53	24.4
FI	3	3	31	14	1.1	1	29.8	7.3
FR	8	5	41	7	1.3	0.9	29.2	0
DE	9	9	45	15	5.9	4.6	49.1	0
ES	15	10	38	10	32.7	20.1	135.2	22.8
HU	6	4	52	4	40.4	7.6	96.4	9.7
IE	4	4	18	13	10.4	0.4	0	0
IT	9	6	23	6	22.1	18.2	11.6	9.9
LV	5	4	16	16	10.1	2.6	45	0
LT	8	6	26	22	4	2.8	68	35.7
LU	..	6	..	19	..	1.9	..	21.2
MT
NL	7	6	9	8	13.3	5.5	67.2	50.4
PL	10	6	31	32	21.2	17.3	247.4	14
PT	11	5	78	5	12	2.3	40.4	0
RO	6	6	29	14	10.9	3	2.9	0.8
SK	10	6	103	18	9.4	1.8	50.3	20.9
SI	9	2	60	6	14.8	0	19.9	43.6
ES	10	10	114	28	16.8	4.7	17.9	13.2
SE	3	3	15	15	0.7	0.6	38.5	14
UK	6	6	13	13	1	0.7	0	0
Mean	6.9	5.4	36.2	13.2	10.1	4.9	47.2	15.4
Change %		-21.5		-43.7		-43.5		-44.9

Source: According to World Bank (2005, 2012) with own calculations.

Unfortunately, to date there are no comprehensive data available to analyze the degree of mobility firms exercise in response to the reform efforts of member states. However, an indicator of the reability of firms to changes in supply of company law forms can be found in the German *Gewerberegister* (Trade register). Since 2005 it separately provides figures for firms incorporated as British Private Company Limited by Shares registered in Germany. *Table 3.4* below shows all businesses newly registered resp. deregistered in Germany from 2005 to 2011 which are either incorporated as a *Gesellschaft mit beschränkter Haftung* (GmbH), the “German” private company, or as a *British Private Company Limited by Shares* (UK-Limited). On average, between 2005 and 2011 each year 5,201 companies registered as a *UK-Limited* in Germany. In 2006 there was the highest share with 11% of all newly registered *GmbHs*. However, since 2007 there is a sharp decline in the registration of newly registered *UK-Limiteds* of about 27% each year.

This development can be attributed to the reform of the German limited liability law. In 2008 an additional limited company form was introduced, the *Unternehmergesellschaft* (UG) (see *table 3.1*). The minimum share required is just 1 €, but companies are obliged to increase minimum capital to the standard minimum share required for a *GmbH* over time. As can be seen from *table 3.4* the number of newly registered *GmbH* increased by 15% in 2009 compared to 2008, while being rather stable since then. 17% of all newly registered companies incorporated as a *UG* in 2011.

Becht/Mayer/Wagner (2008) analyse the impact of the ECJ’s *Centros* and forth following decisions regarding freedom of establishment for national corporate law forms in the EU for companies’ incorporation decisions. They test whether the resulting deregulation has any impact at all on companies’ decision on where to incorporate. To this end the authors use a data set of all limited liability companies newly established in the UK between 1997 and 2005, based on the UK central business register. With the information available there, they distinguishing between *domestic Limiteds* and *non-domestic Limiteds*, the latter being companies which are incorporated under UK company law as British *Limiteds*, but are intended to have their principal place of business outside the UK. As a proxy for classifying such *non-domestic Limiteds*, they use the state of residence of a company’s directors. In this way they get a sample of 2.14 mio. limited liability companies, with 78,000 *non-domestic* firms incorporated between 1997 and 2005, of which one third being a *German Limited*, that is having directors residing in Germany. Applying different econometric tests they find that following the ECJ’s *Centros* decision there was a significantly stronger inflow of incorporations from other EU member states than from non-EU member states in the UK. Besides, incorporation from EU member states with high costs of setting up a business, particularly in respect to minimum shares required, were significantly higher. According to their findings, already small differences in minimum shares required for setting up a private company induced mainly small companies to incorporate in the UK. Taking this into account, they argue that reductions in minimum shares required in EU member states should lead to a decrease in the number of *non-domestic Limiteds* incorporating in the UK. All

in all, Becht/Mayer/Wagner (2008) hold horizontal regulatory competition in regard to corporate law form to be working in the EU.

Table 3.4. GmbH and Private Company Limited by Shares in Germany (2005-2011)

Gesellschaft mit beschränkter Haftung (GmbH)				change p.a. (in %)	
year	newly registered companies	deregistered companies	net total	newly registered companies	companies deregistered
2005	81 415	70 605	10 810		
2006	77 530	67 490	10 040	- 5	- 4
2007	80 277	63 096	17 181	4	- 7
2008	82 533	65 035	17 498	3	3
2009	94 961	70 580	24 381	15	9
2010	95 481	68 500	26 981	1	- 3
2011	91 610	66 251	25 359	- 4	- 3
mean	86 258	67 365	18 893	2	- 1
2011-UG (1) share of GmbH (%)	15 423	5 103	10 320		
	17				

Private Company Limited by Shares

				change p.a. (in %)	
year	newly registered companies	deregistered companies	net total	newly registered companies	companies deregistered
2005	6 625	1 814	4 811		
2006	8 643	3 166	5 477	30	75
2007	7 463	4 243	3 220	-14	34
2008	5 863	4 568	1 295	-21	8
2009	3 632	4 916	- 1 284	-38	8
2010	2 486	4 531	- 2 045	-32	-8
2011	1 693	3 336	- 1 643	-32	-26
mean	5 201	3 796	1 404	- 18	15

(1) UG = Unternehmergeellschaft

Total number of businesses: 3.6 mio in 2009 (source: Unternehmensregister, Statistisches Bundesamt)

Source: Statistisches Bundesamt (different years).

These figures are in accordance with the findings of Becht/Mayer/Wagner (2008) as well as Hornuf (2011) and Braun et al. (2011). They provide additional evidence

that there is horizontal competition on corporate law forms taking place in the EU, however, this is related mostly to start-ups.

Hornulf (2011) and Braun et al. (2011) confirm these findings. They also use a difference-in-difference approach to analyse the causal impact resulting from reforms in statutory laws concerning minimum share requirements in France, Germany, Hungary, Poland and Spain between 2003 and 2008. Applying the same methodology as Becht/Mayer/Wagner (2008) they find an increase in incorporations as well as start-ups in general in the respective countries following the reduction in minimum share requirement costs.

In line with these findings that incorporation costs matter, although using a different methodology, is Häusermann (2011). He analyses the impact of differences in incorporations fees for limited liability companies as compared to corporations for state-level data in the USA from 2004 to 2009 using OLS. He finds that differences in fees significantly affect the popularity of the numbers of limited liability companies found in a state.

Whereas the studies above take into account the impact of incorporation costs on the decision of companies of where to incorporate, there are also some first studies which analyse for the US whether variation in substantive law and in legal infrastructure and judicial quality have an impact on company's incorporation decisions.³ Dammann/Schündeln (2008, 2010) and Kobayashi/Ribstein (2011) use a subset of limited liability companies in the US, concerning the years 2006 resp. 2008. Their descriptive statistics show that Delaware is the state which attracts most of foreign companies for incorporation – as it is the case in regard to publicly held companies. To estimate the impact of a number of independent firm- and state-level variables on the probability whether a company is formed in the state where it has its primary place of business or not, they use probit regressions. They find clear evidence that firm size matters, in that bigger companies show a higher probability to form outside the state where they have their primary place of business. However, there is contradicting evidence on the impact of variables regarding substantive rules, like protecting minority shareholders, or the quality of the judiciary. While Dammann/Schündeln (2008, 2010) find that higher standards of minority shareholder protection attract outside companies to incorporate in a state, Kobayashi/Ribstein (2011) find no statistically significant effects. As Gevurtz (2012) discusses that this might well result from omitted variable bias.

Gevurtz (2012) himself performs a qualitative analysis based on 50 interviews with private attorneys on the motives companies have when choosing a state for incorporation different from their principal business location. He finds that Delaware is chosen due to its superior legal infrastructure and that it has advantages in the eyes of majority owners or managers of limited liability companies. Despite its high

³ For the US there is also a broader empirical literature on the working of regulatory competition in regard to public held companies, see Kobayashi/Ribstein (2011) with additional references.

market share in regard also to the incorporation of non-domestic limited liability companies, Manesh (2011) shows that Delaware holds no monopoly in this market as it does in the US charter market for public corporations. Accordingly, it cannot demand a monopoly franchise fee for limited liability companies.

Both the descriptive data and the findings of the econometric studies discussed provide evidence that there is horizontal competition on the limited liability corporate law form taking place in the EU and the US. *Firms* react to changes in minimum share requirements by member states. Cost differences do influence their decision on where to incorporate. However, this holds primarily for newly founded companies. No empirical studies are available to date on the choices of company law forms of different member states by already established firms neither is there evidence in regard to SMEs doing business internationally.

Intermediaries play an important role for both market sides, too. As Becht/Mayer/Wagner (2008) already stated, EU-wide operating law firms contribute in promoting foreign corporate law forms and reducing information and transaction costs for firms to a large degree. The same might hold true in regard to member states' reform activities. The EU Commission is an important actor in monitoring member states in improving their business environment for start ups.

Member states respond to the migration of firms to other countries, too, however slowly. While the jurisdiction of the ECJ introduced freedom of establishment for corporate law form with its rulings following its *Centros* decision in 1999, it took *member states* some years to implement reforms of their company law. It nevertheless provided on average profound reductions of the minimum shares required. These findings, however, imply that incentives for member states to react to firms' incorporation decisions are somehow inconclusive. In some countries mobility of firms in incorporating in other states has been clearly stated as a main reason for modifying the existing domestic company law, while slow or no reaction at all has taken place in other countries. Besides, in regard to other factors influencing companies' incorporation decisions not that much of reform activity seems to be exerted by the threat of firms to migrate to another jurisdiction. This is confirmed by the findings of the recent research on horizontal competition regarding limited liability companies in the US discussed above. So far, it is quite still rather unclear what incentives states have to engage in regulatory competition and what causes firms to select their preferred state of incorporation.

All in all, the available empirical findings do not indicate that the ongoing horizontal competition is in favour of the evolution of internationalization friendly company law forms for SMEs in the EU. Accordingly, it does not exclude *per se* the introduction of an additional supranational form like the European Private Company.

4. Conclusions

What conclusions can we draw from our discussions above on the introduction of the European Private Company? In *section 2* we showed that neither welfare economics nor public choice nor evolutionary economics provide overall arguments against the introduction of a supranational company law form in the EU that supplements the already existing company forms. In *section 3* we found evidence that in deed there is horizontal regulatory competition on company law working in the EU. However, so far no clear-cut conclusions in regard to the implementation of supranational company law forms can be drawn from this. In particular, there is no evidence available on whether changes in company law are directed to better address the needs of SMEs for internationalizing. The data provided above give only hints that firms do react to cost differences. But there are no indicators available as to whether for example the newly introduced German *Unternehmergeellschaft* is used specially for internationalization of SMEs. For example, it would allow German SMEs to set up a separate company by incorporating in Germany, while registering it and doing business in another country. In doing this, at least some of the costs of incorporating under a foreign law regime could be saved.

To improve our knowledge on these issues, additional research is required. Since the empirical evidence so far is rather descriptive and limited to a small sample of cases, follow-up studies to that of Becht/Mayer/Wagner (2008), Hornuf (2010) and Braun et al. (2011) are desirable. Moreover, additional qualitative and quantitative studies on the supply and demand side of horizontal regulatory competition in the EU are necessary. For one thing, there are only first hypotheses as to the variables influencing *SMEs'* decisions on whether to incorporate in a foreign jurisdiction or use a domestic company law form when going international. This comes to no surprise as it is of only a very recent nature that choice among company law forms from different countries has become another variable to be controlled for by firms themselves. Since choice of foreign company law is affected with huge information asymmetries, *intermediaries* play an important role as match-makers. An EU-wide market for advice on these issues is already emerging. Internationally active law firms and business advisors might provide expert information both on the critical issues in regard to company law choice as well as a source for quantitative analysis. Finally, in-depth comparative studies of national company law reforms might provide necessary insights for forming and finally testing hypotheses as to the incentives of *countries* to actively engage in regulatory competition on company regimes.

References

1. **Armour, J.** (2005): Who Should Make Corporate Law? EC Legislation Versus Regulatory Competition, in: *Current Legal Problems*, Vol.58, 369-413
2. **Becht, M., Mayer, C., Wagner, H.F.** (2008): Where do Firms Incorporate? Deregulation and the Cost of Entry, in: *Journal of Corporate Finance*, Vol.14, 241-256

3. **Bernecker, A.** (2010): Europa-GmbH. Einheitliche Rechtsform für KMU auf der Zielgeraden?, Deutsche Bank Research, Research Briefing – Wirtschaft und Politik, 7. Juli 2010, www.dbresearch.de (last access: 04/10/2012)
4. **Braun, R. et al.** (2011): Does Charter Competition Foster Entrepreneurship? A Difference-in-Difference Approach to European Company Law Reform, ECGI Working Paper Series, Finance Working Paper No. 308/2011 (last access: 04/10/2012)
5. **Dammann, J. and Schündeln, M.** (2008): Where are Limited Liability Companies Formed? An Empirical Analysis, The University of Texas School of Law, Law and Economics Research Paper No.126, April 28, 3rd Annual Conference on Empirical Legal Studies Papers. Available at SSRN: <http://ssrn.com/abstract=112625>, (last access: 04/10/2012)
6. **Dammann, J. and Schündeln, M.** (2010): Where are Limited Liability Companies Formed? An Empirical Analysis, The University of Texas School of Law, Law and Economics Research Paper No.126, April 28, Revised June 28, 2010, 5th Annual Conference on Empirical Legal Studies Paper. Available at SSRN: <http://ssrn.com/abstract=1633472> (last access: 04/10/2012)
7. **Eckardt, M.** (2007): Die Kompetenzen der Europäischen Union in der Rentenpolitik: Quo vadis?, in: Heine, K. and Kerber, W. (eds.): Zentralität und Dezentralität von Regulierung in Europa, Schriften zu Ordnungsfragen der Wirtschaft, Band 83, Stuttgart, 261-285.
8. **Eckardt, M.** (2012): The European Private Company (EPC) – Could it Promote the Internationalization of SMEs?, Budapest, forthcoming
9. **EU Commission** (2003): Commission Recommendation of 6 May 2003 concerning the Definition of Micro, Small and Medium-sized Enterprises, 2003/361/EC, Official Journal of the European Union, L 124, 20.05.2003, 36-38.
10. **EU Commission** (2009): Internationalisation of European SMEs - Database
11. **EU Commission** (2010a): Internationalisation of European SMEs, Final Report, EIM, Brussels, http://ec.europa.eu/enterprise/policies/sme/market-access/files/internationali-sation_of_european_smes_final_en.pdf (last access: 04/10/2012)
12. **EU Commission** (2010b): Database on EU Commission (2010a), http://ec.europa.eu/enterprise/policies/sme/market-access/internationalisation/index_en.htm (last access: 04/10/2012)
13. **EU Commission** (2010c): Start-up procedures under the Lisbon Agenda for Growth and Jobs. 2010 Country by country assessment - overview table, http://ec.europa.eu/enterprise/policies/sme/business-environment/files/startups2010_en.pdf (last access: 04/10/2012)
14. **EU Commission** (2011): Impact Assessment, Accompanying the document “Proposal for a regulation of the European Parliament and the Council establishing a Programme for the Competitiveness of enterprises and small and medium-sized enterprises (2014 to 2020) {COM(2011) 834 final} {SEC(2011) 1453 final}, Commission Staff Working Paper, Brussels, 30.11.2011 , SEC(2011) 1452 final
15. **EU Council** (2011): Proposal for a Council Regulation on a European private company - Political agreement, Interinstitutional File 2008/0130 (CNS), 23.

- May 2011, 10611/11 DRS 84 SOC 432,
<http://register.consilium.europa.eu/pdf/en/11/st10/st10611.en11.pdf> (last access: 04/10/2012)
16. **Fleischer, H.** (2010), Supranational Corporate Forms in the European Union: Prolegomena to a Theory on Supranational Forms of Association, in: *Common Market Law Review*, Vol. 47, 1671-1717.
 17. **Gelter, M.** (2008/2005): The Structure of Regulatory Competition in European Corporate Law, Harvard Law School, Harvard Olin Fellows' Discussion Paper Series 20/2008, also available in: *Journal of Corporate Law Studies*, 2005, Vol.5, 247-284
 18. **German Trade and Invest** (2012): Portal21. Informationsangebot zu Dienstleistungen in Europa <http://www.portal21.de/> (last access: 04/10/2012)
 19. **Gevurtz, F. A.** (2012): Why Delaware LLCs?, Available at SSRN: <http://ssrn.com/abstract=1998427>, (last access: 04/10/2012)
 20. **Häusermann, D.** (2011): For a Few Dollar Less: Explaining State to State Variation in Limited Liability Company Popularity, University of St.Gallen Law & Economics Working Paper No. 2011-09. Available at SSRN: <http://ssrn.com/abstract=1879430>, (last access: 04/10/2012)
 21. **Hornuf, L.** (2011): Regulatory Competition in European Corporate and Capital Market Law: An Empirical Analysis, Dissertation, LMU München: Volkswirtschaftliche Fakultät, http://edoc.ub.uni-muenchen.de/13102/1/Hornuf_Lars.pdf, (last access: 04/10/2012)
 22. **Kahan, M., Kamar, E.** (2001): Price Discrimination in the Market for Corporate Law, *Cornell Law Review*, Vol.86, 1205-1227.
 23. **Kahan, M., Kamar, E.** (2002/2003): The Myth of State Competition in Corporate Law, *Stanford Law Review*, Vol.55, 679-749.
 24. **Kerber, W. and Eckardt, M.** (2007): Policy Learning in Europe: The "Open Method of Coordination" and Laboratory Federalism, in: *Journal of European Public Policy*, Vol.14, 227-247.
 25. **Kirchner, Chr., Painter, R.W., Kaal, W.** (2005): Regulatory Competition in EU Corporate Law After Inspire Art: Unbundling Delaware's Product for Europe, *European Company and Financial Law Review*, Vol.2, 159-206
 26. **Knoth, A.F.** (2008): Internationalisierung und Rechtsformwahl innerhalb der Europäischen Union, Synergieeffekte durch die Wahl einheitlicher Rechtsformen für Muttergesellschaft und ausländische Tochterunternehmen unter besonderer Berücksichtigung von Investitionen kleiner und mittlerer Unternehmen in den osteuropäischen Mitgliedstaaten der Europäischen Union, Ilmenau
 27. **Kobayashi, B.H. and Ribstein, L. E.** (2011): Delaware for Small FRY: Jurisdictional Competition for Limited Liability Companies, *University of Illinois Law Review*, 91-143, <http://illinoislawreview.org/wp-content/ilr-content/articles/2011/1/Kobayashi.pdf> (last access: 04/10/2012)
 28. **Korom, V., Metzinger, P.** (2009): Freedom of Establishment for Companies: the European Court of Justice Confirms and Refines its Daily Mail Decision in the Cartesio Case C-210/06, in: *European Company and Financial Law Review*, Vol.6, 125-160

29. **Kraakman, R. et al.** (2009): The Anatomy of Corporate Law. A Comparative and Functional Approach, Oxford et al., 2nd ed.
30. **Manesh, M.** (2011): Delaware and the Market for LLC Law: A Theory of Contractibility and Legal Indeterminacy, in: Boston College Law Review, Vol.52, 189-266
31. **Mugler, J.** (1999): Betriebswirtschaftslehre der Klein- und Mittelbetriebe. Wien
32. **Roe, M.J.** (2003): Delaware's Competition“, in: Harvard Law Review, Vol.588, 608-610
33. **Röpke, K. and Heine, K.** (2005): Vertikaler Regulierungswettbewerb und europäischer Binnenmarkt – die Europäische Aktiengesellschaft als supranationales Rechtsangebot, in: ORDO, Vol.56, 157-185.
34. **Schaper, M.** (2012): Selektion und Kombination von Gesellschaftsformen im institutionellen Wettbewerb. Typenvermischung und hybride Rechtsformen im europäischen und US-amerikanischen Wettbewerb der Gesellschaftsrechte, Berlin
35. **Statistisches Bundesamt** (different years): Unternehmen und Arbeitsstätten, Gewerbeanzeigen, Fachserie 2, Reihe 5, Wiesbaden
36. **World Bank** (2005): Doing Business in 2005. Removing Obstacles to Growth, Washington D.C.
37. **World Bank** (2012): Doing Business in a More Transparent World, Washington D.C.
38. **Wymenga, P. et al.** (2011): Are EU SMEs recovering? Annual Report on EU SMEs 2010/2011, Rotterdam, Cambridge

UNCOVERED INTEREST PARITY IN CENTRAL AND EASTERN EUROPE: CONVERGENCE AND THE GLOBAL FINANCIAL CRISIS¹

Fabio Filipozzi², Karsten Staehr
Tallinn University of Technology, Bank of Estonia

Abstract

This paper presents tests of uncovered interest parity in Croatia, the Czech Republic, Hungary, Poland and Romania; all countries in Central and Eastern Europe with floating exchange rates. Data are monthly and the trading horizon is three months. The estimations show that the UIP hypothesis is rejected for the full sample from 1999 to 2011 for all five countries. A number of reasons for the rejection were investigated. Rolling regressions show that standard versions of the UIP essentially lose all explanatory power in 2008-10, which was a period in which the global financial crisis led to instability in currency and interest markets in Central and Eastern Europe. Two indicators of global risk aversion were also found to enter significantly in the many UIP estimations. Finally, the size of the interest rates spread also seems to be of importance, at least for Poland and Romania.

Keywords: UIP, financial integration, global financial crisis, Central and Eastern Europe

JEL Classification: E43, F36, G01, G15

“Uncovered interest rate parity remains a key assumption in international economics despite the massive body of empirical evidence against the hypothesis.”

A. Alexius (2001, p. 505)

1. Introduction

This paper presents the results of econometric analyses testing the uncovered interest parity (UIP) hypothesis on data from Poland, the Czech Republic, Hungary, Romania and Croatia. The data sample starts in 1999 or shortly afterwards and ends in September 2011, and as such spans a period in which the countries experienced both rapid economic and financial integration and also the fallout from the global financial crisis. The UIP hypothesis is tested for a trading horizon of three months using monthly data. The five countries in the sample are the main countries in

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² Corresponding author: Eesti Pank, Estonia pst. 13, 15095 Tallinn, Estonia. Tel.: +372 6680964. E-mail: fabio.filipozzi@eestipank.ee.

Central and Eastern Europe having floating or essentially floating exchange rate regimes during the sample period.³ Poland, the Czech Republic and Hungary joined the European Union in May 2004 and Romania in January 2007, while Croatia was in the final stages of membership negotiations at the time of writing in August 2011.

The hypothesis of uncovered interest parity rests on the idea that arbitrage leads to equalisation of the return on assets or liabilities in the domestic currency and the expected return on comparable assets or liabilities in a foreign currency. Testing the UIP hypothesis may thus provide information as to whether the exchange and interest markets under consideration function so that all the gains from trade are exploited, i.e. whether the markets are efficient. In practice, however, divergence between domestic and expected foreign returns may also be due to issues such as transaction costs, different risk profiles and non-symmetric tax treatments.

This paper presents tests of the UIP hypothesis for Croatia, the Czech Republic, Hungary, Poland and Romania. Section 2 provides a survey of empirical studies of the UIP hypothesis with a particular focus on studies dealing with countries in Central and Eastern Europe (CEE). There are only a very limited number of studies that examine the UIP hypothesis for Central and East European countries, particularly studies which use data covering the EU accession and the global financial crisis. The CEE countries liberalised their capital markets and removed their remaining exchange rate restrictions before joining the EU (European Commission 2010a). Many of the countries experienced substantial capital inflows in the years immediately before and after accession to the EU, just to see a reversal of the flows in 2008-09 following the global financial crisis (Jevcak et al. 2011). It is a largely un-researched question whether these abrupt changes in capital flows have affected the relationship between exchange rates and interest rates in the CEE countries.

Testing the UIP hypothesis for the CEE countries is also important because households and firms in many countries in the region have borrowed extensively in foreign currencies, mostly the euro and the Swiss franc (Rosenberg & Tirpak 2008). In essence borrowers expect that borrowing in a foreign currency is cheaper than domestic currency borrowing, meaning they have bet that the UIP will not hold within the horizon of the loan contract. Speculators without an underlying motive of borrowing or saving have also taken positions, *carry trade*, in the currencies of the CEE countries. Rosenberg & Tirpak (2008) and Brzoza-Brzezina et al. (2010) find that the interest differential between domestic and foreign rates is an important determinant of borrowing and saving in foreign currencies in the CEE countries.⁴

³ The study excludes countries with fixed exchanges and countries that adopted the euro during the sample period.

⁴ Batini & Dowling (2011) use a UIP framework to decompose exchange rate movements between major currencies and the US dollar into shocks stemming from US monetary policy and other sources. The sharp depreciation of most of the sample currencies against the US dollar during the global financial crisis cannot be attributed to changes in the interest rate spread, but rather to changes in the risk premia. The subsequent appreciation of many of the

This paper seeks to contribute to the empirical literature on the UIP by investigating its empirical validity in the main CEE countries that have a floating exchange rate. The paper tests the UIP hypothesis using individual regressions for each of the five CEE countries. As typically found in the literature, the UIP holds better for some countries than for others and better in some periods than in others. The paper investigates factors that may explain the variation across countries and across time, linking the findings to the different stages of convergence attained in the countries and to the global financial crisis that unfolded in 2007-2009.

The rest of the paper is organised as follows: Section 2 discusses the theoretical foundation of the UIP hypothesis. Section 3 surveys a number of empirical studies with a particular emphasis on the CEE countries. Section 4 documents the data and shows the results of unit root tests. Section 5 presents the baseline estimations using the full sample available. Section 6 contains the estimations when structural change is identified using rolling windows. Section 7 considers whether there are non-linear effects. Section 8 shows the results when different proxies of external determinants of the risk premium are included. Finally, Section 9 summarises the results.

2. The theory of uncovered interest parity

The *theory* underlying the Uncovered Interest Parity is fairly simple as it builds on the assumption of arbitrage equalising expected returns in different markets (Levi 2005, Ch. 8).

Consider the investment decision of an investor who at time t seeks to invest a sum for a period of m time units. Assuming that the interest rate is constant and equal to $i_{t,m}$ for the entire investment horizon, the gross return from investing domestically is $1+i_{t,m}$ per time unit leading to $(1+i_{t,m})^m$ compounded during the m periods of the investment. The sum can alternatively be exchanged at the spot exchange rate S_t and invested abroad at the interest rate $i_{t,m}^*$. The foreign denominated gross return after m periods is $(1+i_{t,m}^*)^m / S_t$ and this sum can be exchanged into domestic currency at the exchange rate S_{t+m} .

In practice the exchange rate m periods ahead is unknown, so the investor will have to form expectations for this exchange rate. The variable S_{t+m}^e denotes the expectation in period t for the exchange rate in period $t+m$. A *risk-neutral investor* would be indifferent as to whether to invest in the domestically denominated asset or in the foreign denominated asset if the expected returns are identical, i.e. if uncovered interest parity holds:

currencies may partly reflect the carry trade exploiting low US interest rates and higher interest rates in other countries. None of the CEE countries are included in the sample.

$$(1 + i_{t,m})^m = (1 + i_{t,m}^*)^m \frac{S_{t+m}^e}{S_t} \quad (1)$$

This condition is usually log-linearised. We adopt the notation $\Delta_m \log S_{t+m}^e = \log S_{t+m}^e - \log S_t$, which is approximately the relative change in the exchange rate over the m -period horizon of the investment. The variable $\Delta_m \log S_{t+m}^e$ is positive if the investor expects that the domestic currency will depreciate from period t to period $t + m$ and negative if the investor expects that the domestic currency will appreciate. Using this notation eq. (1) becomes:

$$\frac{\Delta_m \log S_{t+m}^e}{m} = \log(1 + i_{t,m}) - \log(1 + i_{t,m}^*) \quad (2)$$

Using the approximations $i_{t,m} \approx \log(1 + i_{t,m})$ and $i_{t,m}^* \approx (1 + i_{t,m}^*)$ and lowercase s_t to denote the logarithm of the exchange rate, i.e. $s_t = \log(S_t)$ and $s_{t+m}^e = \log(S_{t+m}^e)$, the version of the UIP in eq. (2) can be rewritten as:

$$\frac{\Delta_m s_{t+m}^e}{m} = i_{t,m} - i_{t,m}^* \quad (3)$$

The left-hand side is the annualised average expected capital gain from the foreign currency investment. The right hand side is the spread between the domestic and foreign interest rates. The upshot is that a positive spread is consistent with the UIP hypothesis only if the spot rate is expected to depreciate in the way given in eq. (3), i.e. investment in the foreign denominated asset will only take place if the positive interest spread is compensated for by a corresponding capital gain.⁵

Eq. (3) can be tested empirically if a measure of the *expected* spot exchange rate m periods ahead is available, for instance from surveys or market data. A more common methodology, however, is based on the assumption of rational expectations, i.e. $\Delta_m s_{t+m}^e / m = \Delta_m s_{t+m} / m + \varepsilon_{t+m}$, where $E_t[\varepsilon_{t+m}] = 0$, i.e. the mathematical expectation of ε_{t+m} is zero, conditional on information in period t . This empirical version of the UIP is:

$$\frac{\Delta_m s_{t+m}}{m} = i_{t,m} - i_{t,m}^* + \varepsilon_{t+m} \quad (4)$$

⁵ The domestic interest rate that is consistent with UIP follows directly from Eq. (3), i.e.

$i_{t,m} = i_{t,m}^* + \Delta_m s_{t+m}^e / m$.

A simple empirical methodology for a test of the UIP hypothesis entails estimation of the following standard UIP regression model:

$$\frac{\Delta_m s_{t+m}}{m} = \alpha + \beta(i_{t,m} - i_{t,m}^*) + \varepsilon_{t+m} \quad (5)$$

Eq. (5) is the model used in most estimations in the paper. The UIP corresponds to the joint null hypothesis that the constant $\alpha = 0$, the slope coefficient $\beta = 1$ and $E_t[\varepsilon_{t+m}] = 0$; the UIP hypothesis cannot be rejected if none of these conditions can be rejected.⁶ Three comments are appropriate:

First, the assumption that $E_t[\varepsilon_{t+m}] = 0$ implies that the residuals are serially uncorrelated if the investment horizon coincides with the sampling frequency. If, however, the investment horizon exceeds the investment frequency (as would be the case with, for instance, monthly data and a quarterly investment horizon), overlapping data emerge and the residual will be subject to serial correlation of order $m - 1$ even if $E_t[\varepsilon_{t+m}] = 0$ is satisfied for the investment horizon (Baillie & Bollerslev 2000).

Second, the test implies essentially a joint test of several hypotheses, including the hypothesis that arbitrage equalises the expected currency gain and the interest rate differential and the hypothesis that investors have rational expectations (Alper et al. 2009). If $\alpha = 0$ and $\beta = 1$ cannot be rejected (in a model with non-serially correlated residuals), it is reasonable to assume that both hypotheses are satisfied. Rejection implies that the UIP does not hold, but the underlying reason (such as absence of arbitrage trades or non-rational expectations) cannot be identified right away.

Third, the test entails the estimation of *one* coefficient of the interest spread $i_{t,m} - i_{t,m}^*$, not separate coefficients for each of the interest rates. The implicit assumption is that the investors react only to the interest rate spread, i.e. in similarly sized but opposing ways to each of the two interest rates (Mehl & Cappiello 2007). In practice, the assumption is convenient as it typically implies that the interest spread $i_{t,m} - i_{t,m}^*$ is stationary, but this may not be the case for each interest rate considered individually.

The theoretical model in eq. (3) and the empirical model in eq. (5) are based on the assumption that the investors are risk-neutral and do not require a risk premium to hold one currency or the other. This assumption is unrealistic in practice insofar as investors are risk averse. A constant risk premium can be included by allowing the

⁶ Fama (1984) suggests a narrower test of the UIP hypothesis, essentially testing whether the forward rate is an unbiased estimator of the future exchange rate. The Fama regression entails that the forward premium is regressed on the future exchange rate change and a slope coefficient of one is interpreted as confirmation of the efficient market hypothesis.

constant α to differ from zero.⁷ This assumption might be too restrictive if the risk premium is non-constant, but it would then be necessary to model the risk premium. The presence of a risk premium – and in particular a non-constant risk-premium – does not contradict the UIP hypothesis *per se*, but it complicates the empirical testing as it requires that the risk premium can be identified empirically.

Beyond the presence of a risk premium, it is possible to point out a number of factors which would entail that eq. (3) would not hold (Levi 2005, Ch. 8):

- Financial markets may not be fully integrated because of regulation, institutional barriers or undeveloped trading possibilities (lack of instruments). In this case, the trades needed to arbitrage different expected returns may not be available.
- Illiquidity or thin markets may lead to market inefficiency as prices may not reflect available information. Illiquidity creates more risks and complicates arbitrage trades, but this may not play a major role in currency markets with large turnovers.
- Transaction costs may make it unprofitable to execute trades that exploit small deviations from the UIP.
- Information costs may be high, in part because information is needed for expectations about exchange rate movements to be formed.
- Investors in exchange and interest markets may not have fully rational expectations. Investors may use mechanical or momentum-based trading strategies, essentially disregarding the available information.
- Liquidity preference may favour investment in domestic currency assets, as investment in foreign currency assets may be more difficult to wind down if there is a sudden need for liquidity in the domestic currency.
- The asymmetric tax treatment of interest returns and returns from capital gains (here stemming from exchange rate changes) may mean that the strict UIP hypothesis which does not take account of taxation would not hold.

3. Empirical studies

The uncovered interest parity hypothesis has been tested empirically for a long time, but better financial data have continuously expanded the possibilities for testing. We will briefly discuss the results of studies using datasets covering developed economies, emerging market economies and countries in Central and Eastern Europe.

Meese & Rogoff (1983) is an influential early study showing that the interest rate spread has essentially no predictive power for the future exchange rate movements of the US dollar when evaluated on data from the 1970s.

⁷ If the exchange rate is expected to remain constant ($\Delta_m s_{t+m}^e / m = 0$) and $\alpha > 0$, the domestic interest rate $i_{t,m}$ must exceed the foreign currency interest $i_{t,m}^*$ in order for UIP to hold.

A range of empirical studies have subsequently examined the UIP hypothesis using different currency and time samples and different econometric methods. Froot & Thaler (1990) survey 75 published estimates and conclude that the strict version of the UIP hypothesis is rejected in almost all cases. Similar conclusions have been reached in other subsequent survey papers (e.g. Engel 1996, Alexius 2001). The consistent finding that the estimated slope coefficient is far below one and often negative has been labelled the *forward premium anomaly* (Froot & Thaler 1990, Booth & Longworth 1986, Olmo & Pilbeam 2011).

Most studies are based on data with investment horizons of one month, three months or six months as such data are readily available. Studies suggest, however, that the UIP may hold better at longer investment horizons. Chinn & Meredith (2004) study the empirical validity of the UIP hypothesis for the currencies of the G7 countries using a sample from 1983 to 2000. For short investment horizons, the UIP is rejected in all cases, but when the UIP regression is estimated using 5 or 10 year horizons, the slope coefficient is always positive and in many cases not statistically different from one.⁸ Qualitatively similar results are obtained by Alexius (2001) and Mehl & Cappiello (2007) although the UIP hypothesis is still rejected for some countries.

The time sample also seems to be of importance, which is unsurprising given that financial markets and regulatory schemes change over time. Lothiana & Wu (2011) use a sample of 200 years and consider the UIP hypothesis between the dollar and sterling and between the franc and sterling. They find that the slope estimate β typically is positive although far from one until 1980, but then turns negative for most periods after that. It is argued that the limited support for the UIP hypothesis is the result of expectations that ex-post are wrong for extended periods of time. Flood & Rose (2002) reach different conclusions using data from the 1990s and a broad sample of high-income and emerging economies. Estimation of standard UIP regressions leads to the conclusion that the hypothesis received more support from their data from the 1990s than from earlier data, although the overall conclusion is still negative as spelled out in the title: “Uncovered interest parity in crisis”.

Baillie & Bollerslev (2000) suggest that the forward premium anomaly can, at least partly, be explained by the different time series properties of the variables in the standard UIP regression. The relative exchange rate change ($\Delta_m s_{t+m}/m$) is close to a random walk (at least at relatively high frequencies), while the interest rate spread ($i_{t,m} - i_{t,m}^*$) typically exhibits substantial persistence (but not a unit root). Baillie & Bollerslev (2000) simulate data based on these characteristics and show that the resulting slope, although centred around one, exhibits a very high variance. The upshot is that estimations with relatively few observations are likely to produce

⁸ The finding that the UIP hypothesis generally holds better for long investment horizons than for short horizons can be related to the *peso problem* (Froot & Thaler 1990). In this context, the peso problem implies that adjustments of the exchange rate to the UIP may occur in discrete and infrequent steps of substantial magnitude.

coefficient estimates that are sensitive to sample changes and that may differ significantly from one even if the UIP is in fact satisfied.

It is typically found that the UIP holds better for cases where the interest rate spread is substantial and less well for cases where the interest rate spread is small. Mehl & Cappiello (2007) find that UIP relations estimated for some high-income and emerging market economies exhibit non-linearities. They estimate a smooth transition regression implying different marginal effects of the interest rate spread when the interest rate spread is small and when it is large. The upshot is that the standard linear model mixes the effects of different regimes. Using data for selected European currencies, Lothiana & Wu (2011) find more support for the UIP hypothesis in periods in which the interest rate spread is large. This result seems intuitively reasonable as factors such as risks and transaction costs may not warrant arbitrage trading if the returns from such trades are limited (Froot & Thaler 1990).

Alper et al. (2009) survey the literature on UIP testing in emerging market economies. On the one hand, the high trend inflation observed in many emerging markets facilitates the forecasting of exchange rate developments and therefore makes it more likely that the UIP hypothesis does hold. On the other hand, structural breaks and uncertainties are likely to be more pronounced in emerging markets, which would suggest that the UIP does not hold. Empirical studies confirm that UIP estimations frequently exhibit different properties for emerging markets and for high-income economies. Alper et al. (2009, p. 123) conclude that "...identifying and modelling structural breaks provide room for improvement for further research on the UIP condition for [emerging markets]". Bansal & Dahlquist (2000) provide an explicit comparison of results for high-income and emerging market economies and conclude that the UIP is more likely to hold for emerging markets than for high-income economies. Different per capita GNP, average inflation and inflation volatility are factors that may explain the different results.

Only a small number of studies have examined the empirical validity of the UIP hypothesis for countries in Central and Eastern Europe. Brasili & Sitzia (2003) estimate panel models based on CEE data in which future exchange rate changes are explained by the interest rate spread and a range of other factors that may be considered proxies of the risk premium. The spread is not statistically significant in a specification in which it enters linearly, but a non-linear transformation of the spread attains statistical significance, suggesting that non-linearities play an important role. Ho & Ariff (2009) also use a panel explaining the future exchange rate change with many variables along with the interest rate spread. A range of specifications all produce positive and statistically significant coefficients to the interest rate spread for the sample of Eastern European countries, but the coefficients vary substantially across different specifications. The use of panel data in these two studies precludes the estimation of country-specific coefficients of the interest rate spread.

Mansori (2003) compares results for the Czech Republic, Hungary and Poland from 1994 to 2002 with results for a number of West European countries. There is more

support for the UIP hypothesis for the three East European countries, especially the Czech Republic and Hungary, than for the West European countries. The results for the CEE countries are however very sensitive to changes in the time sample, possibly as a result of the convergence processes underway during the period analysed. Horobet et al. (2009, 2010) estimate standard UIP regressions for eight countries, including four from Central and Eastern Europe using monthly data from 2006 to 2009. The estimated slope coefficients are positive in all cases, but neither economically nor statistically different from zero. This result seems to hold whether or not exchange market volatility is taken into account.

4. Data and unit root tests

This section provides an overview of the dataset and the main features of the series for the five sample countries, Croatia, the Czech Republic, Hungary, Poland and Romania. The samples vary across the five countries but generally span a bit more than a decade, starting in 1999 and ending in September 2011. The five countries all had floating exchange rates during this period, although Poland formally used managed devaluations until April 2000 and Hungary used different corridors until 2008.⁹

The analyses are undertaken for positions with a 3-month horizon, implying that the returns from the currency exposure and the interest rate differential are both calculated for a 3-month holding period. As discussed in the literature survey in Section 3, the results may vary with the investment horizon, but the 3-month horizon has been chosen because the 3-month money market is one of the most liquid segments of the market.

The five countries saw increased integration with Western Europe, and in particular with the euro area, during the sample period. The reference area is therefore taken to be the euro area: the exchange rates are in units of local currency per euro and the interest rate spreads of the local interest rate are against the Euribor rate. It is noticeable that the countries considered here were at different stages of their processes of convergence with Western Europe during the sample period.¹⁰

⁹ The Hungarian bands changed frequently before they were finally removed in February 2008. Until May 2001, the managed devaluation was based on a “daily rate of devaluation” against, in 1999, a basket (30 percent USD, 70 percent EUR) and, thereafter, the euro. The band around the central rate of the devaluation path was ± 2.25 percent. From May to October 2001 the band around the central rate was increased to ± 15 percent. From October 2001 the central parity was fixed at 276.1 HUF/EUR and in June 2003 to 282.36 HUF/EUR, while the band remained at ± 15 percent.

¹⁰ For an overview of the stages of convergence, see the European Commission (2010a, 2010b). Different indicators can be used to assess the degree of convergence of the CEE countries with Western Europe. European Commission (2010a, 2010b) asserts that the convergence process in Romania and Croatia has been slower than that in the other three CEE countries in our sample.

Most of the estimations are based on only two variables, cf. eq. (5).¹¹ The variable **FX_CHG** is the percentage change of the spot exchange rate over a 3-month period, where the exchange rate denotes units of local currency per euro at the end of month. A positive value of **FX_CHG** indicates a depreciation of the local currency against the euro over the 3-month period; a negative value indicates an appreciation. The variable **INT_SP** is the annualised interest spread between a 3-month domestic currency deposit and the 3-month Euribor.

The available sample of data varies across the countries. For Croatia, the series on the nominal exchange rate starts in November 1999, implying that the 3-month **FX_CHG** variable starts in February 2000. For Poland, the local 3-month interest rate is available from the beginning of 2001. Table 1 reports summary statistics of the exchange rate changes and the interest rate spreads for the five sample countries.

Table 1. Descriptive statistics for 3-month exchange rate change and 3-month interest rate spread

FX_CHG	Mean	Median	Max.	Min.	Std. Dev.	Obs.
Croatia	-0.20	-0.51	17.09	-20.97	6.46	140
Czech Republic	-2.94	-4.24	60.48	-23.00	12.15	153
Hungary	1.99	2.04	63.03	-47.54	18.54	153
Poland	2.39	-0.97	98.36	-37.77	25.06	129
Romania	9.26	6.90	76.87	-32.82	21.12	153

INT_SP	Mean	Median	Max.	Min.	Std. Dev.	Obs.
Croatia	3.30	2.74	11.05	-0.05	2.50	140
Czech Republic	0.36	0.15	5.04	-1.35	1.25	153
Hungary	6.19	5.71	12.97	2.66	2.52	153
Poland	3.70	3.27	13.03	0.66	2.62	129
Romania	22.75	13.00	145.07	2.38	26.58	153

Figure 1 depicts the nominal exchange rate of each Eastern European country against the euro from the beginning of 1999 and until December 2011. The first thing to notice is that the exchange rate dynamics vary considerably across the five sample countries. The currencies of Croatia and the Czech Republic have tended to appreciate against the euro, while the currency of Romania has tended to depreciate. The currencies of Hungary and Poland have been relatively stable with exchange rates fluctuating around a relatively constant level.

¹¹ The variables are calculated based on Ecowin source data.

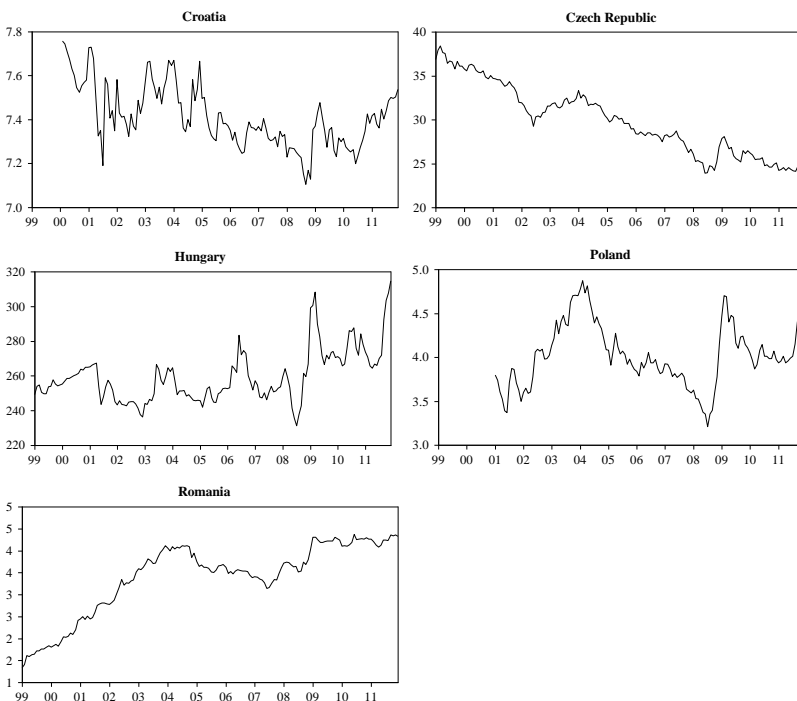


Figure 1. Nominal exchange rate of local currency against euro.

The different exchange rate development across the sample countries is the result of many factors. The process of integration into EU structures, and the associated confidence effects, has affected the exchange rate dynamics in the Central and Eastern European countries. The speed of and commitment to integration has differed across the countries.¹² The main message for our analyses is that there is no “Central and Eastern European block” with closely co-moving exchange rates; the exchange rate developments are fundamentally different across the five sample countries.

Figure 2 depicts the 3-month annualised change of the exchange rate against the euro. The series are very volatile, which suggests that, for the UIP to hold, the interest rate differential between the country and the euro area would also have to be volatile.

¹² The Romanian case is noticeable because the period from 2003 to 2005 represents a political and economic regime switch. During this period Romania joined the Council of Europe and the WTO, and became an associated member of the European Union. These steps were part of the process of stabilising the political and economic situation in the country, and helped to increase the confidence of financial markets in the Romanian economy (European Commission 2010a).

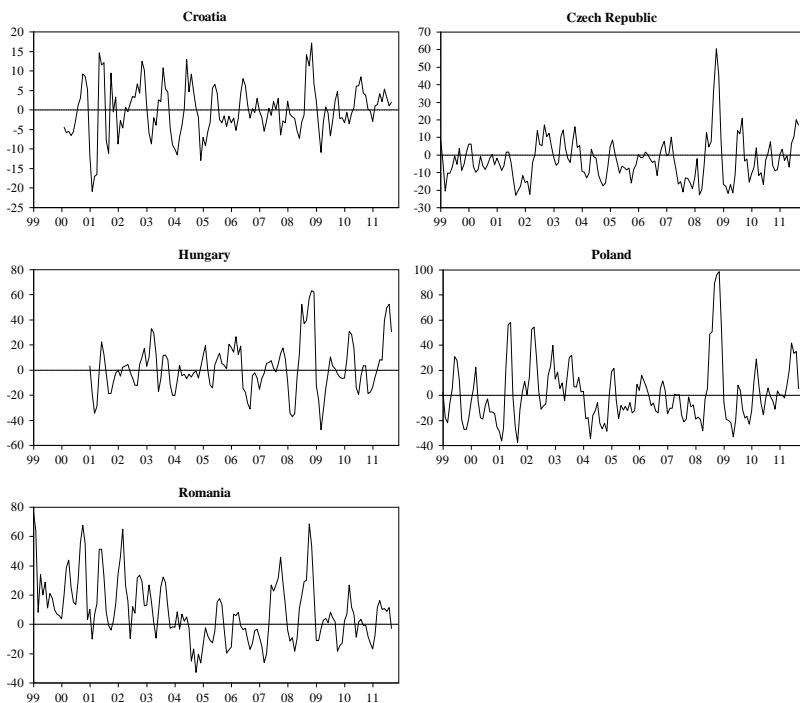


Figure 2. Annualised changes of local currency versus euro over 3-month period, %.

Figure 3 reports the spread between the local 3-month interbank interest rate and the 3-month Euribor. The volatility of the interest rates spread is much smaller than the volatility of the foreign exchange rate changes on the same horizon.

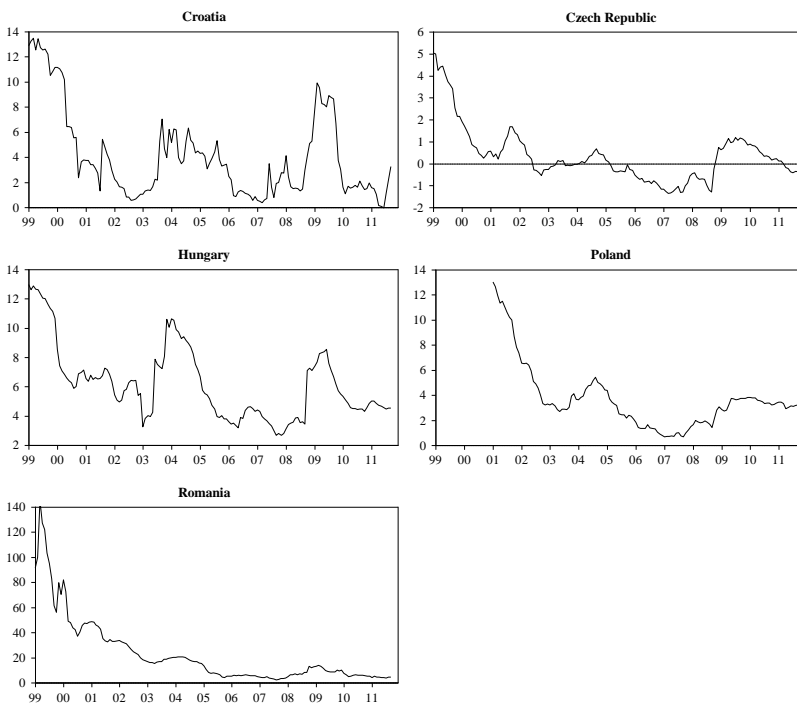


Figure 3. Annualised interest rate spreads on 3-month deposits, %.

The time series properties of the exchange rate changes and the interest rate spreads have been examined by means of Augmented Dickey-Fuller tests. Given that the variables are either changes in percentage terms (for currency pairs) or spreads (interest rates), the test is performed at the level of the variables and an intercept, but no time trend, is included in the estimations. The number of lags used is chosen by means of the Schwartz selection criterion. The results are reported in Table 2. The hypothesis of a unit root can be rejected in all cases; the series are $I(0)$ for all five sample countries.

Table 2. Augmented Dickey-Fuller unit root tests

FX_CHG	1% C.V.	5% C.V.	10% C.V.	Statistic	Prob.	Process
Croatia	-3.479	-2.883	-2.578	-7.831	0.000	I(0)
Czech Republic	-3.475	-2.881	-2.577	-5.225	0.000	I(0)
Hungary	-3.475	-2.881	-2.577	-6.969	0.000	I(0)
Poland	-3.482	-2.884	-2.579	-5.161	0.000	I(0)
Romania	-3.475	-2.881	-2.577	-4.495	0.000	I(0)

INT_SP	1% C.V.	5% C.V.	10% C.V.	Statistic	Prob.	Process
Croatia	-3.477	-2.882	-2.578	-3.476	0.010	I(0)
Czech Republic	-3.474	-2.880	-2.577	-3.767	0.004	I(0)
Hungary	-3.473	-2.880	-2.577	-2.745	0.069	I(0)
Poland	-3.482	-2.884	-2.579	-4.352	0.001	I(0)
Romania	-3.477	-2.882	-2.578	-3.963	0.002	I(0)

Note: C.V. denotes critical value.

5. Uncovered interest parity

We start by rewriting eq. (5) using our empirical notation in which a bracket after the variable name is used to indicate a time shift (in month) of the variable:

$$\text{FX_CHG}(3) = \alpha + \beta \cdot \text{INT_SP} + \varepsilon(3) \quad (6)$$

Eq. (6) is estimated for each country individually using OLS. The results are reported in Table 3. The choice of a 3-month investment horizon but monthly data leads to first- and second order-autocorrelation of the residuals. We therefore report Newey-West robust standard errors. The strict version of the UIP holds if $\alpha = 0$ and $\beta = 1$ and the residuals do not exhibit serial correlation of the third or a higher order. The table reports the F-statistics for the Wald test of the joint hypothesis $\alpha = 0$ and $\beta = 1$. Examination of the residuals reveals the existence of autocorrelation of first and sometimes second order, but never of higher orders.

The estimation results reveal that the coefficients of determination, R^2 , of all the regressions are extremely low. This is not surprising in light of Figures 2 and 3 and is found in all tests of the UIP hypothesis (Flood 1996). The foreign exchange return is much more volatile than the interest rate spread, which limits the ability of the interest rate spread to explain the foreign exchange change.

Table 3. UIP estimation results (OLS)

	$\hat{\alpha}$	$\hat{\beta}$	F-stat	R^2	Sample	Obs.
Croatia	1.401 (0.888)	-0.486** (0.210)	31.660 [0.000]	0.035	2000:02- 2011:09	140
Czech Republic	-2.447 (1.718)	-1.380 (0.972)	9.492 [0.000]	0.020	1999:01- 2011:09	153
Hungary	9.546* (5.706)	-1.220* (0.711)	10.120 [0.000]	0.028	1999:01- 2011:09	153
Poland	3.658 (6.479)	-0.342 (1.319)	0.642 [0.528]	0.001	2001:01- 2011:09	123
Romania	2.023 (3.290)	0.308*** (0.087)	47.944 [0.000]	0.148	1999:01- 2011:09	153

Note: Newey-West standard errors are shown in round brackets. Superscripts ***, **, * denote that the coefficient estimate is statistically different from 0 at the 1, 5 and 10% level of significance respectively. The null hypothesis of the F-test is that $\alpha = 0$ and $\beta = 1$; the p -value is shown in square brackets.

The estimated slope coefficients in Table 3 are different from 1 at the 1% level of significance for all five sample countries. For all countries except Romania, the coefficients are also negative, which is in accordance with the *forward premium anomaly* found in many other studies (cf. Section 3). For Romania, the estimated coefficient is positive and significantly different from zero (but also significantly different from one). This would be consistent with the finding that the UIP hypothesis is more likely to hold when the interest rates spread is large (Froot & Thaler 1990, Mehl & Cappiello 2007, Lothiana & Wu 2011). It follows from Figure 3 that the spread between the Romanian 3-months interest rate and the 3-months Euribor rate was in the double digits until 2005 and also afterwards remained much higher than for the other sample countries. The large interest spread reflects that Romania has experienced a more prolonged convergence process the other sample countries.

The estimated constant terms are, with the exception of the Czech Republic, positive, but statistically significantly different from 0 only for one country. As already noted, this coefficient should indicate the presence of either a risk premium or barriers to entry. While it is probable that barriers to entry or other parts of the regulatory landscape do not change very often, previous research and anecdotal evidence (again, from the recent financial crisis) indicates that the risk premium varies across time and economic cycles, and therefore to model them as a constant would be to impose a tight constraint on the model.¹³

¹³ The residuals generally exhibit some heteroskedasticity. To assess the impact, we estimated eq. (6) using a GARCH specification. Although the GARCH coefficients are statistically significant in many cases, the effects on the estimated α and β and the explanatory power of the regressions are modest.

The F-statistics reported in Table 3 shows that Poland is the only country for which the null hypothesis cannot be rejected. The Polish case is predicated by the fact that the standard errors of the two coefficient estimates are very high for this country. For all other countries in the sample, the joint hypothesis that α and β take values in accordance with the UIP is rejected.

6. Uncovered interest parity across time

The test of the UIP in Section 5 is undertaken on the entire available time sample from the turn of the century to September 2011. The recent global financial crisis has, however, provoked very sharp reactions in *inter alia* foreign exchange and interest markets. Eastern European countries largely escaped the first part of the crisis (the “sub-prime” phase from summer 2007), but the default of Lehman Brothers in September 2008 affected the region greatly. This is also shown by Figures 1 and 3, in which sudden depreciations of the currencies against the euro and a jump in the spreads between local interest rates and the Euribor are evident.

In order to shed further light on the impact on the UIP of the global financial crisis, and more generally to shed light on the time dimension, we undertake rolling windows estimations with samples of monthly observations for five years. The estimations are based on eq. (6), i.e. the simple linear version of the UIP. Figure 4 shows the coefficient of determination, while Figures 5 and 6 show the estimated constants and slope coefficients for the five countries. For all three figures, the date reported on the horizontal axis indicates the *end* of the sample.

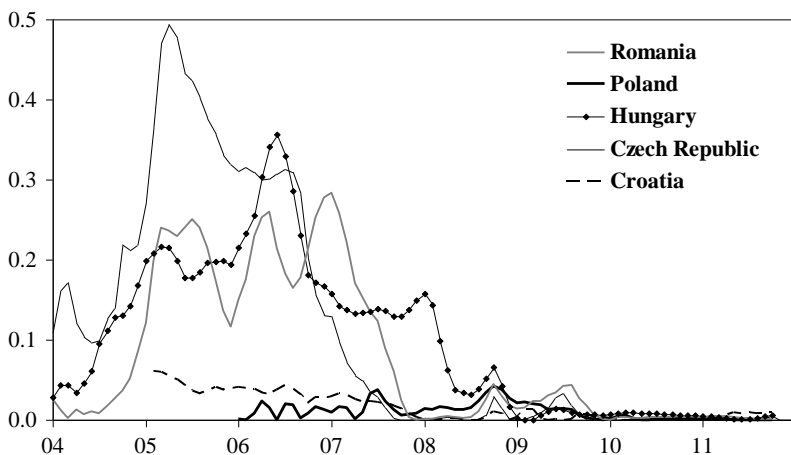


Figure 4. Coefficient of determination, 5-year rolling windows.

Figure 4 reveals that the explanatory power of the regressions is always very low for Poland and Croatia, but relatively high before the crisis for the three other countries.

This could be an indication that Poland and Croatia may have been more “closed” or insulated from external influences than the other three countries in the sample (Jevcak et al. 2011). Moreover, when the windows consist largely of the period around the global financial crisis, the simple UIP specification (without crisis indicators and with fixed coefficients) basically has no explanatory power for the five sample countries.

Further insights into developments before and after the global financial crisis hit the region can be gained from Figures 5 and 6. The coefficient estimate and ± 2 times the Newey-West standard errors are depicted in each figure. The estimated constants and slopes for all the sample countries display extreme variation. This could be due to the relatively short span of the sample (five years for each rolling regression), or to an inherent instability in the relation between interest rate spreads and currency returns (Baillie & Bollerslev 2000).

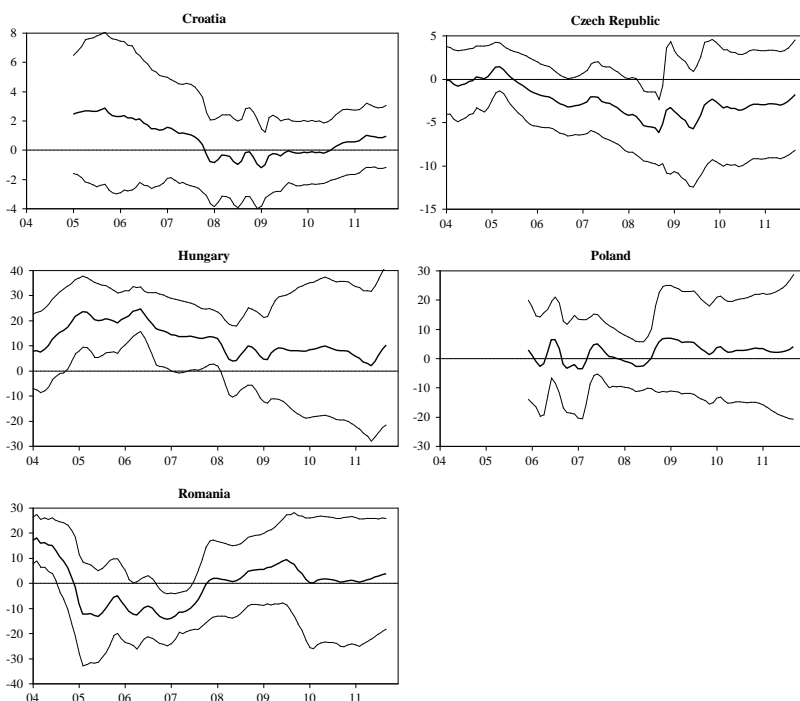


Figure 5. Estimated constants, 5-year rolling windows.

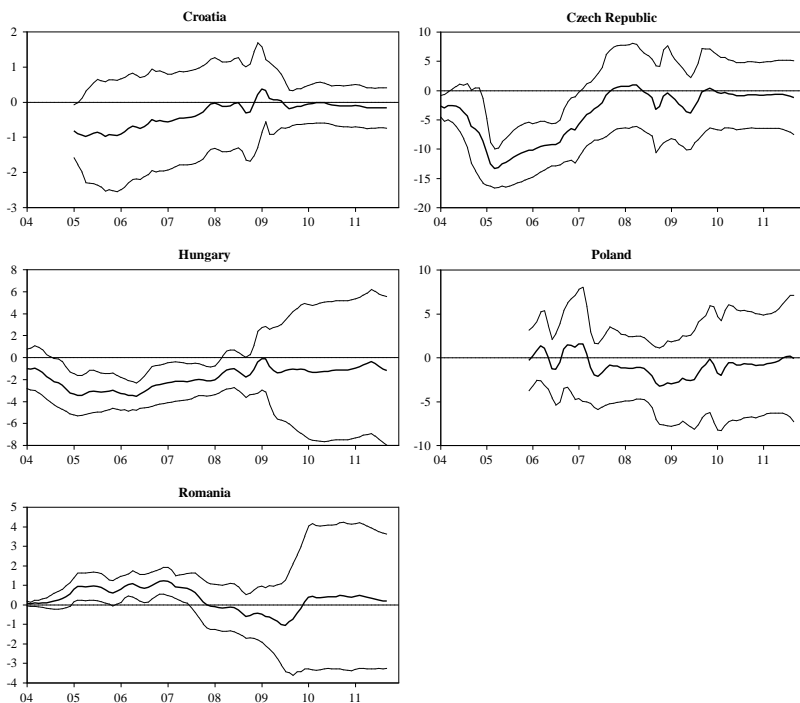


Figure 6. Estimated slope coefficients, 5-year rolling windows.

The UIP specifications exhibit some explanatory power for the Czech Republic, Hungary and Romania in the pre-crisis period. For the Czech Republic the constant was close to zero and the slope was negative. The absolute value of the slope estimate is extremely large when the period 2000-2001 is included in the sample; this was a period in which the Czech koruna appreciated rapidly. For Hungary the slope estimate is also negative (below -1), while the constant is positive. For Romania the slope is positive and the constant is negative. Moreover, the slope is close to one for all of the period before 2007 but turned negative later. This suggests that the UIP was satisfied in the transition period when the interest spread was very high, but not in later periods when the spread was reduced.

The conclusion from the estimations in Sections 5 and 6 is that the UIP has limited empirical validity in the sample of CEE countries. Still, there are noticeable differences across the sample countries and across different time samples. The rest of the paper examines a number of possible reasons for these findings. Transaction costs may limit arbitrage when the interest rate spread is small (Section 7) and the risk premium may be time-varying (Section 8).

7. Non-linearities

The size of the interest rate spread may affect whether or not the UIP hypothesis is supported. Transaction and information costs are likely to keep investors from exploiting deviations from the UIP when the interest rate spread is small, but not when the spread is high (Froot & Thaler 1990). The conjecture has some empirical support (Mehl & Cappiella 2007, Lothiana & Wu 2011).

The extreme volatility of the FX_CHG variable has made us pursue a simple and robust way to model the presence of different regimes for different levels of interest rate spreads. We separate the interest spread into two series. Taking the average spread over the sample for each country, two series of interest rate spreads are computed: the variable INT_SP_LO equals the spread when the spread is lower than the average, and zero otherwise; the variable INT_SP_HI equals the spread when the spread is higher than the average, and zero otherwise. Both spread variables are included in the UIP specification:

$$FX_CHG(3) = \alpha + \beta^{LO} \cdot INT_SP_LO + \beta^{HI} \cdot INT_SP_HI + \varepsilon(3) \quad (7)$$

The results of the regressions are reported in Table 4. The results are as expected for Poland and Romania; the slope coefficients for high interest rate spreads are in both cases positive and statistically different from zero, while the coefficients for low spreads are statistically insignificant. The results are inconclusive for the other three countries; the slope coefficients of the high interest rate spreads are negative and the coefficients are generally estimated imprecisely. Overall, Table 4 provides some support to the hypothesis that the UIP should hold better when the interest rate spread is large than when it is low, at least for Poland and Romania.

Table 4. UIP estimation results, high and low interest rate spread variables

	$\hat{\alpha}$	$\hat{\beta}^{LO}$	$\hat{\beta}^{HI}$	F-stat	R^2	Sample	Obs.
Croatia	2.181 (1.355)	-0.969 (0.729)	-0.553 ^{**} (0.225)	21.459 [0.000]	0.041	2000:02- 2011:09	140
Czech Republic	-1.905 (1.680)	0.107 (3.328)	-1.743 [*] (0.955)	6.195 [0.000]	0.023	1999:01- 2011:09	153
Hungary	8.979 (9.084)	-1.073 (1.894)	-1.163 (0.934)	7.543 [0.000]	0.028	1999:01- 2011:09	153
Poland	1.445 (5.111)	0.221 (0.497)	0.464 (0.221)	4.936 [0.002]	0.080	2001:01- 2011:09	129
Romania	5.790 (4.523)	-0.113 (0.462)	0.266 ^{***} (0.089)	34.744 [0.000]	0.156	1999:01- 2011:09	153

Notes: OLS estimation. Newey-West standard errors are shown in round brackets. Superscripts ^{***}, ^{**}, ^{*} denote that the coefficient estimate is statistically different from 0 at the 1, 5 and 10% level of significance respectively. The null hypothesis of the F-test is that $\alpha = 0$, $\beta^L = 1$ and $\beta^H = 1$; the p -value is shown in square brackets.

We have also implemented two other specifications of the non-linear relation from the interest spread to the foreign exchange rate change (results not shown). One approach was the smooth transition model of Granger & Teräsvirta (1993), but we generally had problems estimating the non-linear relation. Another approach was to use a Taylor order approximation up to the third order of the Granger & Teräsvirta model and then to estimate coefficients to all the included powers. In many cases the estimated coefficients attained implausible sign and size and the R^2 of the regressions did not change from the base case (results not shown). In conclusion, non-linearities seem to play only a minor role for the UIP estimations, i.e. transaction and information costs are unlikely to be behind the weak support of the UIP for the CEE countries.

8. Risk aversion and financial instability

A possible explanation for the low explanatory power of the UIP estimations is that the risk premium is in fact not constant. We include different proxies of the risk premium.

We start by including the VIX index as a proxy of the risk premium. The VIX index is an implied volatility index calculated from option prices on the S&P500 equity index and is often seen as a main indicator of risk aversion in global financial markets. A higher value of the VIX index is tantamount to larger financial uncertainty. We include VIX as an additional explanatory factor in the empirical UIP specification:

$$FX_CHG(3) = \alpha + \beta \cdot INT_SP + \gamma \cdot VIX + \varepsilon(3) \quad (8)$$

The results are reported in Table 5. While the R^2 of the estimations do not improve markedly, the coefficient of VIX is positive for all the countries and also statistically significant for Croatia and Romania. More financial instability in global financial markets puts *ceteris paribus* depreciation pressure on the local currency. The slope coefficients stay largely unchanged, while the constants change sign for three countries, becoming (with the exception of Hungary) negative, but mostly not significant. This suggests that when global risk aversion is taken into account, the time-invariant remaining part captured by the constant loses its explanatory power.

Table 5. UIP estimation results, including VIX

	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	F-stat	R^2	Sample	Obs.
Croatia	-2.125 (1.912)	-0.65*** (0.230)	0.185** (0.094)	25.946 [0.000]	0.096	2000:02- 2011:09	140
Czech Republic	-13.048** (6.133)	-2.176* (1.232)	0.488 (0.320)	3.746 [0.026]	0.131	1999:01- 2011:09	153
Hungary	2.585 (8.785)	-1.439* (0.757)	0.373 (0.430)	5.580 [0.005]	0.056	1999:01- 2011:09	153
Poland	-11.250 (9.412)	-0.755 (1.488)	0.748 (0.614)	1.156 [0.318]	0.075	2001:01- 2011:09	129
Romania	-11.151* (6.385)	0.271*** (0.082)	0.639** (0.294)	40.687 [0.000]	0.210	1999:01- 2011:09	153

Notes: OLS estimation. Newey-West standard errors are shown in round brackets. Superscripts ***, **, * denote that the coefficient estimate is statistically different from 0 at the 1, 5 and 10% level of significance respectively. The null hypothesis of the F-test is that $\alpha = 0$ and $\beta = 1$; the p -value is shown in square brackets.

An alternative measure of risk aversion, less global and more linked to European foreign exchange markets, may be based on other currency pairs in the region. As a rough measure of the external risk aversion affecting currency markets in Europe, we use the 3-month return of the Swedish *krona* against the euro. Sweden had a floating exchange rate throughout the sample period and the exchange rate is likely to be affected by currency market pressures. The estimated equation is the following, where SWE_FX_CHG denotes the annualised 3-month depreciation of the Swedish krona against the euro:

$$\text{FX_CHG}(3) = \alpha + \beta \cdot \text{INT_SP} + \delta \cdot \text{SWE_FX_CHG}(3) + \varepsilon(3) \quad (9)$$

The results are reported in Table 6. The R^2 are higher and the coefficients of the Swedish krona return are always statistically significant (with the exception of the results for Croatia) and have positive signs. It seems that including the currency pressure on the Swedish krona gives the same overall result as was given when the VIX variable were included, but in an arguably stronger way. Unlike in the equation with VIX, the constants become insignificant, with the exception of the one for the Czech Republic, where the constant is still significant and negative.

Table 6. UIP estimation results, including change in Swedish krona foreign exchange rate

	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\delta}$	F-stat	R^2	Sample	Obs.
Croatia	1.239 (0.915)	-0.462 [*] (0.221)	0.094 (0.071)	30.880 [0.000]	0.064	2000:02- 2011:09	140
Czech Republic	-3.005 ^{**} (1.449)	0.147 (0.846)	0.484 ^{***} (0.173)	5.042 [0.008]	0.211	1999:01- 2011:09	153
Hungary	6.714 (5.655)	-0.787 (0.754)	0.601 ^{***} (0.211)	6.992 [0.001]	0.161	1999:01- 2011:09	153
Poland	3.317 (5.075)	-0.304 (1.168)	1.199 ^{***} (0.312)	0.736 [0.481]	0.310	2001:01- 2011:09	129
Romania	1.679 (2.758)	0.324 ^{***} (0.068)	0.807 ^{***} (0.129)	77.248 [0.000]	0.334	1999:01- 2011:09	153

Notes: OLS estimation. Newey-West standard errors are shown in round brackets. Superscripts ^{***}, ^{**}, ^{*} denote that the coefficient estimate is statistically different from 0 at the 1, 5 and 10% level of significance respectively. The null hypothesis of the F-test is that $\alpha = 0$ and $\beta = 1$; the p -value is shown in square brackets.

Concluding this section, the two indicators of risk aversion in international financial markets seem to exhibit substantial explanatory power. The estimated coefficients attain the expected sign and are statistically significant in many cases. The addition of these risk aversion measures, however, does not change the conclusions about the estimated slope coefficient, but has, as expected, an impact on the constant term, which becomes statistically insignificant.¹⁴

9. Summary

This paper presented the results of empirical tests of uncovered interest parity in Croatia, the Czech Republic, Hungary, Poland and Romania during the first decade of the 21st century. The objective was to examine whether the UIP would obtain empirical support in this particular sample, and to ascertain to which extent the convergence process and the global financial crisis have affected the UIP relation.

We proceeded from simple estimations of the link between the return on 3-month exposure to local currencies against the euro and the spread between local interest rates and Euribor. The stability of the estimated parameters was analysed using rolling windows. The analysis examined the importance of a number of issues that may affect the results. Estimations took into account the possibility of different regimes depending on the size of the interest rate spread. Various indicators of risk and risk aversion were included, chiefly to capture the effect of the global financial crisis. The main results are summarised below.

¹⁴ For the Czech Republic, Hungary and Poland we tried to use the Exchange Market Pressure (EMP) index in Filipozzi & Harkmann (2010). The coefficients of the EMP index were not statistically significant (not reported).

The basic model used to test the UIP in the CEE countries gave a result in line with most of the previous literature, namely that the UIP relation cannot be supported in general. The forward premium anomaly is confirmed in the present sample of Central and Eastern European countries; the estimated slope coefficient is negative in all cases except Romania.

Rolling window regressions showed that the coefficient estimates generally are unstable and depend on the choice of sample. The rolling regressions also cast some light on the effect of global financial crisis on the UIP relations in the five CEE countries. At least for the Czech Republic, Hungary and Romania, there is a clear change after the crisis as the explanatory power of the UIP regressions drops dramatically after 2007.

Transaction and information costs do not seem to affect the UIP estimations in ways which can be clearly discerned through the inclusion of non-linearities in the UIP relation. It is clear, however, that the importance of the interest rate spread varies between low and high interest rate spread regimes, but the picture is not uniform across the sample countries. For Poland and Romania, the slope coefficient is positive when the interest rate spread is large, although the estimate is still statistically different from one.

There is substantial evidence suggesting that the risk premium is not constant. Both the global volatility index VIX and the movements in the Swedish exchange rate seem to exhibit substantial explanatory power although not symmetrically across all five countries. This suggests that global risk factors have considerable impact on the liquidity of financial markets and the arbitrage processes underlying the UIP in the five countries from Central and Eastern Europe.

References

1. **Alexius, A.** (2001): "Uncovered interest parity revisited", *Review of International Economics*, Vol. 9, No. 3, pp. 505-517.
2. **Alper, C. E., O. P. Ardic & S. Fendoglu** (2009): "The economics of uncovered interest parity condition for emerging markets: a survey", *Journal of Economic Surveys*, Vol. 23, No. 1, pp. 115-138.
3. **Baillie, R. T. & T. Bollerslev** (2000): "The forward premium anomaly is not as bad as you think", *Journal of International Money and Finance*, Vol. 19, No. 4, pp. 471-488.
4. **Bansal, R. & M. Dahlquist** (2000): "The forward premium puzzle: different tales from developed and emerging economies", *Journal of International Economics*, Vol. 51, No. 1, pp. 115-144.
5. **Benassi-Quere, A., S. Larriveau & R. MacDonald** (2003): "Models of exchange rate expectations: how much heterogeneity?", *Journal of International Financial Markets, Institutions & Money*, Vol. 13, No. 2, pp. 113-136.
6. **Booth, P. & Longworth, D.** (1986): "Foreign exchange market efficiency tests: Implications of recent empirical findings", *Journal of International Money Finance*, Vol. 5, No. 2, pp. 135-52.

7. **Brzoza-Brzezina, M., T. Chmielewski & J. Niedzwiedzinska** (2010): "Substitution between domestic and foreign currency loans in Central Europe. Do central banks matter?", ECB Working Paper Series, No. 1187, European Central Bank.
8. **Chinn, M. D. & G. Meredith** (2004): "Monetary policy and long-horizon uncovered interest parity", *IMF Staff Papers*, Vol. 51, No. 3, pp. 409-430.
9. Czech National Bank (2009): "Financial stability report 2008/2009", Czech National Bank, http://www.cnb.cz/miranda2/export/sites/www.cnb.cz/en/financial_stability/fs_reports/fsr_2008-2009/FSR_2008-2009.pdf.
10. **Engel, C.** (1996): "The forward discount anomaly and the risk premium: A survey of recent evidence", *Journal of Empirical Finance*, Vol. 3, No. 2, pp.123-192.
11. European Commission (2010a): "Convergence Report 2010", *European Economy*, 3/2010. http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-3_en.pdf.
12. European Commission (2010b): "Croatia 2010 progress report", *European Commission*, http://ec.europa.eu/enlargement/pdf/key_documents/2010/package/hr_rapport_2010_en.pdf.
13. **Fama, E. F.** (1984): "Forward and spot exchange rates", *Journal of Financial Economics*, Vol. 14, No. 3, pp. 319-338.
14. **Filipozzi, F. & K. Harkmann** (2010): "The financial crisis in Central and Eastern Europe: The measures and determinants of the exchange market pressure index and the money market pressure index", *Research in Economics and Business: Central and Eastern Europe*, Vol. 2, No. 2, pp. 5-36.
15. **Flood, R. P. and A. K. Rose** (2002): "Uncovered interest parity in crisis", *IMF Staff Papers*, Vol. 49, No. 2, pp. 252-266.
16. **Froot, K. A. & R. H. Thaler** (1990): "Anomalies of foreign exchange", *Journal of Economic Perspectives*, Vol. 4, No. 3, pp. 179-192.
17. **Ho, C. S. F. and M. Ariff** (2009): "Examining foreign exchange behaviour in Asia Pacific and Eastern European emerging countries", *Global Economy & Finance Journal*, Vol. 2, No.1, pp. 1-19.
18. **Horobet, A., S. Dumitrescu and D. G. Dumitrescu** (2009): "Uncovered interest parity and financial market volatility", *Romanian Economic Journal*, Vol. XII, No. 32, pp. 21-45.
19. **Horobet, A., S. Dumitrescu & D. G. Dumitrescu** (2010): "Implications of volatility for uncovered interest parity testing", in Matousek, R. (ed.): *Money, Banking and Financial Markets in Central and Eastern Europe. 20 Years of Transition*, Palgrave Macmillan.
20. **Isard, P.** (1996): "Uncovered interest parity", IMF Working Paper, No. WP/06/96.
21. **Jevcak, A., R. Setzer & M. Suardi** (2011): "Determinants of capital flows to the new EU Member States before and during the financial crisis", pp. 7-32 in *Capital flows to converging European economies – from boom to drought and beyond. Proceedings to the workshop held on 1 October 2010*, European Economy, Occasional Papers, No. 75, ECFIN, European Commission.
22. **Levi, M. D.** (2005): *International Finance*, Routledge.

23. **Lothiana, J. R. & L. Wu** (2011): “Uncovered interest-rate parity over the past two centuries”, *Journal of International Money and Finance*, Vol. 30, No. 3, pp. 448-473.
24. **Mansori, K. S.** (2003): “Following in their footsteps: comparing interest parity conditions in central European economies to the euro countries”, CESifo Working Paper, No. 1020.
25. **Meese, R. A. & K. Rogoff** (1983): “Empirical exchange rate models of the seventies. Do they fit out of sample?”, *Journal of International Economics*, Vol. 14, No. 1-2, pp. 3-24.
26. **Mehl, A. & L. Cappiello** (2007): “Uncovered interest parity at distant horizons. Evidence on emerging economies and nonlinearities”, ECB Working Paper, No. 801, European Central Bank.
27. **Olmo, J. & K. Pilbeam** (2011): “Uncovered interest parity and the efficiency of the foreign exchange market: A re-examination of the evidence”, *International Journal of Finance & Economics*, Vol. 16, No. 2, pp. 189–204.
28. **Rosenberg, C. B. & M. Tirpak** (2008): “Determinants of foreign currency borrowing in the new member states of the EU”, IMF Working Paper, No. WP/08/173, International Monetary Fund.

SUSTAINABILITY OF RURAL FAMILY ENTERPRISES

Maret Kirsipuu
Estonian Maritime Academy

Abstract

Family enterprises have been researched in traditional, stable market economies, to a lesser extent also in former socialist economies. A special focus has been on family enterprises' sustainability and it has been discovered that one of the main pain spots is the change of generation related problems. Family enterprises can be sustainable only when they are prepared for a generation change. Family business culture and family traditions in Estonia have been broken. After Estonia regained independence in 1991, entrepreneurs started to restore previous farms and wished to continue family traditions of their ancestors; entrepreneurship started to develop and many people, especially in rural areas, started a family business. In 2012, these family entrepreneurs have a choice to make how to ensure that their family business will stay sustainable, how to pass family business over to their descendants so that the family business traditions won't cease. This paper seeks to analyse factors that inhibit sustainability of family enterprises. The data sources are special scientific literature and the questionnaire surveys and interviews with family entrepreneurs conducted by the author over 2007–2011. It is possible to ensure that a family enterprise is sustainable only when the family entrepreneurs are prepared for the generation change. The present and future family entrepreneurs in Estonia can get information from this paper about the problems that may arise in connection with the generation change and knowledge to ensure sustainability of their family business.

Keywords: family entrepreneur, family enterprise, organisational culture, strategy, management

JEL Classification: M10; M13; M19

Introduction

We can find family enterprises in nearly all regions in Estonia; they operate in all areas of activity, the most still in services, agriculture, tourism and production. The factors that influence the activities and successfulness of a family enterprise are the relationships between family members, a comprehensive and well-considered organisational culture. Family entrepreneurs are convinced that with a strong organisational culture and strategic management they can be sustainable.

Family enterprises can be found everywhere in Estonia, but they are most numerous still in rural areas. Family entrepreneurship is playing a significant role in the economy. Entrepreneurship policies support all entrepreneurial people and appreciate entrepreneurship as a promoter of national economic development. The Estonian entrepreneurship policy strategy until the year 2013 is targeted at the

advancement of knowledge and skills, promotion of investment and internationalisation, and development of legal environment. An inseparable part of the entrepreneurship policy is national entrepreneurship development and support programmes for entrepreneurs provided via various foundations and organisations. In order for the Estonian entrepreneurship policy development plan to work successfully it is necessary to value regional, local, saving and information society development. Entrepreneurship policies support in every way development of responsible entrepreneurship so as to avoid that entrepreneurship growth and profitability wouldn't happen on account of other members of society or natural environment (Estonian Enterprise..., 2009). It is important for rural areas to have business activity going on; business should start first in agriculture and after it has taken roots also other areas of activity would start growing in this region (Bourge, 1994). Economic performance of agricultural enterprises depends on enterprises' work on making their economic activity more effective and on state activities in providing an economic policy framework for enterprises, while enterprises need to develop intensive and extensive joint activity for the development of a system of common services and for designing an economic policy environment (Reiljan, Tamm, 2005). More attention than today was focused on development of rural areas during the occupation period. In the year 2012, most of the buildings erected during the occupation period are in bad repair; people have moved away to towns due to unemployment; there are no proper road network and bus connections any more. Small country shops, post offices, kindergartens and primary schools have been liquidated, and higher schools will follow soon.

In 2010 already, the State Audit Office submitted a report to the *Riigikogu* about the impact of entrepreneurship support measures on the competitiveness of Estonian economy, where they concluded that the state does not support its enterprises in the best way. According to the State Audit Office, the support has not increased productivity and export capacity of Estonian enterprises. The State Audit Office reached a conclusion that when the present principles of granting support continue, the impact of support will stay incidental and will not help improve the competitiveness of national economy in the future. The State Audit identified that the state has no complete, well-considered entrepreneurship policy with clear impact objectives. Entrepreneurship policy has consisted in distributing European Union aid funds; enterprises' development problems have not been taken into account. The State Audit recommended increasing of the capacity of designing the entrepreneurship policies in order to find development obstacles in different areas of activity and suggesting complex solutions for conquering them; then correcting granting of support. The State Audit found that the most important keywords of the updated model for the grant of support must be: knowledge and efficient knowledge acquisition system, flexible measures depending on enterprises' needs; in order to prefer certain areas of activity entrepreneurship organisations and specialists must be involved (Riigikontrolli ..., 2010).

The current entrepreneurship policy and the supporting development plans cover the period until 2013. The Ministry of Economic Affairs and Communications has initiated a new programme based on the European Union entrepreneurship policy;

all other ministries have also started to plan updating of development plans which need to be based on various draft laws of the European Parliament and Council.

This research seeks to analyse sustainability of family enterprises. The following research tasks have been set for the achievement of the research objective:

- Provide an overview of research conducted in the sphere;
- Provide an overview of the methods of research;
- Analyse the generation change related problems and the factors that inhibit sustainable development of family enterprises;
- Find problems that need to be solved in practice.

The paper, written on the basis of the survey results, comprises three parts: the first part provides an overview of a family enterprise and of the research conducted on sustainability of family enterprises; the second part presents methods of the research and the third part presents results of the research.

All knowledge about family enterprises is needful in order to be able to transfer family business management on to the next generation and make family business sustainable.

Input data are from scientific literature and the questionnaire surveys and interviews conducted by the author with family entrepreneurs over 2007 - 2011.

Sustainable family enterprises

A special focus has been on family enterprises' sustainability and it has been discovered that one of the main pain spots is the change of generation related problems. Family enterprises can be sustainable only when they are prepared for a generation change. It is possible to ensure that a family enterprise is sustainable only when the family entrepreneurs are prepared for the generation change.

Family enterprises are characterised primarily by their small size; they usually employ up to ten people, but there are also exceptions. One of the most positive qualities of family enterprises is their short decision-making chain. A specific feature of a family enterprise is that business and personal activities are intertwined, for example, use of time, common living space, operating and production facilities etc. In addition to entrepreneurship, family members are connected by friendship and family relations, marriage (Kaseorg; Raudsaar, 2008). Owner of a family enterprise is often manager of the family enterprise (Gersick et al., 1997) and his/her personal ambitions determine the enterprise's business objectives (Chrisman et al., 2003) and he/she prefers keeping the enterprise small in order to maintain and control what he owns (Kaseorg et al., 2007a; Kaseorg et al., 2007b).

A typical feature of family enterprises is that the family business is the main source of income for both their owners and family members. Family enterprises are defined in different ways, but it is obvious that a family or some family members are always

participating in the family business. There is no unanimous definition of family enterprise; however, it can be said in brief that it is a family enterprise where family members own all shares or holdings, or when their share is higher than 50% and most of the family members participate in the activity of the family enterprise (at least in the first and second generation), hence family enterprise is under the control of family members.

As a result of analysing research conducted in different countries it is possible to say that many family enterprises are sustainable (Nordqvist, 2005; Chrisman, Chua, Steier, 2005; Poutziouris, 2000; Quo..., 2003; Gallo, 1995; Poza, 1995; Hanzelkova, 2004; Popczyk et al., 1999; Yalin, 2008; Halttunen, 2004; Vasques et al., 2008; Vadjnal, 2005; Krošlakova, 2007; Balint, 2006; Perry-McLean, 2008), have operated for decades, have transferred management over to descending generations, family traditions have not been broken. Family enterprises are rendered sustainable by the division of roles between family members, especially appreciating the role of woman as housewife (Kakkonen, 2006; Römer-Paakkanen, 2002; Brazzale, 2007; Rautamäki, 2007); women take care of the cosy home, at the same time giving a major contribution to family business development. However, inter-generational problems prevent family enterprises being sustainable (Brun de Pontet, 2008; Moyer, 2006; Wickham, 2004).

The number of family business related research in Finland has been increasing since 2001 when the special attention has been paid to family enterprises' sustainability, women's role in family, involvement of children in business and the problem of successors (Quo..., 2003). Taru Hautala (2006) conducted a research on transfer of management in a family enterprise. Hautala found that family enterprises can be sustainable only when ownership, management as well as knowledge are turned over to descendants, meaning children. Problems are caused by transfers to non-family members; it was found that sustainability can be ensured only when mentors are included in the turnover process. Family enterprises' sustainability has been investigated based on the consolidation of wage labour and family interests (Römer-Paakkanen, 2002), woman's role in family (Rautamäki, 2007), integration of children into family business (Tormakangas, 2005) and succession problems (Hautala, 2006). Research papers have pointed out that family enterprises are more sustainable when all members work in the name of a common objective (Juutilainen, 2005). Research results have concluded that if children want to continue what their parents started, then parents pass knowledge and skills on to them (Littunen, 2001). When children do not wish to participate in family business, the issue of continuing business, whom to leave the business to, whom to appoint manager etc sooner or later arise to the agenda (Kakkonen, 2006). The issue whether to terminate business or bring a person from outside the family may cause conflicts and prevent family business from being sustainable (Niemela, 2003). The reasons why critical situations arise in a family business are (Qua..., 2003):

- descendants have a conflict with older generation who cannot stay away from management;
- manager brought from outside does not reckon with family interests;

- single undertakers have not enough time to let the descendants know the labyrinth of business;
- young generation has wanted to make cardinal changes based on what they were taught at school, which the previous generation does not like.

The papers analysed by the author have reached one conclusion that family enterprises can be sustainable only with long family traditions (Nordqvist, 2005; Chrisman, Chua, Steier, 2005; Poutziouris, 2000; Gallo, 1995; Poza, 1995; Popczyk et al., 1999; Yalin, 2008; Halttunen, 2004; Vasques et al., 2008; Balint, 2006; Perry-McLean, 2008).

Investigations of the composition of family enterprises have pointed out that the first generation family firm should have manager only from among own family members, and starting from the second generation they should employ additional workforce outside, whereas family members must definitely work together with them to ensure the sustainable development of the family firm (Nedlin, 2003). Many family enterprises face conflicts when transferring management; in order to avoid conflicts it is recommended that successors worked before assuming management outside the family enterprise (Sardeshmukh, 2008), take-over without conflicts will improve the reputation of family enterprises. Reputation (both positive and negative) of a family firm has a significant impact on the use of resources (Runge, 1998; Rutherford et al., 2008). Bianchi (2007) conducted a research on the basis of various case studies, emphasising the significance of the family entrepreneur's and family business's reputation and how vulnerable and at the same time sustainable the family enterprises are. Positive reputation of family enterprises is due to that family entrepreneurs have long-term operating experiences and are faithful to the traditions (Kellermanns et al., 2008), which in turn will make them reliable and sustainable.

One cannot draw an explicit line between family and entrepreneurship; family is constantly participating in the entrepreneurship process. Family is engaged in business also outside the working hours; they expect success only if all family is involved (Craig, Lindsay, 2002). Whether the family business survives or not depends largely on its manager, whether the manager is leader or not. Relations with the offspring must be good, it is important to have open communication and approve each other's achievements. Owners of many family enterprises (family business entrepreneurs) are of the opinion that longevity of family enterprises is important and that family business descended to the next generation. Various surveys have pointed out that 30% of family enterprises are successful in the second generation and only 10...15% in the third generation (Aronoff, 1999; Kets de Vries, 1993; Ward, 1997). Surveys of family enterprises have demonstrated that gender differences between family members must definitely be taken into consideration for the family business to be sustainable; the importance of females in family enterprises can be increased by appreciating the women's position in society (Maeda, 2006). For example, in a Japanese family firm the successor must be traditionally male, but in reality no restrictions are imposed when female widows often take over management of the inheritance; they only want to set up unique

family enterprises which would satisfy consumer demand (Maeda, 2006). The existence/nonexistence of gender inequality has been studied in Italian family firms, where we can encounter gender inequality. Brazzale (2007) with his research contributed to the prevention of gender inequality of females. Koffi (2008) claims that family firms where the successors are males, are more vigorous in the managerial decision-making, whereas female successors are too trusting. The role of females in the work of a family firm may not be underestimated (Rautamäki, 2007); women are able to combine lifestyle and work, and at the same time keep them apart from each other (Hite, 2007). The significance of women cannot be underestimated in generation change either.

A family enterprise can be sustainable only when family entrepreneurs are aware of the factors that ensure sustainability, as well as those that restrain sustainable development (Table), and is able to make the right choice.

The issue of generation change in family firms is growing to be increasingly topical and more serious attention has been recently focused on that topic; it is important to distribute ownership correctly, attaching importance to consistency and traditions; because each new generation will get a legacy (Tormakangas, 2005). Different generations may have a different influence on further development and strategy of a family firm (Brun de Pontet, 2008). With the ageing of the first generation of entrepreneurs the following issues will be topical: What will happen when they step aside? Is the successor from family? How to turn over management to the successor, not only as a position but also skills, connections, role of manager and ownership? (Kirsipuu, 2007). Intergenerational relationships play a role not only in the turnover of business but also in management; religious views of different generations may be different, which in turn cause social tensions in family firms; in addition to “Godly Guidance”, one also needs knowledge and wisdom (Moyer, 2006). Generation changes are more successful when successor is interested in the family business; however, it is not sufficient to have the desire, one must also have various skills and the skill of controlling the market (Brun de Pontet, 2008). One has to be aware of the problems that might arise while passing on skills to successors (Hautala, 2006) to avoid the situation where children do not wish to participate in family business. One should be ready for that and decide quickly whom to leave the business to in that case, whom to appoint a new manager (Kakkonen, 2006). In case children want to continue what their parents started, then the knowledge and skills are passed on to the children (Littunen, 2001).

A special focus has been on family enterprises’ sustainability and it has been discovered that one of the main pain spots is the change of generation related problems. Family enterprises can be sustainable only when they are prepared for a generation change. A precondition for a family enterprise to be sustainable is that family enterprises were prepared for a generation change.

Table 1. Sustainability factors for family enterprises (compiled by the author)

Factors	Source
HELPFUL FACTORS	
Positive image	Runge, 1998; Bianchi, 2007; Rutherford et al., 2008
Skilfull distribution of the roles between family members	Römer-Paakkanen, 2002; Kakkonen, 2006; Maeda 2006; Brazzale, 2007; Rautamäki, 2007; Hite, 2007
Involvement of children	Tormakangas, 2005
Educating of future generations with training outside the family	Hautala, 2006; Sardeshmukh, 2008
Passing management on to the next generation together with ownership, management and knowledge	Littunen, 2001; Tormkangas, 2005; Hautala 2006
Common aim, stay faithful to family traditions	Gallo, 1995; Poza, 1995; Popczyk et al., 1999; Poutziouris, 2000; Römer-Paakkanen, 2002; Halttunen, 2004; Hanzelkova, 2004; Nordqvist, 2005; Chrisman, Chua, Steier, 2005; Vadnjal, 2005; Juutilaine, 2005; Tormakangas, 2005; Balint, 2006; Krošlakova, 2007; Yalin, 2008; Vasques et al., 2008; Perry-McLean, 2008; Kellermanns et al., 2008
LIMITING FACTORS	
Conflicts between non-family as well as family members	Niemela, 2003; Sardeshmukh, 2008
In the first generation family firm is managed by a non-family member	Nedlin, 2003; Kakkonen, 2006
In generation change management is passed to a non-family member	Niemela, 2003; Hautala, 2006; Kakkonen 2006
Problems associated with generation change	Wickham, 2004; Hautala 2006; Moyer, 2006; Brun de Pontet, 2008

Methodology

An objective of the survey was to investigate family enterprises' sustainability and the generation change related problems using qualitative methods of research. The main instruments used in this research were structured and unstructured questionnaires and interviews. Structured interviews were based on the standard interview form with emphasis on fixed categories of answers and systematic sampling, and on completion procedures combined with quantitative measures and statistical methods. In unstructured interviews the respondents were given nearly full freedom to discuss the reactions to, opinions on and conduct in a particular question; the interviewer asked only leading questions and recorded the answers. An advantage of the interview before other data collection methods is that interviews

can be used in different situations and combined with other methods of research and, where necessary, the sequence and formulation of questions can be changed during the interview. The author chose the interview method because it provides an opportunity to personally communicate with the interviewees and ask supplementary questions later.

Based on the theoretical information, the questionnaires and interview questions were formulated and targets were set what the interviews had to accomplish. The interviews were based on open-ended questions supplemented by special questions. If only questionnaires had been used, the answers would have been more laconic and mostly anonymous. Specifying questions were asked in open conversation; many liked that personal conversation enabled them to speak „face to face“. Before going to the interview, the author studied thoroughly the theoretical sources and legislation and made preparations so as to know the background of family entrepreneurs; contacts were established with the interviewees, agreements were made and opportunities of seeing final results of the research were promised. Then a peaceful place was selected to eliminate disturbing factors, and keeping the appointment a promise was given to be confidential and guarantee anonymity. Before asking the questions and conducting interviews the researcher had to realise that the interviewees may be not very honest in delicate questions. Talks over the phone were conducted with the potential interviewees in order to carry out the interviews smoothly. It was explained to the respondents that if they answered truthfully it would be possible, based on the conclusions made from the results, to propose measures for development of family entrepreneurship and improvement of support systems. This helped arouse kind of interest among the respondents and they were motivated to find time.

The questionnaire surveys and interviews were conducted from 2007 to 2011. The topics of questionnaires and interviews can be divided into three main groups:

- entrepreneur's background, areas of activity;
- activity as family business entrepreneur;
- participation of family in family business.

This paper discusses only the part related to sustainability of family business enterprises. The sustainable development related questions were:

- What are the specific characteristics of your family enterprise?
- What characterises the organisational culture of your family enterprise?
- Is the strategic plan of your family enterprise formulated in your mind, in writing, or missing?
- Who of your family members (relatives) participate in the business?
- What is the division of labour between your family members?
- Are the owners and managerial staff of the family enterprise the same?
- In which way is your family enterprise managed? What kind of manager are you?

- Have you been thinking about retiring from active management of your family business and passing management to a person outside the family? Give reasons?
- Who of your family members could easily take over the duties of manager?
- What is important for you as family entrepreneur (continuing family traditions; providing future for the children; reselling business with profit; providing for the family; nonrefundable aid).
- Do you hope that someone will continue your family business when you have to retire from business one day? Who specifically?
- Are the successor problems worrying you?
- Is the survival of your family enterprise a problem to you?
- Have you been thinking about terminating the family business? If yes, then what has caused such thoughts?
- What is the attitude of your business partners, clients etc toward your family enterprise?
- Has there been a situation where your undertaking has not been regarded as sufficiently attractive and you have felt discriminated compared to others?
- How do you imagine a family business development model with long family traditions passing on from generation to generation?
- Please describe some important event or situation associated with your family enterprise which has been a talking point for a long time.
- Name the main problems in your family enterprise.
- What are the mistakes you have made due to insufficient knowledge?
- What kind of family entrepreneurship support activities do you need?
- Area and place of activity; number of family members; age when starting the family business etc general informative questions.

In 2007–2011, the author sent questionnaires to 2035 hypothetical family business entrepreneurs to find out whether the entrepreneurs regarded themselves as family entrepreneurs or not. 1500 respondents who regarded themselves as family entrepreneurs received another questionnaire, which identified that 1188 of the respondents can be actually considered family entrepreneurs; interviews were conducted with more than one thousand family entrepreneurs from among them, including in-depth interviews with 76. The questions were mostly sent by e-mail; however, those whose e-mail address was not available in databases, the author called and got the answers by phone; and those who had neither an e-mail address nor telephone number in databases, she sent the questionnaire by post. Questionnaires were sent by post, some of them were delivered personally and some network questionnaires were sent by e-mail. 1320 completed questionnaires, or 88% were returned to the author (100% from the personally delivered questionnaires; 90% from those sent by post; 86% from those sent by e-mail).

When commencing the research the author used a special sample formed of beef cattle breeders conducting performance testing in 2007 and of sport horse breeders who had registered their horses in the database of sport horses in 2008. The author got the information from the Animal Recording Centre's database *Liisu* and from the

horse database (Liisu..., 2007; Hobuste..., 2008). A random sample was formed for interviews conducted in 2009 and later. The method of systematic random sampling was used. For every county a hypothetical list of family enterprises in alphabetical order was drafted; the sample was made starting from a hypothetical family enterprise with a random number in the list and advancing by a predetermined step. The same principle was used for generating the interview samples. The 2009 random sample was formed of rural enterprises. For conducting this survey the sample was made as follows: a random sample of rural enterprises, the sample size was 10% of the enterprises in the respective rural area. The author received input data for the sample from the Agricultural Registers and Information Board's (PRIA) register of farm animals, from the holding register (PRIA..., 2009). The 2010 random sample was selected from among the enterprises registered in Estonia; the author removed from the sample those enterprises which had registered their holdings in PRIA's animal register and those whose legal address was in Tallinn. Input data for the sample were received from on-line information system of the Commercial Register accessible for registered users in the Ministry of Justice's Centre of Registers and Information Systems (Äriregistri..., 2010).

The survey consisted of five questions, which sought to learn whether the entrepreneur regarded himself as a family enterprise. Analysis of the results identified the family enterprises to whom the author sent the questionnaire, which contained 45 questions. The questionnaire attempted to get information on the background of family entrepreneurs; the reasons why they became family entrepreneurs; the structure and organisational culture of family enterprises; strategy and management of family enterprises; generation change related problems. The questionnaire started with introductory, easy questions followed by the questions about the research subject. Opinion and attitude related questions and open ended questions were placed in the second part of the questionnaire. The questionnaire ended with asking the objective data (gender, age, education). Interviews were conducted with those who had completed the questionnaire; interviews contained 20 questions, which were based on the questionnaire but allowed the author an in-depth analysis of family entrepreneurs. The author considered it important that the questions were based on the questionnaire since answers to the questionnaire needn't always be objective. Interview questions were randomly sequenced, so as to avoid the situation where answers to previous questions influence answers to the subsequent questions. An in-depth interview consisted of 60 questions, and represented a detailed approach to previously discussed topics. In-depth interview is a particularly suitable method of data collection where the research subject is sophisticated and detailed information is required. Before conducted an in-depth interview, the author came to realise that the interviewees needn't be very honest in answering sensitive questions (formal employment relations, remuneration, dividends, money) and in order to receive as unbiased and honest answers as possible, she agreed with all interviewees over the phone and explained why and for what reason she has to meet them and once more discuss the subject. The interviewees were explained that when they answered truthfully it would be possible, based on the aggregate results, to make proposals, for example, for the establishment of family entrepreneurship support systems, and, why not, for

inserting the family business notion into legislation. This helped to achieve a kind of interest among the respondents and they were motivated to talk and sacrifice some of their time.

The author afforded the interviewees after answering the questions an opportunity to have a talk in the topic the interviewee was interested in. The interviewer reformulated some questions based on the personality of the interviewee, keeping the meaning and purposefulness. The most difficult was to get answers to sensitive questions. From some respondents the author received objective answers to sensitive questions; however, some people did not open. After interviews the author wrote down the most important points from the interview and notes on practical details. They were useful in the process of analysing, since some questions required concretisation. Analysis of the interviews started from data interpretation, which is a prerequisite for analysing the questions. The author made notes from the questionnaires and interviews, rewrote the interviews and selected data, analysed questions in order to get an objective picture of the interviewees and their problems. All interviews received symbols during analysis. Survey data are concentrated, simplified and modified, and presented as a compressed set of information (figures).

The results of the questionnaire and interview surveys can be considered reliable. When analysing the questionnaires and interviews, the author reached a conclusion that the methods used were suitable.

Results

1188 family enterprises were questioned or interviewed during 2007–2011. The results of analyses have been aggregated. The survey covered family enterprises from all counties (Figure 1), the most from islands (11.2%); the least from Ida-Viru County (3.7%) and Rapla County (4.0%). 33.3% of the family business entrepreneurs had higher education, 20.0% secondary specialised education, 26.0% secondary education, 20.0% basic education and 0.7% primary education. Family entrepreneurs have studied various specialities, for example, agronomy, zoology, animal breeding, tailor, food technology, electrician, bookkeeping, design, pedagogy, bookbinding, journalism, metalworking, veterinary, medicine, art, dramaturgy, etc.

In the start-up phase, women accounted for 40% and men for 60% of the family entrepreneurs; age of family entrepreneurs ranged from 21 to 55. The start-up initiative came in 60% of the cases from men, who then invited their wives and then children and other relatives. First the spouse acquired family business membership (75%), then children (20%) and close relatives only in 5% of the enterprises; spouse was involved in all family business enterprises in the stage under investigation.

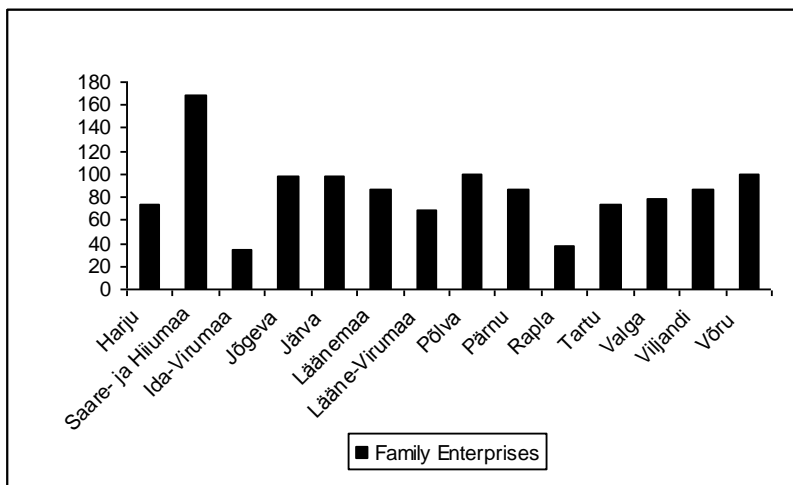


Figure 1. Family enterprises in the survey across counties, in 2007–2011 (compiled by the author).

Family composition varied a lot while starting a family business; they started with up to six persons, hence the family business start-up depends not only on the size of family but also on the needs, ambitions and enterprising spirit of the family. While starting a family business it is of no significance whether the couple is officially married or not. Most of the family entrepreneurs think a family consists of cohabiting members (not living in the same household); it is of no significance whether the conjugal relations are official or not, only cohabiting counts. 15% of the family business entrepreneurs, however, did not regard it right when cohabitation was not officially registered; they found that family business culture is undermined when founders of a family business have not ‘legitimately consummated’ their relationship, or „promised in the presence of God to help each other in joy and in sorrow“; they found that a long family tradition can be ensured only by the family business where all members have all relationships legalised, only that way a family tradition can go on from generation to generation, already because the family name would go on. All these family business entrepreneurs who could continue what their fore-fathers have done were 100% convinced that only marriage is the right groundwork for a family and only through marriage it is possible to set up, maintain and assure a sustainable family business.

Family entrepreneurs are positive that a family business must first satisfy needs of the cohabiting family, and only then the needs of family members who live elsewhere. While starting a family business they rather set up a family enterprise where only family members are employed; only later they start to hire workers outside the family. Family entrepreneurs also find that problems are almost missing in a family enterprise of a cohabiting family; however, when distant relatives are

involved, problems arise, for instance from sayings such as „What are you bossing around, you runny-nosed youngster”, or „I have been taking care of you enough, don't forget it,” or „Who bought you candy when you went to the second class”, etc. The older the generator of problems, the more difficult it is for the family entrepreneur to establish him/herself; there is „gratitude“, „respect for older people”; at the same time, they believe they may not „let them obtrude themselves on me”.

Spouse, children, parents and siblings participate in the family businesses studied in this survey (Figure 2). To the question why family business, why not keep family and business apart, they answered that family business cements the family relations, everybody knows everything and you can completely trust family members and „you can work rather than watch for someone not making off with something“.

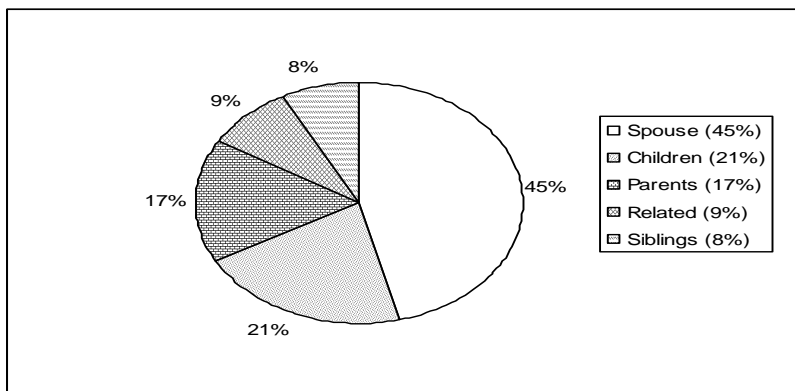


Figure 2. Members of a family enterprise in 2007–2011 (compiled by the author).

With a non-existent organisational culture, which is normal in the business set-up phase, there are more conflicts in both family and business relations as well as between generations. The clearer the organisational culture, the fewer the tensions and conflicts. Tensions are also caused by the situation where an educated family member returns to the family business and wants to start managing the business according to what he/she learned at school. Answers to how to solve the conflicts were: „We have sat down and talked it out”; „We established definite rules”; „We redistributed the areas of activity”; „We made a decision and admit that „the egg is smarter than the hen””. At the same time, all family entrepreneurs believe that business should be expanded and the motivating factor is the next generation. Older family entrepreneurs themselves do not want to aggressively expand business; they say they „need a push“, „let children come and do“, „I'd expand but have no time to go to training courses”.

In interviews entrepreneurs attached great importance to managerial skills, especially experiences; however, when ranking different qualities they overlooked the managerial skills. This allows concluding that family entrepreneurs lack

awareness of the significance of management and strategy and connection to business performance, and entrepreneurs need to attend various training courses and come together rather than stay only with their business from day to day.

A strong organisational culture where definite rules have been established helps to bring clarity into work and personal relations. One of the spouses said the following about the relationships between them: „We complement each other”, „We think similarly”, „The spouse sets the strategy, I help work out strategy implementation”. A strong organisational culture helps minimise tensions which rise when an educated family member starts working in a family business; the situation is especially tense when an adult child comes to work here. Family business owners who have hired an executive manager from outside the family say that „it is very hard to step aside at the beginning”; „it is very hard to entrust management of something you have created to a stranger”; „I am afraid of weakening of my leading position”. When they overcame these feelings, they found that the outsiders are realistic, can see the family business strategy more clearly and make changes, which occasionally have destroyed the so far strong organisational culture.

Destruction of the organisational culture was discerned by family entrepreneurs who had started the family business in the early 1990s; they had understood that the organisational culture they had established „had influences from the occupation period and had grown outdated”. Introduction of changes to the organisational culture was, despite the need of changes, an extremely painful and time-consuming process. At the same time, such family enterprises where an educated family member who had worked elsewhere in the meanwhile returned, could make changes to the organisational culture less painfully and faster, since they „still trust one of your own rather than a stranger”. It is believed to be important that only family members are in the management of a family enterprise, not people hired from outside the family, since this would ensure instant understanding, „You needn't end a sentence, the other already knows”, „Material welfare for the family is provided”.

They find that when family business expands it is increasingly difficult to discriminate between work and family, which in turn leads them drawing apart from each other and will raise the family business interests higher than personal interests; there is no more free time. Conflicts arise, which may lead to collapse of the family. 28.4% of those family enterprises with a sun-shaped organisation are losing control over the management of the family business, especially those enterprises which have to pass management on to the next generation. A family entrepreneur cannot stay away from the management process and is constantly interfering. 72.7% of the respondents are of the opinion that organisational culture of the family enterprise contributes to the achievement of the objectives and that the organisational culture is the same in all locations. Family entrepreneurs believe that the organisational culture is focused on human relations and they are satisfied with the existing organisational culture, appreciation of values is most important for them. Organisational culture in family enterprises is influenced by the family entrepreneurs; hired executive management has the task to reinforce the existing organisational culture via goal setting.

Family traditions were regarded as the most important thing by 55.1% of those family enterprises which had operated for more than ten years, and only by 15.7% of those enterprises which had operated for a shorter period. The family enterprises interviewed in this survey have found their niche in the entrepreneurship environment, are satisfied with this and do not regard expansion as a priority. Those family enterprises which are focused on providing welfare for future generations are more sustainable and have a stronger organisational culture than those which lack such a focus. Rural family enterprises wish to invest into future generations to continue long family traditions, which had been suppressed for nearly 50 years. They would be glad to invest in expansion and educate both family members and non-family employees, because they want to leave the family business to the offspring. A family business which cannot leave the firm to future generations will start going down in a long term; interest will fade, for example, „Why should I care and labour when after me some distant relatives will come and get my work and fruits; I rather squander and leave them empty handed”.

With the ageing of the „first round” of entrepreneurs the following issues will be topical: What will happen when they step aside? Is the successor from family and how to turn over management to the successor; not only the position but also skills, connections, role of manager and ownership, which all are important from the aspect of sustainable family business. Generation change problems have more topically risen to the agenda in family enterprises operating in agriculture, since most of the rural family entrepreneurs started business in 1991–1999; their average age then was 45. Family entrepreneurs say that „children do not want to come to the countryside and continue family traditions“. Many rural family entrepreneurs have problems with offspring. Young people want to go to town to lead easier life and obtain wisdom in the world. Fortunately there are farms where a change of generation has already happened and therefore they need not worry about offspring; for example, young farmers are the sun of Siimu farm; siblings of Taivo Koka farm.

A problem for nearly all family entrepreneurs was insufficient entrepreneurship knowledge, experiences, especially about the transfer of management to the successors. All family entrepreneurs wished that more attention were focused on the role of family enterprises in the economy and that training courses were organised for family entrepreneurs about management, strategy, time planning, transfer of family enterprises to successors etc. They also want, in order to improve their competitiveness, state assistance in the form of finances, in order to operate in a sustainable way. Their common wish is a properly working supply chain to ensure access to new markets. Most of the family entrepreneurs believe that with a strong and knowing family, with the right management strategy and strong family business culture they can ensure achievement of the objectives and earn profit.

As a result of analysing the interviews it was found that family enterprises are sustainable when

- they operate for a long time and create family traditions;

- family enterprises have a planning system, strategic plans and strong organisational culture;
- they purposefully educate succeeding generations;
- expand business and pass the enterprise on to the next generation.

As a result of analysing the interviews it was found that the factors that prevent family enterprises from being sustainable are:

- Insufficient experiences in and knowledge about entrepreneurship;
- Arousing interest of the next generation for participation in the family business;
- Lack of skills for passing management on to the next generation;
- Conflicts in the change of generation.

Family enterprises in the first years are unsustainable when they have not set priorities and do not realise that starting a family business will take all their free time; they cannot believe that family members cannot do all the works they have no skills for and so they do not hire outside workforce.

It is not possible to provide definite, unambiguous guidelines for family entrepreneurs. What works well for one family enterprise, needn't work with the others. Every family firm needs to take such strategic decisions which are suitable for them only and take into consideration the abilities and specific qualities of their family enterprise. 98% of the owners of family enterprises investigated within this survey were actively participating in management of their family business. 40% of the family enterprises have a properly formulated strategy to ensure sustainable development of the family business. Strategies have been made in writing, formulating a detailed vision, mission and objectives. It takes time to implement a new strategy, but with joint efforts of the family it goes much faster and easily than between non-family members. Cooperation between family members is extremely important; cooperation helps to change the attitude of non-family employees. A good example is irresistible to imitate and a proper manager does not miss such an opportunity. If the family is committed to the new objectives, then employees of the family enterprise will do it also. Family enterprises may not be satisfied with what they have achieved but have to start looking for new challenges. They have to constantly analyse the potential of strategic objectives and success and watch what the rivals are doing. Family entrepreneurs need to study their area of activity to discover new aspects, find new and unoccupied strategic positions and keep the heritage of family business culture, passing it on to future generations.

In 1981, long-living family enterprises founded an association *Les Henokiens*. The membership criteria are as follows: a minimum age of 200 years, the family still owns the company or is the majority share holder. A requirement is that the company is managed by a descendant of the founder; the company is in good financial health and modern. It is one of the most exclusive family business organisations in the world; their one objective is to value the concept of family firms. The organisation had 39 members as of 2011: 14 from Italy, 12 from France, 5 from Japan, 3 from Germany, 2 from the Netherlands and 1 from Switzerland and

Belgium (History..., 2011). Sustainability of Estonian family firms will ensure them access to this association after the next couple of hundred years.

According to the author, no similar research has been conducted in Estonia before; hence it is not possible to compare the research results. The novelty of the research, in the author's opinion, is that this is the first extensive research among family enterprises and the information obtained can be used for continuing research as well as for study material.

Family entrepreneurship in Estonia is in the first generation only; the time when family business is passed on to the next generation is coming soon, in some enterprises it is already happening. In order for the transfer of a family enterprise to happen with no problems one has to make preparations today. Whether the sustainable development success factors of Estonian family enterprises are the same as in other countries is an issue to be researched after a couple of decades. However, whether the factors inhibiting sustainable development of Estonian family enterprises are the same as in other world will be a research topic in a few years already.

Conclusions

A specific feature of family enterprises is that family business is the main source of income for family members. One of the most positive qualities of family enterprises is their short decision-making chain, which ensures rapid implementation of the objectives. The factors that influence performance and success of family enterprises are mutual relationships between family members and comprehensive and well-considered strategic action plan and organisational culture. All knowledge about family entrepreneurship is necessary in order to help set up new family enterprises, develop the existing ones, know how to transfer management over to the next generation and make family enterprises sustainable. In order to promote rural life people living there should have good living and employment conditions.

In rural family enterprises children usually tend to leave to cities after having obtained education, but soon they return to their roots and continue what their parents have started. Family involved in the business may be a significant competitive advantage. Family enterprises can use many instruments in marketing that are not accessible to other enterprises. Management of a family business is accomplishable for a family, division of labour is only between family members and there is no need to hire full-time employees all year round. For example, most of the Estonian tourist farms are family businesses. Family firm has often started from the head of the household's large-scale role of owner-executive manager, which he has started to share with his family members.

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- Conflicts in the change of generation.

The research allows drawing a conclusion that family enterprises wish to operate in several areas of activity for a longer period and become traditional sustainable family businesses with a well-established family business culture. To achieve that purpose it is necessary to:

- organise entrepreneurship training courses for family entrepreneurs;
- organise specialised continuing training courses;
- organise training courses on how to transfer management to offspring;
- develop cooperation and societies in rural areas;
- promote family entrepreneurship to a greater extent;
- provide advice free of charge for finding additional funds;
- improve cooperation between local governments and family enterprises.

The research allows concluding that family enterprises have a strong organisational culture and they have developed targeted strategies for performing economic activities. Family enterprises have long traditions, which ensure confidential relationships between the family members as well as with employees; appreciation of family traditions in family business contributes to development of family enterprises and their survival in longer perspective.

It is not possible to provide definite, unambiguous guidelines for family entrepreneurs on how to be sustainable and how to pass on management to the next generation. What works well for one family enterprise, needn't work with the other. Every family firm needs to take such decisions which are suitable for them only and take into consideration the family business culture of their enterprise, specific qualities and abilities of their family firm.

An important role in being sustainable is played by transfer of family business to the next generation; in case it fails, the business activity will terminate and the particular family business will cease to exist.

There are no textbooks or manuals for family enterprises published in Estonia, and no family business programme in any of the educational institutions in Estonia. But knowledge about family business are necessary in order to set up new family enterprises, develop the existing ones, know how to transfer management to the next

generation and make family enterprises sustainable. This gap should be filled. The author is certain that the current and future family entrepreneurs in Estonia will be encouraged by this paper and her doctoral thesis, in whatever they do.

Future family business researchers need to be aware of the specific nature of family enterprises and of their specific problems is constantly growing in Estonia; awareness is missing about specific characteristics of management, relationships between family members and non-family employees and succession problems.

Family entrepreneurship in Estonia is in the first generation only; the time when family business is passed on to the next generation is coming soon, in some enterprises it is already happening. In order for the transfer of a family enterprise to happen with no problems one has to make preparations today. Whether the sustainable development success factors of Estonian family enterprises are the same as in other countries is an issue to be researched after a couple of decades. However, whether the factors inhibiting sustainable development of Estonian family enterprises are the same as in other world will be a research topic in a few years already.

References

1. **Aronoff, C. D.** (1999). Family business survival: Understanding the statistics „only 30%“. Family Business Advisor, 8, (7), 1.
2. **Balint, A.** (2006). Where to go Middle Sized Business? Succession Strategies of Middle Sized Businesses. Ungari.
3. **Bianchi, C.** (2007). Making Family Business Work – By Tony Balshaw Thrive. Family Business Review, 20, (1), 81.
4. **Bourge, S.** (1994). Attractiveness of Branches: The Performance of Particular Industries. California: Outer Systems Publishers, 289 pages.
5. **Brazzale, C.** (2007). Family firms and the making of cosmopolitanism: The effacement of gender in the global capitalism of the Italian Nordest. University of California, Los Angeles, 356 pages; AAT 3302517.
6. **Brun de Pontet, S.** (2008). Using theories of control and self-regulation to examine the leadership transition between a parent and child in family-owned businesses. Concordia University (Canada), 212 pages; AAT NR37730.
7. **Chrisman, J. J., Chua, J. H., Steier, L.** (2005). Sources and consequences of distinctive familiness: an introduction. Entrepreneurship Theory and Practise, May, 237–247.
8. **Chrisman, J. J., Chua, J. H., Zahra, S. A.** (2003). Creating wealth in family firms through managing resources: comments and extensions. Entrepreneurship: Theory & Practice, 27, 4.
9. **Craig, J., Lindsay, N.** (2002). Incorporating the family dynamic into entrepreneurship process. Journal of Small Business and Enterprise Development, 9, (4), 416–430.
10. **Estonian Enterprise Policy 2007-2013.** Ministry of Economic Affairs and Communications. [WWW.]

- http://www.mkm.ee/failid/Estonian_Enterprise_Policy_2007_2013.pdf
(01.12.2008; 01.08.2009).
11. **Gallo, M. A.** (1995). Family business in Spain: Tracks followed and outcomes reached by those among the largest thousand. *Family Business Review*, 8, (4), 245–254.
 12. **Gersick, K. E., Davis, J. A., Hampton, M. M., Lansberg, I.** (1997). *Generation to generation: Life Cycles of the Family Business*. Boston, MA: Harvard Business School Press.
 13. **Halttunen, J.** (2004). Teollisten perheyritysten kasvudynamiikan systeemiteoreettinen tarkastelu. Jyväskylän Yliopisto, 302 pages; AAT C820640.
 14. **Hanzelkova, A.** (2004). Re-establishing traditional Czech family businesses: A multiple case study on the present challenges. Jyväskylän Yliopisto, 306 pages; AAT C820639.
 15. **Hautala, T.** (2006). *Leadership and Knowledge Transfers in Succession of Family Firma in Catering Business*. University of Vaasa. Finland.
 16. **History of the Henokiens.** The Henokiens Association of family and bicentenary companies. [WWW]
http://www.henokiens.com/index_histo_gb.php (25.05.2011)
 17. **Hite, L. M.** (2007). Hispanic Women Managers and Professionals: Reflections on Life and Work. *Gender, Work & Organization*, 14, (1), 20–36.
 18. **Hobuste andmebaas.** Jõudluskontrolli Keskus. [WWW]
<http://www.jkkeskus.ee/htr/> Available over the internal website. (18.06.2008)
 19. **Juutilainen, S. A.** (2005). Pienen matkailuyrityksen yrittäjän taival: Oppiminen yrittäjyyksiprosessissa. Lappeenranta Teknillinen Korkeakoulu, 191 pages; AAT C823223.
 20. **Kakkonen, M.-L.** (2006). Intuition and entrepreneurs: A phenomenological study of managerial intuition of Finnish family entrepreneurs. Jyväskylän Yliopisto, 176 pages; AAT C827354.
 21. **Kaseorg, M., Siimon, A.** (2007a). Perefirmade juhtimise ja arenguprobleemid Eestis. *Management Theory and Practice: synergy in organizations*. Tartu University Press, 106–118.
 22. **Kaseorg, M., Siimon, A.** (2007b). Perefirmade loomise, tegutsemise ja arenguprobleemid Eestis. [WWW]
<http://www.ut.ee/orb.aw/class=file/action=preview/id=302926/Kaseorg,+Siimon+28.10.pdf>.
 23. **Kaseorg, M., Siimon, A.** (2008). Perefirmade teoreetiline ja rakenduslik käsitus. Eesti Majandusteadlaste Seltsi aastakonverents; Pärnu; 22–23 January 2008. 1–17.
 24. **Kaseorg, M., Raudsaar, M.** (2008). Family Firm as Social Entrepreneur in Post-Communist Transition Society: The Case from Estonia. [WWW]
http://www.esu.fi/papers/23_Merike_Kaseorg_Mervi.pdf
 25. **Kellermanns, F. W., Barnett, T.** (2008). Commentary: What Were They Thinking? The Role of Family Firm Mental Models on Threat Recognition. *Entrepreneurship: Theory & Practice*, Publisher Blackwell Publishing Limited, 32, (6), 999–1006.

26. **Kets de Vries, M. F. R.** (1993). The dynamics of family controlled firms: The good news and the bad news. *Organizational Dynamics*, 21, 59–71.
27. **Kirsipuu, M.** (2007). Füüsilisest isikust ettevõtja pereettevõtluses. Mattimer OÜ, http://www.emselts.ee/konverentsid/EMS2007/Ettev6tlus_ja_majanduspoliitika/Kirsipuu.pdf.
28. **Koffi, V.** (2008). Integration of the successor in families SME's: Comparative case studies of the strategies of female and male predecessors. Université du Québec a Trois-Rivières (Canada), 507 pages; AAT NR41593.
29. **Krošlakova, M.** (2007). Predpoklady a podmienky rozvoja rodinného podnikania na Slovensku ako fenomén podnikania (Presumption and conditions of family business in Slovakia as phenomenon of entrepreneurship). Bratislava.
30. **Liisu JKK lihaveiste programm.** Jõudluskontrolli Keskus. [WWW] http://www.jkkeskus.ee/liisu/?owner_id=&module=HerdList. Kättesaadav siseveebist. (01.10.2007)
31. **Littunen, H.** (2001). The birth and success on new firms in a changing environment. Jyväskylän Yliopisto, 261 pages; AATC809225.
32. **Maeda, H. M.** (2006). Gender and family firm: Strategy and practice in early modern Japan. University of California, Davis, 214 pages, AAT 3230659.
33. **Moyer, S. K. E.** (2006). Experiencing the essence of selecting and developing life goals among family business owners. The George Washington University, 166 pages; AAT 3218606.
34. **Nedlin, M. B.** (2003). Unified Blended Family Business(c): A new perspective for the 21st century understanding relationships in family businesses. Nova Southeastern University, 271 pages; AAT 3090289.
35. **Niemela, T.** (2003). Inter-firm co-operation: A processual empirical study on networking family firms. Jyväskylän Yliopisto, 199 pages, AATC 816839.
36. **Nordqvist, M.** (2005). Understanding the role of ownership in strategizing: a study of family firms. Jönköping: Parajett AB.
37. **Perry-McLean, P.** (2008). From private ownership to public ownership: A qualitative study of two Jamaican transitioned family firms. Walden University, 217 pages; AAT 3291925.
38. **Popczyk, W., Winnicka-Popczyk, A.** (1999). Przedsiębiorstwo rodzinne – determinanty dalszego rozwoju w gospodarce polskiej. University of Lodz.
39. **Poutziouris, P.** (2000). Family Business – Tradition or Entrepreneurship in the New Economy? 11th Annual Family Business Network World Conference Proceedings. FBN-London.
40. **Poza, E. J.** (1995). Global competition and the family – owned business in Latin America. *Family Business Review*, 8 (4), 301–311.
41. **PRIA Loomade register, ehitiste otsing.** Põllumajanduse Registrite ja Informatsiooni Amet. [WWW] <http://neptuun.pria.ee/lr/faces/lr/lr.jsp>. Kättesaadav siseveebist (01.08.2009)
42. **Quo Vadis, Suomalainen Perheyritys?** (2003). Ed. Jarna Heinonen. PK-Instituutti. Turun kauppakorkeakoulu.
43. **Rautamäki, H.** (2007). Psykologinen omistajuus ja työnilo perheyrittäjyydessä. Jyväskylän yliopisto. Yrittäjyyden tutkimus XXIII taloustutkijoiden kesäseminaarissa, 160, 37–47.

44. **Reiljan, J., Tamm, D.** (2005). Majandusharu konkurentsivõime analüüsi alused Eesti põllumajanduse näitel. Tartu Ülikooli Kirjastus, 76 pages.
45. **Riigikontrolli aruanne Riigikogule.** 23.10.2010.
<http://www.riigikontroll.ee/Riigikontrollipublikatsioonid/Auditiaruanded/tabid/206/Audit/2148/language/et-EE/Default.aspx> (25.01.2012)
46. **Runge, J. B.** (1998). Understanding performance differences in small family firms: A resource-based view. Louisiana State University and Agricultural & Mechanical College, 130 pages; AAT 9922113.
47. **Rutherford, M. W., Kuratko, D.F., Holt, D. T.** (2008). Examining the Link between “Familianness” and Performance: Can the F-PEC Untangle the Family Business Theory Jungle? Entrepreneurship: Theory & Practice, Publisher Blackwell Publishing Limited, 32, (6), 1089-1109.
48. **Römer-Paakkanen, T.** (2002). Family Entrepreneurship in a Retail Chain. Doctoral thesis.
49. **Sardeshmukh, S. R.** (2008). Successor development in family firms. Rensselaer Polytechnic Institute, 178 pages; AAT 3329046.
50. **Tormakangas, R. E.** (2005). Perheyrittäjyyden arjen kulttuuri: Kolmen sukupolven sahatointia. Jyväskylän Yliopisto, 203 pages; AAT C825259.
51. **Vadnjal, J.** (2005). Razvojna naravnost družinskih podjetij v Sloveniji (Developmental orientation of family enterprises in Slovenia) Ekonomska fakulteta, Univerza v Ljubljani.
52. **Vasques, M., Ernesto, J.** (2008). Understanding non-agricultural entrepreneurial activities developed by farmers in Canada. University of Guelph (Canada), 293 pages; AAT NR41730.
53. **Ward, J. I.** (1997). Keeping the family business healthy. San Francisco: Jossey-Bass.
54. **Wickham, P. A.** (2004). Strategic entrepreneurship. Third Edition. Pearson Education Limited.
55. **Äriregistri teabesüsteem.** Justiitsministeeriumi Registre ja Infosüsteemide Keskus. [WWW] <https://ariregister.rik.ee/login.py>. Kasutamiseks registreeritud kasutajale. (01.08.2010)
56. **Yalin, M. F.** (2008). Essays on publicly traded family firms in the United States. University of Pittsburgh, 137 pages; AAT 3335855.

ECONOMIC GROWTH, CONVERGENCE AND INNOVATION IN THE EU REGIONS¹

Tiiu Paas, Triin Vahi
University of Tartu

Abstract

The paper focuses on quantitative assessment of the innovation's role in explaining regional disparities and convergence in Europe. The empirical part of the study bases on the regional GDP pc and innovation indicators on the EU-27 NUTS2 level regions. Based on the selected set of initial regional innovation indicators and using the principal components factor analysis method, three composite indicators of regional innovation capacity are extracted. Estimating convergence equations, we noticed that regional innovations tend to increase inter-regional differences, at least during the short-run period. Thus, if regional income convergence is a policy target, additional policy measures beside innovation activities should be effectively implemented.

Keywords: regional disparities, convergence, innovation, policy implications

JEL Classification: R11, O11, C21

1. Introduction

The issue of regional income disparities, growth and convergence has been the subject of a large body of empirical research since the beginning of the 1990s. Numerous studies on regional growth and convergence have been conducted during the recent decades which rely on neoclassical and endogenous growth models (e.g. Barro and Sala-i-Martin, 1995; Romer, 1986, 1990; Lucas, 1988; Armstrong, 1995) as well as on the NEG – New Economic Geography models (e.g. Krugman 1991). Despite of great interest in this matter, there is continually lot of discussable problems related to regional development and policy measures supporting economic growth and development of countries and regions. For instance there is still a research gap in exploring the role of innovations in regional economic growth and income convergence. Innovation activities as well as economic growth vary in countries and regions worldwide but the reasons for these different developments have not been satisfactorily identified and analysed so far.

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This paper focuses on examining the relationship between regional innovation and economic development in the EU countries and their NUTS-2 level regions² looking for the answers to the research questions about the role of innovations in variability of regional GDP pc and in regional income convergence. We consider GDP pc as the indicator of the regions' economic development level. The overwhelming aim of the study is to get additional information for elaborating policy proposals that may support regional development as well as income convergence if that will be a policy target.

The empirical part of the paper bases on the Eurostat data of GDP pc in the EU-27 countries and their respective NUTS-2 and NUTS-3 level regions. Additionally, we use Eurostat and Regional Innovation Scoreboard (RIS) data that are related to several aspects of the NUTS-2 regions' innovation performance. We implement principal component factor analysis in order to elaborate composite indicators of regional innovation performance. These indicators allow us to quantitatively examine the role of innovations in regional development and convergence. Relying on composite indicators of regional innovation performance, we specify and estimate regression models in order to, first, to examine the relationships between the regional GDP pc and composite indicators of regional innovation performance, and second, to test conditional convergence hypothesis.

Due to data restrictions on innovation performance it is not feasible to conduct a long-run convergence analysis. We can rely on regional innovation information only of the period 2000-2007. However, although the explanatory capacity for long-run developments is limited, we believe that analysing data of shorter periods may yield important insights into recent tendencies in regional income disparities and convergence taking into account different innovation performance of the EU regions.

The paper consists of five main sections. The next section introduces some theoretical and empirical considerations, which are relevant to our analysis. Section 3 gives a short overview of regional innovation performance indicators and presents the results of principal component factor analysis implemented for elaborating composite indicators of regional innovation performance of the EU NUTS-2 regions. The results of empirical analysis examining the relationship between the level of economic development and innovation performance as well as the results of testing conditional convergence hypothesis are presented in section 4. Finally, discussions and conclusions are presented in section 5.

² NUTS (Nomenclature of Statistical Territorial Units) are spatial units used by EUROSTAT. While spatial units in NUTS-0 are countries, the level of spatial aggregation decreases with the levels 1, 2 and 3.

2. Regional income disparities and convergence: theoretical considerations and empirical evidence

Explanatory approaches of economic growth and development are based on differences in capital accumulation (Solow 1956 and 1957), technological development (Kaldor 1961, Romer 1990), human capital and productivity (Lucas 1988, Rebelo, 1991), and innovations (Rodriguez-Pose and Crescenzi 2008; Lundvall, 1992 and 2007). The theories touching most directly on regional disparities and convergence are trade and growth theories, considering also the persistence of regional disparities (e.g. Cuadrado-Roura and Parellada, 2002; Fingleton, 2003; Harris, 2008). The most well-known arguments for examining regional disparities come from the neoclassical approach. According to this approach, regional disparities as a rule should vanish over time. The neoclassical arguments for vanishing disparities between nations or regions have also been the basis for the convergence literature (e.g. Barro, 1991). The full equalisation of regional income is captured by the concept of absolute convergence. The arguments for absolute convergence rely usually on the Solow growth model (Solow, 1956), which predicts the long run growth to approach the long run rate of technological progress. If regions are characterised by differences in technological level or other factors (e.g. innovations) that influence production factors, the disparities may also be persistent. In case of technological differences and innovations each region or country converges towards its own steady state, denoted by conditional convergence (see also Barro and Sala-i-Martin, 1995). Conditional convergence is consistent with endogenous growth models in which technological progress is modelled as depending on the concept of β - contributions to the research and development (Romer, 1986, 1990; Lucas, 1988).

Absolute convergence hypothesis relies on the traditional neoclassical growth model and postulates that relatively poor economies grow faster than relatively rich ones. If regions differ only in their initial income levels and capital endowment per worker, they converge towards an identical level of per capita income. This is referred to as absolute β -convergence. By contrast, conditional convergence exhibits heterogeneity in growth factors which gives rise to different growth paths. In the case of conditional convergence, where regions are marked, for example, by differences in technology, innovation performance, institutions and economic structure, regions converge towards different steady-state income levels. A specific problem associated with β -convergence is that it does not necessarily imply a reduction in the variation of regional income levels over time (see Barro and Sala-i-Martin, 1995). Hence, a negative correlation between initial income levels and subsequent growth rates does not always prove of declining regional disparities. The results of several studies observing regional convergence over a couple of decades show varying rates of convergence over time, showing also that the speed of convergence over shorter periods may deviate significantly from the long-run average (e.g. Barro and Sala-i-Martin, 1995; Armstrong, 1995; Cuadrado-Roura, 2001).

In order to examine income disparities and their dynamics in EU-27 countries and their regions, we rely on the Eurostat GDP pc data of the period 1995-2007. First,

we apply Theil's index of inequality (Theil, 1967) in order to decompose overall regional disparities into within-country and between-country components³. Theil's inequality measure is derived from information theory and can be associated with the strand of literature dealing with inequality (see Cowell, 1995). This index allows us to analyse development of regional within-country disparities in the context of the general catching-up process taking place in the EU. Figure 1 presents information about decomposition of regional disparities between the EU countries and within the countries' NUTS-3 level regions during the period 1995-2007.

We can see that overall inequality is starting to decrease since 2000 but this decrease is mainly due to declining disparities in GDP pc between the EU countries (including also the countries that started to join since 2004). The share of within countries inequality (income disparities between the regions of a country) is slightly increasing since that time. Over time the share of within countries inequality component has increased to 69,4% in 2007.

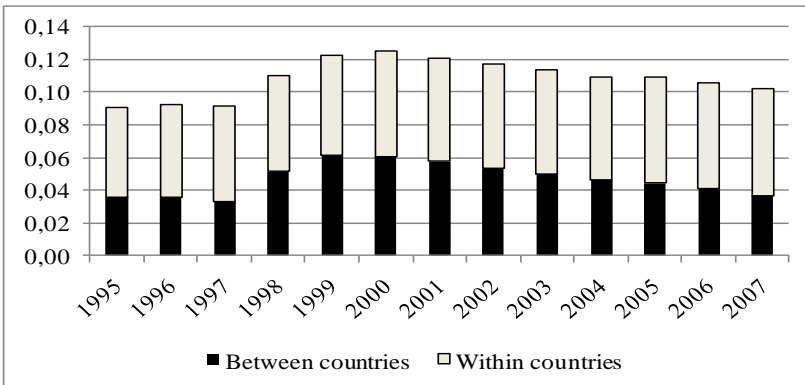


Figure 1. Theil index based decomposition of income disparities within and between EU countries (authors' calculations based on Eurostat data).

Second, we apply a non-parametric approach based on Kernel function for examining the external distribution of regional income disparities of the NUTS-2 level regions (figure 2).

³ $T_{total} = \sum_i \left(\frac{N_i}{N} \right) \ln \left(\frac{N_i/N}{Y_i/Y} \right)$ (1), where N – population in all regions, N_i – population

in region i , Y – total GDP in all regions, Y_i – total GDP in region i .

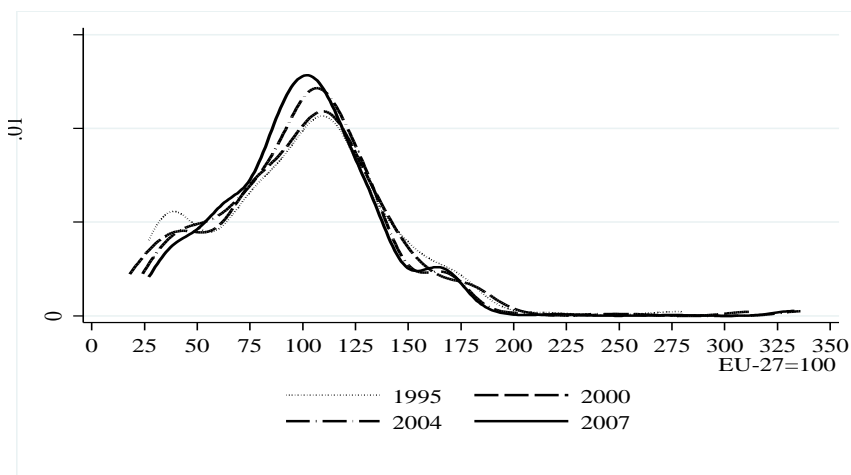


Figure 2. Density functions of regional income distribution in EU (EU-27=100), NUTS-2 regions, 1995-2007 (authors' calculations based on Eurostat data).

In conclusion, regional income disparities are still persistent in the EU and do not have a clear tendency to decline. Overall inequality is starting to decrease since 2000 but this decrease is mainly due to declining disparities in GDP pc between the EU countries (including also the countries that started to join since 2004). The share of within countries' inequality is slightly increasing since that time. Over time the share of within countries inequality component has increased to around 70% in 2007. Despite the fact that the number of regions which have income below 50% of the EU average is somewhat declining, there is remarkable polarisation of regions according to their GDP pc.

3. Regional innovation and composite indicators of regional innovation performance

In recent years, the concept of regional innovation systems has evolved into a widely used analytical framework generating empirical foundation for policy making. It is a widespread belief that innovation system creates a framework for innovation performance of a region. At the same time, the concept of regional innovation systems does not have commonly accepted definitions yet; usually it is understood as a set of interacting private and public interests, formal institutions and other organizations that function according to organizational and institutional arrangements and relationships conducive to the generation, use and dissemination of knowledge (see also Doloreux, 2003; Doloreux and Parto, 2005).

Regional innovation performances are quantitatively examined by several indicators integrated within the European Regional Innovation Scoreboard (RIS) providing statistical facts on regions' innovation performance. The RIS methodology and

innovation indicators are in conformity with the European Innovation Scoreboard (EIS) methodology and indicators (see Hollanders and van Cruysen, 2008; Hollanders et al., 2009). Both scoreboards consider innovation as a process consisting of three main components: innovation input, activities and output establishing three groups of innovation indicators. These are: 1) “Enablers” capturing the main drivers of innovation that are external to the firm; 2) “Firm activities” capturing innovation efforts that firms undertake; 3) “Outputs” capturing implementation of innovations into the market and within the organisations, e.g. economic effects.

However, the use of some data at regional level presents certain limitations regarding data availability and reliability; therefore RIS captures somewhat less information compared to EIS (for details see Hollanders et al., 2009). Due to these limitations, the RIS does not provide an absolute ranking of individual regions, but only ranks groups of regions at broadly similar levels of innovation performance. Regions are ranked into groups from high to low innovation performance for overall performance (Hollanders et al., 2009).

We elaborate composite indicators of NUTS-2 level regions implementing method of principal component factor analysis (FA). This method aims to describe a set of initial k variables $X1, X2, \dots, Xk$ in terms of a smaller number of m factors that highlight the relationship between these variables. It assumes that the data is based on underlying factors of the model, and that data variance can be decomposed into common and unique factors (for more see Nardo et al., 2005; OECD, 2008). The factor model is as follows:

$$X_i = \sum_{j=1}^m a_{ij} F_j + e_i \quad (2),$$

where

$X1, X2, \dots, Xk$ – initial set of variables (standardised with zero mean and unit variance); $i = 1, 2, \dots, k$; k is the number of the initial variables;

$F1, F2, \dots, Fm$ – aggregated indicators – common factors (uncorrelated, each has a zero mean and unit variance); $j = 1, 2, \dots, m$; m is the number of factors;

a_{ij} – factor loadings related to the variable X_i , measured as a correlation between the initial variable i and factor j ;

e_i – the specific factor supposed independently and identically distributed with zero mean.

The interpretation of the essence of factors bases on the matrix of the factor loadings (a_{ij}). In order to support the interpretation of the factor loadings, the rotated matrix of the loadings is calculated to obtain a clearer pattern of factor loadings. The most common rotation method is the “varimax rotation”, which is used also in our case.

As a rule, the choice of initial indicators bases on theoretical and methodological considerations and on the checking of the robustness of the extraction results (e.g. Cronbach coefficients, several statistical tests, correlation matrix). Based on these

considerations and the test results, the indicators were chosen so that they reflect the internal consistency of the initial items and describe innovation performance from different angles.

In our analysis, we rely on the RIS methodological framework and composition of indicators by choosing the initial nine innovation indicators of the EU-27 NUTS-2 regions. The chosen set of initial variables for elaborating composite indicators of regional innovation performance is presented in the table 1. We include three groups of indicators that may explain innovation capability of a region: 1) human capital related indicators; 2) expenditure to R&D and patents, 3) employment in knowledge intensive sectors. We are aware, that by choosing the initial indicators we had to take into account limitations of data availability, reliability as well as comparability.

Table 1. Innovation indicators

Variable	Definition	Source (Eurostat)
HRST	Human resources in science and technology (percentage of economically active population)	Regional S&T statistics
TERTIARY	Population with tertiary education (ISCED 5-6) (1000 between 25 and 64 years)	Regional labour market statistics
LIFELONG	Participation in life-long learning (1000 between 25 and 64 years)	Regional labour market statistics
R&D_PUBLIC	Public R&D expenditures (R&D expenditures in the government sector and the higher education sector) (percentage of GDP)	Regional S&T statistics
R&D_BUS	R&D expenditures in the business sector (percentage of GDP)	Regional S&T statistics
PATENT	Patent applications to the EPO (per million of inhabitants)	Regional S&T statistics
KNOWL_SERV	Employment in knowledge-intensive services (percentage of total employment)	Regional S&T statistics
TECH_SECTORS	Employment in high-tech sectors (high-tech manufacturing and knowledge-intensive high-technology services) (percentage of total employment)	Regional S&T statistics
TECH_MANUF	Employment in high and medium high-technology manufacturing (percentage of total employment)	Regional S&T statistics

Source: Eurostat 2010, 2011.

The chosen indicators capture both input to innovation (human capital, investments) as well as possible outcomes (e.g. employment in knowledge and technology intensive sectors) of innovation activities.

We are aware that these indicators as well as the activities behind them are closely interrelated. The high correlation of the initial innovation indicators (called multicollinearity) is one of the problems related to the measurement of innovation that was also stressed by Schibany and Streicher (2008). That creates complications for specification and estimation of models regressing level of economic development (GDP pc) as an independent variable and innovation indicators as dependent variables. The implementation of factor analysis enables us to avoid multicollinearity problem in the regression model.

Based on the selected set of initial innovation indicators (table 1) for the 262 NUTS-2 regions of the year 2007 and implementing the principal components factor analysis method we extracted three principal components – factors $F_j(j = 1, 2, 3)$ that explain 80,8% of the variation of the initial innovation indicators. The first factor (F1) explains 38,7%, the second (F2) 22,0% and the third (F3) 20,1% of the total variation. Table 2 presents the rotated factor loadings for the factors and the explained variance.

Table 2. Rotated factor loadings

Initial indicators	Factor 1	Factor 2	Factor 3
HRST	0,86	0,27	0,15
TERTIARY	0,18	0,95	0,09
LIFELONG	0,39	0,86	0,13
R&D_PUBLIC	0,64	0,32	-0,08
R&D_BUS	0,60	0,22	0,60
PATENT	0,69	0,11	0,55
KNOWL_SERV	0,91	0,19	0,00
TECH_SECTORS	0,70	0,25	0,44
TECH_MANUF	-0,05	0,04	0,95
Explained variance (%)	38,65	22,00	20,14
Cumulative variance (%)	38,65	60,65	80,79

Note: factor loadings $\geq 0,6$ are in bold.

Source: authors' calculations based on Eurostat data.

First composite indicator or factor has the strongest loadings (correlations) with the indicator “employment in knowledge intensive services” (0,91). Other strong factor loadings are with the variables (HRST, TECH_SECTORS, R&D_PUBLIC, R&D_BUS and PATENT) that are related to the employment in knowledge intensive services capturing both private and public sectors (e.g. education, medicine). We name this factor as the factor of knowledge based service sector (F1). Second factor has the strongest loadings with the education variables (TERTIARY, LIFELONG); we name this factor as the factor of human capital (F2). The last composite indicator – factor has the strongest loadings with the initial variable that

characterises employment in high-tech manufacturing sectors (TECH_MANUF) having also statistically significant and strong factor loadings with variables PATENT and R&D_BUS. This factor (F3) we consider as the factor of high-tech manufacturing.

The level of composite indicators – factors F1, F2 and F3 in every region are characterised by the factor scores that exhibit the level of the composite indicator for a region in comparison with other regions. If the value of the score is 0, that means that according to the factor this region has the average level, and respectively a negative and positive score reflects the regions' position below or above the average. In order to summarize the scores of the regions' innovation performance factors F1, F2 and F3 to obtain a synthesized innovation indicator – the aggregated innovation indicator – we use the weights that represent the explanatory power of these factors (respectively 0,387 for F1; 0,220 for F2 and 0,201 for F3; see table 2).

Table 3 presents information about distribution of the regions according to their innovation capability and the level of the GDP pc relative to the EU-27 GDP pc. Majority of EU NUTS2 regions (31,7%) belong to the group where the level of per capita GDP forms 100-125% of the EU average level. The factor scores of all three factors F1, F2 and F3 – the composite indicators as well as the aggregated innovation indicator of regions' innovation performance are as a rule above the average in the regions with high GDP pc.

Table 3. Composite innovation indicators of the EU-27 regions (measured by factor scores)

	GDP pc <75%	GDP pc 75-100%	GDP pc 100-125%	GDP pc ≥125%
Aggregated innovation indicator	-0,55	-0,13	0,23	0,46
F1. Knowledge based service	-1,19	-0,05	0,38	0,87
F2. Human capital	-0,09	-0,23	0,07	0,32
F3. High-tech manufacturing	-0,33	-0,31	0,32	0,29
n	60	69	83	50

Source: authors' calculations based on Eurostat data.

In conclusion, the preliminary results of empirical analysis of innovation capability of the EU NUTS-2 level regions, which can be explained by three composite innovation indicators and measured by the factor scores, show that distribution of the regions according to their level of economic development (measured by GDP pc) is strongly related to innovations.

4. The role of innovation in regional economic development and convergence

In this part of our paper we examine more profoundly the relation between the level of economic development and innovation performance of the EU regions implementing regression analysis and estimating several regression models. We also test the hypothesis of conditional convergence controlling for the regional innovation performance indicators.

The role of innovation capability in regional economic development and convergence processes is considered from two angles putting emphasis on testing of following research hypothesis:

- 1) the variability of the level of economic development measured by the GDP pc as a proxy of regional income is statistically significantly explained by the regional innovation performance described by the factor scores of the composite indicators F1, F2 and F3;
- 2) there is an evidence of conditional β -convergence of regional income if controlling for innovation performance (measured by the factor scores of composite indicators) and country-specific effects (measured by dummy variables for countries). β -convergence is defined as a negative relationship between initial income levels and subsequent growth rates.

In order to test these hypotheses two basic regression equations will be estimated based on the data for 262 EU NUTS-2 level regions.

First, regression equation examining the role of innovation factors in explaining variability of regional income:

$$\ln(Y_{2007}) = \alpha + \beta_1 F_{1,2007} + \beta_2 F_{2,2007} + \beta_3 F_{3,2007} + \beta_4 D_{EU} + D_{country} + u_{2007} \quad (3),$$

where Y_{2007} – GDP pc (PPS) in 2007;
 $F_{1,2007}$ – knowledge based service factor in 2007;
 $F_{2,2007}$ – human capital factor in 2007;
 $F_{3,2007}$ – high-tech manufacturing factor in 2007;
 $D_{EU} = 1$ if EU-12 and 0 if EU-15;
 $D_{country}$ – country dummies;
 u_{2007} – error term; α – constant; $\beta_1, \beta_2, \beta_3, \beta_4$ – parameters.

Second, regression equation of conditional β -convergence of regional income:

$$\ln\left(\frac{Y_{2007}}{Y_{2000}}\right) = \delta + \gamma_1 \ln(Y_{2000}) + \gamma_2 F_{1,2000} + \gamma_3 F_{2,2000} + \gamma_4 F_{3,2000} + \gamma_5 D_{EU} + D_{country} + \omega_{2007} \quad (4),$$

where Y_{2007}, Y_{2000} – GDP pc (PPS) in 2007 and 2000;
 $F_{1,2000}$ – knowledge based factor in 2000;
 $F_{2,2000}$ – human capital factor in 2000;
 $F_{3,2000}$ – high-tech manufacturing factor in 2000;
 $D_{EU} = 1$ if EU-12 and 0 if EU-15;
 $D_{country}$ – country dummies;
 ω_{2007} – error term; δ – constant; $\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5$ – parameters.

We implement the common cross-sectional OLS approach for testing hypotheses and estimating the regression equations (3) and (4) controlling also for heteroskedasticity and using robust estimators in the case of necessity.

Figure 3 examines the relationship between regional GDP pc and the aggregated indicator of regional innovation performance as a weighted average of the factor scores of the innovation factors F1, F2 and F3. The figure confirms our opinion that the variability of regional income might be remarkably explained by the variability of regional innovation performance.

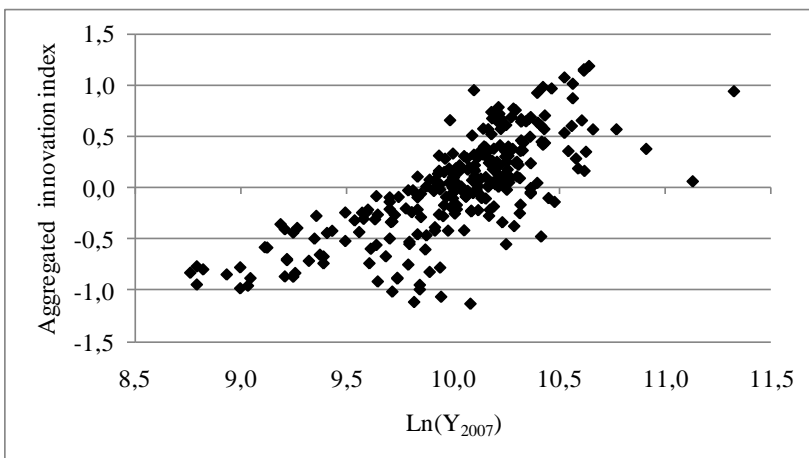


Figure 3. Regional income ($\ln(Y_{2007})$) and aggregated innovation index (authors' calculations based on Eurostat data).

For testing the hypothesis 1 about the statistically significant relationship between the level of regional income and innovation performance we estimate several variants (models 1, 2 and 3) of the basic regression equation (3). The estimated models differ depending on the inclusion or not of the country-specific ($D_{country}$) and country-group (EU-15 or EU-12) dummies into the model.

Table 4 presents the modelling results of testing the hypothesis 1.

Table 4. Cross-sectional OLS between regional income ($\ln(Y_{2007})$) and innovation factors

	Model 1	Model 2	Model 3
$F_{1,2007}$ – Knowledge based service	0,309 *** (0,019)	0,227 *** (0,022)	0,281 *** (0,026)
$F_{2,2007}$ – Human Capital	0,055 *** (0,017)	0,049 *** (0,015)	0,052 *** (0,013)
$F_{3,2007}$ – High-tech manufacturing	0,075 *** (0,014)	0,071 *** (0,012)	0,114 *** (0,015)
D_{EU}		-0,373 *** (0,049)	
$D_{country}$	No	No	Yes
α	10,019 *** (0,015)	10,098 *** (0,013)	10,022 *** (0,025)
R ²	0,634	0,737	0,846
Adjusted R ²	0,630	0,732	0,827
n	262	262	262

Note: Robust standard errors in parentheses. Significant at *** 1%, ** 5%, * 10% level.

Source: authors' calculations.

The estimation results show that the variability of regional income is statistically significantly related to regional innovation performance and this relationship is statistically significant in both cases when country-specific factors are taken into account (model 3) as well as in the case they are not taken into account (model 1). All indicators of regional innovation performance (factors 1, 2 and 3) are positively related to the regional income. The level of regional income is as a rule lower in the EU new member states (model 2).

Table 5 presents the testing results of the conditional β -convergence hypothesis (hypothesis 2).

When the estimated coefficient of logarithm of the initial income variable ($\ln(Y_{2000})$) is statistically significant and negative, we confirm the hypothesis that poor economies tend to grow faster than rich ones (see models 4, 5 and 6 table 5; see also figure 4).

Since the convergence patterns are supposed to differ between the EU-15 and the NMS (EU-12), the country-group dummy is included in the equation (model 5). The parameter of this variable is statistically significant confirming the view that regional convergence/divergence processes are different in these groups of countries. According to the model 5, only the parameter of innovation performance composite indicator F2 (human capital) is statistically significant. The sign of this parameter is positive indicating that human capital as a composite indicator of

regional innovation performance is in favour of income divergence, at least in the short run time horizon.

Table 5. Cross-sectional OLS: conditional β -convergence ($\ln\left(\frac{Y_{2007}}{Y_{2000}}\right)$)

	Model 4	Model 5	Model 6
$\ln(Y_{2000})$	-0,215*** (0,027)	-0,117*** (0,033)	-0,063*** (0,022)
$F_{1,2000}$ – Knowledge based service	0,018* (0,09)	0,010 (0,008)	0,030*** (0,009)
$F_{2,2000}$ – Human capital	0,015*** (0,006)	0,013** (0,006)	0,004 (0,004)
$F_{3,2000}$ – High-tech manufacturing	0,003 (0,006)	-0,003 (0,006)	0,004 (0,005)
D_{EU}		0,127*** (0,029)	
$D_{country}$	No	No	Yes
δ	2,376*** (0,263)	1,395*** (0,322)	0,852** (0,215)
R ²	0,472	0,533	0,861
Adjusted R ²	0,464	0,524	0,843
n	262	262	262

Note: Robust standard errors in parentheses. Significant at *** 1%, ** 5%, * 10% level.
Source: authors' calculations.

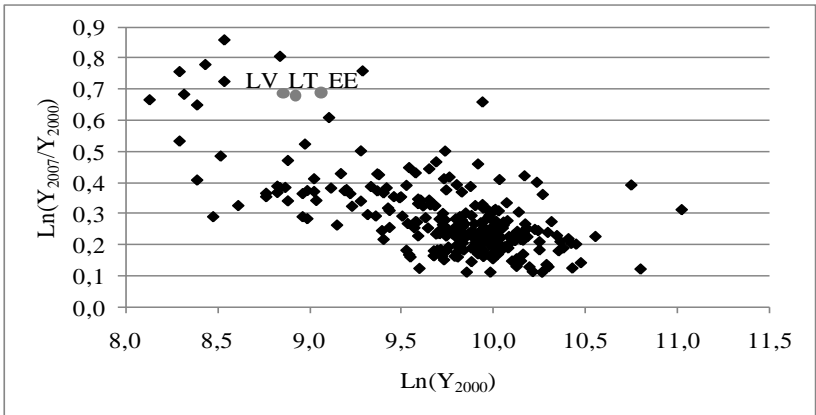


Figure 4. Initial income ($\ln(Y_{2000})$) and economic growth ($\ln\left(\frac{Y_{2007}}{Y_{2000}}\right)$) (authors' calculations based on Eurostat data).

When country specific dummies are included in the regression equation (model 6), the estimation results show that only factor 1 (composite factor of knowledge-based service) has statistically significant relation to economic growth. Positive sign of the

relevant parameter indicates that this innovation performance factor is not in favour of supporting convergence; it even indicates favouring divergence. Thus, the regions where the initial level of knowledge based services is higher grew faster. When country-specific conditions are taken into account, other two factors (F2 – human capital, F3 – high-tech manufacturing) do not have statistically significant relation to regional convergence in the short-run perspective (2000-2007). Evidently, the effects of human capital and high-tech manufacturing have also time-lag being transformed into regional economic growth.

In conclusion, we got confirmation to the hypothesis 1 that regional innovation performance is playing a significant role in explaining regional income disparities between the EU NUTS2 regions. At the same time, regional income convergence, which has been rather weak during the investigated short run period (2000-2007), is not supported by the innovation performance of regions.

5. Conclusion

Regional income (measured by GDP pc) shows considerable and persisting variability in EU. Although over time, regional income disparities have decreased between member states, they have been rather stable or even increased within countries themselves. This suggests that persistent economic disparities continue to pose a challenge for EU, its member states and regions. Innovation is aimed at increasing productivity and gaining competitive advantage, thereby leading to an increase in the level of economic development of countries and regions. Therefore regional innovation has become an important political target in EU regional policy.

In order to empirically assess the role of innovation in regional economic development and convergence process, regional income level and convergence models were estimated based on the EU NUTS-2 regions data having composite indicators of regional innovation performance (factors F1, F2 and F3) as explanatory variables. The composite indicators of regional innovation performance were elaborated using the method of principal components factor analysis for the 262 EU NUTS-2 regions of the years 2000 and 2007. The extracted three factors explain 80,8% of the variation of the regions' initial innovation indicators. The first factor (F1 – knowledge based service) explains 38,7%, the second (F2 – human capital) 22,0% and the third (F3 – high-technology manufacturing) 20,1% of the total variation of regional innovation performance.

The most important role in regional variability of GDP pc is played by knowledge based services. Knowledge based services are typically above average in high-income old member states regions, which are known for investing heavily in R&D in public and private sector, supporting scientific and technological fields, knowledge-intensive service and high-technology sectors and encouraging patenting activity. The statistically significant relationship between economic development and human capital factor also found support. Investments in human capital, especially in higher education and life-long learning, create favourable conditions for knowledge development and innovative activities in a region. Lastly, statistically

significant relation between economic development and medium and high technology manufacturing factor got confirmation, referring to the need to continue investments in the field. In high-income old member states regions' high-technology manufacturing is supported by private sector R&D investments and patenting activity. In mostly low-income new member states regions last two activities remain at considerably lower level affecting the potential of high-technology manufacturing. In addition, high-technology potential needs labour force with specific skills which are not always present in a region.

The results of conducted regression analysis show that almost 63,4% of variability in regional GDP pc can be explained by factors of regional innovation performance (Model 1). If country specific dummies were included in the model (see Model 3), the explanatory power of the model increased till 84,6%. The opinion that regions' innovation performance plays an important role in explaining regional income inequality got support during our empirical study. Thus, the results allow once again concluding that innovative efforts of regions are supportive to their economic development measured by the GDP pc. The empirical results of our study also show that innovation factors explain around 47,2% of short run (2000-2007) economic growth in the EU-27 NUTS-2 regions. Additionally, around 40% of regional growth is explained by the country specific factors explain.

Estimators of conditional convergence model confirms that regional inequalities are decreasing in the EU, but innovative activities even tend to increase regional GDP pc differences, at least in the short run perspective (2007-2000). High-income regions, where knowledge based services play an important role, are evolving rapidly and thus income convergence process is not supported. Innovative regions tend to have higher productivity and income levels, which leads to differences in regional levels of economic development. In conclusion it can be said that regional development and convergence process depends on innovation, but it also depends on other factors like institutions, infrastructure, political stability etc., which affect the potential to absorb, use and assimilate innovations in a region. If regional income convergence is a policy target, additional policy measures beside innovation activities should be effectively implemented.

References

1. **Arbia, G. , Piras, G.** (2005). Convergence in per-capita GDP across European regions using panel data models extended to spatial autocorrelation effects. *ISAE Working Paper*, No. 51.
2. **Arbia, G., Basile, R. and Piras, G.** (2005). Using Spatial Panel Data in Modelling Regional Growth and Convergence. *ISAE Working Paper*, No. 55.
3. **Armstrong, H. W.** (1995). Convergence among Regions in the European Union, 1950 – 1990. *Papers in Regional Science*, Vol. 74, pp. 143-152.
4. **Barro, J.** (1991). Economic growth in a cross-section of countries. *The Quarterly Journal of Economics*, Vol. 106, No. 2, pp. 407-443.
5. **Barro, R. J. and Sala-i-Martin, X.** (1995). *Economic Growth*. Cambridge: MIT Press.

6. **Baumont, C., Ertur, C., and J. Le Gallo.** (2003). Spatial Convergence Clubs and the European Regional Growth Process, 1980-1995, In: Fingleton B. (Ed.). *European Regional Growth*, pp. 131-158. Berlin: Springer.
7. **Cowell, F.A.** (1995). *Measuring Inequality*. 2nd edition. Hemel Hempstead: Harvester Wheatsheaf.
8. **Cuadrado-Roura, J. R.** (2001). Regional Convergence in the European Union: From Hypothesis to Actual Trends. *The Annals of Regional Science*, Vol. 35, No. 3, pp. 333-356.
9. **Cuadrado-Roura, J.R. and Parellada, M.** (Eds.). (2002). *Regional Convergence in the European Union*. Berlin: Springer-Verlag.
10. **Doloreux, D.** (2003). Regional innovation systems in the periphery: The case of the Beauce in Québec (Canada). *International Journal of Innovation Management*, Vol. 7, No. 1, pp. 67-94.
11. **Doloreux, D. and Parto, S.** (2005). Regional innovation systems: Current discourse and unresolved issues. *Technology in Society*, Vol. 27, No. 2, pp. 133-153.
12. **Feldkircher, M.** (2006). Regional Convergence within the EU-25: A Spatial Econometric Analysis. *OENB Workshops*, No. 9, pp. 101-119.
13. **Fingleton, B.** (Ed.). (2003). *European Regional Growth*. Berlin etc.: Springer-Verlag.
14. **Geppert, K., Happich, M. and Stephan, A.** (2008). Regional Disparities in the European Union: Convergence and agglomeration. *Papers in Regional Science*, Vol. 87, No. 2, pp. 193-218.
15. **Harris, R.** (2008). Models of regional growth: past, present and future. *SERC Discussion Papers*, SERCDP0002. Spatial Economics Research Centre (SERC), London School of Economics and Political Science, London, UK.
16. **Heidenreich, M. and Wunder, C.** (2008). Patterns of regional inequality in the enlarged Europe. *European Sociological Review*, Vol. 4, No. 1, pp. 19-36.
17. **Hollanders, H. and van Cruysen, A.** (2008). Rethinking the European Innovation Scoreboard: A New Methodology for 2008-2010. *INNNO-Metrics, UNU-MERIT*, Maastricht.
18. **Hollanders, H., Tarantola and S. Loshky, A.** (2009). Regional Innovation Scoreboard 2009 Methodology report. *INNNO-Metrics, UNU-MERIT*, Maastricht.
19. **Kaldor, N.**, (1961). Capital Accumulation and Economic Growth. In Lutz, F., Hague, D. (eds). *The Theory of Capital*, Mac Millan, London.
20. **Krugman, P.** (1991). Increasing Returns and Economic Geography. *The Journal of Political Economy*, 99, pp.483-499.
21. **Lucas, R.** (1988). On the mechanics of economic development. *Journal of Monetary Economics*, Vol. 22, pp. 3-42.
22. **Meliciani, V. and Peracchi, F.** (2006). Convergence in per-capita GDP across European regions: a reappraisal. *Empirical Economics*, Springer, Vol. 31, No. 3, pp. 549-568.
23. **Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A. and Giovannini, E.** (2005). Handbook on Constructing Composite Indicators: Methodology and User Guide. *OECD Statistics Working Papers*, No. 13 – 2005/3. Paris: OECD Publishing.

24. **Niebuhr, A. and Schlitte, F.** (2004). Convergence, Trade and Factor Mobility in the European Union: Implications for Enlargement and Regional Policy. *Intereconomics*, Vol. 39, No. 3, pp. 167-176.
25. **OECD.** (2008). *Handbook on Constructing Composite Indicators. Methodology and user guide*. Paris: OECD Publishing.
26. **Paas, T. and Schlitte, F.** (2008). Regional income inequality and convergence process in the EU-25. *Scienze Regionali. Italian Journal of Regional Science*, Vol. 7, No. 2, pp. 29–49.
27. **Petrakos, G. and Artelaris, P.** (2009). Regional Convergence Revisited: A Weighted Least Squares Approach. *Growth and Change*, Vol. 40, No. 2, pp. 314-331.
28. **Rebelo, S.** (1991). Long run Policy Analysis and Long Run Growth. *Journal of Political Economy*, 99, pp. 500-521.
29. **Romer P.M.** (1986). Increasing returns and long run growth. *Journal of Political Economy*, Vol. 94, No. 5, pp. 1002–1037.
30. **Romer, P.M.** (1990). Endogenous technological change. *Journal of Political Economy*, Vol. 98, No. 5, pp. S71–S102.
31. **Schibany, A.; Streicher, G.** (2008). The European Innovation Scoreboard: drowning by numbers? *Science and Public Policy*, Vol. 35, No. 10, pp. 717-732.
32. **Solow, R.** (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, Vol. 70, No. 1, pp. 65-94.
33. **Theil, H.** (1967). *Economics and Information Theory*. Chicago: Rand McNally.
34. **Tondl, G.** (2001). *Convergence after Divergence? Regional Growth in Europe*. Wien, New York: Springer.

CHARGING FOR LOCAL SOCIAL SERVICES: THE CASE OF ESTONIA¹

Katrin Pihor², Kadi Timpmann³

Praxis Center for Policy Research, University of Tartu

Abstract

Increasing fiscal pressure has forced local governments to seek new sources of autonomous revenues for financing public services. Charging users of social services has been modest, but with an aging society and growing social costs, this option needs to be reconsidered. This paper combines the results of the survey on the application of user charges on local social services in Estonian local governments (LGs) with the official financial and population statistics in order to discover trends and explore factors determining the application of user charges in a small, unitary, highly centralised, post-soviet country. We conclude that user charges are mainly considered as a source of information and additional income to partially cover service costs – the possibilities of increased efficiency and demand control have remained undervalued. The probability of charging users of social services tends to be greater if the income level of inhabitants is higher, reflecting the ‘ability to pay’ principle. Charging users is more probable in the municipalities where the social costs are higher in volume or in proportion to the budget’s expenditures.

Keywords: public finance, municipalities, user charges, social services, Estonia

JEL Classification: H, I

Introduction

User charges may be defined as prices of publicly provided goods and services (Wagner, 1991; Bös 1986). In considering the public finance theory such charges could be levied on the majority of local government services which are not pure public goods. In this respect social services are good candidates for the application of user charges as they are individual-based, their consumption is rival and excludable.

In a global competitive environment, local governments are progressively experiencing difficulties in collecting their own revenues and are largely dependent

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² Katrin Pihor, Evaluation expert and project manager, Praxis Center for Policy Studies, Tornimäe 5, 10145 Tallinn, Estonia. E-mail: katrin.pihor@praxis.ee

³ Kadi Timpmann, Research Fellow, University of Tartu, Faculty of Economics and Business Administration, Narva Road 4, Tartu 51009, Estonia. E-mail: kadi.timpmann@ut.ee

on central government grants. The introduction of user charges may benefit the budgetary situation in *ceteris paribus* and increase the efficiency of service provision. As social services represent a large share of the public services offered by municipalities, and with the aging of societies, this burden is increasing; introducing at least partial cost coverage by users would help to reduce the budgetary burden of local governments. On the other hand, a growing focus on customer demand for public services and service quality, which are characteristic to the New Public Management, emphasise the need to interlink the financing and consumption of public services. User charges provide a good option for this by reflecting the consumers' willingness to pay. However, the introduction of new charges may not be easy: following the path dependency from the era of the Soviet Union these services are in general offered free of charge.

In this paper, we seek to identify the possibilities for introducing user charges in the case of social services in a small, unitary, highly centralised, post-soviet country. This requires an understanding of the determinants of charging the users of social services. We use the opportunity of combining a unique survey database with official financial and population data from Statistics Estonia to explore this question.

The paper is divided into four sections. The first part provides a theoretical overview of motivations and limitations for introducing user charges. The second part gives a short overview of the application of user charges in the Estonian context, including main revenue sources of Estonian local governments as well as their jurisdiction with respect to the provision of social services. Data and methodology of the empirical analysis are explained in the third part of the paper. The last part deals with the analysis of determinants of the user charging policies. Firstly, principles and preconditions from the viewpoint of the local governments' (LG) are explored. The trends are further tested with statistical data analysis.

1. Theoretical foundations of applying user charges

Although the term “user charges” is widely used by governments and scholarly discussions, there is no universal agreement about the exact meaning of this term. Most commonly, user charges are defined as prices that government requests from users of specific services provided by the public sector (see e.g. Bös, 1986; Wagner, 1991; Bohley, 2003). The application of user charges assumes that the goods and services in question possess some private good characteristic – the consumers who do not pay can be excluded from the consumption and the consumers are in rivalry for the consumption of goods and services. Nevertheless, user charges should be clearly distinguished from prices in the private sector and they differ in that they are collected by public bodies and thus their application follows the traditional aims, which are characteristic of the public sector (Bohley, 2003). Bailey (1999) explains that using the term “charge” instead of “price” reflects the administrative, rather than market based, determination of payments. However, many researchers and theories, especially in continental Europe, still use the term “public prices” to deal with publicly charged goods and services.

The discussion about public pricing has a long economic history. During the last 100 years there have been a number of outstanding publications forming the classics of public economics. Nevertheless, practical experience in the application of user charging has been rather diverse and inconsistent across countries, as well as across service fields. For example, public utilities such as electricity, water, traffic, and refuse collection are publicly priced in most Western Economies; social services, education, and health are less common candidates (Bös, 1986).

The general public finance theory suggests that, to the fullest extent possible, services that the government provides should be financed by user charges and fees to ensure the effective provision of goods and services (see e.g. Bös, 1986; Bailey, 1999). Charges should be levied on those who receive the benefits from services wherever the government can identify such beneficiaries. Local taxes and grants should only be used to part-finance those services which are subject to market failures fulfilling the assumptions of non-rivalry and non-excludability (Bailey, 1999; Bohley, 2003).

Charging users of services has many advantages. First, user charges allow residents and businesses to know how much they are paying for the services that they receive from local governments. Based on the services provided and the costs incurred, residents and businesses can therefore make efficient decisions about how much to consume. When consumers do not know the cost, they are likely to consume more or less than what is efficient leading to expansion and redistribution of the service (Wagner, 1976; Reddy, Vandemoortele, 1996; Bailey, 1999; Bird, Vaillancourt, 2006; Blöchliger, 2008). On the other hand, service-providers will only be made more responsive to service users if their revenues are directly dependent upon the volume of use of their services. The market mechanism is, in this respect, leading to a situation where the poor quality of services leads to a loss of revenues from sales and thereby forces the service provider to care about the production costs as well as the quality of the service (Bailey, 1999).

Second, if user charges are established following the equality principle, they may serve information purposes. They provide the government with information about the quantity and quality of goods and services that people want and thus, for what they are willing to pay. Without direct charging, citizens do not have a mechanism (except for voting every few years) to register their demand for local goods and services (Darby, Muscatelli, Roy, 2003; Bohley, 2003; Bird, Vaillancourt, 2006).

Third, user charges satisfy the equality principle when equity is based on benefits received. All individuals pay an amount that reflects the additional benefit they receive from a unit of the good or service (Bird, Vaillancourt, 2006). This benefit principle had already been emphasised by Oates in 1972. According to him public expenditures should be assigned in a way that provision of public services is made by the jurisdiction representing the smallest possible area over which the benefits are distributed.

Fourth, user charges may help to raise revenue in order to increase public service quality (Blöchliger, 2008).

User charges designed in accordance with the equality principle will, in general, reflect the marginal cost of providing the service (Bohley, 2003). However, the marginal cost of services may vary considerably in different municipalities, for example transport costs depend on the distances as well as population concentration within the municipality, availability of hospitals or care institutions and so on. In some cases this might lead to the situation where, if the marginal cost is charged, some people might not be able to pay it and would be likely to leave these communities if they are not subsidized. In other words, charging an amount that reflects the true marginal cost of providing services to remote areas could reduce the number of people living there (Bird, Vaillancourt, 2006). Hence, one could expect that user charges are applied less in remote areas and favoured more in urban areas and in more developed regions where the income level of inhabitants is higher.

Another problem with charging for services concerns the cost of administration. Both determining the appropriate amount of the charge and enforcing it can be costly. If the administrative costs exceed the revenues collected, user charges may not be worthwhile (Bird, Vaillancourt, 2006). This leads to the conclusion that charging users would assume a critical mass of users.

On the other hand it is a shared understanding that market mechanisms may jeopardise equal and universal access to public services (Reddy, Vandemoortele, 1996; Bailey, 1999; Blöchliger, 2008). Thus it is expected that local governments should make an exemption for those low-income households who are unable to pay the charges requested, that is to take into account the users' ability to pay. Darby, Muscatelli and Roy (2003) emphasise also that user charging will be viable only if the costs of collection and of compensation through the benefit system are low relative to the sums that can be levied and the efficiency gains that result. Countries that have tried to increase reliance on fees and charges have generally aimed at striking a balance between co-payment and maximum contribution to avoid imposing unduly high expenses on some households.

Based on the above, the following hypotheses were raised.

- Municipalities where the average income level of inhabitants is higher tend to employ user charges more because the ability to pay of potential service-users is presumably higher.
- Larger municipalities tend to apply user charges more as the efficiency gains expected from charging the users would be larger (as marginal costs for providing services are lower and thus the potential gain from introducing a user charge would be larger).

In addition, positive theories of fees point out several other factors that may influence fees. Friedrich et al. (2004) suggest indicators for success in competition such as market shares, outputs, indicators as employment, production, migration,

growth rates, budget sizes; political indicators such as number of votes; as well as objective functions of management and owners in fee-generating institutions.

2. Framework of LG financing and of social service provision in Estonia

2.1. Position of user charges in financing Estonian local governments

As the legal, statistical and financial definition of user charges may be very nation-specific, it is quite difficult to estimate the share of user charges in an international perspective. According to Blöchliger (2008) user charges make up a considerable part of public sector revenue in some countries, accounting for 2.3% of GDP. Finland, New Zealand and Sweden have the highest charge-to-GDP ratio. In a few countries revenue from user charges even exceeds revenue from local taxes (Greece, Ireland, and the Netherlands). Tax and revenues from user charges are positively correlated, that is sub-central governments with a higher tax share tend to have higher user charges. Whilst user charge structure across government function is not available, questionnaire responses suggest that most user charges at the sub-central level are levied for technical services such as public transport, water, and waste collection. For a more detailed overview please consult Blöchliger (2008). The increasing importance of fees is also predicted by Friedrich et al. (2004) in Britain, Germany, Switzerland, and Poland.

In Estonia the term “user charges” is not explicitly used in governmental accounts. Instead, the accounting system provides information on public sector sales of goods and services for markets – market output⁴. The share of the market output in Estonian LG revenues is about 11%, being the third largest source of local revenues.

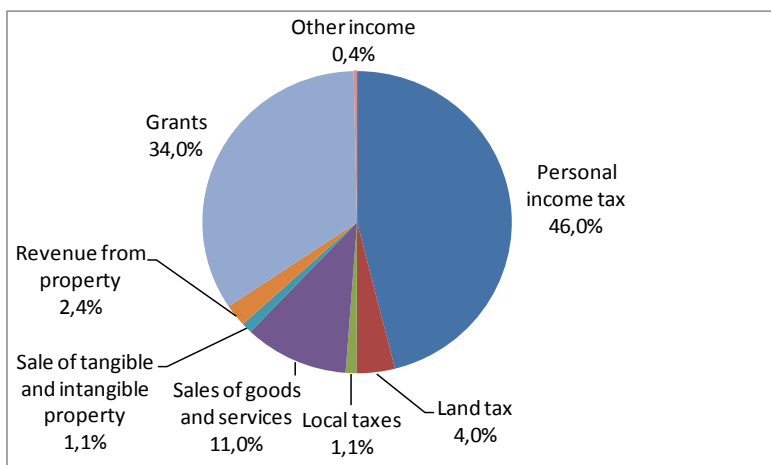
The major part of LG revenues in Estonia comes mainly from personal income tax (see Graph 1), which in 2010 reached 46% of total LG revenues. Personal income tax is a centrally administered tax, central government determines the tax base, tax rates, and tax benefits. Local governments are granted a fixed share of residents' income. The share was reduced in 2009 from 11,8% to 11,4% whereas the income tax rate is 21%. The costs of tax threshold and tax exemptions are borne by central government.

The second largest income of LGs is state grants (34% of total revenues), which are divided between conditional and unconditional transfers. Conditional transfers are allocations in the form of block grants as well as transfers from different ministries to perform state functions at the local level. These funds include transfers for teachers' salaries, subsistence benefits, and so on. Unconditional transfers are allocated to the local governments as equalisation grants to balance excessive differences among the revenue bases of different local authorities and to provide

⁴ Market output — general government receipts from the sale of goods and services sold at economically significant prices. This means that more than 50% of the production cost is covered by sales. The data also includes output for a LGs own final use and payments for other non-market output. (Statistics Estonia).

also the weakest municipalities with the possibility of rendering adequate public services to their inhabitants.

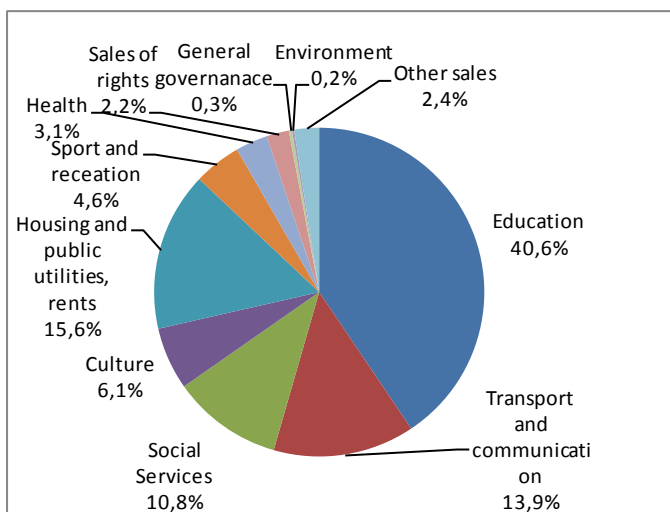
Local taxes as a traditional source of LG own revenues play only a minor role in Estonian LG revenues accounting for approximately 1% of total revenues.



Graph 1. Local government revenues in Estonia, 2010 (own calculations, data from Statistics Estonia).

Consequently, revenues of local governments in Estonia are in large part controlled by central government. More extensive employment of user charges could *ceteris paribus* allow an increase in the revenue autonomy of the LGs and improve the quality as well as adequacy of public services provided at the local level.

The application of user charges is also unequal – there are services where the application of charges is a norm (for example water and sewerage), but there are fields like social services where the share of revenues remains well below the expenditure levels. The largest part of market output consists mainly of revenues from education (including kindergarten fees, fees for kindergarten and school food) as well as technical services such as sewerage, waste collection and other utilities (see Graph 3).



Graph 2. Division of sales revenues between the service areas, 2010 (Ministry of Finance of Estonia, own calculations).

2.2. Overview of the framework of social service provision by local governments in Estonia

Provision of social services by local governments is regulated by the Local Government Organisation Act (LGOA) and the Law of Social Welfare (LSW). LGOA determines the functions, responsibilities, and organisation of local authorities and the relations of local authorities with one another and with central governmental institutions. In addition, the Act provides the basis for the participation of local governments in economic activities, the procedure of the formation of municipal districts, the general structure of the local council, and so on, thus creating a basis for different forms of service provision.

Responsibilities of local governments within the area of social welfare include taking care of the elderly and disabled as well as other persons in need of assistance. The law indicates the following services (LSW, www.riik.ee) that LGs are obliged to offer and finance:

- social counselling – advising persons on their social rights and assistance in resolving specific problems;
- elderly day care centres – intended as a social meeting point for the elderly where recreational activities and different social services are provided;
- home care – includes home assistance and nursing assistance in the home environment, which helps the person in need to cope in his or her familiar, accustomed environment;

- home child care – service supporting the parent’s employment, studying or coping (it does not include municipal kindergartens which are regulated by a separate law);
- personal assistant – for assisting a disabled person and reducing the care-giving workload on his or her family members;
- social housing – providing housing for individuals and families who are not capable or able to procure it themselves;
- adapting a dwelling – for those who have difficulties moving around in their dwelling or coping;
- nursing home care – for those who need auxiliary assistance and nursing care service in a social welfare institution.

Of course, municipalities may also provide supplementary social services at their discretion in addition to the aforementioned.

LGOA allows for a significant variation of juridical forms of service provision. LGs might offer the services themselves either by employing specialists directly or creating institutions such as foundations, non-profit or profit organisations owned by LGs to provide the service on behalf of the LG. This is mostly used in the case of home care services, social transport, and elderly day-care services. At the same time, the LGs have the option of delegating the service provision to non-governmental bodies. This is used for example in the case of shelters or child care. LGs can also outsource the service to the private sector. This is used for example in the case of personal assistant services. But local governments can also buy the service either from other municipalities or from the private sector at market prices. This is most common in the case of nursing homes, which might be either private or municipal. The variety in types of service provided makes it difficult to find an appropriate way of introducing charges. However, nursing homes provide a good example of a fee-based service. In general the nursing homes, either municipal or privately owned, charge up to 85-95% of the service user’s income for the service they provide. The rest of the user charge is either covered by the family of the service-user or by the LG.

In general, and characteristic of a post-soviet country, fee setting is still very vague and unregulated as the attempts of fee application have such a short history. The right to set fees relies on the municipal government, who may delegate the fee setting right to municipal agencies (LGOA, §31). In some cases, like kindergarten participation fees, the fees are partially regulated by central laws. There are also services which operate under a cost coverage rule such as public utilities. In the case of social services there is no central regulation on fee setting. This results in divergent practises of fee setting even within municipalities – in the case of some services fees are determined by the local enterprises or set by the municipal government, in other cases they are determined by the private or non-governmental institutions providing the services.

3. Data and methodology

The data used for distinguishing Estonian municipalities that charge users of personal social services from those that do not charge users is obtained from the survey “Charging individuals and/or their families for social services by local governments” (*“Kohaliku omavalitsuse poolt isikult ja/või perekonnalt sotsiaalteenuste eest tasu nõudmine”*) carried out by the Praxis Centre for Policy Studies in 2010-2011 at the request of the Ministry of Social Affairs of Estonia. The reason for using data from this survey is that there are no statistics about user charges imposed on social services by the LGs in Estonia. The questionnaire was sent to all 226 LGs in November 2010; the response rate was 100%.

Persons responsible for the management of social affairs in the municipalities were asked whether they charge users and/or their families for social services provided by the municipality. It is important to emphasise that the answer was purely defined by the local representatives themselves and is therefore a subjective view. In the case of some services, such as nursing home care where the service is often purchased from the private sector or from other municipalities, or social and municipal housing, where the administration is carried out by different officials or departments, results might be somewhat biased and the number of LGs where users are requested to pay fees might be higher. The survey results were explored and clarified during the 20 in-depth interviews carried out with representatives of the local governments and service providers.

For the statistical analysis, one of the LGs that charges users had to be removed from the database because of the amalgamation of two municipalities in autumn 2009. As the survey was conducted in 2010 but the other statistical data is from 2009, we did not have data for the amalgamated municipality. Therefore the number of municipalities included in the statistical analysis is 225.

The variables describing municipality characteristics were obtained from Statistics Estonia. The data for 2009 was used because no 2010 data was available for most of the variables at the time the analysis was conducted. The choice of variables is dictated by the fact that the social services included in the study are mainly targeted at the elderly and/or disabled people. The selection of variables was constrained by data availability. The variables included in the study are: population, elderly population⁵, income level of inhabitants, budget volume, importance of social sphere, importance of social costs for the elderly and disabled, and volume of social costs for the elderly and disabled. *Population* (popul) describes the number of inhabitants in the municipality on 1st January 2009. *Elderly population* (popul65) describes the relative proportion of people over 65 years of age in the whole population of the municipality on 1st January 2009. Additionally the relative proportion of very old people (over 85 years of age) is included in the analysis (popul85) as these people are supposedly the main target group of most personal social services included in the study. *Income level of inhabitants* (INC) is calculated

⁵ The number of disabled inhabitants is not available by administrative unit.

as the local budget receipts from personal income tax per inhabitant. This indicator is chosen because the average income data of individuals is not available by municipality. *Budget volume* (budgvol) describes the overall wealth of the municipality and is calculated as local budget expenditures per inhabitant, whereby local budget expenditures are without allocations for investments from the state budget. These allocations are excluded because they are made for specific purposes and may constitute a significant proportion of the local budget of a small municipality in a single year. *Importance of social sphere* (socimport) is calculated as the proportion of social protection expenditures from the local budget's total expenditures without allocations for investments from the state budget. *Importance of social costs for elderly and disabled* (eldsocimport) is calculated as the proportion of these expenditures from the local budget's total expenditures without allocations for investments from the state budget. *Volume of social costs for the elderly and disabled* (socvolpop65) are calculated as social expenditures for elderly and disabled people per elderly inhabitant (i.e. over 65 years of age). Additionally the costs for elderly and disabled people per inhabitant over 85 years of age (socvolpop85) are calculated.

In the statistical analysis firstly the hypotheses were tested that the variables chosen (population, elderly population, income level of inhabitants, budget volume, importance of social sphere, importance of social costs for the elderly and disabled, and volume of social costs for the elderly and disabled) have different means in the two relevant groups of municipalities (LGs charging users of local social services and LGs not charging users of local social services). As the tests of normality (Kolmogorov-Smirnov) showed that normal distribution cannot be assumed, the nonparametric Mann-Whitney U-Test was used for testing these hypotheses.

As a second step a logistic regression analysis was used for estimating the probability that a municipality charges users of personal social services and for identifying the variables relevant for this prediction.

4. Results and discussion

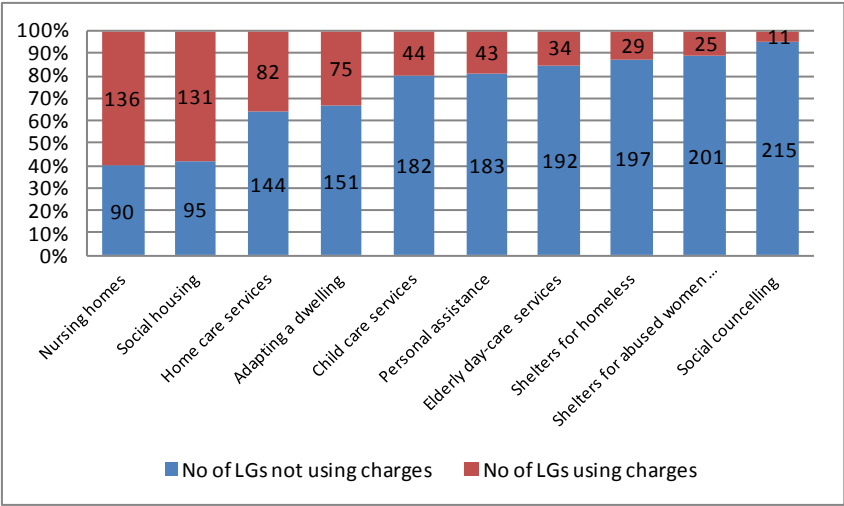
4.1. General attitudes towards charging for local social services

According to the survey users are charged for at least one kind of social service in 153 municipalities, that is in 68% of all LGs. 73 municipalities (32% of all LGs) claim not to charge for any social services that are provided by the municipality.

The practice of charging users of social services is rather divergent among the service fields as would be expected based on the different characteristics of services (Graph 3). Charges are often used in the case of nursing homes and social housing where the service is clearly individual and can easily be linked to the amount of consumption of the service. However, the principle of individuality of services is also evident for other services such as home care which is an alternative to nursing homes, but also child care, adapting a dwelling, providing personal assistance, elderly day care services – all of them are person-related services and do not create considerable externalities. Thus, based on the allocative efficiency consideration

explained previously, social services costs contain a significant potential for introducing user charges.

One reason why charges are not used in the case of home care services, elderly day-care and child care services, is that the marginal costs of these services may be rather low in some cases. For example, in the case of home care, the service is usually provided by an LG-employed social worker on a monthly salary basis, thus the costs of the service do not depend directly on the number of service users.



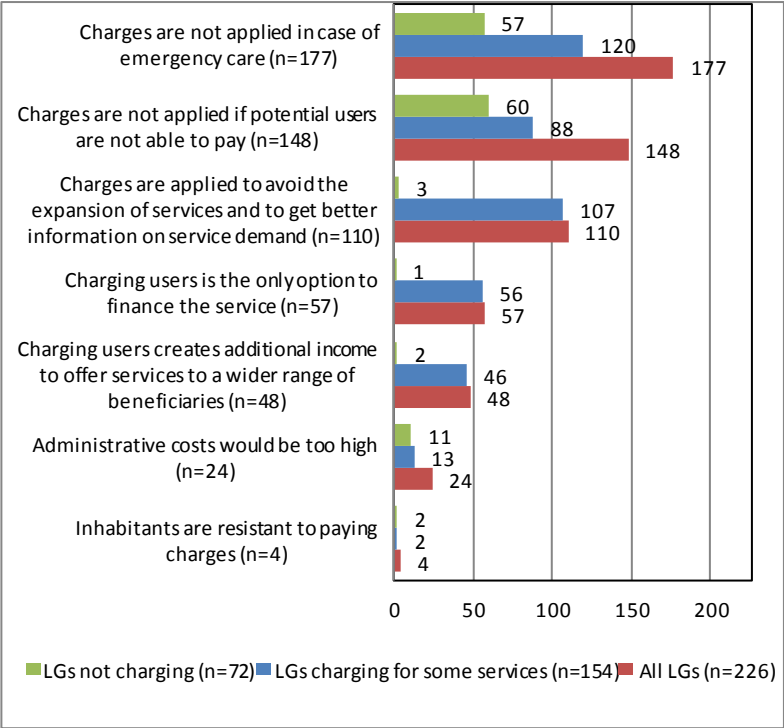
Graph 3. User charging practises in the case of different social services offered by LGs in Estonia.

Considering the principles that Estonian LGs take into account when deciding whether to charge users of social services or not (see Graph 4), it can be concluded that most of them (78% of all LGs) follow the principle of providing emergency care free of charge. However, 22% of LGs that charge users for some services do not consider this principle important.

The users’ ability to pay is clearly one of the most important factors that limit the use of charges. This option was marked by 83% of the LGs not charging users of social services and even by 57% LGs that do charge users for some services.

The majority (69%) of LGs applying charges to control the amount of service usage and in order to acquire information on the number of service users. Financial concerns are indicated by approximately one third of LGs that apply charges for some services.

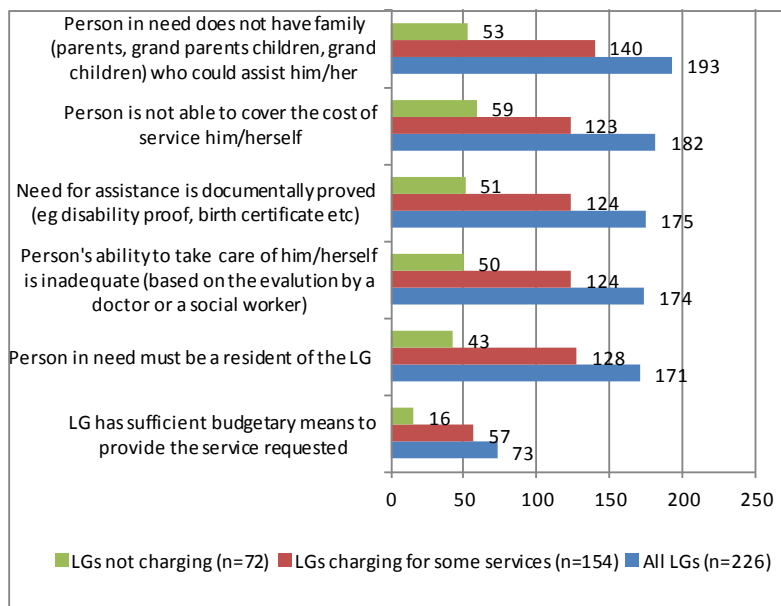
Political considerations seem to be least important – very few LGs (3% of LGs not charging for any services, and 1% of LGs charging for some services) indicate that they do not apply charges due to the resistance by inhabitants (and therefore due to the potential risk of losing votes). However, these answers need to be viewed with the caution. The respondents to the questionnaire were mainly civil servants implementing the policies designed at the political level; therefore they do not necessarily reflect the attitude of policy makers.



Graph 4. Principles applied in the case of deciding whether to charge or not to charge the users of social services (frequency of answers by groups of LGs).

When looking at the preconditions of service delivery (see Graph 5), usually Estonian LGs limit themselves to persons that do not have family (i.e. (grand)children or (grand)parents) of their own) (91% of LGs charging for some services and 74% of LGs not charging). This leads to the situation where some of the service users are forced to acquire the service on the open market and some users receive the service either on a basis of subsidised charges or completely free from LGs, causing an unequal treatment of residents in cases where the family is not able or not willing to pay. Also, it fosters an information bias as LGs do not have a full

overview of those in need. Expanding the services to the whole population of the LG and introducing a charge for those who are able to pay would allow an increase in the cost-efficiency as well as equity of service provision. However, this would definitely increase the administrative burden of the LGs as they would need to evaluate the ability to pay in each individual case.



Graph 5. Preconditions of offering services (frequency of answers by groups of LGs).

All other preconditions seem to be equally important except for the budgetary situation in LGs, which is taken as a precondition in only about one third of the LGs. During the interviews the respondents clarified that this might be explained by the very limited budget of the social services. The budget is so constrained that there is no scope to reduce it further and thus if there is a person in need, the means for providing the minimum amount of service will need to be found anyway (e.g. “*we cannot leave the person to die on the street*”).

To summarise, Estonian LGs seem to use charges either to finance high-cost services such as nursing home services or to control the expansion of a service. The role of the user charges in providing additional funds to the LG budget is clearly underemployed. Also, in applying the principle that local services are offered only for those who do not have family and who cannot thus rely on family support, limits the potential use of charges as a demand control instrument and hinders equal access to the public services.

4.2. Results of statistical analysis

Next we will look at whether the employment of user charges in Estonian LGs can be explained by the differences in socio-economic conditions or financial situation of the LGs. Those LGs that charge users have more inhabitants on average, but the range of values is very wide and standard deviation is high (see Appendix 1). The relative importance of elderly people in the whole population is somewhat higher in the LGs not imposing charges, but the difference between the smallest and largest values and the standard deviation are also bigger in this group. The LGs that charge users of social services have a higher income level of inhabitants but at the same time lower budget expenditures (without allocations for investments from the state budget) per inhabitant on average. The importance of social sphere, and importance and volume of social costs for the elderly and disabled, are all somewhat bigger in the group of LGs charging users of social services.

However, according to the results of the Mann-Whitney U-Test (see Appendix 2), the distribution of a variable can be regarded as different across the groups of LGs charging and not charging users of social services in only four cases: 1) importance of social sphere, 2) importance of social costs for the elderly and disabled, and 3) volume of social costs for the elderly and disabled per inhabitant over 65 years of age and 4) per inhabitant over 85 years of age. In all the other cases the distribution has to be regarded as the same across the two groups of LGs. If we take the significance level to be $\alpha=0,1$ instead of $\alpha=0,05$, then the distribution of population and income level of inhabitants can also be regarded as different across the two groups of LGs.

To take into account the inconsistencies in the survey answers relating to social housing and nursing homes highlighted previously, the statistical analysis is carried out also in a way that only the LGs imposing charges for home care service, personal assistance, adapting a dwelling, and/or elderly day-care services are considered as charging the users of social services⁶. All the other LGs are treated as “non-charging”. To differentiate this classification of LGs from the one used earlier, it is called “charge2” and the earlier version is called “charge1”.

According to the survey 103 out of the 225 municipalities included in the statistical analysis (45,8%) do not charge users of home care services, personal assistance, adapting a dwelling or elderly day-care services, and 122 (54,2%) impose charges at least on one of these social services (see Table 1). However, the “non-charging” group may contain local governments that do not provide any of these four personal social services contained in the analysis (the questionnaire does not enable us to distinguish them from the municipalities that provide services but do not charge the users).

⁶ Child care services, social counselling, shelters for the homeless and for abused women and children are excluded from the analysis to concentrate on services directed at the elderly and disabled people.

Also in the case of using “charge2”, LGs that charge users have more inhabitants on average, whereby the difference of means between two groups is bigger than it was in the case of using “charge1”. But, as before, the range of values is very wide and standard deviation is high. In general the outcomes do not differ much from those obtained when using “charge1” (see Appendix 1).

Table 1. Classification of municipalities on the basis of charging the users of social services

Classification	Non-charging		Charging		Total
	No. of LGs	%	No. of LGs	%	No. of LGs
“Charge 1”	73	32,4	152	67,6	225
“Charge 2”	103	45,8	122	54,2	225

However, the results of the Mann-Whitney U-Test are rather different than before (see Appendix 2). When using “charge2” only the distribution of population and income level of inhabitants can be regarded as different across the two groups of LGs. In all the other cases it is not possible to reject the null hypothesis and so the distribution has to be regarded as the same across the groups. The conclusion does not change if we take the significance level to be $\alpha=0,1$ instead of $\alpha=0,05$.

Later on, we controlled the probability of charging on socioeconomic conditions of the LG with the help of logistic regression. The general form of the logistic regression used in the paper is as follows:

$$\text{Logit}(\text{charge}) = B_0 + \sum B_i X_i,$$

where *charge* is “charge1” or “charge2” depending on the particular model and X_i s are variables described above.

The results of the logistic regression analysis depend on: the classification of municipalities (“charge1” or “charge2”); on the stepwise method used (Forward Stepwise Likelihood Ratio (LR), Forward Stepwise Wald, Backward Stepwise Likelihood Ratio (LR) or Backward Stepwise Wald); and on the municipality characteristics included in the analysis. Variables with strong ($r>0,7$) and statistically significant correlations (see Appendix 3) were not inserted into the models together. Substituting popul65 with popul85 and socvolpop65 with socvolpop85 in the models did not produce considerably different results, so only popul65 and socvolpop65 were used in the models.

Three different combinations of variables were used in the models:

- model 1: popul, popul65, INC, budgvol, socimport, socvolpop65,
- model 2: popul, popul65, INC, budgvol, eldsocimport, and
- model 3: popul, popul65, INC, budgvol, socvolpop65.

The final set of variables remaining in these models in the case of different classifications of municipalities (“charge1” or “charge2”) and after using different

stepwise methods (forward LR, forward Wald, backward LR or backward Wald) is given in Table 2 and Appendix 4.

Table 2. Variables in the equation

		Model 1	Model 2	Model 3
Charge1				
Forward	LR	-	-	-
	Wald	-	-	-
Backward	LR	INC, socimport	INC, eldsocimport	popul, socvolpop65
	Wald	INC, socimport	INC, eldsocimport	-
Charge2				
Forward	LR	INC, socimport	INC, eldsocimport	INC
	Wald	INC, socimport	INC, eldsocimport	INC
Backward	LR	popul, INC, socimport	popul, INC, budgvol, eldsocimport	INC, budgvol, socvolpop65
	Wald	INC, budgvol, socimport	INC, budgvol, eldsocimport	INC, budgvol, socvolpop65

As can be seen, none of the variables is included in the final equation in all possible cases. In most cases income level of inhabitants (INC) and one of the measures of the importance of social costs (socimport, eldsocimport, or socvolpop65) are present. In almost all of these cases the coefficients for INC, socimport, eldsocimport, or socvolpop65 appear to be significantly different from 0, at the significance level of 0,05. The odds ratio for a unit change in INC lies between 1,003 and 1,005 and its 95% confidence interval ranges from 1,000 to 1,008. This means that when local budget receipts from personal income tax per inhabitant increase by one euro, the increase in the odds of charging the users of social services is up to 0,8%.⁷ Also the increase in the proportion of social protection expenditures or social costs for the elderly and disabled in the local budget tends to increase the odds of charging the users of social services. However, the size of their influence cannot be specified based on the data used because of the very wide 95% confidence intervals. A unit change in socvolpop65 cannot be associated with a change in the odds of charging the users of social services as its confidence intervals include the value 1.

In addition to these variables population and local budget expenditures per inhabitant are also present in some equations, but a unit change in these variables cannot be associated with a change in the odds of charging the users of social services as their confidence intervals include the value 1. Relative importance of people over 65 years of age in the whole population of the municipality (popul65) does not appear in any of the equations.

⁷ In cases when the confidence interval includes the value 1 (i.e. no change in odds), it cannot be concluded based on the data used that a unit change in INC is associated with a change in the odds of charging the users of social services.

However, none of the estimated models fits the data well as the values of $-2\log L$ of the final models are high (near 300) and not remarkably smaller than the values of $-2\log L$ for the models containing only a constant. The values of the Cox & Snell R^2 and the Nagelkerke R^2 (below 0,1) show that only a very small part of the variation in the dependent variable is explained by these logistic regression models.

The results of the logistic regression analysis are in general consistent with the results of the Mann-Whitney U-Test. The probability that a municipality will charge users of social services tends to be larger if the income level of its inhabitants is higher and the social costs are larger in volume or in proportion to the budget's expenditures. A larger population may also increase the probability that the LG charges users of social services but the results are not robust. At the same time the proportion of elderly people does not seem to have any influence on the decision to charge users of social services. However, as the estimated models do not fit the data well, it may be expected that there are some other important factors that influence the decision of LGs to charge or not to charge the users of social services.

Conclusion

The aim of the current paper was to explore the determinants of charging users of local social services, based on the example of a small, unitary, highly centralised, post-soviet country. In a highly centralised country with rising social expenditures increasing LG revenues with the help of user charges would create additional income for service development and allow control over the expansion of services. It would create potential to enhance the efficiency of service delivery and increase the quality of services.

The results of the survey among local governments in Estonia show that two thirds of local governments charge for some social services. However, the practice is rather divergent among the service areas, as would be expected based on the different characteristics of services. In some services, like nursing care, user charges are extensively used; in other cases, such as shelters for homeless and abused persons and personal assistants for disabled people, the charges are seldom applied.

LGs present the users' inability to pay as a reason for not charging users. However, as the service is often limited to persons who do not have families and therefore could not rely on family support, LGs often do not have a full overview of the actual demand for the service and service users who would be able to pay for services are forced to find the service on the open market. Splitting the demand between a publicly offered service and a market-based service may lead to the inefficient use of resources. The ability to pay may also depend on social security systems, either private or public. Social insurance or life insurance schemes against the risks of nursing care or disabilities may considerably improve the service users' ability to pay.

LGs justify the application of user charges mainly by the need for information and demand control. Financial motivation is only mentioned by one third of the charging

municipalities. Thus, the efficiency consideration and co-financing of service provision that could reduce the financial burden of social costs are still not acknowledged.

The results of the logistic regression analysis and of the Mann-Whitney U-Test show that if the local budget receipts from personal income tax per inhabitant is higher, the municipality is more likely to charge users of social services. So the first hypothesis set up in the introduction (municipalities with higher income level of inhabitants tend to apply user charges more) can be considered proven. The second hypothesis (larger municipalities tend to employ user charges more) is not supported by the findings. Although the U-Test showed that the distribution of population can be regarded as different across two groups of LGs, the results of the logistic regression analysis revealed that the change in the number of inhabitants of the LG cannot be associated with a change in the odds of charging the users of social services. The results of the analysis indicated that the probability of charging users of social services tends to be higher if the social costs are higher in volume or in proportion to the budget's expenditures. However, as the estimated logistic regression models did not fit the data well, it may be concluded that LG charging policies depend largely on factors not considered in the statistical analysis.

The current article showed that there are no strong statistical relations between the financial and population characteristics of the municipalities and their decision to charge for local social services. This indicates that further aspects and factors need to be investigated, to include positive theories of charging fees such as forms of service provision (production structures) and competitive situations within and across the municipalities which may play an important role in charging policy.

References

1. **Bailey, S.** (1999). *Local Government Economics: Principles and Practice*, Palgrave.
2. **Bird, R. M., Vaillancourt, F.** (Eds) (2006). *Perspectives on Fiscal Federalism*. Herndon, VA, USA: World Bank Publications.
3. **Blöchliger, H.** (2008). *Market Mechanisms in Public Service Provision*, OECD Economics Department Working Papers, No. 626, OECD Publishing.
4. **Bohley, P.** (2003). *Die öffentliche Finanzierung: Steuern, Gebühren und öffentliche Kreditaufnahme*, Oldenbourg Wissenschaftsverlag.
5. **Bös, D.** (1986). *Public Enterprise Economics, Theory and Application*. Amsterdam: Elsevier. Law of Social Welfare (LSW).
6. **Darby, J., Muscatelli, A. and Roy, G.** (2003). *Fiscal Decentralisation in Europe: A Review of Recent Experience*, in: Mønnesland, J. (Ed.), *Regional Public Finances*, London: Pion Limited, pp. 13-37.
7. **Friedrich, P., Kaltschuetz, A., Nam, S.W.** (2004). *Significants and determination of fees for municipal finance*, CESifo working paper no. 1357, December 2004.
8. *Local Government Organisation Act (LGOA)*, Estonia, RT I, 30.12.2011, 56.

9. Local Government Financial Accounts for 2004-2010, Ministry of Finance of Estonia. 18. October 2011.
10. **Oates, W. E.** (1972). Fiscal Federalism, New York: Harcourt Brace Jovanovich.
11. **Pihor, K., Timpmann, K., Batueva, V.** (2011). Kohaliku omavalitsuse poolt isikult ja/või perekonnalt sotsiaalteenuste eest tasu nõudmine. SA Poliitikauuringute keskus Praxis, AS EMOR, Final Report, Ministry of Social Affairs of Estonia.
12. **Reddy, S., Vandemoortele, J.** (1996). User financing of basic social services: A review of theoretical arguments and empirical evidence, Office of Evaluation, Policy and Planning, UNICEF, New York.
13. Regional statistics. Statistics Estonia (www.stat.ee).
14. **Wagner, R. E.** (1976). Revenue structure, fiscal illusion, and budgetary choice. *Public Choice*, 25(1), pp. 45-61.
15. **Wagner, R.E.** (1991). Charging for government: user charges and earmarked taxes in principle and practice. Taylor & Francis

Appendix 1. Descriptive statistics

Variable	Popul		popul65		popul85		INC		socimport		eldsocioimport		budgvol		socvolpop65		socvolpop85	
	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2
No charge	73	103	73	103	73	103	73	103	73	103	73	103	73	103	73	103	73	103
Mean	3069	3022	,203	,203	,020	,019	387	385	,093	,095	,047	,050	960	966	214	226	2343	2473
Std.Dev	5227	4672	,055	,051	,009	,009	111	102	,054	,050	,047	,044	273	294	213	196	2107	1907
Median	1583	1583	,209	,207	,018	,018	366	365	,077	,085	,030	,037	879	894	149	161	1744	1961
Min	97	97	,098	,098	,000	,000	95	95	,010	,010	,000	,000	525	525	0	0	0	0
Max	40323	40323	,412	,412	,052	,052	725	725	,272	,272	,234	,234	2360	2688	1140	1140	10795	10795
Charge	152	122	152	122	152	122	152	122	152	122	152	122	152	122	152	122	152	122
Mean	7219	8279	,200	,200	,019	,019	407	413	,111	,115	,059	,060	933	921	281	287	2989	3039
Std.Dev	33267	37056	,040	,041	,007	,008	88	90	,092	,101	,056	,060	234	198	306	334	2781	3041
Median	1902	1952	,196	,194	,018	,018	396	404	,093	,092	,042	,040	896	894	185	181	2224	2113
Min	316	316	,114	,114	,006	,008	238	238	,035	,035	,003	,003	250	250	11	11	109	109
Max	395646	395646	,331	,331	,044	,044	792	792	,943	,943	,391	,391	2688	1818	2597	2597	19146	19146
Total	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
Mean	5873	5873	,201	,201	,019	,019	400	400	,106	,106	,055	,055	941	941	259	259	2780	2780
Std.Dev	27542	27542	,046	,046	,008	,008	97	97	,082	,082	,053	,053	247	247	280	280	2594	2594
Median	1780	1780	,199	,200	,018	,018	386	386	,087	,087	,040	,040	894	894	172	172	2037	2037
Min	97	97	,098	,098	,000	,000	95	95	,010	,010	,000	,000	250	250	0	0	0	0
Max	395646	395646	,412	,412	,052	,052	792	792	,943	,943	,391	,391	2688	2688	2597	2597	19146	19146

Appendix 2. Comparison of variable distributions. Hypothesis Test Summary, Mann-Whitney U-Test

H ₀ : the distribution of the variable is the same across groups		
Variable	Value of U-test	
	Charge1	Charge2
Popul	,062**	,045*
popul65	,533	,303
popul85	,799	,872
INC	,092**	,007*
Socimport	,025*	,106
Eldsocimport	,008*	,144
Budgvol	,837	,511
socvolpop65	,012	,211
Socvolpop85	,013	,315

*-significant at the level $\alpha=0,05$

** - significant at the level $\alpha=0,1$

Appendix 3. Correlation matrix

	Popul	popul65	popul85	INC	socimport	eldsocioport	budget	socvolpop65	socvolpop85
Popul	1								
	Pearson Corr	-,132 [*]	-,123 ^{**}	,175 ^{**}	-,036 ^{**}	-,038 ^{**}	,020	-,002	,030
	Sig. (2-tailed)	,048	,065	,009	,589	,566	,763	,976	,659
popul65	Pearson Corr	1	,767 ^{**}	-,578 ^{**}	,233 ^{**}	,230 ^{**}	,020	,044	-,013
	Sig. (2-tailed)	,048	,000	,000	,000	,001	,771	,509	,846
popul85	Pearson Corr	-,123	1	-,473 ^{**}	,307 ^{**}	,338 ^{**}	-,030	,205 ^{**}	-,040
	Sig. (2-tailed)	,065	,000	,000	,000	,000	,655	,002	,551
INC	Pearson Corr	,175 ^{**}	-,473 ^{**}	1	-,254 ^{**}	-,213 ^{**}	,145 [*]	-,078	-,020
	Sig. (2-tailed)	,009	,000	,000	,000	,001	,030	,245	,770
Socimport	Pearson Corr	-,036	,233 ^{**}	-,254 ^{**}	1	,727 ^{**}	-,025	,632 ^{**}	,563 ^{**}
	Sig. (2-tailed)	,589	,000	,000	,000	,000	,711	,000	,000
Eldsocioimport	Pearson Corr	-,038	,230 ^{**}	-,213 ^{**}	,727 ^{**}	1	,030	,929 ^{**}	,851 ^{**}
	Sig. (2-tailed)	,566	,001	,001	,000	,000	,658	,000	,000
Budget	Pearson Corr	,020	-,030	,145 [*]	-,025	,030	1	,202 ^{**}	,182 ^{**}
	Sig. (2-tailed)	,763	,655	,030	,711	,658	,002	,002	,006
socvolpop65	Pearson Corr	-,002	,205 ^{**}	-,078	,632 ^{**}	,929 ^{**}	,202 ^{**}	1	,900 ^{**}
	Sig. (2-tailed)	,976	,509	,245	,000	,000	,002	,000	,000
socvolpop85	Pearson Corr	,030	-,013	-,020	,563 ^{**}	,851 ^{**}	,182 ^{**}	,900 ^{**}	1
	Sig. (2-tailed)	,659	,846	,551	,000	,000	,006	,000	,000

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Appendix 4. Variables in the Equation

Charge1

		B	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Model 1							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	INC	,003	4,174	,041	1,003	1,000	1,007
	Socimport	6,125	4,143	,042	456,920	1,255	166415,666
	Constant	-1,225	2,347	,125	,294		
Backward (Wald)	INC	,003	4,174	,041	1,003	1,000	1,007
	Socimport	6,125	4,143	,042	456,920	1,255	166415,666
	Constant	-1,225	2,347	,125	,294		
Model 2							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	INC	,003	3,492	,062	1,003	1,000	1,006
	eldsocimport	6,597	3,625	,057	732,664	,824	651720,072
	Constant	-,814	1,310	,252	,443		
Backward (Wald)	INC	,003	3,492	,062	1,003	1,000	1,006
	eldsocimport	6,597	3,625	,057	732,664	,824	651720,072
	Constant	-,814	1,310	,252	,443		
Model 3							
Forward (LR)	Constant	,733	26,527	,000	2,082		
Forward (Wald)	Constant	,733	26,527	,000	2,082		
Backward (LR)	popul	,000	1,551	,213	1,000	1,000	1,000
	socvolpop65	,001	2,897	,089	1,001	1,000	1,003
	Constant	,290	1,405	,236	1,337		
Backward (Wald)	Constant	,733	26,527	,000	2,082		

Appendix 4 (continued). Variables in the Equation

Charge2

		B	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Model 1							
Forward (LR)	INC	,005	7,923	,005	1,005	1,001	1,008
	Socimport	6,245	5,520	,019	515,509	2,816	94358,834
	Constant	-2,265	8,682	,003	,104		
Forward (Wald)	INC	,005	7,923	,005	1,005	1,001	1,008
	Socimport	6,245	5,520	,019	515,509	2,816	94358,834
	Constant	-2,265	8,682	,003	,104		
Backward (LR)	Popul	,000	1,861	,173	1,000	1,000	1,000
	INC	,004	5,672	,017	1,004	1,001	1,007
	Socimport	6,349	5,743	,017	571,932	3,179	102890,591
	Constant	-2,179	7,926	,005	,113		
Backward (Wald)	INC	,005	9,252	,002	1,005	1,002	1,008
	Budgvol	-,001	2,852	,091	,999	,998	1,000
	Socimport	6,160	5,668	,017	473,245	2,970	75411,961
	Constant	-1,398	2,407	,121	,247		
Model 2							
Forward (LR)	INC	,004	6,600	,010	1,004	1,001	1,007
	Eldsocimport	5,871	3,960	,047	354,553	1,092	115078,475
	Constant	-1,743	6,464	,011	,175		
Forward (Wald)	INC	,004	6,600	,010	1,004	1,001	1,007
	Eldsocimport	5,871	3,960	,047	354,553	1,092	115078,475
	Constant	-1,743	6,464	,011	,175		
Backward (LR)	Popul	,000	1,470	,225	1,000	1,000	1,000
	INC	,004	5,777	,016	1,004	1,001	1,007
	Budgvol	-,001	2,667	,102	,999	,998	1,000
	Eldsocimport	6,387	4,809	,028	593,943	1,971	178981,250
	Constant	-,862	1,075	,300	,422		
Backward (Wald)	INC	,005	8,081	,004	1,005	1,001	1,008
	Budgvol	-,001	3,227	,072	,999	,997	1,000
	Eldsocimport	6,219	4,555	,033	501,976	1,661	151660,406
	Constant	-,863	1,095	,295	,422		

Model 3							
Forward (LR)	INC	,003	4,807	,028	1,003	1,000	1,006
	Constant	-1,133	3,497	,061	,322		
Forward (Wald)	INC	,003	4,807	,028	1,003	1,000	1,006
	Constant	-1,133	3,497	,061	,322		
Backward (LR)	INC	,004	7,254	,007	1,004	1,001	1,007
	Budgvol	-,001	4,381	,036	,999	,997	1,000
	socvolpop65	,001	4,562	,033	1,001	1,000	1,003
	Constant	-,487	,379	,538	,614		
Backward (Wald)	INC	,004	7,254	,007	1,004	1,001	1,007
	Budgvol	-,001	4,381	,036	,999	,997	1,000
	socvolpop65	,001	4,562	,033	1,001	1,000	1,003
	Constant	-,487	,379	,538	,614		

ESTONIAN INNOVATION POLICY ACTIVITY AGAINST THE BACKGROUND OF THE EU MEMBER STATES

Janno Reiljan, Ingra Paltser
University of Tartu

Abstract

Innovation policy is essential to guarantee a country's development and the continuous enhancement of its innovation performance. The aim of this paper is to empirically analyse the position of Estonia in different innovation policy areas compared to other European countries. Seventeen different variables that characterise the activities of the public sector in promoting innovation are used in a principal component analysis to reveal the structure of public sector activities in promoting innovation. The principal component analysis reveals that the activities of the public sector in promoting innovation can be characterised using six components. Analysis of Estonia's position in these policy areas shows that in comparison with other European countries, the extent to which the public sector in Estonia enhances the overall framework for innovation is above the European average and R&D in the higher education sector is also above average. But R&D in the government sector in Estonia is in a weak state; only a small proportion of innovative enterprises in Estonia receive financial support for innovation from the public sector (including support from the EU), and universities and public sector agencies in Estonia only cooperate with firms in innovation activities to a small degree.

Keywords: innovation policy, economic development, the structure of the activities of the public sector in promoting innovation, European comparison, the position of Estonia

JEL Classification: H54, O1, O31, O38, O52

Introduction

In the long-term perspective, the competitiveness of a country is mostly built on innovation – the private and public sector's ability to implement innovations that support development systematically and sustainably. On the one hand, the spontaneous desire of people, enterprises and organizations to find new development paths and new effective ways to operate will always be the basis of innovation. On the other hand, in today's global world, where everything is interconnected and dependent, it is also important to consciously promote innovativeness, develop an institutional environment that fosters innovations and create a consistent balanced system for innovation components. Hence, a public innovation policy that builds a functional innovation system in a country becomes essential in ensuring the country's development.

The importance of innovation is emphasised in the European Commission economic

growth strategy – “Europe 2020”. Instead of extensive growth (based on the implementation of additional resources), the new priority is “smart growth” based on knowledge and innovation. According to the strategy, “smart growth” necessitates improving the quality of education, strengthening research performance, promoting innovation and knowledge transfer, making full use of information and communication technologies and ensuring that innovative ideas can be turned into new products and services (European Commission 2010: 9-10).

The public sector innovation policy must be a consistent system of actions that target innovation and with the ultimate aim of increasing the international competitive advantage of the private sector. The efficiency of the innovation policy depends on whether it is in accordance with country’s level of development (path dependency), specific characteristics (size, the structure of entrepreneurship, labour force competence, values etc.) and the nature of the international competitive environment.

The objective of the current paper is to empirically analyse the international position of Estonia in different innovation policy areas. In order to achieve the objective the following research tasks have been set:

- systematise the nature of innovation in scientific literature;
- analyse innovation policy instruments, i.e. the activities of the public sector in promoting innovation;
- empirically assess the international position of Estonia in different innovation policy areas.

The paper is structured as follows: firstly, the nature of innovation is explored and a definition of innovation is specified, then innovation policy instruments that help to systematically characterise the activities of the public sector in promoting innovation are analysed, and finally the international position of Estonia in different innovation policy areas is assessed.

The nature of innovation

A diverse range of definitions for innovation exist and innovation is interpreted differently. The term innovation comes from the Latin word *innovare*, meaning “to renew or change” (Marxt, Hacklin 2005: 414). Innovation does not mean inventing something new; it is an invention that is utilised and launched by an entrepreneur (Lundvall 2007: 101). The utilisation of invention distinguishes innovation from research and development.

Over time, the definition of innovation has evolved and become further specified. Schumpeter (1928: 377-378) defined innovation as the combination and creative application of elements of existing and new knowledge to improve existing or develop new products and services, production processes, organization-methods and commercialisations in order to create or maintain added value. The purpose of innovation is to gain competitive advantage on the market and ideally even a short-

term monopolistic position. According to Schumpeter's definition, innovation can only emerge in private sector production and not in public sector services nor in the management and administrative sphere of the private or public sector.

Porter's approach to innovation is a bit broader. According to his definition, innovation may comprise of new technologies or also of new ways to function, and the aim is to achieve competitive advantage (Porter 1990: 45). Porter's definition limits innovation to entrepreneurship in the private or public sector, whereby the innovation that provides competitive advantage may also occur in management. Nevertheless, innovation in public sector services is excluded.

In the Oslo Manual, which is the foundation for innovation research, innovation is defined very broadly (OECD 2005b: 46): "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations." It is emphasised that innovation may also occur in any sector of the economy, including government services such as health or education.

Edquist (2002: 219) also specifies the nature of innovation. Firstly, innovation has to be economically important. Secondly, innovation may be completely new, but usually it is a new combination of existing knowledge. This kind of approach does not limit the area that innovation is implemented.

A broader definition of innovation is given in the Estonian Research and Development and Innovation Strategy "Knowledge-based Estonia 2007–2013" (2007: 9): the implementation of the latest outcome of scientific research as well as existing knowledge, skills and technologies in an innovative manner. According to this definition, innovation may occur in any area.

In each definition the idea of implementation is mentioned – innovation is an invention that will lead to utilisation. Dosi (1988: 222) emphasises that besides seeking, finding, experimenting, developing and imitating a new product, process or organizational structure, it is also essential to accept an innovation into practical application.

Different types of innovation help us understand the importance of innovation. Schumpeter classified innovation according to the new ways an enterprise can act (1982: 66): the introduction of a new good; the introduction of a new method of production; occupying new markets the enterprise has not yet entered; access to a new source of raw materials or half-manufactured goods; a new approach to organizing an industry.

In the Oslo Manual innovation is classified into four categories according to the nature of the innovation (OECD 2005b: 47-51): product innovation – the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses; process innovation – the implementation of a

new or significantly improved production or delivery method; marketing innovation – the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing; organizational innovation – the implementation of a new organizational method in the firm's business practices, workplace organization or external relations. Edquist (2001: 7) classifies innovation into product and process innovation, where the first comprises innovations in products and services and the second innovations in technology, organization and marketing.

According to the extent of the innovation, it is possible to differentiate incremental and radical innovation. Incremental innovation is a gradual development of a product or process (Fagerberg 2006: 8); it usually occurs unexpectedly during activities (Smart Innovation 2006: 13). Radical innovations introduce new concepts that depart notably from past practices and help to create products or processes based on a different set of scientific principles and often open up new markets and potential fields of operation (Carayannis *et al.* 2003: 120). The opportunity for the radical innovation usually arises from research and development (R&D), since the aim of R&D is to create new knowledge (Smart Innovation 2006: 13). But radical innovations have a bi-directional effect on an enterprise's competitive advantage: on the one hand, large spending is needed to prepare radical innovations, which also means large risks and substantial losses in the case of failure; on the other hand, successful radical innovation may ensure a long-term competitive advantage for the enterprise.

Based on the previous definitions, innovation in this paper is defined as the implementation of new or existing knowledge in order to create a new or improved product/service or an upgrade in the production, management or marketing process that will increase efficiency.

The purpose of incurring costs and taking risks for the sake of innovation is to achieve competitive advantage on the market in order to increase profits and/or market share, to obtain a monopolistic position on the market in order to increase profits and/or protect the monopolistic position, and to achieve success in public sector services in order to broaden supply and/or reduce costs.

Innovation is often perceived as a “linear process” – first comes scientific activity, then development and finally production and marketing (Fagerberg 2006: 8). Linear innovation models are divided into two: supply-push models (aka science-push and technology-push) and demand-pull models (Molas-Gallart, Davies 2006: 67). But only a small proportion of all innovation occurs from a linear process. In reality, most innovations originate from different sources and different process phases, thus innovation is a “systematic process” (Marinova, Phillimore 2003: 47). Innovation occurs through interaction between many actors (Fagerberg 2006: 4).

The role of the public sector in promoting innovation

Next we will describe innovation policy instruments. Rolfo and Calabrese (2005: 4-5) categorise innovation policy into four types and under each they mention public sector activities in promoting innovation. These policies and instruments are as follows:

- mission policies – financial support for research into cutting edge technologies;
- diffusion and technology transfer policies – grants (through subsidies or tax credits) for the purchase of new machinery or equipment incorporating innovations;
- infrastructural policies – the creation of facilities that promote technological capability, e.g. scientific and technological parks, research centres etc.;
- technological districts – the stimulation of innovation in SMEs by supporting the formation of networks where firms, R&D and financial institutions coexist and jointly evolve innovative initiatives.

Innovation can be promoted in a top-down or a bottom-up manner. According to the top-down perspective, innovation policy is directly linked to national interests and concentrates more on solving macro problems. When innovation policy follows a bottom-up perspective governments, authorities and agencies at the local level have to develop their own distinctive policies, but these have to be based on the national or European Union level. (Howells 2005: 1223, 1225)

Innovation policy instruments can be classified as demand-side oriented or supply-side oriented. Supply-side oriented instruments are more in accordance with the linear view of the innovation process; the systemic approach to innovation emphasises demand-side instruments more (Edquist, Hommen 1999: 63-64). Some demand-side instruments are more suitable for linear processes (e.g. public procurements for technology) and some (e.g. subsidies for firms to cooperate) promote systemic processes.

Edler and Georghiou (2007: 952) emphasise that traditional supply-side innovation policies are inadequate for fostering competitive advantage and thus demand-side instruments have to be created. Demand-side innovation policies are defined as public measures to induce innovations and/or speed up the diffusion of innovations (e.g. new requirements for products and services).

Supply-side innovation policy instruments can be categorised into two groups: the finance group and the services group. The finance group includes five instruments (equity support, fiscal measures, support for public sector research, support for training and mobility, grants for industrial R&D) and the services group includes two (information and brokerage support, networking measures). Demand-side policies can be presented in four main groups: systemic policies, regulation, public procurement and the stimulation of private demand. (Edler, Georghiou 2007: 953) It is essential to note that many policy actions comprise several instruments at the same time.

There are eight conditions which need to be supported by public sector instruments in order to support the development of the innovation system (Wieczorek *et al.* 2009: 22-23): the prevention of undesired and untimely lock-in or the stimulation of creative destruction; the management of interfaces among actors; the stimulation of the participation of relevant actors (especially users); the creation of the conditions for learning and experimenting; the stimulation of the presence of hard and soft institutions; the prevention of overly weak and stringent institutions; the provision of infrastructure for strategic intelligence; and the stimulation of physical and knowledge infrastructure (R&D). In each area there are specific policy instruments that help to promote the functioning and development of the innovation system (table 1).

Table 1. Policy instruments that systematically develop innovation

Area	Policy instruments
The prevention of undesired and untimely lock-in or the stimulation of creative destruction	Procurement; loans/guarantees/tax incentives for innovative projects or new technological applications; awards and honours for novel innovations; technology promotion programmes; debates; discourses; venture capital; risk capital
The manage of interfaces among actors	Cooperative research programmes; consensus development conferences; cooperative grants; bridging instruments (e.g. competence centres); collaboration and mobility schemes; policy evaluation procedures; debates facilitating decision-making; science shops; technology transfer
The stimulation of the participation of the relevant actors in the innovation system	Clusters; public-private partnership; interactive stakeholder involvement techniques; network enhancing tools; public debates; scientific workshops; thematic meetings; venture capital; risk capital
The creation of the conditions for learning and experimenting	Education and training programmes; (technology) platforms; foresights; road mapping; scenario development workshops; brainstorming; policy labs; venture capital
The stimulation of the presence of institutions	Awareness building measures; information and education campaigns; public debates; lobbying; voluntary agreements; customs; normative values; ways of conduct
The prevention of overly stringent or weak institutions	Regulations; limits; obligations; rights; principles; norms; agreements; patent laws; standards; taxes; customs; normative values; codes of conduct
The provision of infrastructure for strategic intelligence	Foresight; trend studies; roadmaps; intelligent benchmarking; SWOT analyses; sector and cluster studies; problem/needs/solution analyses; information systems (for programme management or project monitoring); evaluation practices and toolkits; user surveys; information databases; consultancy services; knowledge brokers; knowledge management techniques and tools; knowledge transfer mechanisms; policy intelligence tools (policy monitoring and evaluation tools, innovation systems analyses)
The stimulation of physical and knowledge infrastructure	Classical R&D grants, taxes, loans, schemes; funds (institutional, investment, guarantee); public research labs

Source: Wieczorek *et al.* 2009: 39-40.

Meyer-Krahmer and Kuntze (1992: 103) categorise innovation policy instruments into two: instruments in a narrow sense and in a broader sense. Instruments in a narrow sense comprise institutional funding, financial incentives and other innovation infrastructure and technology transfer mechanisms. Instruments in a broader sense comprise public demand and procurement, corporatist measures, education and training and public policy that is linked to innovation (e.g. competition policy, regulations).

According to Edquist (2006: 190-191), there are ten activities of the public sector that help to develop, diffuse and use innovations in a country:

1. Knowledge inputs to the innovation process, including:
 - the provision of R&D and the creation of new knowledge; and,
 - competence building in the labour force to be used in innovation and R&D activities.
2. Demand-side factors, including:
 - the formation of new product markets; and,
 - the articulation of quality requirements emanating from the demand side with regard to new products.
3. The provision of the constituents of the innovation system, including:
 - creating and changing organizations needed for the development of new fields of innovation;
 - networking through markets and other mechanisms; and,
 - creating and changing institutions that influence innovating organizations and innovation processes by providing incentives or obstacles to innovation (e.g. IPR laws, tax laws, environment and safety regulations, etc.)
4. Support services for innovating firms, including:
 - incubation activities for new innovative efforts (e.g. providing access to facilities, administrative support, etc.);
 - financing innovation processes and other activities that can facilitate the commercialization of knowledge and its adoption; and,
 - the provision of consultancy services of relevance for innovation processes, e.g. technology transfer, commercial information, and legal advice.

Chaminade and Edquist list suitable policy instruments that the public sector can implement in these ten areas (see Chaminade, Edquist 2005: 20-32).

Innovation policy should consider that the factors that influence innovation vary between industries. The same innovation policy instruments may not function well everywhere (Fagerberg 2006: 17). The choice of a country's innovation policy instruments is affected by many factors (OECD 2005a: 33): strengths and weaknesses of the country; opportunities and threats that the country faces and how these are perceived; the development stage of the country; political orientations and differences in the objectives of government; the decision process in policy making; and the economic and industrial inheritance of the country.

An assessment of the international position of Estonia

In the empirical analysis, a variety of variables are used that characterise the activities of the public sector in promoting innovation. Each innovation policy area is described using two to four variables. The choice of variables was made on the basis of content and availability. All together, 17 variables are used in the analysis (table 2).

Table 2. Indicators used in the empirical analysis of the implementation of innovation policy instruments

1. Public sector R&D	
GOVERD	Government sector R&D expenditure (% of GDP)
HERD	Higher education sector R&D expenditure (% of GDP)
2. Business enterprise sector R&D	
GOVtoBES	Government sector funding for business enterprise sector R&D expenditure (% of GDP)
funGOV	Share of enterprises that received funding for innovation activities from central government
funLOC	Share of enterprises that received funding for innovation activities from local or regional authorities
funEU	Share of enterprises that received funding for innovation activities from the European Union
3. Support for cooperation in innovation	
COuni	Share of enterprises that co-operated with universities or other higher education institutions
COgov	Share of enterprises that co-operated with government or public research institutes
BESStoHES	Business enterprise sector funding for higher education sector R&D expenditure (% of GDP)
BESStoGOV	Business enterprise sector funding for government sector R&D expenditure (% of GDP)
4. Development of human resources that are necessary for innovation	
educ14	Total public expenditure on education at primary and secondary level of education (ISCED 1-4) (% of GDP)
educ56	Total public expenditure on education at tertiary level of education (ISCED 5-6) (% of GDP)
empGOV	Total R&D personnel in government sector as % of total employment (full time equivalent)
empHES	Total R&D personnel in higher education sector as % of total employment (full time equivalent)
5. Promoting environment that promotes innovation	
IntelProp	Intellectual property rights are adequately enforced (on scale 0-10)
LegalEnv	Development and application of technology are supported by the legal environment (on scale 0-10)
Procure	Government procurement decisions foster technological innovation (on scale 1-7)

The data used in the empirical analysis originates from the statistical office of the European Union (Eurostat), the OECD statistics database, the World Competitiveness Yearbook by the International Institute for Management Development (IMD) and The Global Competitiveness Report published by the World Economic Forum. The statistics software packages SPSS 16 and STATA 10 are used in the analysis of the data.

In order to find the structure of public sector activities in promoting innovation, a principal component analysis is used (Niglas 2005: 1). With a principal component analysis it is possible to transform a number of correlated variables into a smaller number of uncorrelated variables called components without a significant loss of information. A principal component analysis foremost allows us to understand and quantitatively describe the essence of the structure of “soft” (socio-economic) phenomena because this area is mostly characterised by stochastic correlations. Synthetic components are presented in the same scale – all components have the same mean (equal to 0) and variation (equal to the standard deviation). This simplifies the comparison of different countries using various components. When using a principal component analysis, the number of cases has to be higher than the number of variables, but this is not easily achieved. In the current paper, the sample consists of the 27 member states of the European Union plus Croatia, Turkey, Iceland and Norway. In addition, the countries are viewed using data from two years; therefore, the sample comprises 62 cases. It is considered a good outcome when the number of observations is three times higher than the number of variables (Field 2005: 639-640; OECD 2008: 66). The data from both years is standardised in order to remove the trend.

A principal component analysis assumes that there are no missing values (Remm 2010: 64), but in the current dataset there were seven, and these missing values were replaced using the EM (expectation maximization) algorithm (see Bilmes 1998), which is one of the most common methods for calculating missing values in a principal component analysis (see Chen 2002; Raiko *et al.* 2007; Stanimirova *et al.* 2007).

The outcome of the component analysis for innovation policy variables in European countries is shown in table 3. The principal component analysis decreased the number of variables that describe innovation policy actions almost three times but only one fifth of the information from the initial variables was lost (components describe 81.7% of the overall variance). The suitability of the principal component analysis was assessed using the KMO (Kaiser-Meyer-Olkin) measure of sampling adequacy and Bartlett’s test of sphericity (Field 2005: 640, 652) – both gave a positive outcome.

Interpreting these synthetic components and giving them adequate names is a complicated task. In the current paper, the interpretation of components is based on previously designed methodology (see Karu, Reiljan 1983).

The first component has a strong correlation with six variables that characterise the

legal environment for innovation, procurement decisions, education expenditure and R&D expenditure in the higher education sector. The essence of this component is described by the name “Development of innovation support system”.

The second component represents three variables that describe the government sector R&D expenditure and R&D personnel in the government sector. The name for the second component is “Government sector R&D funding”, since the number of R&D personnel derives from the level of funding.

Table 3. The component structure of innovation policy actions

	C1 Development of innovation support system	C2 Government sector R&D funding	C3 Higher education sector R&D funding	C4 EU funding for business enterprise sector and cooperation with public sector	C5 Business enterprise sector R&D funded by public sector	C6 Central government funding for business enterprise sector
Procure	0.87	0.13	-0.05	-0.07	-0.02	0.12
educ14	0.83	-0.06	0.05	0.10	-0.12	0.00
LegalEnv	0.81	0.03	0.37	-0.03	0.16	0.01
IntelProp	0.78	0.07	0.34	0.06	0.34	0.05
educ56	0.76	-0.03	0.21	0.28	0.09	0.35
GOVERD	0.05	0.93	0.07	-0.12	0.11	-0.11
empGOV	-0.02	0.90	-0.01	0.04	-0.15	0.06
BEStoGOV	0.01	0.82	0.12	0.21	0.09	0.12
BEStoHES	0.13	0.33	0.75	-0.11	-0.02	0.02
empHES	0.30	-0.11	0.69	0.33	0.14	-0.04
HERD	0.61	-0.05	0.62	0.02	0.30	0.02
funEU	-0.04	-0.23	-0.31	0.80	-0.03	-0.29
COuni	0.10	0.21	0.23	0.77	0.16	0.29
COgov	0.19	0.45	0.30	0.66	-0.07	0.30
funLOC	-0.08	-0.19	0.13	0.13	0.85	0.07
GOVtoBES	0.32	0.31	0.03	-0.07	0.80	-0.01
funGOV	0.18	0.04	-0.03	0.07	0.05	0.93
Eigenvalue	5.59	2.83	1.86	1.52	1.13	0.96
Cumulative variance explained	32.89	49.55	60.50	69.43	76.06	81.70
Bartlett's test	0.00					
KMO	0.66					

The third component characterises the level of R&D expenditure in the higher education sector and R&D personnel in the higher education sector as a percentage of total employment. The essence of this component is described by the name “Higher education sector R&D funding”, since the number of personnel depends on

the funding.

The fourth component has a strong correlation with three variables. The variable *funEU*, which describes the share of enterprises that received funding for innovation activities from the European Union, has the highest component loading. The other two variables characterise the share of enterprises that co-operated with universities, other higher education institutions, government or public research institutes. This component is named “EU funding for business enterprise sector and cooperation with public sector”.

The fifth component characterises two variables: the share of enterprises that received funding for innovation activities from local or regional authorities and the government sector funding for R&D expenditure in the business enterprise sector. This component is described by the name “Business enterprise sector R&D funded by public sector”.

The sixth component represents only one variable – the share of enterprises that received funding for innovation activities from the central government. Thus, the sixth component is described by the name “Central government funding for business enterprise sector”.

Component scores characterise the values of the components for each country. Since every country is represented in the sample twice, each country has two component scores. In order to compare countries, each country is described using the arithmetic mean (appendix 1). Component scores show that the structure of the public sector in promoting innovation varies country by country – countries emphasise different innovation policy areas. Subsequently, the international position of Estonia is described using figures that illustrate the outcome.

The position of Estonia in each component is shown in figure 1, which illustrates the difference from the overall average of all countries and from the minimum and maximum values. Although in general, innovation policy activity in Estonia is below average, it may be considered balanced – the difference from the mean is usually smaller than from the minimum and maximum values.

The diversification of innovation policy shows that in Estonia development success is not expected from one “miracle tool”, but a consistent and balanced innovation policy is being implemented. Whether this is adequate for a small country and its level of adeptness has to be researched.

According to component C1 (Development of innovation support system), the level in Estonia is a bit higher (standard deviation 0.26) than the average in Europe and Estonia is ranked in the middle (15th out of 31). So it is clear that support in Estonia for the legal and educational environment for innovation is at the average European level. In terms of the legal environment, the outcome may be considered good. But in order to find out whether support for the education on the average level will reduce the differences between countries development, a deeper analysis of

education financing must be conducted. A comparison with other countries suggests the need to increase support for education. In the first component, the country that is most similar to Estonia is the Netherlands, and relatively similar are Ireland and the United Kingdom. The highest component scores are in Denmark (2.0), Sweden (1.6) and Iceland (1.4) and the lowest (negative) values are in Croatia (-1.8), Slovakia (-1.5) and Turkey (-1.4). Developmental success is mostly achieved by countries with high scores.

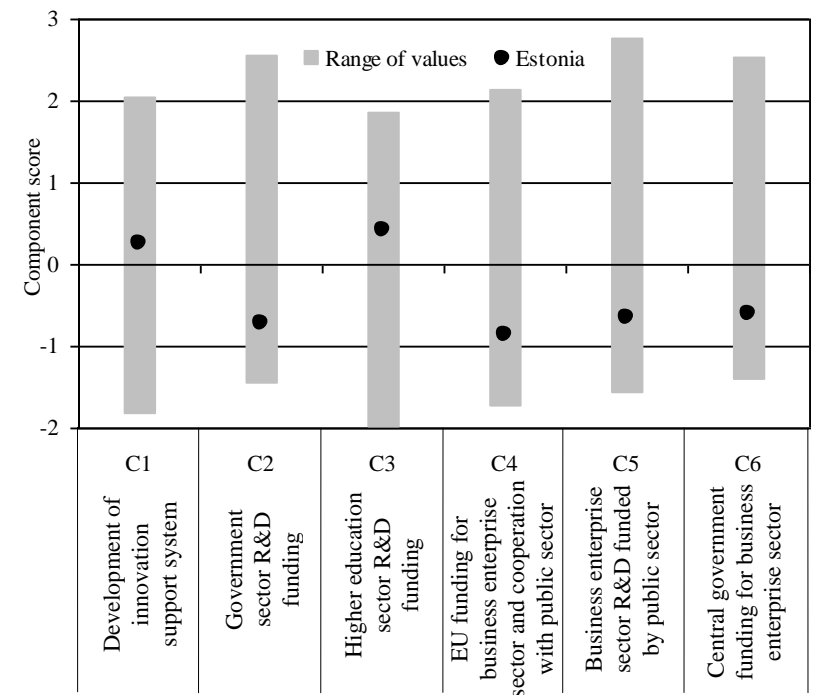


Figure 1. The position of Estonia in regard to the six components characterising innovation policy areas.

According to component C2 (Government sector R&D funding), Estonia’s position is lower than the average by 0.71 standard deviations and is ranked 25th – only six countries have lower component scores. Therefore, the government sector and its research and R&D personnel do not create significant science potential for the business sector and is not a supportive cooperation partner. In order to find out whether this science potential and support is at all necessary, the effects of government sector R&D on the business enterprise sector have to be studied. The comparison with other countries provides little explanation for this situation. According to the second component, Estonia is similar to Turkey and Italy, where

small enterprises have a large relative importance. The highest component scores are in Iceland and Slovenia (2.6 and 2.1) and the lowest values are in Malta (-1.5) and Denmark (-1.3). Hence, in this policy area the means in small countries show a marked difference and the reasons for this need to be investigated.

According to component C3 (Higher education sector R&D funding), Estonia's position is higher than average by 0.41 standard deviations and is ranked 11th, indication that Estonian innovation policy has quite high hopes for the promoters of innovation. In a small open country this must be considered important since new knowledge must be passed to specialists through teaching and this is mostly done by academics engaged in R&D. The experience of other countries seems to support this kind of hypothesis. In the third component, Estonia is most similar to Sweden and the United Kingdom and the highest component scores are in Iceland (1.9) and Finland (1.7). The lowest are in Luxembourg (-2.0) and Cyprus (-2.0) – countries where higher education is mostly oriented towards what is being offered by large neighbours.

According to component C4 (EU funding for business enterprise sector and cooperation with public sector), the component score for Estonia is -0.86 and Estonia is ranked 24th. In this area Estonian innovation policy shortages must be acknowledged – the public sector is not capable of establishing cooperation with the business enterprise sector in order to help companies apply and utilise financial support from the European Union. Often it seems that the public sector in Estonia, which organizes the allocation of European Union funds, has replaced its role as consultant to the business sector with the role of controller and punisher. Thereby, the business enterprise sector cannot rely on the public sector for access to financial support from the European Union, but must fear bureaucratic intervention by the public sector. According to the values of this component, Estonia's similarity to Bulgaria and Italy rather confirms this hypothesis. The best outcomes in this policy area are in Finland (2.1), Slovenia (1.8) and Greece (1.8) – these countries are the most successful in getting financial support from the European Union. The lowest values are in Turkey (-1.7), Spain (-1.2) and Iceland (-1.2). The position of Turkey and Iceland derives from the fact that these countries are not European Union member states, and for this reason financial support for innovation is quite low.

According to component C5 (Business enterprise sector R&D funded by public sector), Estonia is on the average level (component score is equal to -0.65) and is ranked 22nd. The low ranking in this policy area derives from the fact that there are no regional authorities in Estonia and in general local municipalities do not have the competence or resources to support innovation in the business enterprise sector. In the fifth component, the most similar countries to Estonia are Slovakia, Poland and Cyprus. The highest component scores are in Austria (2.8), Spain (1.8) and France (1.5). The lowest values are in Malta (-1.6), Iceland (-1.3) and Bulgaria (-1.3).

According to component C6 (Central government funding for business enterprise sector), Estonia's component score is equal to -0.60 and Estonia is ranked 22nd. Direct central government funding for the business enterprise sector requires

adequate competence in terms of long-term innovation policy strategy development and adeptness in the elimination of specific market and system failures. Further research must be conducted in order to determine the existence of this kind of competence and adeptness in Estonia. Therefore, Estonia's moderate outcome in this innovation policy area may be considered normal. According to the sixth component, the most similar countries to Estonia are Latvia and Romania. The central government supports innovation processes in the business enterprise sector the most in Norway and Cyprus (component score accordingly 2.5 and 1.7) and the least in Ireland (-1.4) and Iceland (-1.4). The position of Estonia in reference to other countries seems to verify the balanced innovation policy in the country.

Looking at all the components simultaneously reveals that Finland has the best position among all countries – all six component scores have positive values. The worst performance is in Bulgaria, Poland and Portugal – all three countries have five negative values out of six component scores. Estonia with two above average and four below average values remains formally on the negative side. But in order to give a more precise evaluation, a more profound analysis must be carried out.

Summary

In spite of a hundred years of discussion, there is still not one specific definition for innovation. In the current paper the following definition of innovation was used: the implementation of new or existing knowledge in order to create a new or improved product/service or an upgrade in production, management or marketing process that will increase the efficiency.

The purpose of incurring costs and taking risks for the sake of innovation is to achieve competitive advantage on the market in order to increase profits and/or market share, to obtain a monopolistic position on the market in order to increase profits and/or protect the monopolistic position, and to achieve success in public sector services in order to broaden supply and/or reduce costs.

In a national innovation system, the public sector innovation policy has a substantial role to play. The need for the intervention of the public sector is explained via market and system failures. The public sector promotes innovation by implementing innovation policy instruments. These instruments must be chosen according to development path dependency, established goals and the factors that influence the implementation of the country's innovation policy. In the empirical part of the paper, 17 variables were chosen to describe public sector activities in promoting innovation.

In order to assess the international position of Estonia and the structure of public sector activities in promoting innovation, a principal component analysis was carried out. The sample consisted of 27 European Union member states plus Croatia, Turkey, Iceland and Norway. Each country was represented with values from two years. The principal component analysis revealed that the activities of the public sector in promoting innovation can be described using six components: the

development of an innovation support system, the government sector and higher education sector R&D funding, the business enterprise sector innovation funded by the central government and also by local or regional authorities, European Union funding for the business enterprise sector and cooperation with the public sector, and the business enterprise sector R&D funded by the public sector. On the basis of different innovation policy areas, Estonia is closer to the average values for these countries than the minimum or maximum values.

References

1. **Bilmes, J. A.** (1998). A Gentle Tutorial of the EM Algorithm and its Application to Parameter Estimation for Gaussian Mixture and Hidden Markov Models. International Computer Science Institute.
<http://www.icsi.berkeley.edu/ftp/global/pub/techreports/1997/tr-97-021.pdf> (07.02.2012).
2. **Carayannis, E. G., Gonzalez, E., Wetter, J.** (2003). The Nature and Dynamics of Discontinuous and Disruptive Innovations from a Learning and Knowledge Management Perspective. – The International Handbook on Innovation. Edited by L. V. Shavinina. Amsterdam: Pergamon, pp. 115-138.
3. **Chaminade, C., Edquist, C.** (2005). From Theory to Practice: the Use of Systems of Innovation Approach in Innovation Policy. CIRCLE Electronic Working Paper Series, Paper no 2005/02.
http://www.circle.lu.se/upload/CIRCLE/workingpapers/200502_Chaminade_Edquist.pdf (07.02.2012).
4. **Chen, H.** (2002). Principal Component Analysis with Missing Data and Outliers. Technical Report. Electrical and Computer Engineering Department, Rutgers University. <http://www.nec-labs.com/~haifeng/mypubs/tutorialrpca.pdf> (07.02.2012).
5. **Dosi, G.** (1988). The Nature of the Innovative Process. – Technical Change and Economic Theory. Eds G. Dosi, C. Freeman, R. Nelson, G. Silverberg and L. Soete. London: Pinter, pp. 221-238.
6. **Edler, J., Georghiou, L.** (2007). Public Procurement and Innovation – Resurrecting the Demand Side. – Research Policy, Vol. 36, pp. 949-963.
7. **Edquist, C.** (2001). The Systems of Innovation Approach and Innovation Policy: An Account of the State of the Art. Lead paper presented at the DRUID Conference, Aalborg, June 12-15, 2001.
<http://folk.uio.no/ivai/ESST/Outline%20V05/edquist02.pdf> (07.02.2012).
8. **Edquist, C.** (2002). Innovation Policy – A Systemic Approach. – The Globalizing Learning Economy. Eds D. Archibugi, B.-Å. Lundvall. Oxford: Oxford University Press, pp. 219-238.
9. **Edquist, C.** (2006). System of Innovation. Perspectives and Challenges. – The Oxford Handbook of Innovation. Eds J. Fagerberg, D. C. Mowery, R. R. Nelson. Oxford: Oxford University Press, pp. 181-208.
10. **Edquist, C., Hommen, L.** (1999). Systems of Innovation: Theory and Policy for the Demand Side. – Technology in Society, Vol 21, pp. 63-79.
11. European Commission. (2010). Europe 2020. A European strategy for smart, sustainable and inclusive growth. Communication from the Commission.

- http://eunec.vlor.be/detail_bestanden/doc014%20Europe%202020.pdf
(07.02.2012).
12. Eurostat. European Commission. <http://ec.europa.eu/eurostat> (07.02.2012).
 13. **Fagerberg, J.** (2006). *Innovation. A Guide to the Literature.* – The Oxford Handbook of Innovation. Eds J. Fagerberg, D. C. Mowery, R. R. Nelson. Oxford: Oxford University Press, pp. 1-26.
 14. **Field, A.** (2005). *Discovering Statistics Using SPSS.* Second edition. London: Sage.
 15. The Global Competitiveness Report 2009-2010 (2009). Ed K. Schwab. Geneva: World Economic Forum.
<https://members.weforum.org/pdf/GCR09/GCR20092010fullreport.pdf>
(07.02.2012).
 16. The Global Competitiveness Report 2010-2011 (2010). Edited by K. Schwab. Geneva: World Economic Forum.
http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf (07.02.2012).
 17. **Howells, J.** (2005). *Innovation and Regional Economic Development: A Matter of Perspective?* – Research Policy, Vol. 34, pp. 1220-1234.
 18. IMD. World Competitiveness Online.
<https://www.worldcompetitiveness.com/OnLine/App/Index.htm> (07.02.2012).
 19. IMD. World Competitiveness Yearbook 2010. Lausanne: Institute for Management Development.
 20. **Karu, J., Reiljan, J.** (1983). *Tööstusettevõtte majandustegevuse komponentanalüüs.* Tallinn: Valgus.
 21. Knowledge-based Estonia: Estonian Research and Development and Innovation Strategy 2007-2013. (2007). Tartu: Estonian Ministry of Education and Research, 51 p. <http://www.hm.ee/index.php?popup=download&id=6175>
(07.02.2012).
 22. **Lundvall, B.-Å.** (2007). National Innovation Systems – Analytical Concept and Development Tool. – Industry and Innovation, Vol. 14, No. 1, pp. 95-119.
 23. **Marinova, D., Phillimore, J.** (2003). Models of Innovation. – The International Handbook on Innovation. Ed L. V. Shavinina. Amsterdam: Pergamon, pp. 44-53.
 24. **Marxt, C., Hacklin, F.** (2005). Design, Product Development, Innovation: All the Same in the End? A Short Discussion on Terminology. – Journal of Engineering Design, Vol 16, No 4, pp. 413-421.
 25. **Meyer-Krahmer, F., Kuntze, U.** (1992). Bestandsaufnahme der Forschungs- und Technologiepolitik. – Politische Techniksteuerung – Forschungsstand und Forschungsperspektiven. Hrsg K. Grimmer *et al.* Opladen: Leske and Budrich, S. 95-118. In Kuhlmann, S. Future Governance of Innovation Policy in Europe – Three Scenarios. – Research Policy, 2001, Vol. 30, pp. 953-976.
 26. **Molas-Gallart, J., Davies, A.** (2006). Toward Theory-Led Evaluation: The Experience of European Science, Technology, and Innovation Policies. – American Journal of Evaluation, Vol. 27, No. 1, pp. 64-82.
 27. **Niglas, K.** (2005). Faktoranalüüs. Tallinna Ülikool.
<http://minitorn.tlu.ee/~katrin/cmsSimple/uploads/opmat/faktor.pdf> (07.02.2012).
 28. OECD (2005a). *Innovation Policy and Performance. A Cross-Country Comparison.* Paris: OECD Publications.

- http://www.bei.org/attachments/general/events/forum_2005_article2_en.pdf (23.08.2011).
29. OECD (2005b). Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data. Third edition. Paris: OECD Publications.
http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/OSLO/EN/OSLO-EN.PDF (07.02.2012).
 30. OECD (2008). Handbook on Constructing Composite Indicators. Methodology and user guide. Paris: OECD Publications.
<http://www.oecd.org/dataoecd/37/42/42495745.pdf> (07.02.2012).
 31. OECD. StatExtracts. <http://stats.oecd.org> (07.02.2012).
 32. **Porter, M. E.** (1990). The Competitive Advantage of Nations. New York: Free Press.
 33. **Raiko, T., Ilin, A., Karhunen, J.** (2007). Principal Component Analysis for Large Scale Problems with Lots of Missing Values. – Machine Learning: ECML 2007. 18th European Conference on Machine Learning. Warsaw, Poland, September 17-21, 2007. Proceedings. Eds J. N. Kok *et al.* Berlin: Springer-Verlag, pp. 691-698. <http://users.ics.tkk.fi/piraiko/papers/ecml07pca.pdf> (07.02.2012).
 34. **Remm, K.** (2010). Ruumiliste loodusandmete statistiline analüüs. Käsikiri Tartu Ülikooli Ökoloogia ja Maateaduste Instituudis. Versioon 13. detsember 2010. http://taurus.gg.bg.ut.ee/kalle_r/RASA/2010/RASA_teooria.pdf (07.02.2012).
 35. **Rolfo, S., Calabrese, G.** (2005). Triple Helix in Italy: from National to Regional Approach. 5th Triple Helix Conference, 18th-21th May, Turin.
http://www2.ceris.cnr.it/homedipendenti/calabrese/Calabrese_publications/Triple.pdf (07.02.2012).
 36. **Schumpeter, J. A.** (1928). The Instability of Capitalism. – The Economic Journal, Vol. 38, No. 151, pp. 361-386.
 37. **Schumpeter, J. A.** (1982). The Theory of Economic Development: an Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle. New Brunswick: Transaction Publishers.
 38. Smart Innovation: A Practical Guide to Evaluating Innovation Programmes. A Study for DG Enterprise and Industry. January 2006.
ftp://ftp.cordis.lu/pub/innovation-policy/studies/sar1_smartinnovation_master2.pdf (07.02.2012).
 39. **Stanimirova, I., Daszykowski, M., Walczak, B.** (2007). Dealing with Missing Values and Outliers in Principal Component Analysis. – Talanta, Vol. 72, pp. 172-178.
 40. **Wieczorek, A. J., Hekkert, M. P., Smits, R.** (2009). Contemporary Innovation Policy and Instruments: Challenges and Implications. – Innovation Studies Utrecht (ISU), Working Paper #09.12. <http://www.geo.uu.nl/isu/pdf/isu0912.pdf> (07.02.2012).

Appendix 1. The arithmetic mean of two years component scores for countries

	C1	C2	C3	C4	C5	C6
Belgium	0.00	-0.66	0.87	0.44	0.82	-0.02
Bulgaria	-1.09	0.93	-0.81	-0.96	-1.28	-0.66
Czech Republic	0.10	1.24	-1.38	-0.03	0.91	-0.51
Denmark	2.04	-1.32	0.87	0.30	-0.83	-0.36
Germany	-0.02	1.18	0.70	-1.12	0.82	-0.68
Estonia	0.26	-0.71	0.41	-0.86	-0.65	-0.60
Ireland	0.35	-1.22	-0.42	0.51	0.82	-1.39
Greece	-1.05	-1.24	0.24	1.76	-0.31	0.18
Spain	-0.85	0.26	0.34	-1.24	1.77	0.03
France	0.45	0.69	-0.41	-0.34	1.47	-0.36
Italy	-1.38	-0.69	0.09	-0.98	1.36	0.15
Cyprus	1.15	-1.00	-1.97	0.00	-0.70	1.72
Latvia	-0.58	-0.43	0.26	1.26	-0.46	-1.34
Lithuania	-0.70	-0.45	0.97	0.83	-0.75	-0.61
Luxembourg	0.97	1.16	-1.99	-0.39	-0.29	0.47
Hungary	-0.63	0.49	-0.55	0.94	-0.33	0.26
Malta	0.76	-1.45	-1.27	-1.09	-1.56	0.16
Netherlands	0.31	0.12	1.05	-0.19	-0.05	1.15
Austria	0.58	-0.58	-0.08	0.30	2.76	0.90
Poland	-0.26	-0.03	-0.92	0.97	-0.67	-1.11
Portugal	0.62	-0.94	-0.10	-0.59	-0.89	-0.34
Romania	-1.11	0.19	-1.17	-0.71	0.41	-0.59
Slovenia	-0.51	2.07	-1.24	1.77	-0.28	0.46
Slovakia	-1.51	-0.14	0.09	0.93	-0.64	-0.66
Finland	0.89	1.12	1.68	2.14	0.07	1.50
Sweden	1.55	-0.42	0.40	0.24	1.11	-1.28
United Kingdom	0.36	-0.67	0.46	-0.15	0.23	-0.37
Croatia	-1.81	0.29	0.72	-0.41	-0.57	1.52
Turkey	-1.42	-0.71	1.17	-1.72	-0.74	1.23
Iceland	1.43	2.55	1.85	-1.16	-1.30	-1.39
Norway	1.10	0.38	0.16	-0.46	-0.26	2.54

DEMAND SIDE FACTORS OF LOCAL PUBLIC SERVICES IN ESTONIA¹

Janno Reiljan, Aivo Ülper, Tarmo Puolokainen²
University of Tartu

Abstract

The goal of this paper is to quantitatively assess the relationships between the service structure and size and age structure of the population, as well as the income levels and employment structure of Estonian municipalities. The article consists of three parts. The first part deals with the relationships between the demand for local public services and the main parameters that characterize the population of a municipality based on existing theoretical and empirical studies. The second part outlines the relationship between the models of optimal public service delivery areas and population structure and income levels. In the third part an empirical analysis is carried out to assess the relationship between the structure of Estonian municipal expenditures (by service type) and population size and age structure, as well as work related income (salary) level and employment structure.

Keywords: local public services, local government budget structure, population age structure of municipalities, population employment structure and income level of municipalities

JEL Classification: H41, H44, H72, H73, J21, J31

Introduction

The role of the public sector is to provide public goods at an appropriate level. The supply of pure public goods, like the presence of state power, environmental protection, public order and security, is primarily determined at the level of the central government in accordance with the country's economic capabilities and the preferences of the population as a whole.

Besides pure public goods there are public goods and services that can be individualized (they satisfy the conditions of excludability and rivalry) and that directly increase the welfare of the population – education, leisure and culture services, economic services and public utilities. These services are provided mainly by municipalities (Reiljan, Ramcke, Ukrainski 2006: 90). To improve the effectiveness of public service provision, the supply of those goods and services has

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² Janno Reiljan, PhD, DSc (econ), Prof. of International Economy; Aivo Ülper, doctoral student, Tarmo Puolokainen, master student, Faculty of Economics and Business Administration, University of Tartu. Narva Rd. 4, 51009 Tartu, Estonia. E-mails: Janno.Reiljan@mtk.ut.ee, aivo87@ut.ee, Tarmo.Puolokainen@ut.ee.

to be adapted as flexibly as possible to demand. The level of innovation in municipalities best reveals itself through the policies that take account of changes in public service demand.

At the municipal level, changes in public service demand are primarily caused by changes in population size and structure. A significant relationship between population age structure and the demand for local public services is generally recognised. An increase in the number of pre-school children will increase demand for kindergarten places and pre-school education. An increase in the number of school-age children will increase demand for education services, as well as school transport. At the same time, municipalities with a decreasing number of children have to solve cost inefficiency problems resulting from an infrastructure built for a larger number of children. Specific problems in the demand for public services also arise from the number and proportion of people of active working age, elderly, unemployed, disabled and other categories in the population, as well as changes in these proportions.

Therefore, population structure and changes in it affect the optimal size of different local public service delivery areas. Deciding upon the optimal area size for different local public services is a difficult challenge for municipalities that requires innovative approaches. Designing optimal service delivery areas, in turn, is made difficult by the fact that it is often necessary to organize cooperation between multiple municipalities. In Estonia, however, cooperation between municipalities is at a very modest level.

Insufficient attention has been given to other factors affecting local public service demand. For example, it can be assumed that the income levels and structure of the population has an affect on the demand for local public services, as do changes occurring within these factors. In municipalities with high income levels, demand for social services is low and more attention and resources can be allocated to leisure services. Substantial effects on demand for local public services can also be expected from the employment structure of the population. For example, workers with low qualifications usually have a lower demand for culture services than highly qualified white-collar workers. Thus, the employment structure in terms of type of economic activity has to be taken into account in public policy-making at the local level. The specific demand for local public services (e.g. social services) can also be caused by unemployment (the rate, duration). For these reasons, the remaining factors affecting the demand for local public services mentioned above (besides population age structure) are also included in the analysis.

Estonian municipalities have faced and still are facing large and controversial changes in the factors influencing demand for local public services. Municipalities in remote areas are generally losing (active working age) population. There, due to the departure of mobile young people, the proportion of older and inactive people is increasing. However, in the economic centres the demographic processes are working in the opposite direction. The income structure in terms of type of economic activity is very different among municipalities and the economic boom

and the crisis both led to significant changes in this respect, potentially resulting in a significant impact on demand for local public services. These changes must be recognised in order to improve the cost efficiency of local public services, including for example, designing optimal service delivery areas.

The goal of this paper is to quantitatively assess the relationships between the service structure of Estonian municipalities and population size and structure, as well as income levels and employment structure. We engage in the following research tasks to accomplish this goal:

- Analyse the relationships between the demand for local public services and population size and structure, as well as employment structure and income levels based on research literature;
- Present the importance of considering population size and structure, but also income levels and employment structure, based on optimal public service area models;
- Assess the relationships between the budget structure of Estonian municipalities and population size and structure, as well as income levels and employment structure.

The article consists of three parts. The first part deals with the relationships between the demand for local public services and the main parameters that characterize the population of a municipality, based on existing theoretical and empirical studies. The second part outlines the relationship between the models of optimal public service delivery areas and population structure and income levels. In the third part an empirical analysis is carried out to assess the relationship between the structure of Estonian municipal expenditures (by service type) and population size and age structure, as well as work related income (salary) levels and employment structure.

1. Factors shaping demand for local public services

The demand for public services is a much more complicated phenomenon than the demand for private services. First of all, an individual usually does not have a complete understanding of the tax price of public services (the expenditures of the taxpayer) and the budget constraints of the public sector, making his or her opinion of the amount and quality of public services needed in excess of the economic capacity of the public sector (for examples on the learning environment and teaching quality in general education, see Reiljan, Reiljan 2005). Secondly, both politicians and voters lack the information required to assess the quantity and quality of public services needed, so preferences are formed and decisions made about the structure of the public sector budget and expenditure on public services (Becker *et al.* 1992: 54). Thirdly, because the willingness of society (the tax payers) to pay for public services is very difficult or impossible to determine due to the lack of adequate empirical methods (Becker *et al.* 1992: 24-84), the demand for a particular public service and the decision to increase, maintain or reduce the share of expenditures on a certain public service in the budget is, according to Becker *et al.* (1992: 102), often evaluated based on a public opinion survey.

In this study, we draw from the competition among different population groups over public sector budget allocations manifest in political processes, and from the political influences of different population groups in public sector budget decisions. This is the focus of mainstream scientific research analysing the formation of demand for public services. Particular attention has been given to the hypothesis of possible competition between the young and the elderly in shaping the expenditure structure in municipal budgets. Many authors (Borge, Rattsø 2008; Cattaneo, Wolter 2007; Strömberg 2006; Grob, Wolter 2005; Poterba 1997 and others) have identified an empirical relationship whereby an increase in the proportion of elderly people in society leads to a decrease in child care and education spending per child and pupil. At the same time there are authors (Brunner, Balsdon 2004; Gradstein, Kaganovich 2004; Ladd, Murray 2001; South 1991), whose studies argue against the existence of such a relationship and show positive attitudes among the elderly towards increasing expenditures on education. Of course, the attitude of different groups of people towards increasing or decreasing expenditures on certain public services and the actual effect of those attitudes on political decisions are different things.

Scott J. South (1991), in his study, shows that children and the elderly in the US are not direct competitors for public sector expenditures, because elderly welfare programs are funded by the federal government and the welfare of children is the responsibility of the states. Similar issues should be taken into consideration when analysing local public services in Estonia because expenditures on certain public services (e.g. education) do not depend on the economic opportunities and political decisions of municipalities alone.

Kempkes (2010) raises the problem of adjusting education expenditures in response to severe demographic shifts. He points out that previous empirical evidence on the relationship between public education spending and student cohort size suggests that spending is not adjusted proportionately to the size of the student cohort and that a large decrease in the number of students would thus translate into an important increase in education spending per student rather than a significant decrease in resources allocated to public education. The empirical analysis based on data from five East German schools provided contradictory results: during the period 1993–2001 expenditures on education were successfully adjusted to the decreasing number of students, but for 2002–2006 expenditures on education decreased significantly slower than the number of students. Of course, when assessing these kinds of adjustment processes we must also consider how developed the country is. For example, in Estonia the number of students is decreasing rapidly, but at the same time there is pressure to improve the quality of the study environment in many schools and bring teachers' salary levels in line with the general wage level.

Fernandez and Rogerson (2001) conduct an analysis based on a panel data set for the 48 states of continental USA for 1950–1990. They find that expenditures per student on public primary and secondary education have a strong positive correlation with the income level of the residents and a moderate negative correlation with the number of students. The proportion of elderly, however, did not have a statistically significant relationship with expenditures per student.

When naming factors affecting the demand for public services, Becker *et al.* (1991: 28) mention, in addition to age, income levels and the tax burden and people's assessment of the rationality and efficiency of the use of money in the public sector. It should also be noted that the availability of public services intended for families and children often depends to some degree upon the income level of families (Becker *et al.* 1991: 90), and this must especially be considered when determining the share of the total costs the family has to pay itself for a service.

Kalwij and Salverda (2007) show how a change in a family's demographic structure and employment changes the spending patterns of the family. Similarly, changes in the demand for local public services must be taken into account as changes in the family occur. A decrease in the number of children in families reduces the demand for kindergarten and school places. An increase in the proportion of single parent families will increase the demand for kindergarten places, so the lone money earner in the family could go to work. Children leaving the parental home will in the long run lead to increased demand for elderly care. However, increases in family income levels increase the livelihood of families and reduce the demand for social services.

The dependence of the demand for local public services on the age structure is acknowledged in practice when justifying the calculated expenditure needs of municipalities. Estonia has established different rates for municipal expenditure needs in the following age groups: 0–6 years, 7–18 years, 19–64 years, 65 years and older, as well as the elderly in need of care (Friedrich *et al.* 2010:175). The coefficients calculated for the need for municipal expenditure in Estonia for the period 2003–2012 are presented in Table 1.

Due to economic growth and inflation, but also population decline, municipal expenditure needs increased rapidly until 2009, when the economic crisis led to a reduction in the coefficients in 2009 in comparison with the initial budget. After the economic crisis, the municipal expenditure need coefficients have again slightly increased. During the period under review total costs increased at a relatively slower rate compared to the increase in the municipal expenditure need coefficients because the population, and in particular the number of children, continues to shrink.

Table 1. The municipal expenditure need coefficients in Estonia in cost factor units (euros)

Cost factor	2003	2004³	2007	2008	2009*	2009**	2010	2011	2012
0-6 year olds	845.42	538.26	840.18	976.70	1111.49	1032.11	1055.82	1042.05	1033.72
7-18 year olds	142.59	428.08	668.13	776.65	883.83	820.75	839.61	828.66	822.03
19-64 year olds	317.83	180.10	276.74	321.67	366.09	339.95	347.74	343.22	340.48
65 year olds and older	211.04	261.65	402.00	467.32	531.81	493.78	505.16	498.57	494.58
Elderly under care			539.67	627.36	713.89	662.89	662.89	652.63	647.41

* The cost coefficients used in the preparation of the regular state budget enacted in December 2008.

** The cost coefficients used in the preparation of the "crisis budget" enacted in February 2009.

Source: Friedrich *et al.* 2010.

There was no actual analytical justification for the municipal expenditure need coefficients (shown in Table 1) in the first year (2003). The best evidence for this is the fact that costs related to 65 year olds and older were estimated one third and costs related to the 7–18 year olds 55% lower than the cost related to the 19–64 years old residents. In 2004, the proportions of municipal expenditure need coefficients were adjusted significantly in comparison with 2003 (see Table 2). After that the proportions of the coefficients have remained basically unchanged. The proportions of the current municipal expenditure need coefficients are certainly logically justified. Compared with municipalities in Sweden (Strömberg 2006: 2), however, the difference between costs associated with children and the elderly and the costs associated with 19–64 year olds is smaller in Estonia. In Swedish municipalities, the costs associated with 65–74 year olds were assessed two times and costs related to 75–77 year olds three times higher than the costs associated with 19–64 year olds. Then the cost ratio rose rapidly and costs associated with 90 year olds and older were assessed 14 times higher than the costs associated with 19–64 years old. The costs related to children were also assessed much higher than the costs related to 19–64 year olds. Costs related to 0–6 year olds were assessed six times and 7–18 year olds eight times higher than the costs related to 19–64 year olds.

There is no general rule for determining the proportions of municipal expenditure need coefficients. The proportions are significantly affected by the division of public

³ Years 2005 and 2006 were left out because the changes in these years were not very large.

sector responsibilities between central and local government. Estonian municipalities in comparison with municipalities in Sweden are more uneven in their level of economic development. Therefore, the provision of public services in Estonia is more centralized.

In Germany, the expenditure needs of municipalities are primarily determined on the basis of population size and in all of the states the expenditure needs are estimated higher for more populous municipalities. This means that the residents of each municipality have an importance multiplier, which is 1 for the smallest municipalities and can be nearly 2 for the largest municipalities in some states. In different states the extent of variation in the importance multiplier differs (settlement structure). In addition to the number of inhabitants, other factors, such as the number of inhabitants needing social care, the number of students in the municipality and the size of the area of the municipality are also considered when estimating expenditure needs. Unlike in Estonia and Sweden, the elderly are not considered when the expenditure needs of municipalities in German states are estimated. (Büttner *et al.* 2008: 83-88)

Table 2. The proportions of municipal expenditure need coefficients in Estonia by cost factor units (the municipal expenditure need coefficient of 19-64 year olds = 1)

Cost factor	2003	2004-06	2007-08	2009*	2009**	2010	2011-12
0-6 year olds	2.66	2.99	3.04	3.04	3.04	3.04	3.04
7-18 year olds	0.45	2.38	2.41	2.41	2.41	2.41	2.41
19-64 year olds	1.00	1.00	1.00	1.00	1.00	1.00	1.00
65 year olds and older	0.66	1.45	1.45	1.45	1.45	1.45	1.45
Elderly under care			1.95	1.95	1.95	1.91	1.90

Source: Friedrich *et al.* 2010, authors' calculations.

In summary, primarily population age structure has been analysed as a factor influencing demand for local public services. Other factors have not found significant attention. The reason for this probably lies in the fact that there is no systematically gathered municipal data for the other factors. This study used data from the Estonian Tax and Customs Board, which allows us to identify the employment structure of municipalities by type of economic activity. By using this data we can extend the list of factors influencing demand for local public services and test the hypothesis that the municipal budget cost structure also depends on employment structure.

Based on the purpose of this article we focus on the question of which factors determine demand for local public services; in other words, affect the opinion of individuals about changing the level and structure of public spending. The empirical analysis is carried out with the assumption that the output of political processes

reflects the average opinion of individuals (the median voter); in other words, we assume that the expenditure structure of the municipal budget is in accordance with the opinion of the median voter; or, the supply of local public services equals demand. Unlike traditional approaches, this study does not examine the opinions of individual inhabitants (usually derived from public surveys) on the need to change the expenditure structure of the municipal budget along with parameters characterizing the individual (age, income, etc.). Instead, the object of this study is the expenditure structure of each individual municipality with the parameters that characterize the population (the proportion of different age groups in the population, employment structure by type of economic activity, etc.). In some municipalities, political processes lead to an overestimation of the opinion of the median voter and in others to an underestimation, but the average estimation of a large pool of municipalities should approach the average opinion of the median voter on the optimal expenditure structure of the municipal budget.

The differences in the structure of municipal spending should therefore result from differences in the levels, structure and dynamics of demand-setting factors. The significance, direction and intensity of the potential factors can then be identified using relationship analysis methodology (correlation analysis, regression, etc.). The empirical part of this study is built upon this approach.

2. Relationships between optimal public service provision and population structure and income.

Optimal provision of public services is often associated with the size (number of inhabitants) of the service provider (a municipality when talking about local public services). It is a fairly common belief that larger municipalities are able to provide public services closer to the optimal level than smaller municipalities. Economic efficiency is generally regarded the main indicator of optimality. Analysing the scientific literature relevant to the topic reveals, however, that the relationship between the size of the service provision area (the size of the municipality) and cost effectiveness of service delivery is far more complex.

The scientific literature indicates that the relationship between municipal size and economic efficiency of service provision is U-shaped (an increase in municipal size is at first accompanied by unit cost reduction, but from a certain size the unit costs will start to increase again), but at the same time the service characteristics impact the relationship significantly. According to Holzer *et al.* (2009: 18-19), larger municipalities are able to provide capital intensive and highly specialized services more efficiently than small municipalities, but small municipalities are more efficient in providing labour-intensive services. A general relationship between size and economic efficiency of service provision for all public services is therefore impossible to describe.

The cost-effectiveness analysis of local public services is complicated by the fact that the main measurement used for describing the economic efficiency of service provision is usually the total cost of providing a local public service per inhabitant,

or better, per target population group member (e.g. per student). But the correspondence of service supply to service demand is often overlooked. Based on the previous chapter it can be argued that conclusions about the demand for local public services cannot be made solely on the basis of absolute population size because the demand for local public services may be significantly affected by both age and employment structure and changes in those structures. The optimal provision of public services is also influenced by quality requirements and in a number of cases by the location they are offered (such as the parish community centre) or where the provision of a service begins (e.g. fire station).

Consequently, it is clear that in order to match local public service supply with demand and thereby achieve the highest efficiency, the provision of each local public service has to be approached individually. In other words, an optimal location of supply, provision area and quality level has to be found for each local service. To achieve this, it is possible to establish three types of optimization problems:

1. Problems that involve finding the best location for providing a service when the size of the service provision area (e.g. the size of the municipality) and the required quality level are known – known as facility location models. Location models (see Klose, Drexel 2004 for different types) are used to solve facility location problems and find optimal locations or location patterns for public service providers according to objectives and constraints such as cost, transport time, accessibility, land coverage and so on. Similar problems have to be solved when searching for a suitable location for health service providers (Rahman and Smith 2000), schools (Sepp, 2007), power stations, emergency and rescue authorities (Indriasari *et al.* 2010, Sasaki *et al.* 2010) and several other public service providers.
2. Problems where, in order to achieve economic efficiency, the optimal level of quality for a public service has to be found because the location of supply and service provision area are known and for some reason it is not rational to change them. Grzybowski *et al.* (2009) developed and applied a population isolation model to define the appropriate level of maternity service for rural communities in British Columbia, Canada. The model consists of three dominant indicators that characterize each rural community:
 - a. a population birth score (the average number of births in the 1-hour catchment area of a hospital over five years, and divided by 10);
 - b. an adjustment for population vulnerability, which is based on the following factors: economic hardship, crime, health problems, education concerns, children at risk and youth at risk (British Columbia Regional... 2011);
 - c. an isolation factor (proximity to nearest caesarean section service in surface travel time).
3. Problems where, in order to achieve economic efficiency, an optimal area size for providing a service has to be found because the location of supply is known beforehand and the required quality level is given (e.g. required by law). White and Tweeten (1973) estimated the cost of providing elementary and secondary education for rural areas of Oklahoma. Unit cost curves were derived for instruction, administration, plant operation and maintenance, buildings, equipment and transportation. They found that optimal school district size,

derived by combining these unit cost curves, varied significantly in terms of student density, meaning that the optimal school district size was smaller in sparsely populated rural areas.

All three types of optimization problems use the size and proportions of different population groups, income levels of the population and employment figures as inputs for finding the most efficient way of providing a public service. These indicators are (as in this study) used to describe demand for public services. In addition to these indicators, the models usually also include different geographical indicators – the spatial distribution of the population or a specific population group in the service area (e.g. municipality), transportation time, existing infrastructure and several other parameters on the basis of which the optimal service supply level, place, quality and structure can be designed. In this study, characteristics of the geographic distribution of the population are ignored because it would require a separate analysis. The study also ignores possible differences in public service quality levels among municipalities because the methods for taking those differences into account in the analysis are inadequate.

3. Relationships between local public service provision in Estonian municipalities and population structure, income levels and employment structure

The population age structure and local public service levels and structure of Estonian municipalities will be analysed based on data from Statistics Estonia (ESA), and the job related income (salary) levels and employment structure (by economic activity type) will be analysed based on Estonian Tax and Customs Board (EMTA) data. The analysis focuses on 213 municipalities for three separate years: 2004 (before the economic boom), 2008 (peak of the economic boom in Estonian municipalities), and 2010. Municipalities with less than 500 inhabitants were left out of the analysis because the expenditure structure of their budgets might be significantly affected by special state programs, and therefore, differ from other municipalities with more autonomous budgets. The analysis also did not include municipalities for which some data was not available.

The indicators used in the analysis for describing the municipalities can be divided into three groups:

1. Indicators describing the supply of local public services: the share of expenditures on different public services (education, leisure, culture, public utilities, economic services, social assistance) in the municipal budget; local public service expenditures per inhabitant or per certain group member (e.g. education expenditures per child under age 19).
2. Demographic indicators that shape the demand for local public services: population size, population age structure, dependency ratio and demographic labour pressure index, percentage of unemployed in the population.
3. Income levels and employment structure: job related income (salary) level per inhabitant and per tax payer, job related income (salary) structure by economic

activity type (NACE classification), employment structure by economic activity type (NACE classification).

The content and names of the indicators used in the analysis are presented in Appendix 1.

Our hypothesis is that the development of the structure and level of expenditures on local public services is significantly affected by population structure, income levels and employment structure in the municipality. To test the hypothesis, a correlation analysis between cost indicators characterizing the supply of local public services and indicators characterizing demand for local public services was carried out using data analysis and the statistical software STATA. The results of the correlation analysis for 2010 are presented in Appendix 2. The same analysis is conducted for 2004 and 2008.

The analysis reveals many interesting correlations between local public service supply indicators and indicators describing population age structure, income level and employment level:

- The proportion of 6 year olds and younger had no statistically significant correlations with local public service supply indicators in 2004, but in 2008 some statistically significant correlations were found and in 2010 the proportion of 6 year olds and younger had statistically significant positive correlations with all the education expenditure indicators. It seems that a larger proportion of pre-school aged children in the population encourage municipalities to increase expenditures on education both as a share of the municipal budget as well as expenditures per inhabitant and per child under 19 years of age.
- The proportion of young people (ages 7–18) in the population had a positive correlation with the share of education expenditures in the municipal budget in all three years and negative correlations with housing and utility expenditures (both as a share of the municipal budget and per inhabitant) in 2004 and 2010.
- The proportion of working age people (ages 19–64) had the largest number of statistically significant correlations with local public service supply indicators. However, the correlations were very inconsistent and unstable: correlations with education expenditures were mostly positive in 2008, but negative in 2004 and 2010; correlations with housing and utility expenditures were positive in 2004, absent in 2008 and negative in 2010; correlation with the share of social care expenditures in the municipal budget was negative in all three years, but in 2008 (the peak of the economic boom) there was a positive correlation with social care expenditures per inhabitant. An interesting finding is that in contrast to 2004 and 2008, all the statistically significant correlations were negative in 2010. It seems that for some reason municipalities with a high proportion of working age people have put together more conservative municipal budgets after the economic crises than municipalities on average.
- The proportion of elderly (age 65 and older) had many different but often non-recurrent correlations with local public service supply indicators during the

years under observation: negative correlations with education expenditures that strengthened during the economic boom; a statistically significant positive correlation with eldercare expenditures was found only in 2004; a statistically significant positive correlation with leisure and culture expenditures was found in 2008, but not in 2004 and 2010; a statistically significant positive correlation with housing and utility expenditures was found in 2010 but not in 2004 and 2008.

- The demographic labour pressure index (calculated by dividing the number of 5–14 year olds with the number of 55–64 year olds) has a stable positive correlation with the share of education expenditures in the municipal budget in all observed years. Correlations with other local public service supply indicators are unstable and seem random.
- The dependency ratio has positive correlations with social care and eldercare expenditures. A negative correlation with the share of education spending in the municipal budget occurs in 2008.
- The percentage of unemployed in the population has positive correlations with social care expenditures and negative correlations with the share of education expenditures in the municipal budget in all observed years. The percentage of unemployed also had a positive correlation with eldercare expenditures per inhabitant in 2010 but not in 2004 and 2008.
- The job related income level (both per inhabitant and per tax payer) also has a few statistically significant correlations with local public service supply indicators: positive correlations with education expenditures that were relatively weak in 2004, but strengthened significantly during the economic crisis and have maintained average strength after the crisis; negative correlations with the share of social care expenditures in the municipal budget in all three observed years; a negative correlation was also found with social care expenditures per inhabitant in 2004 but not in 2008 and 2010.

It turns out that population age structure factors have many logically justified correlative relationships with the municipal budget expenditure structure and local public service expenditures per capita. It can therefore be concluded that some level of adapting local public service supply to demand is taking place in Estonian municipalities. At the same time, unstable relationships between indicators describing income level and employment level and indicators describing local public service supply suggest that the economic boom, which rapidly increased the incomes of both municipalities and their inhabitants, and the subsequent sharp decline in income in the economic crisis, somewhat destabilized relationships between local public service supply and demand. To understand more precisely how income and employment among inhabitants affect demand for local public services, we have looked at the relationships between income and employment structure indicators and local public service supply indicators.

The correlation coefficients between income and employment structure indicators (according to NACE economic activity type) and local public service supply indicators highlight the following:

- Education expenditures in the municipality, particularly in 2008 and 2010, had a positive correlation with the proportion of tax payers in the population. This means that municipalities with a larger proportion of occupationally active inhabitants make larger education expenditures than municipalities with a smaller proportion of occupationally active inhabitants. At the same time, however, the ratio of taxable income earned in public administration to total taxable income has a negative correlation with the share of education expenditures in the municipal budget. This is an interesting relationship, which must be explored in greater depth. Public administration employees are more familiar with the mechanisms and procedures of the public sector and have therefore a greater influence on municipal policy decisions. If the income of the people working in public administration comes from working for the municipality, the question arises whether education expenditures compete not with eldercare expenditures but with the personnel costs of the municipality.
- The share of social care expenditures showed negative correlations with the proportion of tax payers in the population in all three years. In addition, social care expenditures per inhabitant had a negative correlation with the proportion of tax payers in 2004. At the same time, a positive correlation was found between social care and eldercare expenditures and the proportion of inhabitants working in the public sector. It seems that a high proportion of tax payers in the population suggests municipalities with an active and strong private sector, where the demand for social care services is low. At the same time, the public sector has a higher than average role as an employer and income provider in regressing municipalities with a decreasing proportion of tax payers, where the need for social care services is greater than average.
- Social care expenditures directed at unemployed did not have statistically significant correlations with the population age structure indicators and even with the percentage of unemployed in the population. However, the social care expenditures directed at the unemployed did have interesting relationships with the job related income structure (according to NACE economic activity type): negative correlations with the proportion of tax payers in the population and the ratio of taxable income earned in the private sector to total taxable income, and at the same time, positive correlations with the ratio of taxable income earned in the public sector (especially in public administration) to total taxable income. These relationships are probably also based on the fact that a large proportion of people working in the private sector characterize developing municipalities with low unemployment rates, while the public sector, including public administration, has a greater importance as an employer in regressing municipalities with larger unemployment rates. Such relationships did not occur in 2008 and 2010. The reason for this may lie in the fact that the national unemployment insurance system was launched in 2008. This meant that the majority of unemployed no longer needed to apply for social assistance from the municipality. This in turn means that the demand for local public services depends substantially on the socio-economic policies of the central government.
- Housing and utility expenditures and also leisure and culture expenditures had only a few statistically significant correlations with the indicators characterizing

the income and employment structure of the inhabitants. No clear general rules can be found from those relationships. It can be assumed that the sample used in the study, consisting almost exclusively of similar Estonian municipalities, is too heterogeneous, meaning that the supply of both housing and utility services and leisure and culture services differ significantly in urban, semi-rural (working in towns, but living in the country) and rural municipalities. A different scope of private sector involvement can also be observed in these service areas, which certainly has an impact on the level and structure of local public service expenditures.

In general, it should be noted that quite a number of statistically significant relationships were found, but the coefficients of determination (the squared correlation coefficient) were mostly small, and only in single cases were they greater than 10% of the entire variance.

The results of this analysis show that the income and employment structure of the population of a municipality, which have been neglected in previous empirical studies, have statistically significant correlations with both the share of different public service expenditures in the municipal budget and with local public service expenditures per inhabitant or per certain group member. Therefore, the structure of employment and income may significantly shape the demand for local public services. Analysis of these demand side factors will provide a better understanding of problems matching local public services supply and demand.

Conclusion

Dissatisfaction with the provision of local public services among municipalities has been a frequent topic in Estonia for more than ten years. Undoubtedly, at least part of the dissatisfaction stems from real problems. A variety of solutions have been offered over the years in which the main emphasis has been on strengthening the ability of municipalities to supply local public services. The solutions offered have overlooked the fact that in addition to supply capability, how well a municipality is able to match its supply to the demand for local public services and how quickly it can adapt its supply to demand changes is also important. However, in order to quickly change the supply of local public services, it is necessary to know what factors affect demand.

Based on existing theoretical and empirical studies and optimal public service area models, it is clear that the main factors affecting demand for public services are population age structure and to a lesser extent the employment and income structure of the population. Given the large changes taking place in the population of Estonian municipalities and changes in employment and income resulting from the economic situation, it is important to know whether and how the provision of local public services in Estonian municipalities has adapted to the differences in demand factors.

The correlation analysis conducted here confirms the existence of relationships between indicators characterizing the supply and demand of local public services,

meaning that population structure as well as employment and income levels and the structure of the population have statistically significant correlative relationships with the expenditure structure of the municipal budget and local public service expenditures per inhabitant. The direction of the relationships is usually logical and the dense network of relationships reveals a system in these relationships.

As a new aspect, the study analysed the income and employment structures of the population (according to NACE economic activity type) as possible local public service demand factors. The result of the empirical analysis revealed that these factors have statistically significant correlations with the expenditure structure of municipal budgets and with local public service expenditures per inhabitant.

As a whole, the results of the analysis in this study show that differences in local public service supply factors (the share of expenditures in the municipal budget and expenditures per inhabitant) in Estonian municipalities can be associated with statistically significant differences in demand side factors (population structure, employment and income levels, employment and income structure by economic activity).

However, the sample used in the study was rather non-homogeneous, which could have obscured and distorted the results of the correlation analysis, because the economic boom and crisis affected the budgets and socio-economic development of different types of municipalities differently. In future studies, we plan to analyse qualitatively more homogenous groups of municipalities (e.g. urban, semi-rural and rural). In a more homogenous sample the relationships between local public service demand and supply side factors should reveal themselves more clearly and precisely.

Because the set of local public service demand side factors is quite large, and different factors could have statistical relationships between them, the correlation coefficients between demand and supply side factors might be false and misleading and thus complicate our understanding of the nature of the relationships. In future studies we will therefore systematically analyse the internal relationships of the demand side factors and identify the independent components that characterize local public service demand using principal component analysis. In doing so, we will be able to use multiple regression models that provide a complex description of the effects of demand side factors instead of correlation coefficients that describe only fragments of the relationships.

References

1. **Becker, W., Gretschmann, K., Markscheid, K.** Präferenzen für Staatsausgaben. Baden-Baden: Nomos, 1992, 240 S.
2. **Borge, L.-E., Rattsø, J.** Young and old competing for public welfare services. - CESifo working paper, 2008, No. 2223, 25 p.

3. British Columbia Regional Socio-Economic Indicators – Methodology. BC Stats, June 2011. [<http://www.bcstats.gov.bc.ca/data/sep/method.pdf>]. 03.12.2011.
4. **Brunner, E., Baldson, E.** Intergenerational conflict and the political economy of school spending. – *Journal of Urban Economics*, No 58, 2004, pp. 369 - 388.
5. **Büttner, T., Holm-Hadulla, F., Parsche, R., Starbatty, C.** Analyse und Weiterentwicklung des kommunalen Finanzausgleichs in Nordrhein-Westfalen. – München: ifo Institut für Wirtschaftsforschung, 2008, ifo Forschungsbericht Nr. 41, 213 S.
6. **Catteano, M. Alejandro, Wolter, C. Stefan.** Are the elderly a threat to educational expenditures? - CESifo Working Paper, 2007, No 2089, 33 p.
7. **Fernandez, R., Rogerson, R.** The Determinants of Public Education Expenditures: Longer-Run Evidence from the States. – *Journal of Education Finance*, No 27, 2001, pp. 567-384.
8. **Friedrich, P., Nam, C.W., Reiljan, J.** Local Fiscal Equalization in Estonia: is a reform necessary? Review of Urban & Regional Development Studies. *Journal of the Applied Regional Science Conference*, 2010, 22(2/3), pp. 165 - 180.
9. **Gradstein, M., Kaganovich, M.** Aging population and education finance. – *Journal of Public Economics*, No 88, 2004, pp. 2469 - 2485.
10. **Grob, U., Wolter, S.C.** Demographic Change and Public Education Spending: A Conflict Between Young and Old? - CESifo Working Paper, 2005, No 1555, 26 P.
11. **Grzybowski, S., Kornelsen, J., Schuurman, N.** Planning the optimal level of local maternity service for small rural communities: A systems study in British Columbia. – *Health Policy*, 2009, Vol. 92, pp. 149-157.
12. **Holzer, M., Fry, J., Charbonneau, E., Van Ryzin, G., Wang, T., Burnash, E.** Literature Review and Analysis Related to Optimal Municipal Size and Efficiency. Local Unit Alignment, Reorganization, and Consolidation Commission, 2009, 44 p.
[http://www.nj.gov/dca/affiliates/luarcc/pdf/final_optimal_municipal_size_&_efficiency.pdf]. 03.12.2011.
13. **Indriasari, V., Mahmud, A.R., Ahmad, N., Shariff, A.R.M.** Maximal service area problem for optimal siting of emergency facilities. – *International Journal of Geographical Information Science*, 2010, Vol. 24, No. 2, pp. 213–230.
14. **Kalwij, A., Salverda, W.** The effects of changes in households demographics and employment on consumer demand patterns. – *Applied Economics*, No 39, 2007, pp. 1447-1460.
15. **Kempkes, G.** Rapid demographic change and the allocation of public education resources: evidence from East Germany. – Deutsche Bundesbank. Discussion Paper, 2010, Series 1: Economic Studies, No 16, 56 p.
16. **Klose, A., Drexler, A.** Facility location models for distribution system design. – *European Journal of Operational Research*, 2005, Volume 162, Issue 1, pp. 4-29.
17. **Ladd, H.F., Murray S.E.** Intergenerational conflict reconsidered: county demographic structure and the demand for public education. – *Economics of Education Review*, No 20, 2001, pp. 343 - 357.

18. **Poterba, J.M.** Demographic Structure and the Political Economy of Public Education. - Journal of Policy Analysis and Management, 1997, Vol. 16, No. 1, pp. 48–66.
19. **Rahman, S., Smith, D.K.** Use of location-allocation models in health service development planning in developing nations. – European Journal of Operational Research, 2000, Volume 123, Issue 3, pp. 437-452.
20. **Reiljan, J., Ramcke, K., Ukrainski, K.** Spatial Disparities in Central Governmental Grants to Local Governments, in: Liu, G. V. (ed.), *Perspectives on International, State and Local Economics*. Hauppauge (NY): Nova Science Publishers, 2006, pp. 85-114.
21. **Reiljan, J., Reiljan, E.** Financing of Education in Estonia as a Factor of Regional Development: Current Situation and Future Perspectives. – International Conference Proceedings “New Members – New Challenges for the European Regional Development Policy”, Novy Smokovec-Vysoke Tatry, 2005, pp. 291-305.
22. **Sasaki, S., Comber, A.J., Suzuki, H., Brunsdon, C.** Using genetic algorithms to optimise current and future health planning – the example of ambulance locations. – International Journal of Health Geographics, 2010, Vol. 9:4, 10p.
23. **Sepp, E.** Ruumilisi otsustusi toetav süsteem kui keskkond Eesti üldhariduskoolide võrgu planeerimisel. TÜ geograafiainstituut, 2007, 74 lk. (magistritöö)
24. **South, S.J.** Age Structure and Public Expenditures on Children. – Social Science Quarterly, Vol. 72, Number 4, 1991, pp. 661 - 676.
25. **Strömberg, D.** Demography, voting and public expenditures: theory and evidence from Swedish municipalities. – Stockholm: Institute for International Economic Studies, 2006, 27 p.
26. **White, F., Tweeten, L.** Optimal School District Size Emphasizing Rural Areas. – American Journal of Agricultural Economics, 1973, Vol. 55, No. 1, pp. 45-53.

Appendix 1. Indicators used in the analysis and their names

Name ⁴	Indicator used in the analysis
har10	Share of education expenditures in the municipal budget in 2010 (%)
kult10	Share of leisure, culture and religious expenditures in the municipal budget in 2010 (%)
komm10	Share of housing and utility expenditures in the municipal budget in 2010 (%)
sots10	Share of social care expenditures in the municipal budget in 2010 (%)
vana10	Share of eldercare expenditures in the municipal budget in 2010 (%)
ttu10	Share of social care expenditures directed at unemployed in the municipal budget in 2010 (%)
har10_in	Education expenditures per inhabitant in 2010 (euro)
kult10_in	Leisure, culture and religious expenditures per inhabitant in 2010 (euros)
komm10_in	Housing and utility expenditures per inhabitant in 2010 (euro)
sots10_in	Social care expenditures per inhabitant in 2010 (euro)
vana10_in	Eldercare expenditures per inhabitant in 2010 (euro)
ttu10_in	Social care expenditures directed at unemployed per inhabitant in 2010 (euros)
har1810	Education expenditures per child under age 19 in 2010 (euro)
ralot10	Proportion of 6 year olds and younger in the population in 2010 (%)
ranot10	Proportion of 7 to 18 year olds in the population in 2010 (%)
ratot10	Proportion of 19 to 64 year olds in the population in 2010 (%)
ravot10	Proportion of 65 year olds and older in the population in 2010 (%)
tts10	Demographic labour pressure index in 2010
ylal10	Dependency ratio in 2010 (%)
ttuot10	Proportion of unemployed in the population in 2010 (%)
vms10_in	Total taxable income per inhabitant in 2010 (euro)
vms10_mm	Total taxable income per tax payer in 2010 (euro)
mm_ra10	Proportion of tax payers in the population in 2010 (%)
amm_arv10	Proportion of tax payers working in the agriculture, forestry and fishing industries (NACE classification) in the population in 2010 (%)
avms10	Ratio of taxable income earned in the agriculture, forestry and fishing industry (NACE classification) to total taxable income in 2010 (%)
cmm_arv10	Proportion of tax payers working in the manufacturing industry (NACE classification) in the population in 2010 (%)

⁴ The indicators for 2004 and 2008 are similar, ending with either 04 or 08.

Name ⁴	Indicator used in the analysis
cvms10	Ratio of taxable income earned in the manufacturing industry (NACE classification) to total taxable income in 2010 (%)
fmm_arv10	Proportion of tax payers working in the construction industry (NACE classification) in the population in 2010 (%)
fvms10	Ratio of taxable income earned in the construction industry (NACE classification) to total taxable income in 2010 (%)
lmm_arv10	Proportion of tax payers working in the real-estate industry (NACE classification) in the population in 2010 (%)
lvms10	Ratio of taxable income earned in the real-estate industry (NACE classification) to total taxable income in 2010 (%)
fl_arv10	Proportion of tax payers working in the construction and real-estate industries (NACE classification) in the population in 2010 (%)
fl10	Ratio of taxable income earned in the construction and real-estate industries (NACE classification) to total taxable income in 2010 (%)
gmm_arv10	Proportion of tax payers working in the wholesale and retail trade and motor vehicle and motorcycle repair industries (NACE classification) in the population in 2010 (%)
gvms10	Ratio of taxable income earned in the wholesale and retail trade and motor vehicle and motorcycle repair industries (NACE classification) to total taxable income in 2010 (%)
omm_arv10	Proportion of tax payers working in the fields of public administration, national defence and compulsory social security (NACE classification) in the population in 2010 (%)
ovms10	Ratio of taxable income earned in the fields of public administration, national defence and compulsory social security (NACE classification) to total taxable income in 2010 (%)
pmm_arv10	Proportion of tax payers working in education (NACE classification) in the population in 2010 (%)
pvms10	Ratio of taxable income earned in education (NACE classification) to total taxable income in 2010 (%)
qmm_arv10	Proportion of tax payers working in the health care and social care industries (NACE classification) in the population in 2010 (%)
qvms10	Ratio of taxable income earned in the health care and social care industries (NACE classification) to total taxable income in 2010 (%)
opq_arv10	Proportion of tax payers working in the public sector (activities O, P and Q according to the NACE classification) in the population in 2010 (%)
opq10	Ratio of taxable income earned in the public sector (activities O, P and Q according to the NACE classification) to total taxable income in 2010 (%)
koguopq_arv10	Proportion of tax payers working in the private sector (total tax payers-tax payers working in the public sector) in the population in 2010 (%)
koguopq10	Ratio of taxable income earned in the private sector (total taxable income-taxable income earned in the public sector) to total taxable income in 2010 (%)

Source: compiled by the authors.

Appendix 2. The correlation coefficients between local public service cost indicators and demand indicators in 2010

	har10	kult10	komm10	sots10	vana10	har10_in	kult10_in	komm10_in	sots10_in	vana10_in	har1810
ralot10	0.21*	-0.08	-0.12	-0.14*	-0.10	0.48*	0.05	-0.02	0.06	0.03	0.27*
ranot10	0.28*	-0.09	-0.18*	0.02	0.11	0.11	-0.09	-0.16*	-0.02	0.02	-0.06
ratot10	0.13	-0.03	-0.02	-0.20*	-0.20*	-0.14*	-0.16*	-0.14*	-0.19*	-0.14*	-0.10
ravot10	-0.34*	0.11	0.16*	0.24*	0.18*	-0.14*	0.16*	0.20*	0.15*	0.10	-0.01
tts10	0.32*	-0.12	-0.15*	-0.04	-0.01	0.31*	-0.05	-0.10	0.03	0.02	0.13
ylal10	-0.17*	0.08	0.11	0.19*	0.20*	-0.03	0.14*	0.19*	0.15*	0.13	0.01
ttuot10	-0.24*	0.06	0.02	0.18*	0.04	0.03	0.08	0.07	0.24*	0.16*	-0.06
vms10_in	0.19*	-0.03	-0.05	-0.19*	-0.14*	0.54*	0.09	0.06	0.00	-0.03	0.34*
vms10_mm	0.14*	-0.02	0.00	-0.17*	-0.14*	0.38*	0.07	0.08	-0.04	-0.06	0.28*
mm_ra10	0.18*	-0.08	-0.07	-0.18*	-0.12	0.52*	0.11	0.05	0.05	0.02	0.28*
amm_arv10	0.15*	-0.20*	-0.10	0.01	0.09	-0.01	-0.19*	-0.10	-0.05	0.00	-0.08
avms10	0.15*	-0.23*	-0.06	0.04	0.11	-0.03	-0.21*	-0.08	-0.04	0.01	-0.06
cmm_arv10	0.06	0.09	0.07	-0.17*	-0.12	0.06	0.02	0.06	-0.12	-0.10	-0.09
cvms10	-0.09	0.10	0.08	-0.05	-0.04	-0.20*	-0.03	0.02	-0.12	-0.09	-0.25*
fmm_arv10	0.21*	-0.02	-0.10	-0.19*	-0.14*	0.33*	0.02	-0.04	-0.04	-0.05	0.16*
fvms10	0.13	-0.06	-0.01	-0.15*	-0.14*	-0.01	-0.12	-0.05	-0.13	-0.11	0.00
lmm_arv10	0.03	-0.02	-0.03	-0.07	-0.12	0.21*	-0.02	0.00	-0.04	-0.06	0.12
lvms10	0.03	-0.04	-0.04	-0.08	-0.09	0.04	-0.07	-0.07	-0.11	-0.10	0.04
fl_arv10	0.18*	-0.03	-0.09	-0.18*	-0.16*	0.35*	0.01	-0.03	-0.05	-0.06	0.17*
fl10	0.14*	-0.07	-0.02	-0.16*	-0.16*	0.00	-0.14*	-0.07	-0.15*	-0.13	0.01
gmm_arv10	0.23*	-0.06	-0.05	-0.21*	-0.18*	0.45*	0.03	0.04	-0.05	-0.07	0.26*
gvms10	0.25*	-0.12	-0.05	-0.18*	-0.17*	0.22*	-0.07	-0.02	-0.14*	-0.15*	0.15*

	har10	kult10	komm10	sots10	vana10	har10_in	kult10_in	komm10_in	sots10_in	vana10_in	har1810
omm_arv10	0.04	0.03	-0.03	-0.06	0.00	0.49*	0.21*	0.12	0.20*	0.16*	0.27*
ovms 10	-0.19*	0.03	-0.01	0.21*	0.25*	0.05	0.20*	0.06	0.24*	0.23*	0.14*
pmm_arv10	0.16*	0.02	-0.04	-0.17*	-0.18*	0.34*	0.08	0.03	-0.03	-0.07	0.27*
pvms 10	0.13	0.00	-0.01	-0.12	-0.13*	0.06	0.00	0.00	-0.07	-0.09	0.10
qmm_arv10	0.20*	0.01	-0.07	-0.08	-0.11	0.21*	0.01	-0.04	0.00	-0.03	0.15*
qvms 10	0.10	0.03	-0.04	-0.02	-0.06	-0.04	-0.02	-0.07	-0.05	-0.06	-0.01
opq_arv10	0.12	0.03	-0.05	-0.11	-0.07	0.52*	0.19*	0.10	0.15*	0.11	0.32*
opq10	-0.09	0.04	-0.03	0.14*	0.15*	0.06	0.18*	0.03	0.18*	0.15*	0.18*
kogu_opq_arv10	0.22*	-0.04	-0.08	-0.21*	-0.16*	0.42*	0.01	-0.01	-0.07	-0.07	0.19*
kogu_opq10	0.09	-0.04	0.03	-0.14*	-0.15*	-0.06	-0.18*	-0.03	-0.18*	-0.15*	-0.18*

* Correlation coefficient is statistically significant at 0.95 confidence level.

Source: authors' calculations.

THE PROBLEMS OF ESTONIAN R&D AND INNOVATION STRATEGY AND THE DEMAND-SIDE INNOVATION POLICIES¹

Tõnu Roolah
University of Tartu

Abstract

The second larger Estonian R&D and Innovation Strategy ‘Knowledge-based Estonia 2007-2013’ is aimed at continuing the advancement of research and development efforts towards an innovative knowledge-based society and economic system in Estonia. Fostering of knowledge-based high-tech industries is seen as paramount for retaining country’s competitive advantage. However, the mid-term evaluations indicate that several goals of the strategy might not be achievable by 2013. In fact, the policy measures have been much more successful in developing scientific research, as indicated by increased international publication, number of patents, and number of researchers and engineers. The advances in development of high-tech products and services through innovations are noticeable but less prominent. The purpose of this study is to suggest the role for demand-side innovation policies in helping to advance commercial development and innovation.

Keywords: R&D and innovation strategy, demand-side innovation policy, Estonia

JEL Classification: O31, O32, O33, O38

Introduction

In the competitiveness of EU countries, important roles are played by high-tech production, leading-edge service industries, and high productivity of resources. According to Innovation Union Scoreboard 2010, Sweden, Denmark, Finland, and Germany dominate as innovation leaders (IUS 2010, 2011). These countries have managed to build up strong innovation systems that balance out complexities between R&D inputs (like financing), intermediaries (entrepreneurship, networks, and intellectual property), and outcomes in terms of economic effect (high-tech turnover, exports, and productivity). Even for them it has not been an easy task to find that balance. The above average financing of R&D and innovations does not necessarily lead to desired development outcomes, for example, when crucial institutional capabilities are insufficient or missing. For that reason, countries tend to adopt well-established R&D and innovation strategies, which aim to reinforce several aspects of R&D activities and framework. Furthermore, these strategies often refer back to EU- level strategies like ‘Europe 2020’ (Europe 2020, 2011) in order to remain coherent with union-wide development vision.

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Estonia is small and open EU member state. It became again independent in 1991 and built the competitive advantage on a low-cost production with reasonably good quality. However, especially after accession to EU in 2004, the cost levels have been inflated considerably. This introduces an eminent need to find new competitive edge among the other countries. In fact, Estonian government took an initiative already prior to the accession by adopting Estonian Research and Development Strategy 2002–2006 ‘Knowledge-based Estonia’. The aim was set to transform Estonia into the knowledge-based economy as opposed to the cost-based economy. This strategy outlined some key sectors, like IT, biotechnology, and material sciences that should serve as leaders in the new competitive vision. It also established a set of policy measures and targets related to the advances in research and development.

At the beginning of 2007, Estonian Parliament approved the follow-up strategy ‘Knowledge-based Estonia 2007-2013’. Now in 2012, the time has arrived to evaluate the progress towards target indicators provided in that second strategy, because the third generation strategy is already in preparation, and can benefit from the analysis of intermediate results. This analysis should pinpoint potential areas for readjustments in order to improve the match between the strategy, the adopted measures of enactment, and the dynamic environment. Fortunately, there are several related progress reports and domestic or international evaluations to rely upon. These reports tend to agree that the strategy has been a success story with mixed results. The results indicate that targets set for science and research have been realistic or even less challenging than initially predicted. Yet, in terms of commercialization, development, and innovation the initiatives fall short in achieving the indicated targets by the end of 2013, albeit some development trends are very positive as well. This implies that more attention is needed on the development and innovations in order to balance out the lag in progress. One option for facilitating the commercial usage of research results and the academy-industry cooperation is to use demand-side innovation policies.

The purpose of this study is to suggest the role for demand-side innovation policies in helping to advance the commercial development and innovation. The discussion explains the features of demand-side innovation policies in the light of R&D and innovation facilitation. Based on such theoretical and empirical contributions, as well as on the evaluative analysis of current strategy’s results, suggestions are made how to incorporate the demand-side innovation policies into the implementation plans that go beyond current strategy period.

The study has following structure. It starts with the discussion of views describing the demand-side innovation policies, especially in the context of R&D towards innovations in production and services. The next section offers an evaluation of logic and results of the strategy ‘Knowledge-based Estonia 2007-2013’ including the EU-wide viewpoint. This analytical evaluation explains the major positives and problems in the process of strategy execution. The third section suggests the demand-side innovation policies and initiatives for improving the development and innovation activities as logical continuation academic research. The conclusions outline the results and limitations as well as suggest the paths for future research.

The demand-side innovation policies and R&D facilitation

In May 2011, OECD published a book ‘Demand-side Innovation Policies’ that explains the role of demand in a diffusion of innovations, in order to point out why various demand-side innovation policy instruments help to facilitate innovation. This more theoretical conceptualization is followed by the case studies about the usage of such policies in Australia, Belgium (Flanders), Denmark, France, Italy, Japan, Korea, Spain, United Kingdom, and finally European Union. This book summarizes the international project that was started in 2008. (OECD 2011)

The demand-pull theories of innovation suggest that the ability to produce innovations is relatively common, but it requires market opportunity in the form of demand. According to this view, the demand on market determines the resource allocations into particular innovations. Therefore, innovations are not the results of solely supply push factors, as early views suggested, but in most cases, the result of intricate combination between supply push and demand pull. This allows facilitating innovation by improving the demand conditions for innovative products or services. The demand-side innovation policies serve exactly that purpose. (OECD 2011)

The demand-side innovation policy measures are often linked to such policy aims like sustainability, energy efficiency, infrastructure, or health care system (Edler 2005). This shows the importance of demand facilitation on the way towards more forward looking and sustainable consumption pattern. Such policy aims combine R&D and innovations facilitation and welfare creation.

The demand-side innovation policy has been defined as ‘a set of public measures to increase the demand for innovations, to improve the conditions for the uptake of innovations and/or to improve the articulation of demand in order to spur innovations and the diffusion of innovations’ (Edler 2009, p. 5). This definition introduces novel aspects, like the conditions for the uptake and improved articulation of demand.

The demand-side innovation policies are used because (see Edler 2009):

- 1) innovation policy needs to help overcome market and/or system failures;
- 2) societal goals and policy needs determined for example by elected politicians;
- 3) industrial or economic policy that calls for modernisation via innovations;
- 4) industrial or economic policy seeks to facilitate forefront innovation production with local, national or regional companies and to create lead market potential.

The demand-side policy measures have more purposes than just overcoming deficiencies of the market for innovative solutions or systemic problems in the initiation or diffusion of innovations. Societal goals and policy needs as the set purposes involve considerable risks. Their subjective nature creates potential for emergence of biased solutions and corruption. Very transparent and well-founded goal-setting should help to reduce such dangers. The demand-side innovation policy tools are summarized on table 1.

Table 1. Categories of demand-side innovation policy tools

Demand-side policy tool:	Description:
SYSTEMIC POLICIES	
Lead market initiatives	Lead market initiatives support the emergence of lead markets. A lead market is the market of a product or service in a given geographical area, where the diffusion process of an internationally successful innovation (technological or non-technological) first took off and is sustained and expanded through a wide range of different services.
Support to user-centred innovation	User-centred innovation refers to innovation driven by end- or intermediate users.
PROCUREMENT INITIATIVES	
Public procurement of innovation	Public procurement of innovative goods and services relies on inducing innovation by specifying levels of performance or functionality that are not achievable with ‘off-the-shelf’ solutions and hence require an innovation to meet the demand.
Pre-commercial public procurement	Pre-commercial procurement is an approach for procuring R&D services, which enables public procurers to share the risks and benefits of designing, prototyping and testing new products and services with the suppliers.
Catalytic procurement	Catalytic procurement involves the combination of private demand measures with public procurement where the needs of private buyers are systemically ascertained. The government acts here as ‘ice-breaker’ in order to mobilise private demand.
PRIVATE DEMAND GENERATION AND REGULATIONS	
Tax incentives	Tax incentives can increase the demand for novelties and innovation by offering reductions on specific purchases.
Awareness raising	Awareness raising actions supporting private demand have the role to bridge the information gap consumers of innovation have about the security and the quality of a novelty.
Consumer policies	Consumer policies use regulations, standards, and other measures that channel social and cultural expectations towards the process of introducing new products/services.
Use of regulations	Use of regulation for innovation purposes is when governments collaborate broadly with industry and non-government organisations to formulate a new regulation that is formed to encourage a certain innovative behaviour.
Standardisation	Standardisation is a voluntary cooperation among industry, consumers, public authorities and other interested parties for the development of technical specifications based on consensus and can be an important enabler of innovation.

Source: based on Izsak, Edler 2011, p. 6 and OECD 2011, p. 53

Edler (2010) summarizes early signals of buyers to demand innovative solutions, economic ability to pay higher entry costs of innovations, critical mass of demand, a certain level of problem pressure in a market, pioneering regulations, conducive supply conditions (the conditions for rapid learning and adaptation by suppliers,

adequate technological competence within the value chain), and supporting services as the conditions that characterize lead markets in more detailed manner (Edler 2010). Appelquist et al. (2009) argue about the demand for innovation-based solutions that it needs to be stimulated by appropriate lead market policies. The policy focus should be on the introduction of measures, such as novel ways of using public procurement and support for user-driven innovation projects. The innovation policy should be fast and synchronised. This suggests quick reaction to the problems and reduced complexity of the policy portfolio, while having wider policy scope. In his recent publication, Edler (2011) stated that policies stressing the demand factors for innovation could facilitate the modernisation of economy and public services as well as accelerate the catching up process of less-developed countries or regions.

Successful innovation policy contributes to an increase in productivity by encouraging companies to modernise their production systems. Leading-edge technologies and innovative processes make the companies and the economy more efficient. However, an innovation-oriented industrial policy should be related to an analysis of domestic companies' capabilities to participate in this process. If local innovative capabilities are low, then the demand-side policies might contribute more to the import than to the development of national business setting. Knowledge transfers from abroad are also important. Ultimately, the national policies should create conditions for domestic innovations as well. (see also Edler, Georghiou 2007; Edler 2009)

Some forms of demand-side innovation policy are not new. Already in 1970s and 1980s several studies discussed public procurement as a policy measure that can impact innovations. (Edler, Georghiou 2007) However, the modern views on subject do make a considerable contribution by taking more interconnected and interactive standpoint. Each policy measure has to be viewed in a broader context in order to account for the general impact of the entire innovation policy. While the demand-side innovation policies have their own narrower focus, they should be also viewed in the framework of wider policy setting.

In 2006, the EU expert group led by Esko Aho released a report outlining the need for fostering the demand-side initiatives. Harmonised regulations, standards, public procurement, intellectual property rights, and innovative culture are in short the five key issues in the EU report. (Aho et al. 2006) This report and other documentation from the same period (see Moran et al. 2007; Zuleeg et al. 2007 for details) are steps toward EU-wide recognition of a need for better balance between supply-side and demand-side innovation policy measures. This requires more focus on the demand-side measures. However, it does not mean policy switch towards solely demand-side policies. The innovation policy mix should contain the supply-side measures as well as the demand-side instruments (Smits and Kuhlman 2004; Edler, Georghiou 2007).

Izsak and Edler (2011) conclude that in Europe there is a general trend in strategies and policy measures towards more demand-side approaches. Compared to 2009, the demand-side innovation policy is more prominently featured in majority of EU countries. In a number of countries, the demand-side innovation policy has become

an explicit part of recent innovation strategies, but majority of countries still focus predominantly on the supply-side instruments. Thus, there seems to be a EU-wide trend that the demand-side policy measures are gradually valued in the context of national R&D and innovation strategies.

In terms of policy measures, there is a strong focus on innovative public procurement and growing popularity describes pre-commercial procurement. Regulations retain their importance by influencing innovation activities particularly in the domain of sectoral and industrial policies, but not as an explicit part of innovation policy. There is a danger that the demand-side innovation policy measures are in some countries rolled out prematurely and with high transaction and learning costs. Such phenomenon happens usually when new trends emerge in European policy making. (Izsak, Edler 2011)

The strong interconnections with EU-level standards, procurement guidelines, and industrial policy regulations suggest that demand-side policy measures are to some extent to be governed union-wide. Still, the national R&D and innovation potential can be effectively facilitated only by using agile systems and good responsiveness to changes in economy and business environment.

To conclude, the demand-side innovation policies are important complements to the supply-side measures, which still tend to dominate in majority of innovation systems and policy settings. Within the EU, the major innovation policy challenge is to achieve shift towards demand-side measures, and there are some promising signs that various demand-side policy tools are being introduced into national R&D strategies and innovation policies by increasing number of EU countries.

The nature and early results of ‘Knowledge-based Estonia 2007-2013’

Reid (2009) indicated that the adoption of the first R&D and Innovation Strategy ‘Knowledge-based Estonia 2002-2006’ and the first round of EU Structural Fund support 2004-2006 started in Estonia the initiatives of increasing the existing small funds for supporting enterprises seeking to develop new products or services. The general innovation awareness and university-industry cooperation were also fostered. This strategy focused on developing a R&D infrastructure in universities (centres of excellence program). By 2004, Estonia was seen from EU level as the leading innovation policy developer in the Baltic region and among new CEE member country.

However, thereafter the momentum has been somewhat lost, because second Knowledge-based Estonia Strategy for 2007-2013 describes predominantly the continuation of activities established in earlier strategy. Some new initiatives, like Development Fund, have emerged as well. Yet, the other countries have considerably closed the policy development gap by introducing their own innovation strategies and policy measures. The initial leader position was to some extent related to wide-range of learning experiences gained from policy development co-operation with Finland. (Reid 2009)

The R&D and innovation policy activities in Estonia are based on economic development plans, application plans of R&D and Innovation Strategy ‘Knowledge-based Estonia 2007-2013’, and on plans developed by Estonian Ministry of Economic Affairs and Communications. The Ministry has outlined four main activity groups (Estonian Ministry of Economic ... 2012): 1) technological upgrading of enterprises, the increase in their development capability and productivity growth; 2) the inflow of new innovative business ideas and their growth into enterprises; 3) knowledge and technology transfer; and 4) the development of innovative environment, creative industries, design, and service innovation.

Most of the activities in these categories focus still on a supply-side of innovations. Some programs do incorporate at least partial or implicit demand-side aspects. For example, innovation vouchers function as enablers of projects, which might be otherwise disregarded. Science and development programs for energy technologies and biotechnologies facilitate also demand for innovative solutions in these sectors. Innovation awareness measures and screening studies initiated by Development Fund lay at least a path for increase in future demand.

There are innovation procurement initiatives that include changes in the regulatory environment and subsidies to boost the usage of local energy resources. The public procurement and regulatory initiatives support also the collection of used packages, wind energy production, and changes in waste collection. However, several of these examples reflect the impact of EU-level policies on local standards. Thus, they are not novel in the broader international context, but still new solutions for Estonia. The holistic R&D and innovation policy mix in Estonia still clearly dominated by supply-side initiatives. The comparatively low attention to demand-side innovation policies in Estonia is mentioned in the report by Cunningham (2009). According to him, Latvia and Lithuania have that policy debate, but Estonia does not.

Enterprise Estonia (EAS) is perhaps the main executive body in the support provision process. It was established in 2000, with the general purpose to promote business and regional development in Estonia. Subordinated to the Ministry of Economic Affairs and Communications, Enterprise Estonia provides financial assistance, advisory, cooperation opportunities and training for entrepreneurs as well as for research establishments, public sector and third sector. Since Estonia joined EU in 2004, the majority of programs and grants offered by Enterprise Estonia are co-financed from the EU structural funds. Enterprise Estonia is responsible for the governance of such innovation policy measures as product development grants, technology development centres program, job creation for development personnel, innovation vouchers program, and test labs program. (EAS 2012)

The important part of Estonian R&D and innovation policy is governed by the Estonian Ministry of Education and Research. Here the focus is on funding and other initiatives aimed at the development of research, teaching and training capabilities or opportunities. The main bodies subordinated to this ministry that govern research funding have been the Research Competency Council and the Estonian Science Foundation. More diversified research and educational programs

are governed by Archimedes Foundation, while Innove Foundation promotes lifelong learning. There are also other more specialised foundations like Tiger Leap Foundation and Estonian Information Technology Foundation aimed at facilitation of IT development in Estonia. Some units focus also on youth work or on popularisation of science. (Estonian Ministry of Education ... 2012) The Estonian Ministry of Education and Research and its sub-units have very important role in research funding and infrastructure development. This side of Estonian innovation system is, however, even more supply-side dominated than the activities governed by the Ministry of Economic Affairs and Communications.

The Estonian R&D and Innovation Strategy 'Knowledge-based Estonia 2007-2013' does mention the stimulation of demand for new technologies primarily through public procurement (Estonian Research... 2007). In policy practice, the explicit demand-side innovation policy measures are still relatively scarce and somewhat sporadic.

In order to monitor and develop the Estonian innovation policy schemes the Ministry of Economic Affairs and Communications has initiated several evaluations and studies. The early evaluation of Technopolis published in 2005 reveals that in Knowledge-based Estonia strategy for 2002-2006 the identified key areas were not always supported by policy mechanisms. The innovation policy practice was too focused on limited number of high-tech sectors and attention to low-tech sectors, which is stated in that strategy, had been minor. The evaluators suggested that attention has been predominantly on development of infrastructure, while the human capital and development personnel deserve more direct policy attention. They concluded that for the period 2007-2013 infrastructural investments should require active participation of enterprises as users in order to ensure more demand-driven approach. (Evaluation of the design... 2005)

The evaluation from 2007 suggests that more attention should be devoted on demand-side because the planned increase of R&D expenditures as percentage of GDP might be dangerous in a situation where the demand for innovations is relatively low, as it is the case in Estonia. In this document, the opposition from the academic sector against more demand-oriented innovation policy developments is seen as potential threat. A low demand by enterprises and small financial rewards for cooperative activities characterise also university-industry linkages. Both, the absorptive capacity as well as demand for new technologies are in Estonia limited by the level of development and the industrial structure of the country. GDP per capita in Estonia is still significantly lower than in the EU-25. The evaluators noted that the Estonian economy is dominated by SME-s from low- to medium-tech sectors, business expenditure on R&D is very low and economic growth is primarily driven by exports from traditional economical sectors. They also outlined occasional coordination problems and proposed innovation voucher system, which has now been implemented. (Evaluation of Estonian... 2007)

The visibility analysis of support measures for investments into technology suggests that such support should be oriented primarily to enterprises and entrepreneurs who:

1) aim to increase productivity; 2) export quality; 3) intend to extend markets; and 4) intend to enter into new target markets. The analysis points out that an investment program alone is not enough to achieve such goals, but extensive coordination with other policy measures is required as well as the involvement of decision makers with sector-specific competences. (Ettevõtte... 2008) The weakness of industrial demand and participation in the competence centres is evident also from mid-term evaluation of the competence centre (called also technology development centres) program. For example, in the field of nanotechnology, scientific expertise is there, but industrial linkages are weakly developed. This is further evidence about the dominance of supply-side, while market development lags behind. (Mid-Term Evaluation... 2008) The reduction of costs for employing R&D personnel is seen as one possible catalyst for an increase in the demand for R&D. Recent study suggests numerous tax incentives (including reduced personal income taxes for R&D employees) as one potential policy measure. (An Analysis... 2010) The following summary evaluation of positive achievements and problematic aspects in the framework of 'Knowledge-based Estonia 2007-2013' is based on latest available reports and expert evaluations.

The status of 'Knowledge-based Estonia 2007-2013' strategy implementation

Positive achievements

One of the positive aspects relates to the fact that the development of R&D and innovations has not been aim only in policies and statements, but it has been clearly reflected in funding, job creation and activities promotion. In EU funding schemes, the financing and co-financing of R&D has also increased considerably. According to Statistics Estonia, in 2010 the total spending on R&D activities was in Estonia 232.76 million Euros, which was about 1.63 % of GDP. From that total spending, all funds from public sector constitute slightly less than half (0.81 %), and private R&D expenses slightly more than half (0.82 %). (Statistics Estonia 2012) However, these statistics are unlikely to reflect the entire contribution into R&D activities, because the overview about various funding schemes offered by different ministries, which at least indirectly facilitate R&D, is partial.

Although, it is expected that the initial goal to achieve R&D funding at 3 % from GDP will not be met by 2014 (ERA Committee 2011), the growth of funding has still been considerable. The fact that initial goal will not be achieved might be even seen as positive, because several important prerequisites for efficiency of development activities and innovations are not yet fulfilled. Therefore, the artificially elevated funding via budgetary allocations from government would be likely to contribute towards inefficient use of resources or possible even just crowd out private spending. Thus, it is positive that the growth in funding has not been boosted by attempts to achieve the 3 % level at any expense. In the more recent competitiveness plan 'Estonia 2020', the goals related to R&D funding have been revised so that by 2015 it would be 2 % from GDP and by 2020 3 % (ERA Committee 2011). Thus, now the 3 % level is to be achieved six years later.

The most positive effects of increased funding can be seen in research activities (ERA Committee 2011), because the combination of public and private financing and EU co-financing from framework programs has created opportunities for quantitative and qualitative development of research. Quantitative development has commenced in the form of several investments into the updating of research infrastructure as well as into new buildings and leading-edge equipment. The goals of strategy in terms of growth in the number of researchers and engineers per 1000 people will most likely be achieved too (Aruanne strateegia ... 2011). Yet, the development of human resources, in respect to the growth in the number of young scientists and to the international mobility of researchers, has not been as successful as improvements in infrastructure. The competitiveness of research as the field of activity needs to be increased among potential domestic and international candidates. The indicators of qualitative development in the research relate to the fact that the target value for the number of internationally acknowledged scientific publications per year has been already achieved (the target was raised in 2008 to 1500 publications per year) and the number of patents and patent applications has increased according to expectations (Aruanne strateegia ... 2011). The qualitative improvement is indicated also by the ability of Estonian scientists and research groups to participate successfully in the EU framework programs.

In the field of research, positive influence relates also to successfully implemented mobility programs 'DoRa' and 'Mobilitas'. By facilitating the multidirectional mobility of researchers, doctoral students, and post-doctorate students, these measures help to internationalize Estonian higher education and research. (Aruanne strateegia ... 2011) Yet, the funds provided for incoming mobility are internationally not very competitive for attracting the foreign teachers and post-doctoral students into Estonia. Despite limited funds, the recruitment has been relatively successful, because low interest related to long term stay in Estonia has been to some extent compensated by frequent recruiting activities. Thus, in general these mobility measures have functioned well.

From development and innovation aspect, one target that is likely to be reached relates to investments into innovation as percentage from the turnover of the companies (Statistics Estonia 2012). Achieving the target level is important, but it might be too low and not challenging for companies. Large share of these investments relates to non-R&D innovations. It allows concluding that companies do contribute into innovations, but things with low novelty or knowledge component are often already seen as innovative. On the way to knowledge-based society, this direction is not wrong, but such attitude towards innovation as development-oriented change is insufficient for achieving more substantial development leap. Thus, the statistics about the innovation investments are perhaps more positive than the essence of such investments in terms of contribution towards more knowledge-based production or service.

Considerable success has been achieved in the organisation and recruitment support for exporting provided by Enterprise Estonia, but the relationship of these measures with knowledge-intensity of export products tends to be more indirect. The measures

support exporting in more general terms than just in relation to R&D activities (EAS 2012). The positive results characterize also policy measure that supports the recruitment of development specialists as well as the innovation voucher system. The entrepreneurial support measures for R&D institutions reveal potential as well. In case of these, it is still too unclear, how effective they are.

With the ongoing establishment of Estonian Science Agency, which will merge several implementation agencies subordinated to Ministry of Education and Research into one unit, the steps have been taken towards reducing the fragmentation of research funding. At present the research funding is very fragmented between numerous support initiatives (ERA Committee 2011), thus the concentration into one agency is a rather positive step.

Problematic aspects

The fact that considerable share of funding and development efforts is channelled into research (growth in the number of scientists and publications), which is not followed by R&D and innovations in companies (in terms of growth in productivity and high tech or medium high tech sales and export) is problematic. It implies that Estonian research and development activities do not develop in integrated manner. (ERA Committee 2011) Naturally, one could argue that the research has to gain higher quality before it induces the development initiatives and innovations. However, business sector studies imply that there is no widespread cooperation between universities and companies. There are some very positive examples, but the weakness of these cooperative ties creates danger that the fast development of research will not transform into innovative businesses.

No overview about all public measures (sometimes in combination with EU-level funding) that directly or indirectly support R&D and innovation activities is available. Some of these activities (for example environment related activities) are supported by indirect measures about which statistics are sometimes not even collected. This lack of overview is reinforced by the large number of fragmented support measures.

In the strategy document, the key areas of development are defined very broadly. In this second holistic strategy, the added target topics relate to social and environmental aspects. As a result, very large share of entire funding is allocated to six key areas- information and communication technology, biotechnology, material sciences, healthcare, energy technologies, and environment protection and environmental technologies. Close to 45 % of all grants provided by Estonian Science Foundation were in 2011 given to these priorities, which is 49 % of all allocated funds (Estonian Ministry of Education and Research 2012). This reflects considerable growth within last five years. However, it is questionable if all subfields in these priority areas have leading-edge development potential, while other research groups with better potential might be unfairly discarded. Therefore, it would be beneficial to map the priority areas in a more detailed manner and in close

connection with the actual revealed development potential. (See also ERA Committee 2011)

In several key areas, the national programs of strategy implementation were not approved by government until December 2011. Only in two priority areas, biotechnology and energy technologies, such programs had been accepted earlier. In material sciences, there is suggestion to start the cycle with pre-program. However, strategy implementation procedure does not foresee such option. Although three programs were approved only in December 2011, the Ministry of Education and research launched some support measures already earlier, which is also legislatively problematic.

The delayed formation of national programs has created situation, where some innovation support measures were started by Enterprise Estonia prior to research measures in the field, which means that developments occur in illogical order (see EAS 2012). This is extremely problematic approach in terms of efficient use of resources. Research and development is usually seen as a holistic process, which is seriously undermined by governance failure and illogical solutions that expect results before contributing to preconditions.

The programs management is separated from implementation units responsible for funding. This creates situation that program managers outline certain goals, which are not matched by funding possibilities. Such structural and governance problems show the lack of institutional capabilities. The aim of funding should not be so much about the use of all available funds, but the effectiveness of the usage as well. Foreign experts even suggest that without appropriate institutional arrangement it is better not to launch some support measures at all (ERA Committee 2011). Thus, the governance and cooperative abilities of the public sector are to be seen as critical success factors.

The Ministry of Education and Research and the Ministry of Economic Affairs and Communications as the main bodies in charge of strategy implementation are often hampered by the low interest and involvement shown by other ministries, who are responsible for the development of some of these key research areas. Thus, the R&D related cooperation between various ministries is insufficient. The established national programs describe activities too vaguely and do not relate them with particular goals and funding (See also Euroopa Liidu tõukefondide ... 2011). The lack of holistic statistics about R&D spending complicates the goal setting in connection with funding schemes.

From the viewpoint of connections between research and development, it is problematic that in the evaluation of grant applications to Estonian Science Fund, the applicability of results and impact to society, which are included into an application, do not play considerable role in expert evaluation (according to data from Estonian Ministry of Education and Research 2012) Thus, the funding of research does not stress the applicability aspect of research that is very important to generate innovations. Publications are targeted by researchers as the primary output

exactly because research funding depends primarily on a publication history, while sustainability of funding from the applied science projects is far more unstable and might be discontinued when this EU programs period ends.

The fragmentation of funding schemes is considerable problem as well. Part of this problem relates to the fragmented nature of EU-level funding schemes that is then reflected on the national level distribution of funds. Still, it would be possible to implement similar schemes through one implementation unit that could offer them in packaged format. The mobility programs for researchers and students have been successful, but even in this aspect the fragmentation causes excessive bureaucracy related to numerous reporting and administrative obligations for beneficiaries. The concentration of funds could perhaps increase the competitiveness of sums in terms of attracting well-qualified researchers from abroad.

The measures and indicators in the strategy document and in the implementation programs are often to general in nature and it is difficult to determine causal relationships between the support measures and the progress towards goals. No regular data is collected at all about progress towards some indicators. Sometimes measures and indicators are described without initial and target levels, which makes them useless in terms of performance evaluation. (See also Euroopa Liidu tõukefondide ... 2011)

The funding of research has grown fast. The growth of human resources engaged in research has been considerably slower. Even in priority areas, the growth in number of researchers and PhD holders has not been in accordance with expectations. However, latest number for 2010/2011 of 250 new PhD holders per year is much closer to target level 300 per year (Aruanne strateegia ... 2011). Still, shortage of personnel may create situation where newly built research infrastructure will be underutilized and inefficient. From the viewpoint of development and innovation activities, the employment in high tech sector and medium high tech sector has not grown considerably since 2006 (Ibid). Thus, the priority funding has not established sufficient conditions for the growth in high tech jobs. The positive and negative aspects of R&D and innovation strategy implementation allow defining policy areas, which require further attention and refinement.

The demand-side policy measures and R&D and innovation strategy in Estonia

The suggestion to use more demand-side instruments has also been provided by foreign experts, who express concern that supply push methods of innovation policy might not render expected results. The supply-side measures are inadequate when the current industrial structure in Estonia does not support more intensive knowledge transfers between research sector and companies. Thus, some demand-side impulses are needed to increase economy's capability for more elaborate knowledge-based cooperation. (ERA Committee 2011) As long as Estonian economy remains reliant on traditional low- and medium-tech industries, there is not much domestic potential for the absorption of leading-edge scientific knowledge. It is not to say that low-tech industries do not innovate. It is to say that knowledge

profiles nurtured in research institutions and knowledge requirements of incumbent industries are likely to mismatch.

The results of the evaluative analysis along with innovation policy context in Estonia suggest following possibilities for policy development:

- Because the current priority or key areas of the strategy are too broad, screening and monitoring studies are needed to identify narrower areas of excellence, which have perhaps lead market potential.
- The policy measures to support user-centred innovations should be considered as well, because it would also serve as an important tool for building innovation awareness in society. At present, there are some competitions of innovative ideas, but these ideas are not always user-driven. Thus, even more focused measure could be added to the policy mix.
- There is potential for using pre-commercial public procurement type initiatives in order to improve balance between research activities and innovations, it would help to reduce certain development risks. Here, as well as in other areas, private-public partnerships could have considerable institutional value.
- The Estonian research policy governed by Ministry of Education and Research should give more credit to the applied research, the application of research results in business practice, and the research partnerships with companies. Some grants and programs of Enterprise Estonia already try to serve that purpose, but general research policy is still too publication oriented.
- The fragmentation of Estonian innovation policy measures seems to be related to fragmented funding as well as to the governance dualities in Estonian innovation system. Thus, at least increased coordination is needed to foster innovations in connection with research, or perhaps even switch of coordination from education side to economic affairs side. In a long-term perspective, the strategy could be implemented by well-organized lead agency. Yes, there is a potential danger of increased bureaucracy, but (considering the smallness of Estonia) this could provide the intra-organizational transparency needed to develop R&D and innovations more holistically. It is a shift towards demand-side considerations throughout the entire system.
- Public sector should encourage the industry representatives to develop innovation-oriented standards for their industries by reinforcing the information provision about major global trends.
- There are possibilities of finding also a consensus in society about the consumer and producer regulations that would encourage switch to newer technological platforms. Some of such regulations could even be temporary to serve only catalytic effect of attracting critical demand.
- New wave of demand-side innovation policy could use three capabilities – research capability, cooperation and network building capability, and commercialization capability – as success factors in evaluation process of various projects. The second capability refers directly to the diffusion potential of research results into the business practice and thereafter to the diffusion of innovative ideas on the market. Both draw heavily on network building.

- The R&D and innovation strategy as well as the implementation programs and plans should explicitly include the demand-side goals and causally measurable indicators that would connect funding and training initiatives with long-term economic effect. This would reduce the impact of ‘funds need to be used’ thinking over ‘efficiency needs to be achieved’ thinking.

Some of these suggestions, especially the last one, may run counter to the unfortunately frequent logic about EU-supported funding, but they are vital to avoid insurmountable gap between funding opportunities and truly innovative and marketable business ideas. There is already onset of public discussion about the impact of various grants to companies. Without demand-side policy initiatives, such grants may indeed crowd out private investments instead of complementing private initiatives.

Conclusions and implications

The demand-side innovation policies are relatively new policy concepts that aim at advances in society. Some elements of them, like for example public procurement, are not new as such. The issue of procurement has been discussed in a literature for several decades. The modern views of demand-side policies add value by taking more holistic perspective on the role of demand for innovations, which is still relatively ignored in policy practice. However, there are positive tendencies towards greater awareness about demand-side measures across Europe.

According to evaluative reports, the innovation strategy and policy in Estonia has after 2004 to some extent lost its momentum, because the second or follow-up strategy for 2007-2013 does not provide many novel policy ideas and represents predominantly continuation of earlier initiatives. The innovation policy implementation in Estonia takes place via two main branches – the Estonian Ministry of Economic Affairs and Communications with its foundations like Enterprise Estonia and the Estonian Ministry of Education and Research with its own implementation agencies. This duality and other governance problems (as well as perhaps current industry structure in Estonia) have created situation where increased EU funding in combination with national funding has been successfully channelled into research. Thus, the strategy aims concerning the research infrastructure and development will be achieved and overachieved, but aims related to innovations and developments in companies are most likely not achieved on time.

The demand-side innovation policies offer several opportunities to seek balanced strategic approach that sets more focus to the connections between research and market demand. These include refined selection of key development areas, more support to user-centred innovations, pre-commercial procurement and public-private partnerships, more credit to applied research, better coordination and/or concentration of governance, various standards and regulations, valuing research-network-commercialization capabilities, or demand-side goals and indicators in strategies and programs.

The important limitation of this study relates to the lack of evidence about the particular demand-side innovation policies in Estonia. The evaluative reports and program descriptions offer in some respect too general view on demand-side aspects. Sectoral screening and monitoring studies could provide refined evidence about the local, regional and global demand for innovations in prioritized fields.

The theoretical implications of this discussion are related to a need for increased scientific discourse and studies about pros and cons of demand-side innovation policy measures. Despite the fact, that these policies have been holistically discussed for more than five years, there is still scarcity of literature beyond status reports and evaluations.

The managerial implications of this study relate to the fact that an involvement of industry leaders and managers in the discussions about the suitable demand-side innovation policy measures seems paramount in order to achieve substantial innovation cooperation instead of formal contacts. Management interest in more advanced innovations is one of the keys in building the commercial demand for research results.

The future research should focus on the comprehensive analysis of challenges and risks of using the demand-side innovation policy measures. There are also doubts about the efficiency of demand-side innovation policies in a small market setting that need to be addressed. The introduction of demand-side measures requires new governance structures and institutional capabilities. They need analysis as well.

References:

1. **Aho, E., Cornu, J., Georghiou, L., Subira, A.** (2006), Creating an Innovative Europe. Report of the Independent Expert Group on R&D and Innovation appointed following the Hampton Court Summit
2. An Analysis of Tax Incentives to Promote Research and Development in Estonia (2010), Ministry of Economic Affairs and Communications, KPMG, Praxis – <http://www.mkm.ee/public/TA-Maksuuuring-2010-01.pdf>, 142 p. (last access 04.04.2012)
3. **Appelquist, J.; Bell, L.; Zabala, J. M.** (2009), Research and Innovation Policies – Exploiting Synergies for Sustainable Growth in Europe, Seminar Report
4. Aruanne strateegia eesmärkide ja rakendusplaani täitmisest 2010. ja 2011. Aastal (2011), – <http://www.hm.ee/index.php?popup=download&id=11478>, (Report about the progress towards aims and implementation plans of strategy in 2010 and 2011) (In Estonian), Estonian Ministry of Education and Research (last access 04.04.2012)
5. **Cunningham, P.** (2009), Demand-side Innovation Policies, Pro Inno Europe Policy Brief, 1, pp. 1-15.
6. **EAS** (2012), – homepage of Enterprise Estonia <http://www.eas.ee/> (last access 04.04.2012)

7. **Edler, J.** (2005), Demand Oriented Innovation Policy, Innovation and Procurement Workshop, Manchester
8. **Edler, J.** (2009), Demand Policies for Innovation in EU CEE Countries, The Workshop Innovation for Competitiveness INCOM, Prague
9. **Edler, J.** (2010), Demand Oriented Innovation Policy, In: Smits, R, Kuhlmann, S., Shapira, P., (Eds.), The Theory and Practice of Innovation Policy An International Research Handbook, Edward Elgar: Cheltenham
10. **Edler, J.** (2011), Innovation in EU CEE: the role of demand-based policy, In: Radosevic, S., Kaderabkova, A. (Eds.) Challenges for European Innovation Policy. Cohesion and Excellence from a Schumpeterian Perspective. Edward Elgar: Cheltenham, Northampton, pp. 177-208.
11. **Edler, J.; Georghiou, L.** (2007), Public Procurement and Innovation—Resurrecting the Demand Side, Research Policy, 36, pp 949-963.
12. **ERA Committee** (2011), Estonian Innovation System, Peer Review Background Document
13. Estonian Ministry of Economic Affairs and Communications (2012), – <http://www.mkm.ee/tegevused/> (last access 04.04.2012)
14. Estonian Ministry of Education and Research (2012) – <http://www.hm.ee/> (especially data sections) (last access 04.04.2012)
15. Estonian Research and Development and Innovation Strategy ‘Knowledge-Based Estonia 2007-2013’ (2007), – <http://www.hm.ee/index.php?popup=download&id=7669>, 52 p. (last access 04.04.2012)
16. Ettevõtete tehnoloogiainvesteeringu teostatavuse analüüsi lõppraport (2008), Innovation Studies 11, Ministry of Economic Affairs and Communications, Technopolis – http://www.mkm.ee/failid/tehnoloogiainvesteeringute_teost_raport.pdf, 121 p. (last access 04.04.2012)
17. Euroopa Liidu tõukefondide perioodi 2007-2013 teadus- ja arendustegevuse ning kõrghariduse meetmete rakendamise vahehindamine (2011), (The interim evaluation about the usage of R&D and higher education measures from EU Funds concerning period 2007-2013) (In Estonian), Technopolis
18. Evaluation of Estonian RTDI Policy Mix (2007), Country Report, Innovation Studies 10, European Commission Directorate-General for Research – http://www.mkm.ee/failid/Evaluation_of_Estonian_RTDI_Policy_Mix.pdf, 53 p. (last access 04.04.2012)
19. Evaluation of the Design and Implementation of Estonian RTDI Policy: Implications for Policy Planning (2005), Final Report, Ministry of Economic Affairs and Communications, Technopolis, – http://www.mkm.ee/failid/A.Reid_toimetatud_tekst.pdf, 63 p. (last access 04.04.2012)
20. **Europe 2020** (2011), – <http://ec.europa.eu/europe2020/targets/eu-targets/> (last access 04.04.2012)
21. **Innovation Union Scoreboard (IUS) 2010** (2011), ProInno Europe, European Union – http://ec.europa.eu/enterprise/policies/innovation/files/ius/ius-2010_en.pdf (last access 04.04.2012)
22. **Izsak, K.; Edler, J.** (2011), Trends and Challenges in Demand-Side Innovation Policies in Europe, Thematic Report 2011 under Specific Contract for the Integration of INNO Policy TrendChart with ERAWATCH (2011-2012),

- http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=7011, Technopolis (last access 04.04.2012)
23. Mid-Term Evaluation of the Competence Centre Programme (2008), Final Report, Innovation Studies 12, Ministry of Economic Affairs and Communications, Technopolis – http://www.mkm.ee/failid/IS12_competence_center_programme_2008.pdf, 72 p. (last access 04.04.2012)
 24. **Moran, N.; Hudson, R. L.; Wrobel, P.; Valigra, L.** (2007), Innovation: The Demand Side, ScienceBusiness - <http://www.sciencebusiness.net/documents/demandside.pdf> (last access 04.04.2012)
 25. **OECD** (2011). Demand-side Innovation Policy. OECD Publishing. Paris – http://www.oecd.org/document/61/0,3746,en_2649_33703_48078845_1_1_1_1,00.html (last access 04.04.2012)
 26. **Reid, A.** (2009), Estonian Innovation Policy: From Crisis to Redemption?, Hei, June 2009 – <http://hei.eas.ee> (last access 04.04.2012)
 27. **Smits R.; Kuhlmann S.** (2004), The Rise of Systemic Instruments in Innovation Policy, International Journal of Foresight and Innovation Policy, (1)1-2, pp. 4-32.
 28. **Statistics Estonia** (2012), – <http://www.stat.ee/> (last access 04.04.2012)
 29. **Zuleeg, F.; Green, J.; Schubert, C. B.** (2007), Cultivating a Market for Innovation in Europe, Policy Brief, European Policy Centre

INDICATORS MEASURING UNIVERSITY-INDUSTRY COOPERATION¹

Marge Seppo, Alo Lilles
University of Tartu

Abstract

The aim of this paper is to describe the indicators for measuring different types of collaboration activities between universities and industry. Popular indicators for measuring university-industry cooperation are the number and amount of patents or licences, but these do not express the knowledge transfer and university-industry cooperation most adequately, as the collaboration and knowledge transfer also takes place through other types of cooperation. Although it is easier use input and output indicators for measuring university-industry cooperation, the focus should be on the economic impact of the collaboration. Additionally, relationship-based indicators should also be used. In Estonia different input factors are widely used. As university-industry cooperation is an input in innovation processes, the desired outcome should be a higher level of innovation, productivity, competitiveness, and growth, which has to be considered in the development of policies.

Keywords: university-industry cooperation, types of cooperation, indicators, policy making

JEL Classification: O22, O32, O38

Introduction

The cooperation between universities and industry is currently in the focus of attention globally. The governments, universities, and industry are interested in good and effective collaboration which would be beneficial for all parties. To foster university-industry cooperation, and hence the knowledge and technology transfer between these two parties, academics, politicians and companies are paying attention to science and technology policies more than ever. For designing and evaluating the policies it is important to define and use proper indicators. Although several governments and research agencies are continually searching for ways to facilitate the interactions between industry and universities, hoping that they can increase the productive processes and the competitiveness of the collaboration environment, they still are struggling to find proper indicators to measure university-industry collaboration in order to make political decisions at the national level.

Additionally, universities and companies can use these indicators in evaluating the collaboration results. According to Gardner et al. (2010), the reasons to measure the

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effectiveness of knowledge transfer activity at public research organizations are to demonstrate the benefit to society from advances in knowledge, to ensure sufficient returns on investment, to provide benchmarks for comparison across the industry, to promote competition in the global marketplace, and to support future appeals for funding. The companies are interested in the returns on investment, which is also important to consider in the case of university-industry cooperation activities.

The knowledge transfer between universities and enterprises is conducted through various channels and practices. Therefore, in analysing and evaluating the cooperation between academia and industry, it is important to consider the diversity of connections.

Based on the analysis of university-industry collaboration types and possible indicators, the aim of the paper is to define different types of cooperation between universities and enterprises and describe the indicators for evaluating the collaboration activities. The structure of the paper as follows. In the first part of the paper, the cooperation between universities and enterprises is analysed, and the types of cooperation are defined. In the following two sections, the indicators for measuring university-industry cooperation are discussed and a system of indicators that comprise the plurality of interactions between universities and companies is described. Finally, suggestions for policy development for Estonia will be provided.

The nature of university-industry cooperation and types of collaboration

Since their foundation, the role of universities in society has changed over time. At first, the universities were apart from society and their role was to preserve the culture and knowledge of society (Brockliss 2000, Etzkowitz 2001). Over time, the interaction with institutions outside universities has increased considerably. The linkages between universities and enterprises have changed in both – in the forms and in the intensity of interaction. The oldest mission of university is teaching – to provide skilled and professional specialists for society. In the 19th century, the universities started to focus more on research (Brockliss 2000) and thereby the research universities started to evolve.

The research university produces and disseminates research results through publications, so that the industry can use it in their production. Nowadays universities are becoming more and more entrepreneurial themselves and the relationships with industry and university are more direct and interactive. (Etzkowitz 2001) The universities of today have to find the appropriate balance between teaching, basic and applied research, and entrepreneurship.

Santoro (2000) and Santoro, Chakrabarti (2002) distinguish four types of university-industry relationships:

- Research support, which embodies financial and equipment contributions made to universities by industry. These contributions can be unrestricted gifts of endowment trust funds that the university uses to upgrade laboratories, provide fellowships to students, or provide seed money for promising new projects.

Nowadays the support for university research is more targeted and often tied to specific research projects, which, in return, provide knowledge and new technologies to industry.

- Cooperative research includes contract research with individual investigators, consulting by faculty, and certain group arrangements specifically for addressing immediate industry problems. In the case of individual investigators or a consultancy there is usually only one faculty member involved who is working with a single firm on a targeted research project. Group arrangements involve more than just one faculty member and more than just one industrial firm.
- Knowledge transfer encompasses highly interactive activities that include on-going formal and informal personal interactions, cooperative education, curriculum development, and personnel exchanges. Knowledge transfer mechanisms are the recruitment of recent university graduates and employing student interns, co-authoring of research papers by university and industrial firm members, industry-university consortia and, for example, also trade associations.
- Technology transfer also involves highly interactive activities. Compared to knowledge transfer the focus here is on addressing immediate and more specific industry issues. In technology transfer the university-driven research and industry expertise make complementary contributions into commercialized technologies needed by market. Often the university provides basic and technical knowledge along with technology patent or licensing services. Industry members provide knowledge in a specific applied area along with a clear problem statement related to market demand. Technology transfer takes place through technological consulting arrangements, the firm's use of university's extension services, jointly owned or operated ventures.

Considering the concept of knowledge transfer, this kind of distinction is a rather limited one. Knowledge transfer can take place in all relationship types mentioned above. Gardner et al. (2010) indicated that the broader concept of knowledge transfer describes the movement of knowledge, ideas, concepts and techniques from a formative location, generally institutions of advanced education, out to all areas of the social and economic environment. This kind of broader approach is also used by the authors of this paper. Knowledge transfer between universities and industry can be considered the most important aim and also result in university-industry cooperation.

Polt et al. (2001) have considered the following channels of knowledge transfer and university-industry cooperation in their research:

- collaborative research,
- contract research and technology-related consulting,
- staff mobility between firms and public science institutions,
- co-operation in the education of graduate students,
- vocational training for employees,
- use of intellectual property rights (IPR) by public scientific organizations,

- spin-offs,
- informal contacts and personal networks.

According to an extensive study among European universities, there are eight types of university-industry cooperation (Davey et al. 2011): curriculum development and delivery, lifelong learning, student mobility, academic mobility, commercialization of R&D results, collaboration in R&D, entrepreneurship, and governance. The types of the cooperation are related quite directly to the missions of the universities and the needs of industry (see Figure 1).

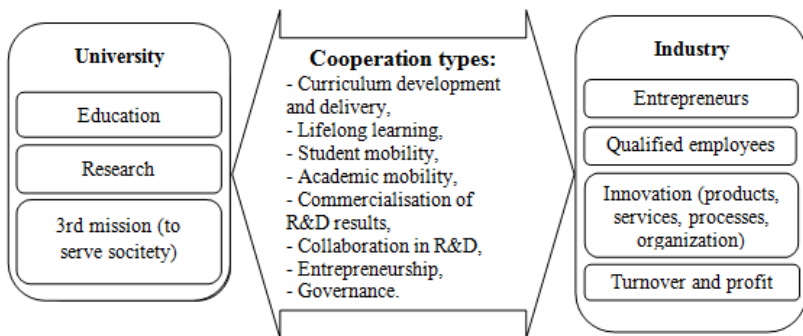


Figure 1. University-industry cooperation related to the missions of university and needs of industry.

The oldest mission of university is teaching and educating skilled professionals (Gibbons 2000), who after graduation start to work in society. Curriculum development and delivery is one type of university-industry cooperation, which aim is to develop human resources relevant to modern society. The firms can participate both in the development of curriculum and in the delivery of it by being guest lecturers in different courses and programs. Lifelong learning is also one way of developing human resources, but here the students are adults, who acquire additional skills, knowledge or attitudes. (Davey et al. 2011)

Student mobility is the temporary or permanent movement of students to enterprises. Academic mobility encompasses temporary or permanent movement of university researchers or lecturers to firms, and the movement of industry researchers to universities. (Davey et al. 2011) Knowledge transfer in the very direct sense takes place through this kind of cooperation, which is especially suitable for the transfer of tacit knowledge.

The knowledge intensity in industry has grown over time. In addition to the supply of knowledge, the demand of knowledge from the industry's side has also increased. Therefore, the need for universities' knowledge transfer and commercialisation has also increased. The universities can commercialize the research results with

enterprises through spin-offs, licenses or patenting. University-industry collaboration in research and development includes all the joint research activities, contract research, consulting, informal networks, joint publications, joint supervision of theses, and different student projects carried on together (Davey et al. 2011). The research and their results are important for industry for producing new products or services, improving processes and through all of that, achieving improved performance and larger profits.

Universities are becoming more entrepreneurial themselves and also take in to some degree the role of business (Etzkowitz 2003). In the frame of entrepreneurship, the universities are creating new ventures with enterprises or developing an entrepreneurial culture within university in cooperation with enterprises. Cooperation in governance means that the industry and university are cooperating at management level (e.g. business leaders are sitting on the boards of universities or are involved in decision-making, academics are sitting on the board of enterprises) (Davey et al. 2011).

The interaction and cooperation between universities and industry is not only in the interest of the two institutional partners involved. In an environment where international competition is constantly increasing and development of technology is very rapid, governments are also interested in good cooperation between universities and industry, in order to improve the effectiveness of innovation and with that, also to improve the economic development of the country (Barnes et al. 2002). Through laws, policies and incentive systems, the government is able to influence the cooperation between universities and industries. This means that the governments are also interested in measuring and evaluating the links between universities and industry for estimating the possible impact of their past actions and making strategies for the future.

For universities and enterprises there is a growing need for collaboration in order to survive in a highly competitive marketplace. The traditional culture of universities is evolving, not only with the development of universities but also because of the growing number of universities taking on entrepreneurial tasks and therefore becoming more industry-like. The linkages between universities and industry are very diverse and this should also be taken into account in defining the indicators of university-industry cooperation.

The indicators for measuring university-industry cooperation

Usually, the indicators measuring university-industry cooperation are established by the local government to measure the responsiveness of the knowledge transfer activities to the needs of the economy and public sector. The indicators are used to track performance of the universities and enterprises over time to see the effects of policies and collaboration.

For analysing interactions between universities and industry it is possible to use the channels of interaction as indicators of university-industry performance. However,

in the cooperation between universities and enterprises, not only is the cooperation itself important, but also the outcomes of this cooperation. Pertuzé et al. (2010: 83) argue even further that not the outcome of the cooperation is important but the impact – “how the new knowledge derived from collaboration with a university can contribute to a company’s performance”. The outcomes are the results of cooperation, which create an opportunity for a company, but the research outcome has only incidental importance for companies as it has little or no impact on the company’s productivity or competitiveness. Therefore, it is much more important to focus on the “impact of the collaboration on company products, processes or people” (Pertuzé et al. 2010: 83). The same applies to the interest of other partners – universities and government.

At the macro level the impact should be measured in the areas of well-being (e.g. health and quality of life, working life, living environment); economic; knowledge, education and culture; and environment (e.g. climate change) (Luoma et al. 2011). This kind of impact can also be considered a long-term outcome. In Figure 2, the input-impact process is described.

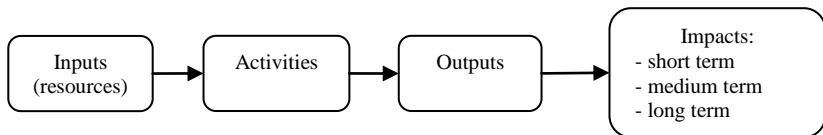


Figure 2. The input-impact process (compiled by authors based on Luoma et al. 2011, Establishing ... 2008).

Performance measurement indicators can be divided into the same categories: inputs, activities, outputs and impacts. The input indicators are foremost suitable for evaluating the intent of a desired output, but do not guarantee it (Langford et al. 2006). Output and impact indicators deal with results of the cooperation, but it is important to make the distinction that the outputs are the outcomes which are the direct results of the cooperation. Often the activity indicators are also considered as outputs. The impact refers to direct or indirect effects that cooperation has on the different parties (Establishing ... 2008).

Perkmann et al. (2011) distinguishes three major input factors – resources, researchers’ capabilities and researchers’ motivation. The number of researchers involved in collaboration with enterprises can also be considered as an input and the increase of this number also allows assuming the increase in the amount of university-industry cooperation.

R&D expenditures and finances given to universities are important input indicators for any type of R&D activity. While sharing R&D costs offers benefits to alliances generally, university–industry alliances can usually gain additional leverage via public funding. The contributions from government granting agencies, businesses, individuals and foundations can be input indicators of university research. The most

direct indicator of university-industry cooperation is the level of industry sponsorship and financing of university research (Langford et al. 2006). The financial support and benefits are important for universities and make it possible to establish and also maintain the relationships with industry (Davey et al. 2011).

Bibliographic metrics can be used to measure researchers' capabilities. Although the publications are usually defined as output in academia, a primary performance measure of researcher quality is journal publications. Since a simple publication count is not a reliable way of assessing a researcher's impact, as journals and individual journal articles differ in terms of quality, citation counts provide a better measure (Moed 2005). Citation counts record the number of times an author's publications are cited by other publications, recorded in bibliographic databases and can be measured via the h-index².

The problem with estimating the researchers' capabilities by the number of publications and citations is that the aim of university-industry cooperation is often not a publication. Industry is interested in applied research, and from the industry side, the publications are not necessary. When defining the indicators concerning the measurement of researchers' capabilities, the aim of the cooperation should be taken into account. Depending on that, all outcomes achieved in the past can be considered (e.g. reports, patents etc.).

Although it might not easy be to evaluate researcher motivation directly, the researcher also wants to focus on interesting projects and the impact of the career model is as important to him or her as for other professionals (Lee et al. 2010). For encouraging scientists to do cooperation with enterprises, the stimulation system and career model in university, and also in academia more generally are also important. Based on Bercovitz and Feldman (2008) and Perkmann et al. (2011), previous research has indicated that departmental climate is one of predictors of involvement in industry activity. Since it is difficult to obtain measures for the presence of norms favouring industry involvement and positive attitudes of departmental heads facilitate individual engagement, an 'industry-friendly' climate can be proxied by the department's track record of industry engagement. The favour and attitude of a university or department can also be estimated by the existence of documented strategies embracing university-industry cooperation and implementation of these strategies (e.g. dedication of resources to support cooperation, provision of incentives for academics, considering the cooperation with enterprises in the assessment of work performance, existence of cooperation supporting stimulation system) (Davey et al. 2011). Alternatively, researcher motivation may also be captured via a suitable survey instrument, such as, for instance, a scale measuring researchers' views of the benefits they derive from industry contact.

² The h-index reflects both the number of publications and the number of citations per publication. The h-index shows that scientist with an index h has published h papers each of which has been cited at least h times in other papers.

In the same way as evaluating the capabilities and motivation of researchers in university, the industry's side should be taken into account. Research has shown that there are certain characteristics of a company that influence its ability to utilize externally generated scientific knowledge, and thus the knowledge transferred from universities (Agrawal 2001). From the absorptive capacity of the firm depends, how well the enterprise can recognize the value of new, external information, in order to assimilate and commercialize it. The level of absorptive capacity depends on prior related knowledge and experience (Cohen, Levinthal 1990). The absorptive capacity and technological competence of the company show the capabilities of the company as an input in the university-industry cooperation.

Barnes, Pashby and Gibbons (2002) defined in their research the complementary expertise or strengths, history as collaboration partners in the past, shared vision or strategic importance, complementary aims, and collaborative experience generally as important firm characteristics, which are good prerequisites for successful cooperation. Additionally, the quality of staff can be considered as firm capabilities. The problem here is that it is hard to measure it objectively. The indicators of firm capability can be, for example, quality certificates (ISO certificates), number of previous projects with universities, membership in some research group or collaborative network, number of scientists, education of employees, and the involvement of staff in the activities of university (e.g. guest lecturers in university).

Perkmann et al. (2011) pointed out that there are several metrics available to operationalize outputs from university–industry alliances. Patent applications or patents granted can be used as measures of the technological output of university–industry projects. However, patents are only one among several appropriation mechanisms used by companies. Also, some university–industry alliances are based on explicit ‘open science’ rules that stipulate that all knowledge generated should flow into the public domain with no restrictions.

The number of publications in peer-reviewed journals is used in academia as a major performance metric. Perkmann et al. (2011) believe that publications are an indicator of quality as they are subject to a peer review process. The number of joint publications of university and industry scientists is a very explicit indicator of university-industry collaboration (Langford et al. 2006). Tijssen et al. (2009) use joint research publications which are co-produced by R&D staff from private sector organizations and universities for evaluating university-industry research cooperation. The joint research publications focus on longer-term perspectives while applied research with a short- or medium-term commercialization focus are usually not disseminated in the peer-reviewed literature, but as reports, patents or other form, which often are also confidential. The co-authored publications are considered to be a good indicator of diffusion of knowledge and skills, and informal network between academia and companies. The indicator is also quantifiable, available, and easy to collect. However, it is important to note that this indicator should not be used alone for defining university-industry cooperation as there are many cases where no co-authored papers are published. (Lundberg 2006)

In terms of staff skills and training, there are several available metrics for assessing success. These include the number of doctoral and postdoctoral positions offered within the alliance, the number of co-supervision arrangements between industry and university, and the number of secondments of research scientists to partner organizations. The number of master and doctoral theses derived from the collaborative work or supervision is the outcome of cooperation (Iqbal et al. 2011).

Perkmann et al. (2011) believes that intensity of the collaboration is another measure of an alliance, which indicates the training and learning opportunities between universities and industry. Frequent interaction between the partners facilitates the transmission of know-how and tacit knowledge as opposed to the formal exchange of codified research results. From research it appears that the more there are different meetings for educational or contact making purposes, the stronger the linkage between university and the firm also is (Iqbal et al. 2011). Workshops, seminars and meetings, where the participants are from both university and industry, can be considered as the outputs of university-industry cooperation. The high number of personal contacts also indicates a higher intensity of collaboration and knowledge transfer between the partners.

The input of social or commercial actors and the transferred knowledge in the university-industry cooperation create an economic or social impact. To measure the impact of university-industry collaboration outputs, the indicators should show if the collaboration achieved its aim and what have been the consequences of the collaboration for the partners (Pertuzé et al. 2010). In the current paper the focus is on the economic impact. There are different indicators, such as GDP per capita, productivity, turnover growth, export growth or employment growth, to measure the impact of university-industry cooperation on a more general level. For example, increasing productivity means that businesses are improving the size of their income relative to their expenses – thus becoming more competitive.

More specific impact indicators are, for example, license revenues and success of spin-off companies (Langford et al. 2006). The success of university-industry cooperation can be estimated by the rate of recent graduates' hiring and their employment in the field of their studies. The science citation index enables to evaluate the impact of publications, as outputs of cooperation, in the research. In Table 1, some possible indicators are defined in the categories of inputs, outputs and impact.

A number of reports (i.e. European Commission (European Commission 2009), UNICO (Holi et al. 2008), SPRU (Molas-Gallart et al. 2002), etc.) have focused on the issue of the measurement of activities between universities and industry. These studies advocate a broader set of interactions – knowledge transfer metrics. Based on the European Commission Report, there are two commonly used alternatives for measuring knowledge transfer (European Commission 2009):

- The first approach is to estimate the value of the knowledge transferred in its different forms. The dominant approach is to equate this value with its price – what someone is willing to pay for it.

- The second approach is to measure not the knowledge but the transfer of it: to count the number of manifestations of knowledge transfer as activities in various transfer channels (e.g. number of consultancy contracts, number of spin-off firms, number of lectures given in network seminars, etc.).

Table 1. University-industry cooperation measurement indicators

Categories	Indicators
Inputs	<p>Resources: R&D expenditure; university's governmental income; non-government donations, grants and contracts; industry sponsorship of university research; scholarships; number of researchers.</p> <p>Researchers' capabilities: number of publications, citations, projects, reports or patents done in the past.</p> <p>Researchers' motivation: number of previous industry contracts in the department/university; number of strategies concerning industry-university cooperation in the department/university; amount of resources dedicated to support cooperation in department/university; perception of researcher about the benefits from the cooperation with industry.</p> <p>Firms' capabilities: quality certificates (ISO); previous collaboration with academia; membership of some association or research group; number of scientists; structure of employees by occupation and education.</p> <p>Firms' motivation: number of previous contracts with universities; involvement with university (e.g. alumni, lecturer); perception of the firm about the benefits from the cooperation with university.</p>
Outputs	Patent applications; patents; license revenues; publications; joint publications; postdoctoral or doctoral positions offered within alliance; joint supervision; master and/or doctoral theses; secondment of researchers; intensity of collaboration; spin-offs; meetings; seminars; workshops.
Impact	GDP per capita; total factor productivity; productivity renewal indicator; number and share of high growth enterprises; renewal rate of enterprises; share of inward FDI per GDP; knowledge intensity of production; success of spin-off companies; productivity growth; turnover growth, export growth, the increase in exports created by new inventions; net increase of jobs, employment growth; recruitment of graduates; science citation index.

Source: compiled by authors based on Barnes et al. 2002, Bercovitz, Feldman 2008, Perkmann et al. 2011, Langford et al. 2006, Iqbal et al. 2011, Tijssen et al. 2009, Luoma et al. 2011.

In order to measure the performance of different knowledge transfer activities, organizations use different metrics. The collected data is commonly of a quantitative nature, although some organizations appear to be moving towards more abstract, subjective measures (e.g. case studies). Jensen et al. (2009) propose quantitative and qualitative metrics for measuring the extent of knowledge transfer activities between universities and industry. The proposed metrics are based on measures of knowledge transfer activities and their immediate effects. Nine categories of indicators to measure knowledge transfer activities can be distinguished: networks, continuing professional development, consultancy, collaborative research, contract research, licensing, spin-offs, teaching, and other indicators of knowledge transfer (see Appendix 1).

Quantitative data is an important source of information about the university-industry cooperation, and it is relatively easy to gather and also analyse. The problem with quantitative data is that it does not answer the “why” and the “how” questions. Qualitative survey methods (e.g. interviews, focus groups, workshops) make it possible to understand the changes better and also to map the problems and difficulties maybe earlier – before the problems appear in the statistics (Ravetz et al. 2007). Therefore, the qualitative approach to data gathering and analysis should also be used.

There are various indicators for measuring university-industry cooperation. In general input, output and impact indicators can be distinguished. Although the input indicators show only the intent of cooperation and not the outcome of it, they are used more broadly. Considering that the results of the cooperation are important, the output and impact indicators are more appropriate in evaluating the cooperation efficiency between universities and industry. Therefore, the qualitative metrics should also be used more often.

Indicators for different types of cooperation between universities and industry

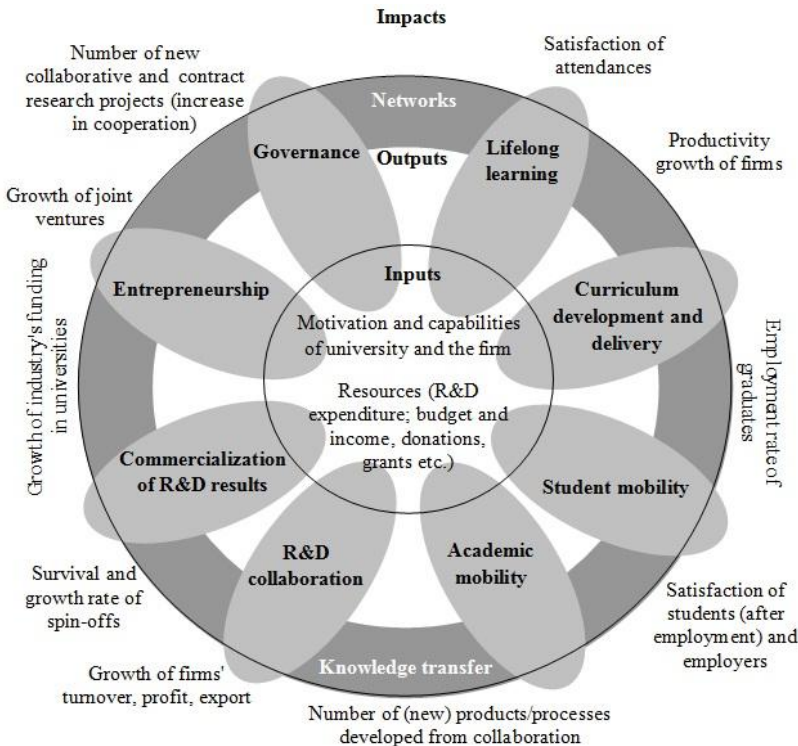
The forms, motivations and also objectives of the cooperation between universities and enterprises can be very different. For that reason the indicators of university-industry cooperation are also different. Based on the previous discussion, Figure 3 describes the relationship between different indicators for measuring university-industry cooperation and different types of cooperation.

A very definite distinction cannot be made between input indicators for different types of cooperation, except R&D expenditure, which relates more to research than educational activities. Otherwise, all collaboration types need more or less financing, motivation and also capabilities of researchers, university, and firms. The output indicators are defined in Table 2.

All types of cooperation should lead to the creation and development of networks between people in university and in the firm. As networks are important for the knowledge transfer, especially tacit knowledge, the measurement of university-industry cooperation should definitely also incorporate indicators about networks and knowledge transfer. Castro-Martinez et al. (2009) propose that seminar and course participation feedback survey data, if standardized, are potential sources of information on networking and informal contacts. In order to capture which activities lead to other activities of cooperation and knowledge transfer, a couple of questions such as how did it materialize, over what period did the relationship evolve before the cooperation proposal was made, or will it continue in the future (i.e. after the project) can be asked at the end of each collaboration.

In Figure 3 the impact indicators are also defined, which show the impact of cooperation. The impact of successful cooperation in curriculum development and student mobility should result in a high rate of students’ recruitment. In addition to quantitative indicators, the impact of cooperation can also be measured by the

satisfaction of graduates and employers. The development of human resources (curriculum development and delivery, student mobility, lifelong learning) should lead to improved performance and productivity of the firms. In the case of lifelong learning, the satisfaction of attendees can also be taken into account.



Medium and long term impact indicators:

Knowledge intensity of production, total factor productivity, productivity renewal indicator, number and share of high growth enterprises, renewal rate of enterprises, net increase of jobs, employment growth, GDP per capita, share of inward FDI per GDP.

Figure 3. The framework of university-industry cooperation indicators.

Academic mobility, R&D collaboration and commercialization of R&D results relate more to research activities and the impact of these can be new products and processes derived not directly in the cooperation, but due to the cooperation. The most important impact of cooperation is definitely the increase in the income of firms and also university. In the case of universities the growth of industry's funding indicates a directly increased cooperation between universities and industry. The commercialization of R&D also encompasses the formation of spin-offs and therefore the survival and growth of spin-offs can be considered as an impact

indicator. In the same way, the impact of entrepreneurship is the growth of joint ventures. The impact of governance, but also other types of cooperation, should be the cultural development of universities and industry, which can be evaluated by increased cooperation between universities and companies. The medium- and long-term impacts can be measured by indicators which would allow the evaluation of increased knowledge intensity in industry, overall productivity of economy, development of high growth enterprises, employment, and national prosperity.

Table 2. Output indicators of university-industry cooperation and knowledge transfer by the types of collaboration.

Type of cooperation	Output indicators	Indicators of networks and knowledge transfer
Curriculum development and delivery	Number of programmes/curricula developed in cooperation with industry; number of courses with guest lectures from industry and attendees in these courses; joint supervision and number of master and/or doctoral theses; number of graduates.	Intensity of cooperation; number of meetings, seminars, workshops; number of attendances/presentations at conference/seminar with industry (non-academic) participants; number of collaborative and contract research projects as a result of knowledge exchanges or networking activities; length of relationship; feedback of participant/employer/graduate.
Lifelong learning	Number of courses held; number of attendees and graduates at these courses; number of researcher exchanges between university and industry; number of other scientific and research training schemes for industry.	
Student mobility	Number of student trainees in industry; number of student placements in industry; number of PhD student exchanges (with industry); number of industry funded postgraduate positions/scholarships.	
Academic mobility	Number of researcher exchanges between university and industry; postdoctoral or doctoral positions offered within alliance.	
Commercialization of R&D results	Patent applications; number of patents granted; number of plant variety rights; number and value of copyright licenses; provision of training in research commercialization; number of spin-offs formed; market value of spin-offs; value of revenue generated by the spin-offs; number of staff working on commercialization activity in dedicated and support roles.	
Collaboration in R&D	Number of consultancy contracts; number and value of contract research projects; number and value of collaborative research projects; number of joint publications; number of joint inventions; number of (new) products/processes successfully created in collaborative research (e.g. as reported in the final report), number of invention disclosures.	
Entrepreneurship	Number of joint ventures; number of entrepreneurship courses to students and researchers in university; number of attendees at entrepreneurship courses.	
Governance	Number of business actors on the board of university; number of academics on the boards of firms.	

In choosing the appropriate indicators for measurement, there are also some important aspects to consider. Langford et al. (2006) bring forth the problem that the indicators which should measure the achievement of an aim may become the aim itself. For example, by counting the number of patents a university or scientists apply, the aim of academia may become to “produce” as many patents as is possible (patenting for the sake of patenting) rather than to protect a valuable intellectual property.

Gardner et al. (2010) compare the quality and the quantity of different knowledge transfer activities and conclude that there is currently no mechanism to distinguish between the quality and quantity of the results being measured. Since these metrics evaluate effectiveness and may in turn affect funding and other considerations, there is an incentive to overstate the numbers. For example, the number of spin-offs does not explicitly take into account how successful the venture becomes or if it is commercially viable at all. In comparing universities, smaller institutions may have fewer spin-offs, but they may create more positive economic and social benefits for the community.

In defining and choosing the indicators of cooperation, the type of cooperation should definitely be taken into account. Although some indicators are more or less universal, there are also very specific indicators, which do not encompass all the cooperation activities between universities and enterprises and this way indicates the actual collaboration inaccurately.

Policy suggestions for defining university-industry cooperation indicators

The indicators of university-industry cooperation are important in planning and evaluating the policies of R&D and higher education. Due to the diversity of knowledge transfer channels between universities and enterprises it is important to analyse the university-industry cooperation in a systematic way. To get an adequate understanding of the collaboration between universities and industry and its economic impact on society, appropriate indicators should be used.

In Europe, the advancement of knowledge transfer is promoted through establishing good practices and providing networking opportunities for its members. Many European countries have not adopted the US practice of ownership of results. For example, employees at many European public research organizations are allowed to retain the rights to their intellectual property. These employees may lack the resources or interest to commercialize their technologies to the same extent as technology transfer offices. Furthermore, the patenting process at the European Patent Office is much less efficient than that of the US Patent and Trademark Office (Gardner et al. 2010). For that reason, the number and the amount of patents or licenses does not express the knowledge transfer and university-industry cooperation most adequately, as the knowledge transfer also takes place in other types of collaboration.

According to the OECD report and the Australian Government, with regards to the university-industry relationships, “formal collaboration is the tip of the iceberg, which is underpinned by many less formal links” and that “firms in the United States and the United Kingdom regard informal contacts as the most important type of university-industry interaction contributing to innovation, ahead of graduate employment, research publications and technology licensing” (Jensen et al. 2009: 6). Research has revealed that for companies relationship-based benefits are much more important than the patents or other university-generated intellectual property (Perkmann, Walsh 2007). Therefore, the evaluation of cooperation should also definitely consider relationship-based indicators.

Castro-Martinez et al. (2009) point out that for designing and implementing effective science and technology policies based on long-term structural changes, a change of culture among all parties in the innovation system is required. It also has to be considered that it takes time before the knowledge created in universities reaches the market. This should be recognized by setting the appropriate cooperation and commercialization indicators.

Polt et al. (2001) have compared industry-science relations and the role of framework conditions and have emphasised several aspects needed to be taken into account. The university-industry relations are interlinked and the channels of interaction may be either substitutive or complementary. That means that weaker performance in one type of collaboration may be compensated by an alternative cooperation type. The university-industry relations are also specific to a certain environment and the framework conditions may affect the cooperation in different sectors or technology fields in different ways. This means that there should be caution when taking over good practices from different sectors and areas of technology.

In policy creation the goal may not necessarily be the “good performance” itself. If university-industry cooperation is an input in the innovation processes, the desired outcome is rather a higher level of innovation, productivity, competitiveness, and growth. The problem with these variables is that they may be affected by university-industry relationships and cooperation in quite limited way, compared to other factors. (Polt et al. 2001)

In Estonia, the emphasis of the measurement of university and industry collaboration is currently on measuring different input factors, such as the number of R&D personnel or number of staff supporting knowledge and technology transfer, rather than on impact factors. An additional focus is on different output factors like income from training and education, income from patents and licenses or income from R&D contracts and consultation services. Although these indicators show the direct results and can be measured quite easily, attention should be turned to the impact indicators which can appear in the distant future, but are more important in the broader economic sense.

The Institute of Baltic Studies, Praxis Center of Policy Studies and Technopolis Group describe in their mid-term evaluation of the implementation of measures in favour of R&D and higher education in the framework of the EU co-financed Structural Funds during the period 2007-13, that in order to achieve the objectives, major problems of the present system are the deficiencies in the strategic view at the national level, which can be considered a serious bottleneck based on the aspect of the regional and sector development support system (see Appendix 2). Their findings are similar to those that can be found in the literature described above.

In operational terms, it would appear most cost-effective for Estonia to try to evaluate the currently collected different input and output factors in order to find the value of the economic impact based on secondary data, before proceeding with small scale testing. As a next step, the impact indicators can be directly implemented to the questionnaire, in order to calculate the effect of the policy decisions made in influencing input and output measures.

The updated indicators would allow the measuring of new data. The main effort required would be to extend the current efficiency screening method to include impact factors, despite the fact that it could be difficult to measure and evaluate if these impact indicators are affected by policies made to boost university-industry collaboration or are influenced by other state policies in that sense.

Conclusions

There are a variety of different cooperation types between universities and industry ranging from simple collaboration in R&D to lifelong learning and curriculum development. Apart from the universities oldest mission of teaching and educating skilled professionals, the universities have become more and more entrepreneurial today. Universities are willing to see their knowledge set to practice and they are joining forces with industry to do so.

Despite the set of indicators available, it is difficult to distinguish what are the most appropriate indicators which give the most precise picture about the various policies made by the state. Also, there is a need to distinguish what is the aim which should be achieved. The measurement of different state policies is done via input, output and impact measures, but mostly quantitative input metrics are being used because it is easiest to get data about those indicators. From the state perspective, the most important indicators should be impact indicators that show us whether the resources are allocated correctly.

The findings of the present paper indicate the importance of diverse performance indicators and their usage to measure the inputs, outputs and impact of university-industry collaboration. Thus, policies for university-industry collaboration should pay attention not only to the input and output measures as they mostly do today, but look also into the future and measure the possible effects of the created policies. Also, universities and enterprises should evaluate the cooperation and knowledge transfer between the parties.

The limitation of the study concerns the proposed indicators for measuring university-industry cooperation, which were derived from previous studies and findings. To confirm the appropriateness of the indicators and specify the indicators of different types of cooperation more precisely, an empirical study should be conducted in the future.

In the future research a more complete picture of the extent of knowledge transfer from universities to industry in the longer term should also be obtained. Research investigations need to be conducted using longer term data, possibly collected from specialized surveys. Considering the policies, further research is needed to understand the role of sector specifics. The firms are very heterogeneous in their nature, but the policies are homogeneous, that is, the same for all firms. From the sector specifics indicators for measuring the success of university-industry cooperation may also be different.

References

1. **Agrawal, A.** University-to-industry knowledge transfer: literature review and unanswered questions. – *International Journal of Management Reviews*, 2001, Vol. 3, Issue 4, pp. 285-302.
2. **Barnes, T., Pashby, I., Gibbons, A.** Effective University – Industry Interaction: A Multi-case Evaluation of Collaborative R&D Projects. – *European Management Journal*, 2002, Vol. 20, No. 3, pp. 272-285.
3. **Bercovitz, J., Feldman, M.** Academic entrepreneurs: organizational change at the individual level. – *Organization Science*, 2008, Volume 19, pp. 69–89.
4. **Brockliss, L.** Gown and town: the university and the city in Europe, 1200-2000. – *Minerva*, 2000, Vol. 38, No. 2, pp. 147-170.
5. **Castro-Martínez, E., Jiménez-Saez, F., Ortega-Colomer, F.J.** Science and technology policies: A tale of political use, misuse and abuse of traditional R&D indicators. – *Scientometrics*, 2009, Vol. 80, No. 3., pp. 827-844.
6. **Cohen, W.M., Levinthal, D.A.** Absorptive Capacity: A New Perspective on Learning and Innovation. – *Administrative Science Quarterly*, 1990, Vol. 35, No. 1, pp. 128-152.
7. **Davey, T., Baaken, T., Galan Muros, V., Meerman, A.** The State of European University-Business Cooperation. – Part of the DG Education and Culture Study on the Cooperation between Higher Education Institutions and Public and Private Organisations in Europe. 2011, 140 p.
8. Establishing a set of indicators for measuring the impact of R&D policies. BEFORE: Benchmarking and Foresight for Regions of Europe. 2008, 77 p.
9. **Etzkowitz, H.** Innovation in Innovation: The Triple Helix of University-Industry-Government Relations. – *Social Science Information*, 2003, Vol. 42, No. 3, pp. 293-337.
10. **Etzkowitz, H.** The Second Academic Revolution and the Rise of Entrepreneurial Science. – 2001, *IEEE Technology and Society Magazine*, pp. 18-29.
11. Euroopa Liidu tõukefondide perioodi 2007-2013 teadus- ja arendustegevuse ning kõrghariduse meetmete rakendamise vahehindamine (The mid-term

- evaluation of the implementation of measures in favour of R&D and higher education in the framework of the EU co-financed Structural Funds during the period 2007-2013). Institute of Baltic Studies, Praxis, Technopolis Group Belgia, 2011, 99 p (in Estonian).
12. European Commission 2009. Metrics for Knowledge Transfer from Public Research Organisations in Europe. Luxembourg: Office for Official Publications of the European Communities, 2009, 47 p.
 13. **Gardner, P.L., Fong, A.Y., Huang, R.L.** Measuring the impact of knowledge transfer from public research organisations: a comparison of metrics used around the world. – *International Journal of Learning and Intellectual Capital*, 2010, Vol. 7, No.3/4, pp. 318–327.
 14. **Gibbons, M.** Changing Patterns of University-Industry Relations – *Minerva*, 2000, Vol. 38, No. 3, pp. 352-361.
 15. **Holi, M.T, Wickramasinghe, R., van Leeuwen, M.** Metrics for the Evaluation of Knowledge Transfer Activities at Universities. – Cambridge: Library House, 2008, p. 30
 16. **Iqbal, A.M., Khan, A.S., Iqbal, S., Senin, A.A.** Designing of Success Criteria-based Evaluation Model for Assessing the Research Collaboration between University and Industry. – *International Journal of Business Research and Management*, 2011, Vol. 2, Issue 2, pp. 59-73.
 17. **Jensen, P., Palangkaraya, A., Webster, E. A.** Guide to Metrics on Knowledge Transfer from Universities to Businesses and Industry in Australia, – Intellectual Property Research Institute of Australia, 2009, Occasional Paper No. 03/09
 18. **Langford, C.H., Hall, J., Josty, P., Matos, S., Jacobson, A.** Indicators and outcomes of Canadian university research: Proxies becoming goals? – *Research Policy*, 2006, Vol. 35, pp. 1586-1598.
 19. **Lee, H. F., Miozzo, M., Laredo, P.** Career patterns and competences of PhDs in science and engineering in the knowledge economy: the case of graduates from a UK research-based university – *Research Policy*, 2010, Vol. 39, pp. 869-881
 20. **Lundberg, J., Tomson, G., Lundkvist, I., Skår, J., Brommels, M.** Collaboration uncovered: Exploring the adequacy of measuring university-industry collaboration through co-authorship and funding. – *Scientometrics*, 2006, Vol. 69, No. 3, pp. 575-589.
 21. **Luoma, P., Raivio, T., Tommila, P., Lunabba, J., Halme, K., Viljamaa, K., Lahtinen, H.** Better results, more value. A framework for analysing the societal impact of Research and Innovation. *Tekes Review* 288, 2011, 122 p.
 22. **Moed, H.F.** Citation Analysis in Research Evaluation – Dordrecht: Springer. *Information Science and Knowledge Management*, 2005, Vol. 9, 346 p.
 23. **Molas-Gallart, J., Salter, A., Patel, P., Scott, A., Duran, X.** Measuring Third Stream Activities – SPRU, University of Sussex, 2002,
 24. **Perkmann, M., Neely, A. and Walsh, K.** How should firms evaluate success in university–industry alliances? A performance measurement system – *R&D Management*, 2011, 41: 202–216.

25. **Perkmann, M., Walsh, K.** The two faces of collaboration: impacts of university-industry relations on public research – *Industrial and Corporate Change*, 2009, Volume 18, Number 6, pp. 1033–1065.
26. **Perkmann, M., Walsh, K.** University-industry relationships and open innovation: Towards a research agenda. – *International Journal of Management Reviews*, 2007, Vol. 9, No.4, pp. 259-280.
27. **Pertuzé, J.A., Calder, E.S., Greitzer, E.M., Lucas, W.A.** Best Practices for Industry-University Collaboration. – *MIT Sloan Management Review*, 2010, Vol. 51, No. 4, pp. 82-90.
28. **Polt, W., Rammer, C., Gassler, H., Schibany, A., Schartinger, D.** Benchmarking industry-science relations: the role of framework conditions. – *Science nad Public Policy*, 2001, Vol. 28, No. 4, pp. 247-258.
29. **Ravetz, J., Uyarra, E., Flanagan, K., Brillet, E., Alcaud, D., Tamm, D., Tiits, M.** Regional Innovation Policy Impact Assessment and Benchmarking Process: Cooperation for Sustainable Regional Innovation. *EURO-COOP*, 2007, 108 p.
30. **Santoro, M.** Success breeds success: the linkage between relationship intensity and tangible outcomes in industry-university collaborative ventures. – *The Journal of High Technology Management Research*, 2000, Vol. 11, No. 2, pp. 255-273.
31. **Santoro, M.D., Chakrabarti, A.K.** Firm size and technology centrality in industry-university interactions. – *Research Policy*, 2002, Vol. 31, pp. 1163-1180.
32. **Tijssen, R.J.W., van Leeuwen, T.N., van Wijk, E.** Benchmarking university-industry research cooperation worldwide: performance measurements and indicators based on co-authorship data for the world's largest universities. – *Research Evaluation*, 2009, Vol. 18, No. 1, pp. 13-24.

Appendix 1. The indicators of knowledge transfer

Category	Indicators
Networks	<ul style="list-style-type: none"> • Number of attendances/presentations at a conference/seminar with industry (non-academic) participants; • Number of PhD student exchanges (with industry); • Number of collaborative and contract research projects as a result of knowledge exchange or networking activities;
Continuing professional development (CPD)	<ul style="list-style-type: none"> • Number of CPD courses held and attendees at these courses; • Number of university-industry laboratory researcher exchanges; • Number of other scientific and research training schemes for industry; • Participation feedback;
Consultancy	<ul style="list-style-type: none"> • Number and value of consultancy contracts; • Number of collaborative research projects generated by consultancies;
Collaborative research	<ul style="list-style-type: none"> • Number and value of projects and collaborative research agreements; • Number and value of joint ventures; • Number of (new) products/processes successfully created from collaborative research (e.g. as reported in the final report);
Contract research	<ul style="list-style-type: none"> • Number and value of contract research projects; • Length of client relationship; • Number of contract research projects which led to other flow-on knowledge transfer activities such as collaborative research, licensing, and industry sponsored conferences;
Licensing	<ul style="list-style-type: none"> • Number of invention disclosures; • Number of complete standard patent applications; • Number of patents granted; • Number of plant variety rights; • Value of copyright licenses; • Number and income from licenses; • Long-term relationships created following licensing;
Spin-offs	<ul style="list-style-type: none"> • Number of spin-offs formed; • Value of revenue generated by the spin-offs; • Value of external investment raised; • Market value at flotation (or initial public offering); • Exit value (i.e. at trade sale or buy-out); • Survival rate/viability and growth rate of spin-offs;
Teaching	<ul style="list-style-type: none"> • Number of student graduation by course type; • Rate at which students get hired (in industry); • Student satisfaction (after employment); • Employer satisfaction with graduates;
Other	<ul style="list-style-type: none"> • Number of research student placements in industry; • Number of industry funded postgraduate positions/scholarships; • Number of staff working on commercialization activity in dedicated and support roles; • Provision of training in research commercialization; • Citation received (citation impacts analysis) from articles and patents with industry co-author(s) or inventor(s); • Joint publications and inventions.

Source: Jensen et al. 2009

Appendix 2. Main problems and suggestions related to different performance indicators in Estonia

Problems	Suggestions
There are several problems in the set of indicators. There are several examples in the current implementation plans, where the indicators (in particular, output indicators, which should be directly proportional to the measure) are weakly related to the content of the measures. The main cause for that is that the objectives and indicators were developed before they worked out the actions.	The consortium suggests that during the preparation for the new program, first the goals and output and impact indicators should be set. Output indicators should focus on evaluating the contents of measures to ensure that they measure the supported actions and not vice versa.
Inaccurate or ambiguous definitions of the indicators are problematic. Problems have also occurred for those indicators for which the definition is simple at first glance (e.g. number of participants in training – in which case there is confusion, whether individuals or training times are taken into account).	A Round Table (probably several), should be conducted prior to the new programming period, where the unit specialists could discuss the problems encountered with indicators in practice. Also, clear guidelines should be established, where among other things, the methodology of finding indicators is explained. This instruction should be left as a so-called living document that is constantly being updated.
The problems moving towards the objectives are also caused by the fact that mainly output measurements are used rather than outcome or impact indicators. The output indicators do not provide enough information in many cases about the impact. Also, the problem is that the impact indicators are too general, so the contribution of the structural funds is difficult to distinguish from other factors.	For each objective, the long-term impact indicators to measure (preferably outcome indicators) should be defined in order to distinguish between the contributions of structural funds from other factors affecting it.
There are some examples, where it can be seen, the indicators in the application programs are only loosely related or benchmarks are not in accordance with the national strategy documents. As the latter are more important for the promoters of policies, sometimes the target operational objectives are pushed to the background.	Ensure that the indicators used in the operational programs are in line with targets contained in other strategic documents. It will also bring greater coherence and clarity in the purpose of the documents.
In case of the horizontal activities, the problem is that the level of the projects are in many cases more indirect. This problem is more general and not only specific to Estonia. Another issue with the horizontal activities is that it is not measured if they are moving in the right direction.	Horizontal issues should be considered particularly at the level of action and to decide on possible planning of the action, in which the measure contributes to horizontal activities. Artificial links should be avoided. Indicators to measure the progress towards goals should be developed.

Problems	Suggestions
Today's system has to deal with significant challenges – especially weaknesses in strategic planning, performance objectives, indicators, measuring system and the lack of substantive follow-up monitoring. Solving these problems is necessary in order to effectively organize and implement appropriate measures in accordance with the objectives set out in the transformation.	If there are free resources left after the currently planned activities, a referral for additional activities and / or action that would contribute to the priority axis objectives could be considered. This should take into account the possibilities to combine the long- and short-term activities.

Source: Euroopa Liidu tõukefondide ... 2011.

THE POLICY SUGGESTIONS CONCERNING MOTIVATIONS AND BARRIERS OF UNIVERSITY-INDUSTRY COOPERATION¹

Marge Seppo, Tõnu Roolah
University of Tartu

Abstract

The universities as scientific and educational bodies transform into entrepreneurial organizations focusing on cooperation with industry. The motivations for increased cooperation with industry include additional funding of research, application of research results in practice, sharing experiences with practitioners, discovering novel research problems, and securing jobs for alumni. Industries seek cooperation with universities in order to build competitive advantage, increase productivity, gain access to new technologies and to potential qualified labour, influence curricula development, use labs and equipment, and to improve image. The barriers to cooperation include differences in goals and culture, miscomprehensions, biased attitudes, remuneration systems, different focuses, lacking communication, and difficulties in commercialization. The purpose of this study is to suggest policies to enhance motivations and/or reduce barriers of university-industry cooperation.

Keywords: university-industry cooperation, motivations, barriers, policy making

JEL Classification: O31, O32, O38

Introduction

At present, several EU member states face difficulties with sustaining their global and regional competitiveness. The new knowledge-based competitive advantages require success in R&D and innovation. This in turn is unlikely to commence without the extensive and elaborate cooperation between universities and industries. The universities as academic organizations take lead in terms of fundamental research, but applied research and commercialisation of results via innovations requires active involvement of industry and entrepreneurial initiatives. Thus, university-industry cooperation is paramount channel for transferring the leading edge research results into companies and for transferring them into marketable business solutions. Although this might seem straightforward, the establishment of these cooperative ties is a complex and challenging process.

Despite the fact that in general both parties are motivated for cooperation with each other, these intentions are often not sufficient for long-lasting fruitful transfers of monetary, knowledge, and human resources. Barriers to university-industry

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cooperation originate from several sources. In several countries universities tend to be public organizations whose mission and development goals differ considerably from private companies. These differences are reflected and amplified by potential differences in values and organizational culture. The differences in operational logic and environment complicate the understanding of each other, while evaluation and remuneration systems of academic researchers fail to set focus on commercial application aspect of research. The impulses and ideas for research are created within academic circles based on previous discourse and not in cooperation with practitioners. As a result, academic universities and industries establish separated communities without common focus, understanding, and interests. Thus, research becomes detached from development and innovation.

In case universities and industries are unable or unwilling to acknowledge these dangers, government policies could have very important catalytic role in bringing the parties closer together. Even if universities have started transformation towards becoming more entrepreneurial as the knowledge provider for industries, public policies can still enhance the situation by supporting the process with legislation and other measures. It is equally important to motivate and reward industries in their search of new knowledge and assistance from universities. Some of these facilitating policies might reflect EU-wide policy initiatives, while others address more local aspects.

The purpose of this study is to suggest policies to enhance motivations and/or reduce barriers of university-industry cooperation. The analytical discussion elaborates on the motivations of universities as well as the motivations of industries for cooperation and joint projects. These motivations and university-industry cooperation in general is influenced by various barriers. Some of these barriers could be removed or at least reduced by appropriate policies. Policy measures could create additional motivations for cooperation or influence both aspects simultaneously.

The study is structured as follows. The discussion starts with short explanation of the changes in the role of universities and their connections to industry and society along with some examples about the forms of cooperation. The following section outlines the motivations for university-industry cooperation on the basis of literature and evidence from other countries. Then we discuss the barriers to cooperation. The next section provides short overview about the situation and main problems with university-industry cooperation in Estonia. On the basis of this theoretical and contextual evidence, the fifth section provides a set of policy suggestions aimed at enhancing motivations for cooperation and/or at reducing the barriers. Conclusions outline the main results, limitations, and suggest paths for future research.

The research-oriented university versus modern entrepreneurial university

In order to understand the nature, benefits, and obstacles of university-industry cooperation, one should first observe the changes in the operating environment of companies and universities as well as in their role in society.

At the beginning, in the Middle Ages, when universities were established, they were seen as the preservers and carriers of culture. (Etzkowitz 2001) In that era, the universities, professors and students lived rather separately from society. However, over time universities have become much more integrated with surrounding environment, including the needs and activities of companies. If in case of companies we observe the increase in competition, then the environment of universities has evolved towards higher competition as well. The global number of various universities has increased considerably, which means in turn that the competition for students and funding intensifies in time.

Wissema (2009) outlines three generations in the development of universities: the middle age or first-generation university, Humboldt or second-generation university, and third-generation university. At present, we live in the age of transition from second to the third generation and thus, third-generation universities will be more prevalent in the future. Table 1 shows the differences between various generations of universities.

Table 1. The nature and differences between three generations of universities

	First-generation universities	Second-generation universities	Third-generation universities
Goal	Education	Education and research	Education, research, and application of know-how
Role in society	Protection of rights	Discovery of nature	Creation of value
Thought and formed	Professions	Professions and researchers	Professions, researchers, and entrepreneurs
Orientation	General	National	Global
Language	Latin	National language	English
Management	Chancellor	Academic (part-time)	Professional manager

Source: Wissema 2009

The changes in the role of universities have been explained alternatively via describing academic revolutions. During first academic revolution, the universities took on as primary tasks as preservers and distributors of knowledge along with research function (Gibbons 2000). Second academic revolution has entailed increase in the connections of universities with enterprises and the trend that universities themselves have become more entrepreneurial in nature.

The notion of entrepreneurial university coincides with a notion of third-generation universities that was discussed earlier. After first academic revolution, universities started to look for opportunities how to turn research results into marketable goods. Entrepreneurial university has innovative organization structure, technologies, and financing schemes. It values and develops among the employees as well as students the entrepreneurial attitudes, behaviour, and individual abilities, which have impact on person's career and brings long-term benefits to society and economy. (Bratianu, Stanciu 2010)

In order to be entrepreneurial, university has to become largely independent from industry or government sector. At the same time, the mutual interaction of these parties is very important. If university system is based on principle that ministry decides how many students are to be admitted on particular curricula, then there is not enough autonomy, which would enable university to be entrepreneurial. University has to have certain authority over its strategic decisions. Another important precondition for entrepreneurship in university is the close cooperation with other relevant parties. (Etzkowitz 2003)

In case of entrepreneurship in universities, there are different levels or categories from which in turn depends the format and nature of university-industry cooperation. The formation of entrepreneurial university could be seen in three levels and accordingly university categories, these are (Etzkowitz 2003):

- transitional entrepreneurial university,
- full-fledged entrepreneurial university,
- entrepreneurial university as an extension of the science park.

Transitional entrepreneurial university is still engaged with formulation of research problems and setting research goals from within the organization and in the framework of academic disciplines. The difference from traditional research university relates to the fact that economically or socially beneficial research results are accounted for and if possible applied. These universities establish specialized positions or units that help to transfer such applicable knowledge. In general, however, on this transitional level the boundaries between university and society remain strong. (Etzkowitz 2003) On this level, the universities engage mainly in the consultation of companies (Gibbons 2000).

The most important characteristic of full-fledged entrepreneurial university is the fact that research problems are defined also on the basis of external sources and not just on the basis of intra-university academic disciplines. These universities adapt themselves and their research according to the needs and requests of industry and make the research results more accessible (Ibid). One possibility to organize such cooperation is to establish joint research centres, where academic and corporate researchers define research problems and conduct research together (Etzkowitz 2003).

The third level entrepreneurial university as an extension of the science park invests its resources into establishment of new companies and participates actively in joint businesses with companies, in order to increase income (Gibbons 2000). Thus, in the model of entrepreneurial university as an extension of the science park academic research is often preceded by knowledge-based business, which is thereafter strongly related with research (Etzkowitz 2003).

The role of university in modern and future society is symbiosis of teaching, research, and services to society (Santoro 2000). In the development and transition economies, the third mission is often interpreted as serving societal needs in terms of

policy development or the development and provision of social services. In developed economies, however, the transfer of knowledge and technologies is seen as the third mission of university. That, which role should university assume in addition to teaching and research depends largely from the history of country or region as well as from previous models of operation (Göransson et al. 2009).

In order to characterize and facilitate the university-industry cooperation, several cooperation models have been discussed. Earlier models were linear or sequential in nature. In these, either a university took initiative by sharing knowledge via publications and other means, or alternatively an industry initiated research process by reflecting the market needs to universities. Contemporary views favour circular, spiral, and interactive models. (Mora-Valentín, Ortiz-de-Urbina-Criado 2009) In these models, information and knowledge is exchanged and developed between parties threw numerous iterations on qualitatively higher and higher level. Thus, there are several feedback loops, which refine the understanding of the problem and capabilities.

In conclusion, the modern universities are becoming increasingly entrepreneurial by doing not only the teaching and research, but providing also services for industry or establishing new companies, which bring research results into market. The cooperation with industry is not simple linear process, but it involves several mutual exchanges, which increase the likelihood of reaching desired outcome.

The motivations of both parties for university-industry cooperation

There is growing consensus that technological innovation is derived from the collaboration of enterprises and universities or research centres (Mora-Valentín, Ortiz-de-Urbina-Criado 2009). To achieve economic growth it is important to create and apply new knowledge. While universities are important sources of new knowledge (Agrawal 2001), the linkages between enterprises and universities are very important for supporting the economic growth.

Current competitive environment is characterized by intense global competition, rapid technological change, and shorter product life cycles (Elmuti et al. 2005). For firms there is a pressure to advance their knowledge and technology in order to ensure survival and long-term prosperity. Due to the rapid changes, limited expertise, and resources, the firms are looking for knowledge and technology increasingly from different external sources. These sources include suppliers, customers, competing firms, research organizations, government laboratories, industry research associations, and universities. (Santoro, Chakrabarti 2002)

Organizations are limited in the amount of skills and knowledge they can develop and maintain internally since firms have a finite group of people and resources. Technologies are becoming increasingly complicated and need resources or knowledge the firm does not have or, due to the limited time for the commercialization of new product, does not have time to acquire (Santoro 2000).

Universities can provide firms with skills, knowledge, and access to facilities needed to effectively evolve the firm's capabilities. Universities are unique in the way that a firm can not only obtain knowledge and technology, but it can also recruit graduates and faculty members to serve as employees and consultants. (Santoro, Chakrabarti 2002) For that reason, the universities have become useful and important cooperation partners for the enterprises.

The relationships between universities and industry encompass very different activities, structures and concepts. In general the cooperation of universities and industry is the exchange of ideas or resources between a unit of university (or researcher) and business organisation or part of it (Anderson 2001).

The interest in the cooperation processes of universities and industry has been there already since the 1980s (Geisler, Rubenstein 1989). Over the years, both the cooperation and the desired result of it have become increasingly focused.

There are several reasons for universities and industry to cooperate (see figure 1). Universities interact with industry for additional funds both from public and private sector (Barnes et al. 2002), expose students and faculty to practical problems, create employment opportunities for their graduates, and gain access to applied knowledge in technological areas (Santoro, Chakrabarti 2002). Knowledge transfer works not only from university to industry, but also in other direction. Research has shown that interacting with industry enables university scientists conduct better basic research, provide improved understanding of research applications in industry, and may give them a different perspective on a problem, which can lead to new ideas. (Siegel et al. 2003; Geuna, Muscio 2009)

In the study of European university-industry cooperation, the research results revealed that universities and academics regard the benefits of cooperation for students as the highest. The personal benefits to researchers were rated the lowest, especially those regarding the incentives provided by the universities. (The State of European University-Business Cooperation ... 2011)

In general, the enterprise will cooperate with university in case it cannot achieve its goal alone, or it is quicker or cheaper to do it in collaboration with university. For example, R&D collaboration with universities makes it possible to develop through new products, services or processes competitive advantage of the firm and thus raise its competitiveness in the market. Through cooperation, it is possible for the industry to gain access to new technologies universities have. Cooperation gives to the firm access to the valuable and limited resources mentioned before – knowledge, technology, equipment, and laboratories. Although the university-industry collaboration is in some cases funded by governments, the additional financial resources may be also a motivation for this kind of cooperation. Doing R&D collaboration with university may lower R&D expenditure of the firm in some cases (Barnes et al. 2002, Elmuti et al. 2005).

Through cooperation with universities, industry can influence also the development of human resources according to the needs of industry. By taking part in curriculum development and delivery, the industry can shape future employees. In cooperating with university, the firms gain access also to students and notice qualified and suitable people early on, whom they can hire. Access to highly trained students is one of the most acknowledged benefits from the industry side. Research results indicate that firms value also an enhanced image, which they get from collaborating with a prominent academic institution (Santoro, Chakrabarti 2002).

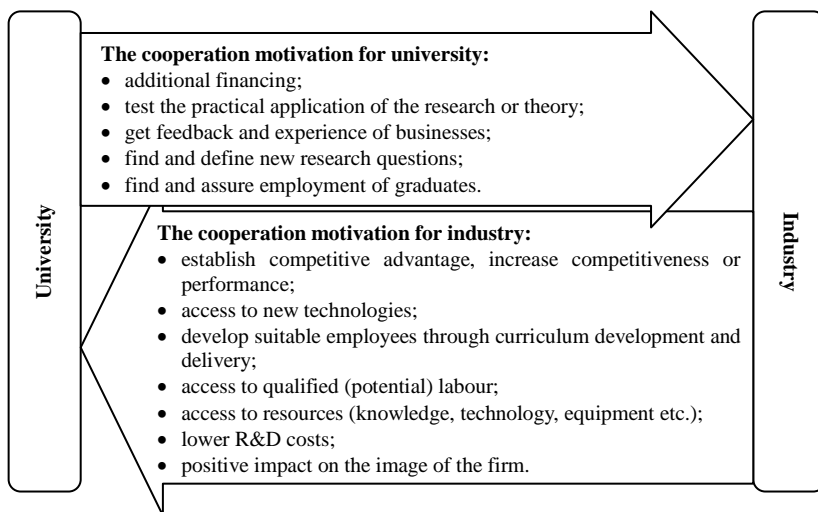


Figure 1. The cooperation motivations of universities and industry (composed by authors based on Santoro 2000, Elmuti et al. 2005, Guan et al. 2005, Pertuzé et al. 2010, Geisler, Rubenstein 1989).

It is important to stress that the cooperation *per se* is not important, but the outcome of this cooperation or even more precisely the positive impact to the partners. This is especially true from the viewpoint of industry (Pertuzé et al. 2010). For enterprises the cooperation partners can be also customers, suppliers or even competitors, whose role and impact on the firm's R&D is somewhat different. The advantage of universities as partners is that they are institutions outside of the industry and hence may possess unique and different knowledge, resources or skills than the firm or possible partners in the industry. The research has confirmed that university collaboration have positive influence on firm's product innovation. (Kang, Kang 2010)

Cooperation motivation with universities is influenced also by the type of industry. The research has shown that knowledge from universities is more important for the science-based firms (in the sector of electronics, chemicals, pharmacy) (Pavitt

1984). Thereat enterprises from different industry sectors use and value different technological and market knowledge (Bekkers, Bodas Feritas 2008).

In the situation of increasing global competition and rapid development of technology, the governments try to conduce to the cooperation of universities and industry. University-industry cooperation should lead to innovation that is more effective and this in turn should lead to economic growth and value creation. (Barnes et al. 2002) The experience of USA shows that governmental support of qualitative academic research brings along positive effect for the whole economy. Through support of academic research, there is created knowledge and skills, which in turn attract to the region other high-tech companies. (Pavitt 2000)

There are several benefits for the parties in university-industry cooperation. The motivations include financial benefits for both universities and enterprises. Universities consider also the benefits to students important, but the personal benefits for academics are considered moderate. The cooperation motivation for firms is the access to external and valuable resources, which include knowledge, technology, equipment, and qualified labour.

The barriers to university-industry cooperation

Although there are many benefits from the university-industry collaboration, there are also barriers, which do not allow the aforementioned benefits to realize in practice or hinder the collaboration altogether. It seems that most of the problems arise from the big differences between academic and business communities.

The main barriers to cooperation of universities and industry are following (Elmuti et al. 2005, Iqbal et al. 2011, Widiawan 2008, Santoro 2000, Guan et al. 2005, Bruneel et al. 2010):

- different objectives;
- different organizational cultures (values, time, language);
- different focus of the research;
- conflicts over intellectual property;
- lack of financial resources and funding;
- unawareness of the partner's operational environment;
- unsupportive incentive, compensation, and career systems in university;
- low absorptive capability of the firm;
- low technological capability of university;
- problems with commercialisation of university research results;
- long geographic distance between the firm and university.

Universities and companies have different goals, orientation, time approaches, languages, principles and basic assumptions. Several researches have shown that for universities it is important to integrate the results of both basic and applied research into teaching of students, and this way develop future specialists and scientists (Santoro 2000; Iqbal et al. 2011). Companies' interest is to use the research results

for solving present problems and thereby increase the return and profit (Santoro 2000). Universities main principle is create and disseminate new knowledge. At the same time, companies are operating in very competitive environment and would like to make knowledge confidential and develop from that their competitive advantage.

Companies act more on short term goals and time frame, while in academia the time horizon is longer and the goals might be not so defined. Different organizational cultures, languages and values can bring along many communication problems (Elmuti et al. 2005), and prejudice toward the other party. Because of the cultural differences, it is important that partners define common goals and mutual perception before the agreement (Iqbal et al. 2011).

The firms have usually very tight time constraints and need solutions to their problems right away. In universities the research and publishing of research results takes time. One time consuming aspect is the academic “principle” that research should be conducted with attention to details and in-depth investigation, so that the results would be well-founded and reliable. Companies take quick results as more important and for that they are accepting also a bit more robust research. As companies are not always ready to wait, they use a possibility to import the solution, instead of collaborating with universities. (Iqbal et al. 2011)

Industry is interested in the applied research, which results allow develop new marketable product or service, process or solution to a problem. Academic researchers are interested rather in contributing to creation and development of knowledge, thus a new concept, model, empirical finding or measurement technique would be a desired result.

Besides the orientation-related barriers, there can be also transaction-related barriers, which relate mostly to conflicts over intellectual property. The problem with the ownership of intellectual property is one of the most mentioned conflicts between universities and industry. (Bruneel et al. 2010) Both partners are interested in getting the rights as this is the possibility for providing and securing the income or return on investment. Institutional and group agreements, strong commitment (Iqbal et al. 2011), and high level of trust enable to diminish this barrier.

The lack of financial resources and funding is an important constraint in the cooperation of universities and industry, especially for universities. The financial support and benefits are for universities important and make possible to establish and maintain the relationships with industry. (The State of European University-Business Cooperation ... 2011) Funds, scholarships, grants, endowments are assisting researchers, but are also good success criteria of university-industry collaboration (Iqbal et al. 2011). As the study of European universities revealed, for greater cooperation between academia and industry, it is not enough just to increase the funding of universities, the relationship drivers or perceived benefits (motivators) have to be increased as well (The State of European University-Business Cooperation ... 2011).

Usually the enterprises do not understand the distribution of work in university or for example, how the budget of university is formed. At the same time, universities do not perceive the market forces, time limits and inside processes of the firm. This kind of unawareness brings along communication problems. (Elmuti et al. 2005)

The academic institutions include strong competitive mechanisms and researchers are competing with their peers over financing and status. The success is achieved mainly through publications and due to strong internal dynamics; the science system is quite separated from market transactions. (Bruneel et al. 2010) The compensation and career system in universities take into account the achievements in the field of scientific research, but applied research and interaction with industry is usually not important in academia.

Successful cooperation depends definitely on the capabilities of the firm. The research has shown that there are certain characteristics of the firm that influence its ability to utilize externally generated scientific knowledge, and thus the knowledge transferred from universities (Agrawal 2001). Cohen and Levinthal (1990) have introduced the concept of absorptive capacity, and define it as 'the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends', and which depends on prior related knowledge and experience (Cohen, Levinthal 1990: 128). Several studies have revealed that for example enterprises with higher R&D intensity have also more collaboration with universities (Giuliani, Arza 2009).

The technological competency of the firm is important. If it is low, the university has to spend more time and energy on providing technical assistance with the technology. Sometimes universities solve this problem by licensing their technologies to foreign countries and this way feeling less obligated to provide assistance. For getting over the problem of low technological competency, an adequate communication is important. Frequent communication between university and company allows partners to share problems, information, and to provide assistance. (Iqbal et al. 2011)

For successful cooperation is important that the technological capabilities of university are higher than industry's capabilities. Otherwise, there is no need for industry to collaborate with university. The higher technological capabilities of university, the more successful are the partnerships with industry. (Widiawan 2008) Some studies have stated that the quality of the staff and research of the university is even more important than strength of industry demand. If the university is characterized by low-quality research, it has little to offer to industry. (Giuliani, Arza 2009)

In some cases the firms complain that there are problems with commercialisation of university research results as the research results are immature, have high marketability uncertainty, or there is lack of efficient communication channels for transfer of the research results. These problems are more related to the purchase of

university research results, and can be diminished by collaborating in R&D and by developing research results together. (Guan et al 2005)

Several studies have shown that the results of academic research are put in practice more through personal contacts and mobility of people. But the geographic distance and language limit those personal contacts and direct interaction. This means that the benefits from the academic research are more likely to stay inside the country or region (Pavitt 2000). Previous research has shown that geographic proximity plays an important role in the intensity of university-industry relationships and greater level of tangible outcomes (Santoro 2000).

One reason why the potential benefits of cooperation do not realize is the absence of an effective cooperation management (Barnes et al. 2002). Qualified and competent project managers are the crucial factors for successful cooperation and satisfying outcomes (Pertuzé et al. 2010). The studies reveal that experience of collaboration, breadth of interaction channels, and inter-organizational trust are mitigating the barriers to collaboration (Bruneel et al. 2010).

In conclusion, it can be said that the barriers to university-industry cooperation are in general orientation-related, transaction-related, financial, and institution specific. For successful university-industry collaboration, it is important to find the possibilities to reduce the barriers, and in the same time increase the motivation of parties for cooperation.

The university-industry cooperation in the small EU member state Estonia

One aim of Estonian Higher Education Strategy 2006-2015 is to guarantee that the higher education serves Estonia's developmental interests and innovation. This means that universities have to account for the needs to develop economy and society in their layout of teaching and research. The goal is to involve all relevant social partners, including industry, into planning and execution of activities in higher education. This education sector should take an important role as the leader of economic and social innovation or modernisation as well as in integrating the society into political, economic, and social networks. (Estonian Higher ... 2006)

Although, this aim and its layout might seem declarative, there is a need to establish new development connection between universities and society. The six public universities along with their colleges and some private universities (see table 2) form a strong core of Estonian higher education. Despite the differences in research and teaching profile, all these universities have potential to establish cooperative arrangements with industry. For example, Estonian Academy of Arts has potential capabilities to contribute to industrial design and architecture.

Table 2 indicates that the number of students in most public universities has steadily grown, while number of students in private universities has decreased. These figures reflect the general development trend in Estonian higher education. According to this trend, several private universities have been or are seeking to be acquired by

public universities. University of Audentes merged in 2008 with the Tallinn University of Technology and Academia Nord later with University of Tartu. This concentration of higher education is positive, because very small domestic market does not offer sustainable development opportunities for duplicating offers of similar education. The private background of acquired small universities might also facilitate some cooperative ties with industry by inducing more practice-oriented culture. Even without direct shift in culture, the mergers help to gain new insights and competences, because private universities tend to provide more applied education.

Table 2. The number of students in Estonian public and private universities

	Founded	No. of students 2005	No. of students 2008	No. of students 2010
PUBLIC UNIVERSITIES:				
University of Tartu	1632	18 536	17 130	18 196
Tallinn University of Technology	1918	10 700	13 122	13 883
Estonian University of Life Science	1873/1951	4 752	4 735	4 838
Tallinn University	1919/2005	7 350	8 451	9 630
Estonian Academy of Arts	1914	962	1 170	1 220
Estonian Academy of Music and Theatre	1919	567	681	762
<i>Total of students in public universities</i>		<i>42 867</i>	<i>45 289</i>	<i>48 529</i>
PRIVATE UNIVERSITIES:				
Estonian Business School	1987	1 981	1 607	1 544
Euroacademia	-	850	1 281	1 009
Other private universities		3636	993	123
<i>Total of students in private universities</i>		<i>6 467</i>	<i>3 881</i>	<i>2 676</i>
Total of students in all universities		49 334	49 170	51 205

Sources: Estonian Education System Database (EHIS)

The comparison of data from three Community Innovation Surveys (CIS) reveals that the importance of universities as knowledge sources for innovation has over the years slightly grown (see table 3). The other public R&D institutions are considered less important than universities and in general less relevant than universities. Despite certain progress in university- industry contacts close to 74 % or $\frac{3}{4}$ of respondents do not use universities as knowledge partners at all. Private consultants and labs are more popular as innovation sources.

In 2006-2008 CIS survey, 5.3 % of respondents considered them to be with high importance and 15.5 % with average importance. However, 4.1 % responded that universities are their most important innovation partners, which represents considerable growth in comparison with earlier studies. Thus, according to CIS results the universities are gaining in importance as cooperation partners for industry. Somewhat naturally, intra-corporate ties within concern, suppliers, and consumers are much more important innovation knowledge sources than universities. (Reid et al. 2011)

Table 3. The importance of innovation knowledge sources (% of respondents)

	1998-2000		2004-2006		2006-2008	
	Univer -sities	Public R&D Institutions*	Univer -sities	Public R&D institutions	Univer -sities	Public R&D institutions
High	1.3	0.9	2.8	0.8	3.0	0.7
Average	8.1	3.4	6.6	3.8	8.9	5.1
Low	10.6	7.4	9.7	6.9	14.2	9.3
Does not use	80.0	88.3	80.9	88.5	73.9	84.5

* includes also private R&D institutions

Sources: Reid et al. 2011

The comparative results of CIS show that large and foreign-owned companies use universities and public R&D institutions as additional knowledge sources for innovation more than SMEs or domestic companies. Somewhat surprisingly, service sector companies use universities marginally more than producers do. This might be related to ICT services, but difference between producers and service providers is indeed marginal. Producers rely more on suppliers and fairs as innovation sources, while other sources are comparatively more used in service companies. In general, the innovation cooperation has considerably grown during three survey periods in small companies and medium companies. In large companies, there is no clear growth trend. (Ibid)

In international comparison, Estonian companies are actively engaged in innovation cooperation. 48.6 % of respondents in 2006-2008 CIS had some cooperative ties, which gives fourth place after Denmark, Cyprus, and Belgium. Majority of these relations are created with European partners. Therefore, similarly to Slovenia, the cooperation tends to be more regional than global. Such openness to cooperation and its growth trend among SMEs reveals good potential for building joint projects among partners, including universities. (Ibid)

Other more specific studies that, in addition to questionnaires, incorporate numerous interviews with industry representatives allow us to discuss reasons why several foreign-owned companies or companies from certain do not cooperate with universities. These studies include the Study of Foreign-Owned Companies in Estonia made by The University of Tartu FEBA in 2009 and more recent Study of Estonian Machinery Industry from 2011.

The data gathered from foreign-owned companies in Estonia indicates as well that universities, their colleges, and institutes are not very important cooperation partners (average score only 2.38 from 5) (see Table 4). The cooperation with branch unions and state organisations is evaluated also as rather unimportant, while state-owned or non-profit R&D labs are almost not important as cooperation partners at all.

Table 4. The average importance scores of cooperation with various parties (1=not important at all...5=very important)

Cooperation partners:	Score
Customers	4.41
Other companies and subsidiaries of your foreign owner	4.14
Suppliers of equipment, materials, intermediate products and/or software	4.05
Competitors and other companies from the same field	2.67
Branch unions and state organisations	2.61
Universities, their units and institutes	2.38
Consultation companies	2.33
Companies offering R & D services	2.12
State or private non profit R & D institutions	1.92

Source: Varblane et al. 2010

Interviews with the managers of foreign-owned companies revealed that academic education in universities is seen as too theoretical and mismatching with the development needs in business practice (for example in the sector of waste management). The thought curricula are not very well in accordance with labour requirements of industries. Introduction of new professions to be educated by universities or professional schools is too time-consuming process for which it is difficult to motivate all related parties. (Varblane et al. 2010)

Yet, the managers brought some very positive examples about cooperation with the Tallinn University of Technology or University of Tartu as sources for management knowledge. In essence, managers of Foreign-owned companies do see potential for exchange of experiences and knowledge with universities (for example in the form of guest lecturers from companies and by researchers contributing into the development of industries). However, at present a lot depends from the initiatives taken by certain persons or from the lack of such initiatives. The managers with engineering background see more cooperation perspectives with the Tallinn University of Technology and their experiences with research and teaching offered by the University of Tartu suggests that the research activities there tend to be more distant from entrepreneurial practices. This hinders the mapping of common ground and progress forward with cooperation. Therefore, such managers have difficulties in perceiving traditional research-oriented university as beneficial partner for companies. Thus, even the awareness about research profiles of the university is often not sufficient precondition for successful cooperation. (Varblane et al. 2010)

It can be generalized that foreign-owned companies expect from universities and professional schools more flexibility in curricula development according to the changing needs for labour and better connection between the theoretical aspects of subjects and the developments of applications in business practice. In some cases, the problem relates to the fact that the current motivation schemes used in universities and in scientific institutions does not establish clearly defined incentives for the facilitation of cooperation and integration with companies and industries. (Varblane et al. 2010)

The Study of Estonian Machinery Industry showed that respondents see universities as import cooperation partners (14 % said they are very important and 47 % that universities are rather important). The cooperation with professional schools was seen as even more important (21 % said very important and 50 % rather important), while private or public R&D institutions were less important. Somewhat surprisingly, consultation companies were evaluated as rather unimportant partners. (Varblane et al. 2011)

Despite the fact that machinery producers value universities as important partners, there is actually not much long term cooperation with universities. Some respondents revealed in interviews that they have used universities for testing purposes, but without longer engagement into cooperation. Customers and suppliers clearly dominate as most important cooperation partners for machinery producers. However, 33 % of respondents noted that in a period 2005-2010 they had some kind of cooperative experience with scientific institutions. Most of these cooperative ties related to product development, technology improvements, engineering, materials suitability testing, and design. Metalworking cooperates least with scientific institutions, perhaps because this sub-sector focuses on subcontracting. (Ibid)

For machinery producers the most important cooperation partner is the Tallinn University of Technology, which was mentioned 19 times, followed by Estonian University of Life Science (5 times) and University of Tartu (4 times). Due to considerable role of engineering in the sector, this is logical set of preferences. 85 % of respondents who had cooperative experience were satisfied with the results. (Ibid) However, smaller companies noted that universities are often not interested in small scale projects and that their services tend to be too expensive, while project times are too long. Machinery producers establish relations with universities either through personal contacts or by directly seeking assistance. The various testing services and experiments related to new product or technology seem to be in the focus of university-industry cooperation in Estonian machinery industry. (Ibid)

International comparison about the importance of various innovation partners reveals that machinery producers in Finland, Sweden, and even in Czech Republic and Lithuania cooperate much more with universities as innovation partners (according to Eurostat in Estonia 6 % of machinery producers consider universities to be most important innovation partners, while in these countries well above 20 % or in case of Finland up to 43 %). (Varblane et al. 2011)

When asked about obstacles to cooperation with R&D institutions, 40 % of machinery producers said that they just do not perceive the need for cooperation, 27 % had opinion that the results produced in these institutions are not applicable in companies, 26 % pointed out the lack of information as obstacle, 17 % said that its too difficult to find contacts with R&D institutions, and 10 % said that R&D institutions themselves lack interest for cooperation. (Varblane et al. 2011)

Recent Feasibility study for an Estonian Materials Technology Programme done by Finnish experts concludes as well, that although universities in Estonia are well

connected internationally, they need to communicate their expertise to industry. In addition to that, universities could function as important partners in interpreting and transmitting the new technologies to companies that have been invented elsewhere in the world. This conclusion reveals additional role for universities as knowledge interpreters and not just knowledge creator. (Kauhanen et al. 2011)

Even though studies indicate that universities are not seen as very important cooperation partners, the data collected by University of Tartu indicate that the funds received via industry contracts and from other entrepreneurship-oriented funding projects have nearly doubled within three years (in comparison of years 2008 and 2010) and constitute above 12 million Euros, while University of Tartu constitutes for 47.1 % of all research projects in Estonia that are not financed from public budget. (Haller 2012) These figures are perhaps to general to outline the financial merit of university-industry cooperation, because it includes financing from various other non-budgetary sources. Still, they reveal positive trends in diversification of university funding, which relates to such motive of cooperation.

The University of Tartu organizes annual entrepreneurship days to familiarize interested company representatives with offers for cooperation. In this recent meeting the managers asked how to solve the problem related to unsuitably long project times in case of company contracts. The director of University of Tartu, Institute of Technology, which is leading sub-unit for industry contacts, shared following experiences (Puura 2012):

1. involving university researchers as partners into intra-company processes;
2. split identity of researcher as academic faculty member and entrepreneur;
3. researchers who priorities in their value system servicing the needs of companies 24/7 as potential consultants and build trust beyond contracts.

These experiences indicate that university-industry cooperation could be most effectively facilitated by people who take personal interest in academic research as well as in entrepreneurial applications of the results of such research. They tend to act as gatekeepers between two communities.

The evidence from statistics indicates that private universities are merging with larger public universities, while number of students has predominantly increased. These processes could great some cultural shifts towards cooperation with industries. The various studies of industries reveal, however, low importance of universities among cooperation partners, and various barriers on the way of such cooperation. Still, the amount of non-budgetary funding received by universities, which includes industry contracts, has considerably grown, while entrepreneurial attitude of academic researchers is seen as perhaps most important determinant in overcoming the cooperation problems related to long project times and lack of interest.

The policy measures concerning university-industry cooperation

It takes a long time to mitigate the barriers to university-industry cooperation, as the problems and difficulties are complex and involve many parties. This means that the incentive system for cooperation stimulation has to be definitely a long-run strategy. Additionally to financial support to cooperation of universities and industry, it is also important to raise the awareness of the potential benefits of this kind of collaboration in the whole society. This relates also directly to the role and missions of universities, which have to be considered in development of policy measures.

The experiences of other countries show that more successful have been policy measures which support bottom-up defined researches, SME's collaboration with universities, mobility of researchers, commercialisation of research results through start-ups, and development of institutional regulation, which supports the knowledge transfer activities between universities and enterprises (Polt et al. 2001).

The discussion above and general R&D and innovation context in Estonia allows providing following suggestions for policy development:

- In order to facilitate university-industry cooperation in Estonia more attention should be devoted to applied research. This could include specialized research grants for industry-initiated research topics, or using applicability of research results in practice as an important evaluation criterion by research grant applications. For successful cooperation, there has to be a reason why the collaboration is required, and the applied research is something a firm can use and is interested to do so. This should increase also the cooperation motivation for industry.
- Involvement of industry partner in the provision of certain research results could be made compulsory in some research areas. However, such partner's actual contribution to the project has to be explicitly reported and measured.
- In terms of education policy, the industry leaders should be involved more closely into the university curricula development. Although formally such initiative 'Cooperation between Institutions of Higher Education and Enterprises' already exist (Archimedes Foundation 2012), there is little actual involvement of companies in the development discussion. It shows that the cooperative procedures are inadequately stimulated, established or monitored.
- The usage of company managers as guest lecturers by the universities could be supported by specialized funding schemes, to reward managers tutoring efforts.
- The university-industry cooperation could be facilitated by well-focused internship program for students and researchers that would compensate companies for their contributions into intern tutoring.
- Long-term policy about university-industry cooperation might include privatization or partial privatization of certain research labs in order to increase their incentive to be involved in commercial testing tasks.
- Perhaps it would be possible to create best practice guidelines for distributing intellectual property rights related to research cooperation between university and industry.

- University career and remuneration systems should reward contributions to applied research in equal merit with the contributions to academic research. Such guidelines could be championed by the Ministry of Education and Research.
- The facilitation of technological capabilities of the universities and absorptive capacities of the companies should be targeted by even more specialized R&D development programs targeting specifically these issues.
- The establishment of publicly funded information exchange system that would combine R&D and innovation related information inputs from the universities as well as from various industries.

These policy measures might not render quick results. Yet, over time, they would help to shift research focus more towards the needs of industries. Enterprise Estonia already offers start-up program, innovation voucher grants and some other initiatives that should create links between companies and universities (Enterprise Estonia 2012). However, these policy measures and the initiatives started by Archimedes Foundation seem insufficient for generating widespread and substantive cooperation between parties.

Conclusions and implications

The university-industry cooperation is a complex process that requires long term effort. Increased need for this cooperation relates to the changing role of universities in the modern society. Contemporary entrepreneurial universities teach and do research, but in addition, they seek opportunities to commercialize research results in order to obtain additional funds. University-industry cooperation is one important source for such funding. Additionally, it helps to test practical applications, get feedback and new experiences, find new research topics, and employment to graduates. Industries seek such cooperation in order to gain competitive advantages, new technologies, qualified labour, and other resources. They are also interested in reduced costs and improvements to image.

However, university-industry cooperation is influenced by various barriers, such as differences in objectives, organizational culture, and in research focus. Other important obstacles relate to insufficient funds, incentives, and capabilities, while problems tend to increase with geographic distance.

In Estonia, universities have low importance among cooperation partners of companies. The cooperation barriers include lack of interest as well as lack of information, and the perceived insufficiency of capabilities. Yet, the amount of non-budgetary funding received by universities, which includes industry contracts, has grown. The results suggest that policies needed to overcome these barriers should focus on applied research, industry involvement, refocused usage of research labs, distribution of intellectual property, adjusted career systems and capabilities, and enhanced information exchange.

The limitations of this study relate to the fact that this is preliminary view on the issue based on literature and secondary research evidence. However, as such it serves as a starting point for more detailed investigation of the subject.

The theoretical implications from this study relate to the possibilities of combining university development and transformation literature with R&D and innovation facilitation literature. This combination of the outward look from the viewpoint of universities and the inward look from the viewpoint of society and industries helps to gain more holistic understanding.

The implications to management reveal business opportunities that relate to increased cooperation with universities in terms of improved resources and competences. The ability of managers to benefit from described policy measures depends at least partially from their absorptive capacities.

The future research should focus on establishment of more refined understanding of the motivations of universities and companies for the cooperation and knowledge exchange. For that, survey data should be used along with more in depth qualitative evidence from well-focused interviews and group discussions.

References:

1. **Agrawal, A.** University-to-industry knowledge transfer: literature review and unanswered questions. – International Journal of Management Reviews, 2001, Vol. 3, Issue 4, pp. 285-302.
2. **Anderson, M.S.** The Complex Relations Between the Academy and Industry: Views from the Literature – The Journal of Higher Education, 2001, Vol. 72, No. 2, pp. 226-246.
3. **Archimedes Foundation-** <http://str.archimedes.ee/et/struktuurifondid/toetatud/Inimressursi-arendamise-rakenduskava-raames-toetatud-projektid/Korgkoolide-ja-ettevotete-koostoo>, 2012.
4. **Barnes, T., Pashby, I., Gibbons, A.** Effective University – Industry Interaction: A Multi-case Evaluation of Collaborative R&D Projects. – European Management Journal, 2002, Vol. 20, No. 3, pp. 272-285.
5. **Bekkers, R., Bodas Freitas, I.M.** Analysing knowledge transfer channels between universities and industry: To what degree do sectors also matter? – Research Policy, 2008, Vol. 37, pp. 1837-1853.
6. **Bratianu, C., Stanciu, S.** An overview of present research related to entrepreneurial university. – Management & Marketing, 2010, Vol. 5, No. 2., pp. 117-134.
7. **Bruneel, J., D'Este, P., Salter, A.** Investigating the factors that diminish the barriers to university–industry collaboration. – Research Policy, 2010, Vol. 39, pp. 858-868.
8. **Cohen, W.M., Levinthal, D.A.** Absorptive Capacity: A New Perspective on Learning and Innovation. – Administrative Science Quarterly, 1990, Vol. 35, No. 1, pp. 128-152.

9. **Elmuti, D., Abebe, M., Nicolosi, M.** An overview of strategic alliances between universities and corporations. – *The Journal of Workplace Learning*, 2005, Vol. 17, No.1/2, pp. 115-129.
10. **Enterprise Estonia** – <http://www.eas.ee/for-the-entrepreneur/innovation>, 2012
11. **Estonian Education System Database (EHIS)** – selected data about higher education (Excel) – <http://www.hm.ee/index.php?popup=download&id=10891>
12. **Estonian Higher Education Strategy 2006-2015** – www.hm.ee/index.php?popup=download&id=7653, 2006, 12 p.
13. **Etzkowitz, H.** Innovation in Innovation: The Triple Helix of University-Industry-Government Relations. – *Social Science Information*, 2003, Vol. 42, No. 3, pp. 293-337.
14. **Etzkowitz, H.** The Second Academic Revolution and the Rise of Entrepreneurial Science. – *IEEE Technology and Society Magazine*, 2001, Summer, pp. 18-29.
15. **Geisler, E., Rubenstein, A.H.** University-industry relations: A review of major issues. – *Cooperative Research and Development: the Industry, University, Government Relationship*. Edited by Link, A.N, Tassey, G. Springer, 1989, 244 p.
16. **Geuna, A., Muscio, A.** The Governance of University Knowledge Transfer: A Critical Review of the Literature. – *Minerva*, 2009, Vol. 47, pp. 93-114.
17. **Gibbons, M.** Changing Patterns of University-Industry Relations. – *Minerva*, 2000, Vol. 38, No. 3, pp. 352-361.
18. **Giuliani, E., Arza, V.** What drives the formation of ‘valuable’ university–industry linkages? Insights from the wine industry. – *Research Policy*, 2009, Vol. 38, pp. 906-921.
19. **Guan, J., Yam, R., Mok, C.** Collaboration between industry and research institutes/universities on industrial innovation in Beijing, China. – *Technology Analysis & Strategic Management*, 2005, Vol. 17, No. 3, pp. 339-353.
20. **Göransson, B., Maharajh, R., Schmoch, U.** New activities of universities in transfer and extension: multiple requirements and manifold solutions. – *Science and Public Policy*, 2009, Vol. 36, No. 2, pp. 157-164.
21. **Haller, K.** Short presentation at University of Tartu Entrepreneurship Day 2012, 27th January 2012, In Estonian – <http://www.uttv.ee/naita?id=8542>
22. **Kang, K.H., Kang, J.** Does partner type matter in R&D collaboration for product innovation? – *Technology Analysis & Strategic Management*, 2010, Vol. 22, No. 8, pp. 945-959.
23. **Kauhanen, L., Ristinen, T., Heino, M., Kuusisto, M., Ojapalo, A.** Feasibility Study for an Estonian Materials Technology Programme, *Innovation Studies*, 2011, Vol. 15, 88 p. Estonian Ministry of Economic Affairs and Communications, Spinverse Oy
24. **Mora-Valentín, E.M., Ortiz-de-Urbina-Criado, M.** Improving the effectiveness of academic-business models: an analysis of obstacles in R&D activities in service industries. – *Service Business*, 2009, Vol. 3, pp. 395-413.
25. **Pavitt, K.** Sectoral patterns of technical change: Towards a taxonomy and a theory. – *Research Policy*, 1984, Vol. 13, pp. 343-373.

26. **Pavitt, K.** Why European Union funding of academic research should be increased: a radical proposal. – *Science and Public Policy*, 2000, Vol. 27, No. 6, pp. 455-460.
27. **Pertuzé, J.A., Calder, E.S., Greitzer, E.M., Lucas, W.A.** Best Practices for Industry-University Collaboration. – *MIT Sloan Management Review*, 2010, Vol. 51, No. 4, pp. 82-90.
28. **Polt, W., Rammer, C., Gassler, H., Schibany, A., Schartinger, D.** Benchmarking industry-science relations: the role of framework conditions. – *Science nad Public Policy*, 2001, Vol. 28, No. 4, pp. 247-258.
29. **Puura, E.** Short answer at University of Tartu Entrepreneurship Day 2012, 27th January 2012, In Estonian – <http://www.uttv.ee/naita?id=8542> (82:20-83:30)
30. **Reid, A., Varblane, U., Terk, E., Masso, J., Ukrainski, K., Männik, K., Varblane, U., Kaarna, R., Jürgenson, A** Innovaatiline tegevus ettevõtetes aastatel 2006–2008 (Innovative Activities in Companies 2006–2008) In Estonian, *Innovation Studies*, 2011, Vol. 16, 113 p. Estonian Ministry of Economic Affairs and Communications
31. **Santoro, M.D., Chakrabarti, A.K.** Firm size and technology centrality in industry-university interactions. – *Research Policy*, 2002, Vol. 31, pp. 1163-1180.
32. **Santoro, M.** Success breeds success: the linkage between relationship intensity and tangible outcomes in industry-university collaborative ventures. – *The Journal of High Technology Management Research*, 2000, Vol. 11, No. 2, pp. 255-273.
33. **Siegel, D.S., Waldman, D.A., Atwater, L.E., Link, A.N.** Commercial knowledge transfers from universities to firms: improving the effectiveness of university–industry collaboration. – *Journal of High Technology Management Research*, 2003, Vol. 14, pp. 111-133.
34. **The State of European University-Business Cooperation.** – Part of the DG Education and Culture Study on the Cooperation between Higher Education Institutions and Public and Private Organisations in Europe. 2011, 140 p.
35. **Varblane, U., Espenberg, K., Varblane, U., Roolah, T.** Eesti masinatööstuse hetkeseis ja arengusuunad (The Current Situation and Development Paths of Estonian Machinery Industry) In Estonian, Edited by Tõnu Roolah, 2011, 360 p., University of Tartu Publishing
36. **Varblane, U., Roolah, T., Vissak, T., Vahter, P., Tamm, K., Paltser, I., Pavlov, D., Rõigas, K., Kljain, A., Tammets, M., Varblane, U.** Otsesed välisinvesteeringud Eestis (Foreign Direct Investments in Estonia) In Estonian, Edited by Urmas Varblane 2010, 152 p., University of Tartu Publishing
37. **Widiawan, K.** Identifying the Most Suitable University-Industry Partnership Model in Developing Countries. – *The 4th IEEE International Conference on Management of Innovation and Technology (ICMIT) Proceedings*, 2008, pp. 128-133.
38. **Wissema, J.G.** Towards the Third Generation University. Managing the University in Transition. Cheltenham: Edward Elgar Publishing, 2009, 252 p.

THE INFLUENCE OF FINANCIAL PERFORMANCE ON PAYOUT POLICY: A STUDY OF ESTONIAN FIRMS

Argo Teral, Oliver Lukason, Priit Sander¹
University of Tartu

Abstract

Payout (dividend) policy has been a controversial topic for decades. Theoretical and empirical literature has listed dozens of factors that could affect firm's payout decisions. Current paper analyses the influence of financial performance on firms' payout decisions based on a large sample of Estonian companies and covers the financial and economic crises period of 2008-2009. The results indicate that past financial performance indicators are poor predictors of future dividends (measured both by payout ratio and the value of dividends). The connection between the dividends paid and future earnings of the firm turned out to be remarkably stronger, i.e. dividends seem to possess some predictive power.

Keywords: payout policy, dividend policy, financial performance

JEL Classification: G35

Introduction

In year 2000 a unique tax reform was carried out in Estonia, the aim of which was to replace earned profit taxation with distributed profit taxation². Since year 2000 firms must pay income tax only on profit distribution³, special benefits, costs not connected with firm's commercial activities and possible hidden profit distribution (e.g. payments to residents of low tax rate territories (so-called off-shore regions), gifts). In practical terms the taxation of firm's profit was postponed to the moment when profit is distributed to owners. This means that amount of income tax paid by firm and tax income earned by state are dependent on the dividend decisions made on firm level. Although the share of direct taxes (especially corporate income tax) is low in Estonian state budget, previous discussion outlined the necessity to know which factors influence firms' profit distribution decisions. It is easier for government to compose both, positive and negative supplementary budgets, in case firms'

¹ Argo Teral, Tartu University Economics and Business Administration master's program graduate from year 2011.

Oliver Lukason, Research Fellow, University of Tartu, Faculty of Economics and Business Administration, Narva Road 4-A307, Tartu 51009, Estonia. E-mail: oliver.lukason@ut.ee

Priit Sander, Associate Professor, University of Tartu, Faculty of Economics and Business Administration, Narva Road 4-A305, Tartu 51009, Estonia. E-mail: priit.sander@ut.ee

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² Tax reform in FYR of Macedonia in 2008 had similar characteristics.

³ Initially it affected only dividends, but since year 2009 it is also applied for payments to owners through repurchase of own shares, share capital reduction or firm liquidation.

payout patterns are known. As supplementary budgets are mainly common to economic recession, then current article focuses on years 2008-2009, when Estonia as the whole world witnessed one of the most extensive crisis since Great Depression.

The objective of current paper is to search connection between firms' payouts to owners and changes in firms' financial indicators during financial crisis (i.e. years 2008 and 2009). Financial indicators are chosen as determinants of payouts as other determinants (e.g. motives of owners) cannot be detected indirectly (see discussion in next section). The paper is structured as follows. Firstly, based on relevant literature an overview will be given of major aspects and factors that firms take into account when designing their dividend policy⁴. Separate attention will be drawn to suggestions in previous literature, which could be applied in case of Estonian income tax system peculiarities. This is followed by empirical analysis, which includes description of data and study design succeeded by major results from study and their discussion. The paper ends with conclusion part.

1. A theoretical overview of factors influencing corporate dividend policy

Miller and Modigliani (1961) argued that in the absence of any market imperfections and frictions, dividend policy is irrelevant. However, in reality those conditions are not fulfilled. The three most common market imperfections that have been investigated in conjunction with corporate dividend policy are: taxes, asymmetric information and agency costs.

Differential tax treatment of dividends and capital gains is one of the reasons why companies may prefer to pay (or not to pay) cash dividends. Brennan (1970) was among first scholars to present a model of optimal dividend policy under tax differential between dividends and capital gains. Different tax treatment of various types of investors creates so-called tax clientele effects (see e.g. Elton and Gruber 1970, Kalay 1982), which also impacts the dividend policy.

Asymmetric information is the second common market imperfection. It has been argued that companies use dividend policy to convey private information about the firm's future prospects to the market (see e.g. Miller and Rock 1985, John and Williams 1985). A recent study in London Stock Exchange showed that dividends have less information content than earnings in periods of growth and stability, but more in periods of economic adversity (Bozos et al. 2011).

Agency costs arising due to the conflict of interest between different claimholders represents the third commonly cited market imperfection. There are many different explanations how agency costs affect dividend policy. For example, Easterbrook (1984) argues that companies pay dividends to overcome the agency problem stemming from the separation of ownership and control. Jensen (1986) stated that

⁴ Relevant literature commonly applies term "dividend policy", although the concepts can in most cases be easily applied in the context of different types of payouts.

cash dividends help to reduce potential overinvestment problem in companies. Debt covenants that are written to reduce the conflict of interest between shareholders and bondholders may also dictate dividend policy of company (Smith and Warner 1979).

While transaction and flotation costs also represent one type of market imperfections, there are practically no papers that apply only these as the main factors influencing dividends policy. Other explanations why firms pay dividends include behavioral explanations, the firm life-cycle theory of dividends, and the catering theory of dividends (Baker et al. 2011).

Several papers have focused on the behavioral aspects to explain why companies pay dividends. It has been argued that dividends help investors to retain self-control in consumption decisions (Shefrin and Statman 1984). Also, several other behavioral explanations (e.g. involving habits, bounded rationality) have been proposed (see Frankfurter and Lane 1992).

The firm life-cycle theory of dividends contends that the pattern of cash dividends changes over a firm's life cycle (Mueller 1972). Young firms rarely pay dividends, while mature firms usually distribute some if not all of their free cash flows to investors. Empirical research usually confirmed the existence of such pattern (see e.g. Fama and French 2001, DeAngelo et al. 2006).

The catering theory of dividends (see Baker and Wurgler 2004) stresses the importance of investor sentiment in dividend policy decisions, i.e. companies adjust their dividend policy according to whether shares of existing dividend-paying firms are trading at a premium or discount relative to those of non-dividend-paying firms.

The empirical evidence is generally rather mixed (see e.g. Frankfurter and Wood 2002, Allen and Michaely 2003) and none of the dividend theories has been unequivocally verified. In studying dividend policy empirically, researches rely mainly on two approaches (Weigand and Baker 2009):

- Statistical analysis of published financial data,
- Survey methodology (interviews and questionnaires)⁵.

A typical list of key determinants that influence dividend policy based on empirical studies includes for instance the level of current and expected earnings, stability of earnings, availability of cash, investment opportunities, the ability to refinance debt, pattern of past dividends. However, dividend policy is also sensitive to such factors as corporate governance or legal environment (Baker et al. 2011).

This last argument suggests that there is a need to study dividend policy of Estonian companies on both theoretical and empirical level due to Estonia's unique corporate income tax system. Hazak (2007) constructed a theoretical model of a company operating under uncertainty in a binomial framework and argued that if the

⁵ An excellent review of such type of studies can be found in Baker et al. 2011.

probability of losses is zero, it is optimal under distributed profit taxation to distribute profit when earned equally to or less than investor's consumption level. However, if the probability of losses is noticeable, the company value for the investor is maximized if profit is fully distributed when earned. This actually suggests that during the financial crises, when the probability of losses increases, the dividend payout ratio should rise. While it is well known that managers are reluctant to reduce dividend payments, there is some empirical evidence that this reluctance will drop when facing financial distress (DeAngelo and DeAngelo 1990).

2. Empirical analysis of the connection between payout policy and financial indicators in Estonian firms

2.1. Data for analysis and study design

For conducting current analysis, financial data of firms from Estonian Commercial Register (ECR) has been applied. Based on EMTAK 2008⁶, the largest 14 industries have been chosen for analysis, which are: agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities; construction; wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities. The analysis does not include the following industries: public administration and defense; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers, undifferentiated goods and services producing activities of households for own use; activities of extraterritorial organizations and bodies. The excluded industries do not play an important role in Estonian economics (as share from GDP) and the number of firms in those sectors is also relatively low.

The analysis includes firms that have submitted financial reporting to ECR. In total there are 301 869 observations in analysis, i.e. this is the amount of financial year reports submitted to ECR in period from 2006 to 2009⁷. The number of firms in analysis differs through years, as new firms have been created in the viewed period. The number of firms has increased by 79% from 2005 to 2009. The initial dataset is limited to firms being economically active, which is achieved by excluding all cases where sales revenue equals zero in specific year. The selection of economically active firms narrows database to 202 057 observations. Such limitation is necessary, as the inclusion of economically inactive firms can bring to serious faults and anomalies.

⁶ *Estonian Classification of Economic Activities* from year 2008, which is the national version of NACE Rev.2 (*Statistical Classification of economic activities in the European Community*).

⁷ As data was obtained in spring 2011, then the total number of annual reports available in February 2012 could be higher, but it is highly likely that additional reports will not influence the results of current study.

As the next step it is important to create a framework for grouping firms, as the theoretical overview revealed that firms with varying financial health should be treated differently. The easiest way would be to divide firms to two groups based on the threat of distress. A limitation for such action is that in the circumstances of recession financial indicators of most firms in some specific sector might worsen, so it is necessary to distinguish between those, which perform worse than sector and those which do not. This will lead to creating three distinct groups outlined as follows:

- 1) Firms, in case of which financial situation in specific year declined more than the average decline of industry for the same year (i.e. Group I).
- 2) Firms, in case of which financial situation in specific year declined, but less than the average decline of industry for the same year (i.e. Group II).
- 3) Firms, in case of which financial situation improved compared to previous year (i.e. Group III).

Analysis is followed by creating an algorithm to divide firms to three groups outlined previously. As there is no single financial indicator available to achieve this, then some complex framework should be chosen. A traditional instrument to check deterioration in firm's performance is bankruptcy model, but as it is not possible to determine the reliability of specific models, then it is reasonable to conduct grouping based on several models. Because of that, different bankruptcy models will be applied to find out whether firm's performance has deteriorated compared to previous year. The choice of models is based on several considerations. Firstly, model should be Estonia-specific or cited in literature. Secondly, data should be available to calculate model variables. Because of previously given aspects the analysis is limited to the usage of following bankruptcy models:

- 1) Discriminant model of Estonian firms (Lukason 2006: 56).
- 2) Logit-model of Estonian firms (Lukason 2006: 58).
- 3) Discriminant model (Z-Score) of USA firms (Altman 1968: 594).
- 4) Discriminant model of Finnish firms (Laitinen and Kankanpää 1999: 90).
- 5) Logit model of Polish firms (Ciesielski et al. 2005: 4).

The grouping was conducted according to following logic. For all firms in analysis five bankruptcy scores were calculated for each year, which was followed by calculating the same scores for industries. Bankruptcy scores for specific year were compared with that for previous year and in case at least three bankruptcy scores indicated an improvement in financial situation, then firm was attributed to Group III. In case at least three scores indicated deterioration in results, then it was additionally studied, whether the deterioration was less or more than for industry, which in turn determined the final group membership (Group I or Group II). Derived from the grouping algorithm each firm could be in different groups in different years.

As digital information about payouts is not available through ECR, then for determining firm payout amounts the following two algorithms have been created by authors. As payout, authors consider declared dividends and share capital reduction

(i.e. results of Equation 2 are deducted from results of Equation 1). The equation for dividends was the following:

$$(Eq. 1) \text{ dividends} = (\text{retained earnings}_{t-1} + \text{net income}_{t-1}) - \text{retained earnings}_t$$

In the profit distribution proposal firms can decide to use profit for different purposes. For instance it is possible to increase share capital, increase reserve capital, increase other reserves, buy back own shares, initiate stock dividend issue, cover losses of previous years. It is not possible to determine buy back of own shares and stock dividend issue based on available data (balance sheet and income statement variables). At the same time it is possible to check increase of share capital and reserves. Derived from previous, following restrictions are applied to Equation 1:

- In case firm's share capital increased compared to previous year, then given positive change will be deducted from the sum of dividends;
- In case firm's compulsory and other reserves increased compared to previous year, then given positive change will be deducted from the sum of dividends;
- Negative and very small dividends will be eliminated from dataset.

To find out reduction in share capital or reserves, the following equation will be used:

$$(Eq. 2) \text{ reduction of share capital and reserves} = (\text{share capital}_t - \text{share capital}_{t-1}) + (\text{total reserves}_t - \text{total reserves}_{t-1})$$

The reduction of share capital and reserves takes place on following conditions:

- Negative change of share capital means its reduction, positive change increase;
- Negative change of reserves means its reduction, positive change increase;
- The sum of retained earnings and net income should be more than zero, otherwise reduction of share capital is not possible, as firm's equity would not be in accordance with Estonian laws.

Beside the value of payout, payout ratios (PR) will be used, which indicate the proportion of earnings paid out to shareholders as dividends. It is usually calculated by dividing dividends (Div) with the net income (NI)⁸:

$$(Eq. 3) \quad PR = \frac{Div}{NI}$$

There are two aspects which should be kept in mind when interpreting the numerical value of the payout ratio calculated by using Equation 3. Firstly, companies can make cash payments to shareholders also in other forms beside cash dividends (like share repurchases or payments associated with share capital reductions). Secondly, dividends can be paid out also from the retained earnings of previous years. Therefore in some cases payout ratio can exceed 100% (e.g. company distributes all

⁸ Although denoted with *Div*, in current paper all payouts as described earlier in this section, not only dividends, are considered. Also, *Div* payment takes place at time *t*, whereas *NI* refers to profit earned in previous period, i.e. *t-1*.

its net income from last year plus some proportion of its retained earnings from previous years), and in some cases the value of payout ratio can also be negative even though company pays dividends (e.g. company earned a loss in the last year, but paid out some dividends using retained earnings from the previous years). Usually the value of payout ratio remains between 0% and 100%.

Derived from the objective of paper, changes in financial indicators will be compared with payout and payout ratio. The relationship will be tested with different time lags – relationship between period t payouts and payout ratios with period $t-1$, period t and period $t+1$ financial indicators. The method for determining relationship is correlation analysis (with Pearson formula). The financial indicators (independent variables) used in correlation analysis have been chosen based on their usage in literature and possible connection with payout and payout ratio. Namely, they are (i.e. Indicators):

- Change in debt to asset ratio (i.e. ΔDA);
- Change in business profit⁹ and sales ratio (i.e. ΔBS);
- Change in net profit and sales ratio (i.e. ΔNS);
- Change in current assets and current liabilities ratio (i.e. ΔCAL);
- Change in sales (i.e. ΔS);
- Change in business profit (i.e. ΔBP);
- Change in net profit (i.e. ΔNI).

$$\frac{Value_n - Value_{n-1}}{|Value_{n-1}|}$$

Change will be calculated as $\frac{Value_n - Value_{n-1}}{|Value_{n-1}|}$, where $Value_n$ denotes the value of specific variable or ratio for the viewed year and $Value_{n-1}$ for the year before viewed year. The usage of absolute value (i.e. $|Value_{n-1}|$) in denominator is necessary, as some financial data can have negative values and this could lead to misinterpretation of changes. The usage of changes has several reasons. Values from balance sheet and income statement, but also financial ratios are static figures and they do not reflect changes in firm's performance. Secondly, in case of value changes it can be noted, whether the situation has improved or not, whereas in case of balance sheet and income statement variables or financial ratios it is not possible to do it without comparison to some base figure. Moreover, there are no uniform concepts available, what certain values of financial statement variables or ratios should signal.

2.2. Results of analysis and discussion

The analysis is followed with three Groups outlined in previous chapter and all results have also been summarized in Table 1. Firstly, Group I is analyzed, in case of which economic situation declined more than the average decline of industry. First sample includes 2377 firms which made payouts in year 2008. Year 2008 payouts

⁹ Estonian profit statement does not use EBIT and that is why business profit is being used, which is calculated by deducting all operational costs from all sales. With reservations business profit can be seen as EBIT.

have no statistically significant relationship with year 2007 and year 2008 Indicators. At the same time there are several statistically significant relationships between year 2009 payout or payout ratio and Indicators. Namely, payouts are related to ΔS , ΔBP and ΔNI , whereas all relationships are positive. The strongest is the relationship between payouts and business profit change. The same indicators have also statistically significant relationship with payout ratio, whereas all relationships are remarkably stronger, being twice as strong as for payouts. The analysis was followed by studying the firms that made payouts in year 2009 (second sample of 2849 firms), but there was no statistically significant relationship between year 2008 payouts or payout ratios and year 2009 Indicators. This follows the same tendency as for firstly analyzed year 2008 payouts, but at the time of conducting the analysis authors did not have data to check the relationship between year 2009 payouts or payout ratios and year 2010 financial indicators.

Secondly, Group II is analyzed, in case of which economic situation declined, but less than the average decline of industry. As for previous group, the first sample consists of firms making payouts in 2008 (695 firms). Year 2007 and 2008 Indicators have only one statistically significant positive relationship with year 2008 payouts or payout ratios, being between year 2008 ΔDA and year 2008 payout, but the relationship is not strong. As with Group I, several statistically significant relationships are detected with year 2009 Indicators. Firstly, payout ratios are positively related to ΔDA , but the relationship is very low. There are two strong negative relationships between year 2009 Indicators (ΔNS , ΔNI) and payout ratios of year 2008. It can be concluded that decrease in profitability results in the increase of payouts (or at least their preservation on the same level), i.e. for this group of firms payout policy remains unchanged or changes positively during financial crisis. When using year 2009 payouts (853 firms), then the only result is weak positive relationship between year 2009 payout ratio and year 2008 ΔNI .

Thirdly, Group III is analyzed, in case of which economic situation improved compared to previous year. There are 2616 firms, which made payouts in year 2008 in Group III. Following the pattern of Group I, there are no statistically significant relationships between year 2008 payouts or payout ratios and Indicators. Exactly as for Group I, there are positive relationships between ΔS , ΔBP and ΔNI from year 2009 and year 2008 payouts. Still, those relationships are very weak. Similarly to Group II, the only statistically significant negative relationship is between year 2009 ΔNI and year 2008 payout ratio, but it is not strong. What concerns year 2009 payouts and payout ratios, then there are no statistically significant relationships with Indicators from years 2007-2009.

The empirical analysis conducted by authors indicates that Estonian companies did not rely on past values of this specific set of financial indicators when making their payout decisions. This result contradicts with previous empirical studies that applied the data of Estonian largest companies (e.g. Sander and Trumm 2006).

Table 1. Significant variables and correlation coefficients from analysis (sig. = 0.05)

Firm group	Year 2008		Year 2009	
Indicator year ¹⁰	Payouts	Payout ratios	Payouts	Payout ratios
I				
2006/2007	-	-		
2007/2008	-	-	-	-
2008/2009	ΔS (0.230), ΔBP (0.348), ΔNI (0.300)	ΔS (0.573), ΔBP (0.849), ΔNI (0.729)	-	-
II				
2006/2007	-	-		
2007/2008	ΔDA (0.171)	-	-	ΔNI (0.128)
2008/2009	ΔDA (0.079)	ΔNS (-0.795), ΔNI (-0.808)	-	-
III				
2006/2007	-	-		
2007/2008	-	-	-	-
2008/2009	ΔS (0.095), ΔBP (0.098), ΔNI (0.089)	ΔNI (-0.186)	-	-

Source: ECR database, compiled by authors.

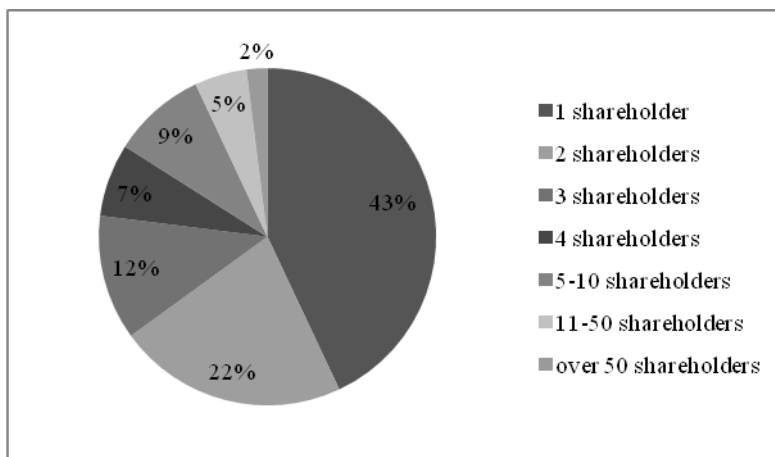


Figure 1. Distribution of Estonian public companies according to the number of shareholders (Eesti Väärtpaberite Keskregistri Statistika – Investor ja Ettevõtja, Sügis 2004).

¹⁰ Notation of years in form t/t+1 (e.g. 2006/2007) means the change of statistically significant variable in specific row between given years, i.e. between years 2006 and 2007.

There could be several reasons why past values of financial indicators turned out to be not important. First, our sample mainly consisted of micro companies (83-92% of all companies in our sample). It has been argued (Syrjä et al.: 2011: 633) that the managers and owners of small companies do not conduct in-depth long-term financial planning in their firms. In such companies payout decisions are irregular and mainly driven by the owners' need for money. Surveys conducted in Estonia (Sander and Trumm 2006, Kaarna et al. 2010) suggest that most important factor influencing dividend decision is the cash need of (controlling) shareholders. For instance in Canada, firms tailor their dividend policy to meet the preferences of controlling shareholder (Baker et al. 2011). Similar behavior can also be observed in other countries. In Estonia, a company can pay out dividends only if the majority of votes at the general shareholder meeting support it. Therefore the dividend policy is essentially under the control of controlling shareholder. Since most Estonian companies have only one or two shareholders (see Fig. 1), any model or analysis that relies only on company level data and does not take into account different characteristics of owners cannot provide comprehensive explanation to the observed patterns in dividends.

Second reason for the lack of connection between firm's past financial performance and payout decisions could be the specific nature of our sample period. During the crisis the financial health and main financial indicators of the company could change very quickly, even during a couple of months. In such an environment, decisions based on outdated data can easily lead company to bankruptcy. In practice, dividend decisions are usually made 4-6 month after the end of financial year. At that time the company may already know the financial results of the first half-year and therefore it is logical that available new information will be taken into account. Our results confirmed that companies rely on the expected future earnings when making payout decisions (as was indicated also in the theoretical part of the paper). However, for different groups the relationship between dividends and next year's net profit was different. In case of Group I, which included companies that relatively suffered the most due to crisis, there is semi-strong positive relationship between dividends and next year's net profit, which indicates that in this group dividends are mainly paid by companies which financial health was expected to get better. This result casts some doubts on the theoretical proposition made by Hazak (2007) about the relationship between the dividends and the expected probability of loss. However, our analysis was not specifically designed to test such proposition and the next year's loss/profit may not be the best indicator for the expected probability of loss. In case of other groups the relationships between dividends and next year's net profit were either weaker (while still statistically significant) or absent. It is important to notice, that due to the specific features of corporate income taxation system in Estonia, distribution of dividends affects negatively the next period's net profit, i.e. if company decides to pay out dividends this occurs during the next financial year and the taxes associated with the dividends reduce the net profit of that year. This fact actually increases the predictive power of dividends. It is also interesting to note that for Group II, which included companies with less deteriorated financial health, the relationship between payout ratio and next year's

profit figures was strongly negative. The authors are not able to offer conclusive explanation for such result based on current analysis.

Nissim and Ziv (2001) found that dividend changes are positively related to changes in earnings in each of the two years after the dividend change. Dividends' predictive power has been documented also in a few other papers (see e.g. Anderson 2011). However, there is considerable number of empirical papers confirming the opposite (see e.g. Grullon et al. 2003, DeAngelo et al. 1996, Benartzi et al. 1997, Lie 2004). In overall, our results show that dividends are connected with the future earnings of the company, although the relationship was not present for all years and types of firms. Our results still indicate that dividends could be used for predicting future earnings.

Conclusions and implications

Current study focused on the connection between firm's financial performance indicators and payout policy on the example of all Estonian firms. Correlation analysis between different changes in financial indicators and firm's payout indicators (payout amount and payout ratio) was conducted in a way that relationship was sought between previous, same and next year financial performance indicators and payout indicators. For the analysis firms were grouped to different subsets dependent on their financial health changes calculated using the help of bankruptcy models. Results indicate that mostly there is connection between changes of next year's financial performance indicators and payout indicators of current year. Namely, dependent on viewed year, changes in different profit levels, sales and capital structure were found to be statistically significant variables.

The results of current study casted some doubt whether increase in probability of loss (measured in our study by using different bankruptcy models) will indeed lead to larger payouts to shareholders. However since the probability of loss cannot be directly measured, the choice of proxies could heavily influence the results, and therefore a need for future research exists in this avenue.

Current study presents some important implications for state budget composition. Firstly, most connections in current study were found to be between certain year payouts and next year's financial results, i.e. firms' financial information from past years cannot be applied during state budget composition to forecast corporate income tax. Secondly, most of the connections found are not strong and to some extent unexplainable or controversial with previous theoretical findings, which also reduces their applicability.

Our suggestion for future research would be the inclusion of characteristics of major shareholders into the analysis of corporate dividend decisions. As dividend policy is under the control of major shareholder, his decisions are more important in explaining the dividend policy of company than financial indicators of the company.

References

1. **Allen, F., Michealy, R.** (2003) Payout Policy, In G.M. Constantinides, M.Harris, and R.Stulz (eds.) *Handbook of the Economics of Finance*, Vol. 1, Part A, pp. 337-429, North-Holland-Elsevier.
2. **Altman, E.I.** (1968) Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Finance*, Vol. 23, No. 4, pp. 589-609.
3. **Anderson, W.** (2011) The Role of Midyear Dividends as Predictors of Yearly Earnings [<http://www.ir.canterbury.ac.nz/handle/10092/5432>]
4. **Baker, H.K., Singleton, J.C., Veit, E.T.** (2011) *Survey Research in Corporate Finance*, Oxford University Press.
5. **Baker, H.K., Wurgler, J.** (2004) A Catering Theory of Dividends, *Journal of Finance*, Vol. 59, No. 3, pp. 1125-1165.
6. **Benartzi, S., Michaely, R., Thaler, R.** (1997) Do Changes in Dividends Signal the Future or the Past? *Journal of Finance* Vol. 52, pp. 1007-1034.
7. **Bozos, K., Nikolipoulus, K., Ramgandhi, G.** (2011) Dividend Signaling under Economic Adversity: Evidence from the London Stock Exchange, *International Review of Financial Analysis* Vol. 20, pp. 364-374.
8. **Brennan, M.** (1970) Taxes, Market Valuation and Corporate Financial Policy, *National Tax Journal*, Vol. 23, pp. 217-427.
9. **Cieasielski, P., Domeracki, M., Gruszczynski, M.** (2005) New Bankruptcy Prediction Models for Polish Companies. Warsaw School of Economics Working Paper No. 4-05, 14 p.
10. **DeAngelo, H., DeAngelo, L.** (1990) Dividend Policy and Financial Distress: An Empirical Investigation of Troubled NYSE Firms, *Journal of Finance*, Vol. 45, No. 5, pp. 1415-1431.
11. **DeAngelo, H., DeAngelo, L., Skinner, D.J.** (1996) Reversal of Fortune: Dividend Signaling and the Disappearance of Sustained Earnings Growth. *Journal of Financial Economics*, Vol. 40, No. 3, pp. 341-71.
12. **DeAngelo, H., DeAngelo, L., Stulz, R.** (2006) Dividend Policy and the Earned/Contributed Capital Mix: A Test of the Life-Cycle Theory, *Journal of Financial Economics*, Vol. 81, No. 2, pp. 227-254.
13. **Easterbrook, F. H.** (1984). Two Agency-cost Explanations of Dividends. *The American Economic Review*, Vol. 74, No. 4, pp. 650-659.
14. **Elton, E.J., Gruber, M.J.** (1970) Marginal Stockholder Tax Rates and the Clientele Effect, *Review of Economics and Statistics*, Vol. 52, pp. 68-74.
15. **Fama, E.F., French, K.R.** (2001) Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay? *Journal of Financial Economics*, Vol. 60, No. 1, pp. 3-43.
16. **Frankfurter, G. M., Lane, W. R.** (1992) The Rationality of Dividends. *International Review of Financial Analysis*, Vol. 1, No 2, 115-129.
17. **Frankfurter, G. M., Wood, B. G.** (2002). Dividend Policy Theories and their Empirical Tests. *International Review of Financial Analysis*, Vol. 11, No. 2, pp. 111-138.
18. **Grullon, G., Michaely, R., Benartzi, S., Thaler, R.H.** (2003) Dividend Changes Do Not Signal Changes in Future Profitability, Working Paper, [<http://ssrn.com/abstract=431762>].

19. **Hazak, A.** (2007) Dividend Decision under Distributed Profit Taxation: Investor's Perspective, *International Research Journal of Finance and Economics*, No. 9, pp. 201-219.
20. **Jensen, M. C.** (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers, *The American Economic Review*, Vol. 76, No. 2, pp. 323-329.
21. **John, K., Williams, J.** (1985) Dividends, Dilution, and Taxes - A Signaling Equilibrium. *Journal of Finance*, Vol. 40, No. 4, pp. 1053-1070.
22. **Kaarna, R., Jürgenson, A., Sein, K., Kralik, S.** (2010) Ettevõtjate hinnangud kehtiva tulumaksusüsteemi mõjudele Eestis, Ettevõtete jaotamata kasumi mittereksustamise mõju investeeringutele ja majandusarengule (lõppraport), pp. 14-35.
23. **Kalay, A.** (1982) The Ex-Dividend Day Behavior of Stock Prices: A Re-examination of the Clientele Effect, *Journal of Finance*, Vol. 37, pp. 1059-1070.
24. **Laitinen, T., Kankanpää, M.** (1999) Comparative Analysis of Failure Prediction Methods: the Finnish case. *European Accounting Review*, Vol. 8, No. 1, pp. 67-92.
25. **Lie, E.** (2005) Operating Performance Following Dividend Decreases and Omissions, *Journal of Corporate Finance*, Vol. 12, pp. 27-53.
26. **Lukason, O.** (2006) Pankrotistumiste modellerimine Eesti kaubandusettevõtete näitel. Magistritöö. Tartu, 79 p.
27. **Miller, H.M., Modigliani, F.** (1961) Dividend Policy, Growth, and the Valuation of Shares. *Journal of Business*, Vol. 34, No. 4, pp. 411-433.
28. **Miller, M., Rock, K.** (1985) Dividend Policy under Asymmetric Information, *Journal of Finance*, Vol. 40, pp. 1031-1051.
29. **Mueller, D.C.** (1972) A Life Cycle Theory of the Firm, *Journal of Industrial Economics*, Vol. 20, No. 3, pp. 199-219.
30. **Nissim, D., Ziv, A.** (2001) Dividend Changes and Future Profitability, *Journal of Finance*, Vol. 56, No. 6, pp. 2111-2133.
31. **Sander, P., Trumm, K.** (2006) Dividendipoliitika Eesti suurettevõtetes in P. Sander, V. Raudsepp (eds.) Ettevõtte Finantsjuhtimine regionaalaspekt, pp. 142-167, Tartu Ülikooli Kirjastus.
32. **Shefrin, H., Statman, M.** (1984) Explaining Investor Preference for Cash Dividends, *Journal of Financial Economics*, Vol. 13, No. 2, pp. 253-82.
33. **Smith, C.W., Warner, J.B.** (1979) On Financial Contracting: An Analysis of Bond Covenants, *Journal of Financial Economics*, Vol. 7, pp. 117-161.
34. **Syrjä, P., Puumalainen, K., Sjörgen, H.** (2011) Strategic and Financial Planning in Growth and Survival Oriented Firms. *Proceedings of the 8th AGSE Annual Conference 2011*, Melbourne, Australia, 15 p.
35. **Weigand R.A., Baker, H.K.** (2009) Changing Perspectives on Distribution Policy, *Managerial Finance*, Vol. 35, No.6, pp. 479-492.

ESTONIA: IN AND OUT OF CRISIS

Viktor Trasberg
University of Tartu

Abstract

The paper analyses Estonian economic developments during the first decade of 21st century. Estonia provided in that period a clear-cut example of the classical business cycle with an extreme bubble-burst sequence of economic activities. The author analyses the reasons on such a volatile economic growth pattern and explains economic cycle management particularities in Estonia. In the frames of macroeconomic developments will be analyzed monetary and fiscal policies. The author argues, that Estonia's fiscal policy has been always pro-cyclical, what has deepened country's macroeconomic volatility. The paper also analyses critically the government activities and policies during the recent crisis.

Keywords: Estonia, fiscal policy, monetary policy, taxation, budget, deficit, government expenditures and revenue

JEL Classification: E6, E52, E62, H12

“If it is crisis, in such a crises I'd like to live”, Mr. Andrus Ansip, Estonian Prime Minister, December 2007¹

1. General

Estonia provided during the last decade a clear-cut example of a classical business cycle with an extreme bubble-burst sequence of economic activities². Rather similar patterns of economic developments can also be observed also in the neighboring Baltic countries³.

At the turn of the century, the Baltic countries recovered from the Asian and Russian crises and continued the accession process with the European Union. Until the global recession, which started in 2008, the Baltic countries demonstrated exceptionally high growth rates and fast increases of living standards. However, in the global economic downturn, the Baltic countries suffered dramatic and substantial GDP declines. As put by the Mrs. Solvita Aboltina, Speaker of the Latvian parliament, the Saeima – “we found ourselves in a deep crisis as a result of ignoring the basic laws of economics and following thoughtless politics” (Aboltina 2011, p.1.). Therefore one can ask – what went wrong in Estonia and the other Baltic

¹ Estonian PM denies any crises and economic downturn possibilities even very clear warning signals

² Comprehensive overview of business cycles is given by Knoop (2010)

³ The Baltic countries here and thereafter are defined as Estonia, Latvia and Lithuania.

countries and what were the reasons for such considerable economic fluctuations? Was such a shocking situation avoidable?

Rather often in Estonia is presented a narrative, that small and open economies like hers could do nothing to prevent the impact of outside economic shocks and that there are no possibilities to stabilize the economy during a worldwide financial and economic recession. In such a situation they are left alone in the global turbulence and their fate depends completely on outside developments. Somehow that is a very comfortable position for the Estonian ruling political coalition, as it allows rechanneling the responsibility for the crisis to *force majeure* circumstances. True, Estonia is the second smallest economy in the European Union after Malta. Therefore, its economic volatility is rather high and its susceptibility to outside shocks is considerable.

However, the purpose of the paper is to demonstrate, that the economic crisis in Estonia has its own *built-in* causes and that the global crises only deepened the harshness of the situation. Another *rationale* for the paper is to explain Estonian macroeconomic policy options and to critically evaluate the policy choices made during the boom and bust periods.

It is the author understands that comprehensive studies of the economic cycle and its management in Estonia during the last decade are still missing⁴. There are many studies, analyzing different aspects of economic developments, but rather often those are concentrating on a certain phase or aspect of the business cycle (e.g. Purfield and Rosenberg 2010). As a result, analysis of the full-scale Estonian business cycle is somewhat fragmented. The current paper closely connects different phases of the business cycle. There is a clear link between the recession and mistakes in macroeconomic policy, which allowed the economy to overheat and to accumulate enormous imbalances during the earlier boom years.

The author shares the understanding, that the main reason for Estonia's crisis is related to unbalanced growth during the years 2004-2008. Those years laid the foundation for the deformation of the economic structure and decreased its strength to compete globally. The economic bubble in certain sectors – primarily in construction, retailing and related industries - generated the situation; the downside correction was inevitable. Therefore, the Estonian and Baltic recession is undoubtedly related to the economic policies and the “state of affairs” during earlier boom years.

The first part of the paper gives the indicators which demonstrate the foundations for the “bubble” and economic overheating in Estonia. The second part of the paper generalizes macroeconomic policy and business cycle management in Estonia during the crises years 2008-2010. Since the paper's scope is limited, not all presented statistical data will be equally explained.

⁴ Excellent study about Latvian economic cycle management is provided by Āslund and Dombrovskis (2011).

Table 1. GDP level, *per inhabitant*, thousands of euros and in *Purchasing Power Parity* standards (in brackets)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2008 compared with 2000 Year 2000 =100
Estonia	4.5 (8.6)	5.1 (9.2)	5.7 (10.2)	6.4 (11.3)	7.2 (12.4)	8.3 (13.8)	10.0 (15.6)	12.0 (17.5)	12.2 (17.2)	10.3 (15.0)	10.7 (15.7)	171% (100%)
Latvia	3.6 (6.9)	3.9 (7.6)	4.2 (8.4)	4.3 (8.9)	4.8 (9.9)	5.6 (10.8)	7.0 (12.2)	9.2 (13.9)	10.1 (14.0)	8.2 (12.2)	8.0 (12.6)	181% (103%)
Lithuania	3.6 (7.5)	3.9 (8.2)	4.4 (9.1)	4.8 (10.2)	5.3 (11.0)	6.1 (11.9)	7.1 (13.1)	8.5 (14.8)	9.7 (15.4)	8.0 (12.9)	8.4 (14.2)	169% (105%)
Nordic countries average*	32.2 (25.8)	32.8 (26.1)	34.2 (26.6)	34.4 (26.8)	35.9 (28.9)	38.5 (30.1)	41.1 (32.2)	43.2 (34.0)	44.4 (34.6)	39.9 (31.1)	44.2 (33.1)	38% (34%)
EU (27) average	19.1	19.8	20.5	20.7	21.7	22.5	23.7	25.0	25.0	23.5	24.4	31%
Estonia's level compared to the Nordic countries	14.0% (33.4%)	15.6% (35.3%)	16.7% (38.3%)	18.6% (42.2%)	20.1% (43.0%)	21.6% (45.8%)	24.3% (48.4%)	27.8% (51.5%)	27.5% (49.7%)	25.8% (48.2%)	24.2% (47.4%)	
Estonia's level compared to the EU average	23.6% (45.0%)	25.8% (46.5%)	27.8% (49.8%)	30.9% (54.6%)	33.2% (57.1%)	36.9% (61.3%)	42.2% (65.8%)	48.0% (70.0%)	48.8% (68.8%)	43.8% (63.8%)	43.9% (64.3%)	

Source: *Eurostat* Homepage (Section: Statistics; Economy and Finance; National Accounts) and author's calculations.

2. Cooking the economic bubble in Estonia

This section of the paper characterizes the Estonian growth period, which ends with sharp contraction of economic activities in 2008. During the decade, until the crises, Estonia and the other Baltic countries made considerable progress in economic development and noticeably improved their living standards. Table 1 presents GDP *per capita* developments in the Baltic-Nordic and the European Union membership countries growth figures. The Nordic countries include Finland, Sweden, Denmark and Norway. The figures at this point and hereinafter are calculated as average figures of those countries. The EU 27 countries average figures are received from the *Eurostat* statistical portal.

Estonian GDP level *per capita* increased during the decade considerably. The highest level on average GDP level was reached in 2008 - just on the eve of the crisis. In that year, the GDP level per capita was 171% higher than at the beginning of the century. About the same rate of GDP level growth took place in the other Baltic countries.

At the same time the Nordic countries – a traditional benchmark region for the Baltic States – have demonstrated much slower speed of GDP growth - only 38% from the beginning of the period. On the whole, the rest of the EU countries have grown at even a slower pace than the Nordic region.

However, in comparison with the Nordic countries, the Baltic countries' GDP per capita level in absolute terms remains far lower. Despite some *catching-up* effect, the Baltic countries, GDP *per capita* is about one fourth of Nordic ones. To compare with the EU average level, Estonia progressed from 24% close to half of the EU income. Nevertheless, in absolute terms, the Nordic countries advanced during the period more than did Estonia – correspondingly they gained 12.2 and 7.7 thousand *euros* per inhabitant.

Baltic economic leveling with the EU average GDP level figures were based on high growth rates during 2000-2007 (Table 2).

Estonia's growth in early 2000 indicates recovery from the setbacks during the Asian and Russian crisis at the end on 90-ies. However, the growth rate remained significantly high until 2007. Also, the other Baltic countries' economic growth rates until the crisis were extraordinary high in the European context, which brought into use the phrase "*Baltic tigers*". As the table shows, in some years the Baltic's growth reached more than 10 percent. The European and Nordic countries' average growth rates remained in the range of 1 to less than 4 *percent* until 2008. The growth rate in Estonia was from 2 to 4 times higher than in the Nordic countries during 2000-2007. In comparison with EU averages, the difference is even bigger. Unfortunately, the GDP growth turned negative in 2008.

Table 2. Real GDP growth rate, %

	Average 2000- 2003	2004	2005	2006	2007	2008	2009	2010
Estonia	8.3	7.2	9.4	10.6	6.9	-5.1	-13.9	3.1
Latvia	7.2	8.7	10.6	12.2	10.0	-4.2	-18.0	-0.3
Lithuania	6.8	7.4	7.8	7.8	9.8	2.9	-14.7	1.3
Nordic	2.2	3.6	2.8	3.6	3.2	-0.03	-5.1	2.8
EU (27)	2.1	2.5	2.0	3.2	3.0	0.5	-4.2	1.8
Estonia compared to the Nordic average*	3.8	2.0	3.4	2.9	2.1	-	-2.7	1.1
Estonia compared to the EU*	3.9	2.9	4.7	3.3	2.3	-10.2	3.3	1.7

* Estonian figures are divided by correlative figures.

Source: *Eurostat* Homepage (Section: Economy and Finance; National Accounts) and author's calculations.

The fast GDP growth correlates directly with the strong labor market characteristics (Table 3). Employment in Estonia grew from 573 thousand persons at the beginning of century up to 657 thousand employed persons in 2008.

Table 3. Labor market characteristics, age group 15-74 (thousands), ratios and average salary, 2000-2010

	Average 2000- 2003	2004	2005	2006	2007	2008	2009	2010
Employed	582.5	595.5	607.4	646.3	655.3	656.5	595.8	570.9
Unemployed	76.6	63.6	52.2	40.5	32.0	38.4	95.1	115.9
Inactive	388.0	388.7	389.0	362.3	359.0	347.9	348.0	348.0
Employment rate, %	55.6	56.8	57.9	61.6	62.6	63.0	57.4	55.2
Un- employment rate, %	11.6%	9.7%	7.9%	5.9%	4.7%	5.5%	13.8%	16.9%
Average salary, EUR	< 400	443	502	582	705	806	771	767

Source: Statistical Office of Estonia (Section: Subject area: Social life; sub-section Labor Market) and author's calculations.

On the peak of the economic cycle, the unemployment rate declined down to 4.7%, which is perhaps lower than natural rate of unemployment. Participation rate increased significantly. In 2008, average work salary doubled if compared with the beginning of the period.

To summarize the section, during the period 2000-2007, Estonia and the other Baltic countries demonstrated unique growth rates in the EU context and enjoyed a very strong labor market situation. Unfortunately, such high growth wasn't sustainable. Even worse, the economies went into severe decline in 2008-2009.

3. Factors behind the growth

What were the main driving forces behind the exceptionally high growth rates? In general, the growth was based on a mix of various (coincident) components. Among several, the author emphasizes three of most important –the impact of the EU enlargement effect on the Estonian economy; strong domestic demand and the *pro-cyclical* nature of macroeconomic policies. On a large scale, the Estonian situation was similar to the Latvian and Lithuanian economies during the named period.

3.1. The EU enlargement effect

One of the essentials of fast economic growth was related to the so called EU “enlargement effect”¹. This is a broad term, which characterizes the positive impact of EU membership on new members of the economic and customs union. In general, the foundations of the EU enlargement effect can be considered as market impact and regulatory impact. The outstanding image and reputation of the EU economic, technological and social standards become automatically attributable to the all union members. In the course of EU accession, Estonia adopted *acquis communautaire*.

The Estonian economy integrated during the decade with European economic space and thus obtained easy access to very large-scale and high purchasing-power markets. The EU enlargement effects can be summarized as intensifying trade and investment activities and strengthening Estonia's economic environment. Joining Estonia to the EU in 2004 was followed by the strengthening of the country's global competitiveness and export capacity.

Most visibly the positive effect is noticeable in trade and investment flows. European markets provided new business opportunities for Estonian companies and Estonia became more attractive for international businesses, especially as a destination for foreign investments. Table 4 presents flows of FDI (foreign direct investment) during the decade.

¹ Compact overview of the “enlargement effect” is given by Purfield and Rosenberg (2010)

Table 4. Direct investment in Estonia (FDI)

	Million euros				Percent of total		
	FDI	Equity capital	Re-invested earnings	Other direct investment capital	Equity capital	Re-invested earnings	Other direct investment capital
2000	425	251	116	58	59.1%	27.3%	13.6%
2003	822	341	410	72	41.4%	49.8%	8.8%
2004	771	297	510	-36	38.5%	66.2%	-4.6%
2005	2,307	1,788*	568	-49	77.5%	24.6%	-2.1%
2006	1,432	143	1,000	288	10.0%	69.9%	20.1%
2007	1,985	273	1,367	345	13.8%	68.9%	17.4%
2008	1,182	195	871	116	16.5%	73.7%	9.8%
2009	1,323	1,219**	407	-303	92.2%	30.8%	-22.9%
2010	1,162	349	928	-115	30.0%	79.9%	-9.9%

* Includes Hansabank minority shares takeover by the parent Swedbank.

** Includes Estonian Telecom (public company) shares selling to TeliaSonera.

Source: Bank of Estonia Homepage (Section - International investment position) and author's calculation.

There is an observable clear trend of investment increase during 2003-2007. In the middle of the decade the annual inflow of FDI increased 5 times compared with the beginning of the century. Particularly, Nordic banking corporations obtained strong positions on Estonia's financial markets. Also significant investments went into the manufacturing, retailing and logistics sectors. The Estonian legal and economic environment is transparent and predictable for foreign businesses. As a result, the Baltic countries became more closely integrated with of Nordic economic environment.

However, the FDI structure by the form of investments is somewhat warped. There has been a rather high share of reinvested earnings, which in most of the years cover more than two thirds of all incoming FDI².

Such a situation is clearly related to Estonian tax system features, which favors reinvested earnings before other forms of investments³. Another aspect of FDI is related to its sectoral allocation. Some researchers emphasize, that too many investments have been allocated to financial and low tech sectors (Zhan and Sulstarova 2011). Those investments are focused on domestic consumers and not able to generate export flows or high technology products.

² In 2005 high equity capital inflow was related with takeover of Hansapank minority shares and 2009 selling of Estonian telecom shares to TeliaSonera corporation.

³ As profits tax applies only for dividend payout, therefore companies are not motivated to distribute profits.

To conclude this section – the EU enlargement effect can be highlighted as the most important aspect of Estonia’s significant growth record. However, EU enlargement was a *once-in-a-lifetime* factor and it accelerated economic growth only during the short term.

3.2. Domestic demand as a growth engine

Table 5 presents the components of GDP and their impact on general growth. Private consumption is usually the biggest part of GDP and therefore mainly determines gross product dynamics. Private investment’s contribution to growth has been volatile, but mostly it has changed hand in hand with consumption dynamics. Public expenditure was rather a minor supporter of growth during the boom years and its contribution remained less than 1% of total demand most of the years. Net export, differently from the other GDP components, was negative during 2000-2007. During the boom years demand for imports significantly exceeded export capacity.

Table 5. Estonian GDP components (in millions of *euros*) and their contribution to GDP growth (in brackets, percent) and balance of payment (PoB) indicators (percent of GDP)

	Average 2000- 2003	2004	2005	2006	2007	2008	2009	2010
Real GDP growth, %	8.3	7.2	9.4	10.6	6.9	-5.1	-13.9	3.1
Private consumption	4,054 (4.5)	5,329 (4.5)	6,070 (5.3)	7,254 (7.3)	8,517 (4.7)	8,657 (-3.4)	7,201 (- 8.5)	7,235 (-0.9)
Gross fixed capital formation	2,123 (4.7)	2,991 (1.9)	3,589 (4.7)	4,819 (7.4)	5,713 (4.0)	4,849 (-5.4)	2,969 (-11.3)	2,694 (-1.9)
General government final consumption	1,389 (0.5)	1,709 (0.2)	1,923 (0.6)	2,169 (0.9)	2,643 (1.1)	3,131 (0.8)	3,046 (-0.3)	2,991 (-0.2)
Net export	-405 (- 3.3)	-683 (- 1.2)	-727 (- 1.5)	-1,372 (- 7.0)	-1,483 (- 2.6)	-697 (5.3)	807 (11.1)	983 (2.5)
BoP: Current account	-8.1%	-11.3%	-10.0%	-15.3%	-17.2%	-9.7%	4.5%	3.6%
BoP: Financial account	9.0%	14.2%	11.0%	17.9%	15.7%	11.0%	-6.6%	-12.2%

Source: Statistical Office of Estonia (Subject area: Economy; National Accounts); BoP statistics from Bank of Estonia (Section Balance of Payments) and author’s calculations.

As is evident in Table 5, the Estonian economic boom and overheating during 2004-2007 was generated by domestic demand factors - private consumption and investments. Perhaps for the first time in the history of Estonia (true also for the other Baltic countries), the society was able to increase its individual consumption level and general welfare with such high speed.

However, during the 2008-2009 crisis years, investment demand declined immediately. Private investments in 2009 was only about half of what it had been in 2007. Usually public sector expenditure increases during recessions and government spending compensates, in part, for private sector contraction. However, in Estonia the private sector decline was far larger than the expansion of public sector spending.

The Table also shows how domestic consumption correlates with the Balance of Payments. During the boom years, the Current Account was deeply negative – mainly due to a negative trade balance. The net import flows were financed by the incoming financial resources and investments nicely demonstrating financial account dynamics.

Fast economic growth in the boom years was supported not only by strong labor markets but also by fast growing incomes, which were further leveraged by borrowed funds. Table 6 provides an overview of the stock of Estonian loans over the 90s, mostly by foreign owned, commercial banks. The amount of loans outstanding increased from 2001 to 2008 more than 7 times and reached close to 90% of GDP! The household loan burden, which was very limited even a decade ago, increased to about 40% of the total outstanding debt at the end of the boom years.

Table 6. Stock of loans, billion euro

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
TOTAL	1.8	2.5	3.4	4.3	5.7	8.3	11.4	13.3	13.0	12.7
% of GDP	26%	32%	39%	44%	51%	62%	71%	82%	94%	89%
General government	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.4
Non-fin. corporations	0.8	0.9	1.1	1.4	2.3	3.7	5.1	6.1	6.0	5.8
Households	0.4	0.6	0.8	1.2	2.4	4.0	5.3	6.3	6.2	6.2
% of GDP	6%	8%	9%	12%	21%	30%	33%	38%	45%	43%
% of total	21%	24%	24%	28%	41%	48%	47%	47%	48%	48%

Source: Bank of Estonia Homepage (Section: Financial Sector Statistics).

The loans went primarily to the private sector; the public borrowing remained rather minor. The accessibility of loans was made easy - banks aggressively competed for customers. Easy access to credits increased nominal purchasing power. The debt was primarily channeled to housing-construction; retailing and related activities. As was mentioned earlier - there were “natural” reasons behind the high consumption activity.

Also, dating from the collapse of the Soviet Union until the turn of century - the construction of residential housing had practically stopped. The depreciation of the existing housing stock and dissatisfaction with Soviet-style housing generated a real need for housing modernization and for an expanding construction sector and its related activities. However, the construction sector clearly expanded too fast and generated a “housing bubble”. This market bubble is also characterized by price increases in housing (Table 10), in certain years, the fastest in the EU.

To summarize this section – the Estonian economic boom was generated by domestic consumption and investments, which were fueled (and financed by rapidly increasing incomes; easy indebtedness and foreign direct investments.

4. Outcomes of overheating

Estonian macroeconomic data demonstrates extremely fast growth of the economy during 2000-2007. However, the rapid growth period was followed by a sharp downturn. Estonian economic growth wasn't sustainable and recession corrected the accumulated imbalances.

Economic overheating generated various macroeconomic setbacks in the economy. The biggest of them are - negative changes in the structure of economic activities; limited motivation for productivity growth and a decline in Estonia's global competitiveness.

The speedily expanding domestic market absorbed most business activities products-services and companies had that much less motivation to expand to foreign markets. Therefore, the economic structure and labor allocation moved to domestic consumption and services. As Table 7 presents, employment increased significantly during the boom years.

The largest employment gains in the growth years were in the construction sector, retailing and accommodation-food service. Such a trend indicates a labor force shift to domestic consumption-oriented activities. During the crisis years those industries lost their employment at about the same rate. But agriculture was the biggest loser of employment, which mainly indicates a general structural changes in economy.

Table 7. Estonian employment structure*, thousands

	Average 2000- 2004 (1)	Average 2005- 2008 (2)	2009	2010 (3)	Difference (2)-(1)	Difference (3)-(2)
Economic activities total	585.1	641.4	595.8	570.9	56.3	-70.5
Construction	42.3	68.9	58.3	47.9	26.6	-21.0
Wholesale and retail trade	80.6	86.9	83.2	80.0	6.3	-6.9
Accommodation and food	17.9	22.2	20.1	19.4	4.3	-2.8
Manufacturing	130.4	133.7	113.8	108.4	3.3	-25.3
Arts and recreation	15.0	16.5	14.2	14.7	1.4	-1.8
Real estate activities	11.4	10.0	9.2	10.1	-1.4	0.1
Agriculture and forestry	38.5	29.5	24.0	24.1	-9.0	-5.4

* Employment by industries is ranked - by most gained professions to the lowest and indicated first three and least three. In the middle is given “manufacturing” as the biggest sector of employment.

Source: Statistical Office of Estonia Homepage (Subject area: Social life; sub-section Labor Market) and author’s calculations.

During the boom years, employment growth in the biggest employment sector – manufacturing - was rather moderate. The allocation of labor resources to the sectors which mainly satisfy domestic demand for consumption and services, *i.e.* allocation to low-tech industries, slowed down production modernization. At the same time, high domestic demand and low employment pushed up nominal wages. Table 8 presents’ the behavior of unit labor costs and labor productivity in various countries.

Table 8. Unit labor cost (2005=100%) and labor productivity (in brackets, rounded, compared to EU (27))

	2001	2002	2003	2004	2006	2007	2008	2009	2010
Estonia	101 (41)	100 (43)	101 (46)	102 (49)	100 (52)	105 (56)	114 (56)	117 (59)	109 (61)
Nordic	102 (126)	103 (124)	103 (125)	101 (129)	98 (132)	100 (130)	101 (132)	107 (126)	104 (130)
EU(27)	102	102	102	100	98	97	98	101	100

Source: Eurostat Homepage (Section: Statistics; Economy and Finance; Annual National Accounts; Unit Labor cost) and author’s calculations).

Unit labor costs in Estonia increased rapidly during the period. At the same time, Nordic and EU labor costs were rather stable. Despite some gradual catching up

with EU average productivity levels, production efficiency remains low in comparison to the EU average figures. At the same time, the Nordic countries' average labor productivity is about one third higher than the EU average.

We begin to see meaning in the assertion, that domestic consumption grew “too fast”, in that such growth slowed down Estonia's microeconomic upgrading and deformed companies' export motives (State of Region Reports, 2010 p.2). All that weakened the Estonian global competitiveness position. As presented in Table 9, after 2005 Estonia' competitive position started to deteriorate and the country fell 15 places in the world competitiveness ranking. There is a paradoxical situation – during the fast economic growth, Estonia's global competitiveness actually fell. Similarly, the other Baltic countries lost their competitiveness positions. At the same time, the Nordic countries and Germany, already highly ranked in global competitiveness maintained their favorable positions.

Table 9. Global competitiveness ranking

	2004	2005	2006	2007	2008	2009	2010
Germany	13	15	8	5	7	7	5
Sweden	3	3	3	4	4	4	2
Finland	1	1	2	6	6	6	7
Estonia	20	20	25	27	32	35	33
Lithuania	36	43	40	38	44	53	47
Latvia	44	44	36	45	54	68	70

Source: World Economic Forum Homepage, (Section Reports; relevant years' issues).

To conclude the section, imbalanced economic growth deformed resource allocation and lessened motives for economic modernization. Therefore, despite the opening accesses to the EU markets, Estonian companies actually were not increasing their microeconomic competitiveness.

5. Macroeconomic policies

In the following pages will be generalized Estonian macroeconomic policy options for managing the business cycle. First will be considered aspects of monetary policy and the final part of the paper are dedicated to Estonian government's fiscal activities during the different phases of the business cycle.

5.1. Monetary policy

Since Estonia's currency reform in 1992, the country has been is using a fixed exchange rate system, i.e., its specific adaptation – the so called currency board system. In January 2011, Estonia joined the *eurozone* and became its 17th member.

Estonia is a small, open economy. That means that under fixed exchange rate regime conditions, the country's central bank has rather limited impact over monetary policy instruments. The central bank cannot change the anchor exchange rate (*e.g.* against the euro); also, it has limited impact on interests rate levels (which are given by the global markets) and limited control over the credit supply. Since monetary policy tools are limited – effective inflation control is also narrowed.

Because the basis for monetary expansion or contradiction moves along with the business cycle – monetary policy in Estonia under the currency board system has been always *pro-cyclical*. The central bank has rather limited tools to stop credit overhang or to expand the money supply during recessions. The Estonian Bank is limited to a persuasive and informative role in monetary policy.

As demonstrated in Table 6, borrowing in Estonia increased significantly during the first half of the decade. Such a fast increase of credit created unbalances and overheating consumption and investments. The significant inflow of cheap credits and high spending activity generated relatively high inflation (Table 10), which did not allow Estonia to join the *eurozone* in 2007 or 2008.

Table 10. Annual average rate of change of consumer prices (HICPs); housing price index (in brackets, 2005=100) and Real Effective Exchange Rate (REER); 1999=100

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estonia	5.6 (80)	3.6 (87)	1.4 (89)	3.0 (93)	4.1 (100)	4.4 (111)	6.7 (127)	10.6 (148)	0.2 (150)	2.7 (155)
REER	98	100	107	112	113	121	139	152	153	142
Nordic	2.6 (87)	1.8 (90)	1.9 (95)	0.7 (97)	1.2 (100)	1.8 (105)	1.4 (106)	3.6 (112)	1.7 (115)	2.0 (120)
REER	98	101	104	104	105	106	110	114	113	114
EU(27)	2.2 (89)	2.1 (91)	2.0 (93)	2.0 (95)	2.2 (100)	2.2 (105)	2.3 (109)	3.7 (116)	1.0 (117)	2.1 (120)
REER	92	97	109	116	114	115	122	124	121	122

Source: Eurostat Homepage (Section: Statistics; Economy and Finance; Exchange Rates) and (Section: Statistics; Economy and Finance; Harmonized indices of consumer prices (HICP) and author's calculations).

Particularly high were price increases in the construction, housing and retailing sectors. The annual HICP was 1.5-3 times higher than in the EU average and compared with the Nordic countries. While there are other instruments to control inflation - like fiscal constraints or direct price regulation, anti-inflationary measures were not effectively used in Estonia.

As domestic prices increased much faster in Estonia than in most EU countries, its real effective exchange rate significantly depreciated. Particularly strong was depreciation against currencies of its main export destination countries – Finland and Sweden. Therefore, the country lost significantly its competitive position in Nordic markets.

To conclude this section, one may say – the Estonian monetary system functioned efficiently to maintain exchange rate stability and therefore provided needed confidence to both domestic and foreign businesses. However, the currency board system is not an effective mechanism to shelter against outside economic shocks and for fine tuning of economic processes. Monetary policy was incapable of neutralizing credit overhang during the boom years and did not allow the use of “quantitative easing” schemes during the recession. But, once again, the monetary system in Estonia did its main duty – it maintained the sustainability of its currency system and avoided exchange rate devaluation.

5.2. Fiscal policy

As argued earlier, monetary policy under a currency board system is not an effective tool for macroeconomic management and controlling monetary flows in a small, open economy. In such a case, the most influential instrument for managing a business cycle is a fiscal policy – tax policy and public spending, with specific targeted fiscal measures.

The Estonian approach to fiscal and tax policy has been over the decades somewhat simplistic. On the one hand, there is emphasized the “need” to maintain a budget surplus, a simple tax system and low public debt. On the other hand, fiscal policy in Estonia has been rather weakly used as an active tool for business cycle management and as an economic stabilization mechanism. The country’s mainstream understanding about government fiscal activities opposes the traditional Keynesian understanding, where one the main goals of fiscal policy is to stabilize GDP volatility. Estonian fiscal policy has ignored stabilization issues and instead, focused on narrow political objectives (e.g. tax rate decreases or budget balance). Therefore, over the decades Estonian fiscal policy has been rather *pro-cyclical* by its characteristics (e.g IMF Annual Reports in various years). In addition, the scope and role of automatic stabilizers in the economy has also been rather limited.

During the period 2001-2007, Estonian public sector expenditures and revenue percentages remained below Nordic and EU average levels and were rather stable (Table 11). Estonia’s revenue level during the pre-crisis period was about 20 percentage points less than in the Nordic countries.

Fast economic growth and a low public sector “maintenance cost” allowed both a low expenditure and revenue side of the public budget.

Table 11. Total general government expenditure and government revenue (in brackets), % of GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estonia	34.8 (34.7)	35.8 (36.0)	34.8 (36.5)	34.0 (35.6)	33.6 (35.2)	33.6 (36.1)	34.0 (36.4)	39.5 (36.5)	45.2 (43.2)	40.6 (40.9)
Nordic	50.2 (55.5)	51.6 (54.6)	52.3 (54.4)	51.1 (55.0)	49.8 (56.0)	48.5 (55.9)	47.6 (55.4)	48.4 (55.6)	53.9 (54.9)	53.0 (54.3)
EU (27)	46.1 (44.6)	46.6 (44.0)	47.2 (44.0)	46.8 (43.9)	46.8 (44.3)	46.3 (44.8)	45.6 (44.7)	47.1 (44.7)	51.0 (44.1)	50.6 (44.1)

Source: Eurostat Homepage (Section: Statistics; Economy and Finance; Government Statistics; Annual Government finance statistics).

During the crisis years 2008-2009, the situation in Estonia radically changed – first the expenditure and then revenue ratios increased sharply. It must be noted, however, that the significant increase of expenditures and revenues, as a percentage of GDP, were not caused by their increase in absolute terms, but is the simple mathematical result of the severe contraction of the GDP.

A very different situation is visible in the Nordic countries, where only the expenditure side increases in the recession and the revenue side – or tax burden- was kept stable. The Nordic countries supported economic stability through a stimulation package, which eventually increased the public spending level.

Business cycle phases are also apparent in Estonia's public deficit levels (Table 12). Estonia's usual budget surplus turns negative during the crises years. Such a situation is rather common - fiscal deficits and debts are declining during boom years and increasing during recessions. However, the Nordic countries did, on the average, maintain budget surpluses even in case of global recession.

Table 12. Budget deficit and general government consolidated gross debt (in brackets), % of GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estonia	-0.1 (4.8)	0.3 (5.7)	1.7 (5.6)	1.6 (5.0)	1.6 (4.6)	2.5 (4.4)	2.4 (3.7)	-2.9 (4.5)	-2.0 (7.2)	0.2 (6.7)
Nordic average	5.4 (44.0)	3.1 (44.9)	2.3 (46.9)	4.1 (46.4)	6.3 (43.6)	7.5 (43.0)	7.8 (38.6)	7.2 (39.1)	1.2 (42.7)	1.4 (43.9)
EU (27) average	-1.5 (61.0)	-2.6 (60.4)	-3.2 (61.9)	-2.9 (62.3)	-2.4 (62.8)	-1.5 (61.5)	-0.9 (59.0)	-2.4 (62.5)	-6.9 (74.7)	-6.6 (80.1)

Source: Eurostat Homepage (Section: Statistics; Economy and Finance; Government Statistics; Annual Government finance statistics) and author's calculations.

The Table 12 also demonstrates a unique feature of the Estonian fiscal situation – the extremely low level of the public debt - while in the other EU countries public debt reached far over Maastricht criteria levels.

5.3. Taxes and the business cycle

There is a clear impact of tax policy on economic developments in various phases of the business cycle. The key terms of Estonian tax policy have been “flat tax”, “no tax on reinvested profits” and “shifting tax burden to consumption”. As an outcome, the country’s tax policy impact on the economic cycle has been clearly *pro-cyclical*. Such a tax system increases government sector dependency on consumption, narrows the tax base and limits the scope of automatic stabilizers. The profits tax from reinvested earnings was abolished in 2000. This significantly decreased the tax burden on businesses. The author’s argument here is that the *pro-cyclical* tax environment was one of major reasons that led Estonia to economic overheating and afterwards – record-deep recession.

In the course of EU enlargement, Estonia had to satisfy the indirect tax harmonization requirements of the union, which in practice meant establishing some new indirect taxes, increasing the VAT and excise duties at least to the EU’s required minimal levels. All that, in combination with the expanding social expenditures, dragged the tax burden up somewhat. However, the country’s pre-crisis tax burden remained far below its Nordic neighbors (Table 13).

Table 13. Tax burden compared with GDP, *per cent*

	Estonia			Nordic			EU (27)		
	2001	2008	2009	2001	2008	2009	2001	2008	2009
Total taxes (including SSC)	30.3	31.5	35.5	46.5	45.0	45.2	40.2	40.1	39.4
Taxes on income and wealth	7.2	7.8	7.6	22.3	22.2	21.5	13.4	13.3	12.4
Taxes on production	12.3	11.9	14.7	14.9	14.7	15.3	12.9	12.7	12.6
Social security contributions	10.7	11.6	13.1	8.9	7.7	8.1	12.8	12.7	13.1

Source: Eurostat Homepage (Section: Statistics; Economy and Finance; Government Statistics; Annual Government finance statistics).

The *pro-cyclical* nature of the Estonian tax system grounds in two facts – the high dependency on consumption taxes and the limited scope of tax based automatic stabilizers. Any sharp decline in consumption, as happened during the last recession, puts the public sector budgets at risk. While the burden of consumption taxes in Estonia compared with the GDP is in about the same average range as in the Nordic countries and the EU, Estonia has the highest proportion of consumption taxes to total taxes in the EU.

The most striking difference in the tax structure between Estonia and the Nordic countries comes in income (both personal and business) and wealth taxation. The Estonian public sector collects only about 1/3d of the revenue of its Nordic peers. During the boom years, Estonia continued decreasing direct personal income (as well as profit) tax rates- from 26% down to 21%. The tax rate cuts were purely politically driven and were implemented in extremely favorable economic conditions. The lower income tax rates lowered private sector budget constraints and increased its nominal purchasing power. As a result, the increase of purchasing power in turn fueled private consumption and investments and the economy's overheating. Lower tax rates made the tax schedule less progressive and in turn, the scope of automatic stabilizers was further limited. However, the negative outcomes of such tax structure changes were widely ignored; even the Central Bank never paid attention to such a pro-cyclical tax policies.

6. Crises management

The impact of the global crisis in 2008 on the Estonian economy and society was fast, unexpected and devastating. The country was already on the road to economic recession and the worldwide crises multiplied the scope of the downturn.

As emphasized earlier, Estonian economic misbalance and overheating inevitably led to a certain natural need for correction. From the second half of the 2008, clear signs of an economic slowdown were present. However, the government clearly underestimated the recession risks and warning signals. The adopted State budget for 2009 expected only somewhat lower economic growth and moderate increases of unemployment compared with the earlier years (Estonian Ministry of Finance Homepage; State Budget 2009). The society's expectations were, that the economy would slow down to a "soft landing"

However, just "overnight" were reached high levels of unemployment and economic decline unseen over the last decade in Estonia. The economic downturn from the second half of 2008 led the public budget speedily into the negative side.

How did the Estonian government respond to the crises? Were the actions adequate?

There is no one short answer. Actually the crises can be separated into two episodes - the first episode is the fast economic decline during the period, 2008-2010, and the second, stabilization and recovery during 2010-2011. Perhaps it is too early to say that the crisis is over; therefore this article will consider the last years as a part of the recession period.

During the first phase of the acute crisis Estonia did everything exactly the opposite of what standard economic theory recommends. There are efficient measures applicable during a recession - an increase in government consumption and investment spending, a decrease of income, profit and consumption tax rates and an increase of transfers to financially constrained households (American Economic Journal, 2012).

Instead, Estonia cut government spending and investments severely, increased labor and consumption taxes and did not increase transfer payments to the neediest part of the population. As, expected theoretically, the outcome was a fast decline in the economy and high unemployment.

The government's immediate reaction to the crisis was to cut budget expenditures. Further, the Parliament adopted several negative budgets during the 2008 and 2009 (Ministry of Finance Homepage; State Budget relevant years). The Estonian government even called itself the "world champion of business cuts".

Another measure to sustain "fiscal stability" was to increase consumption taxes and to increase the VAT rate by 2 percentage points in mid-2009. As predicted by standard economic theory - such *pro-cyclical* measures deepened the crisis even more. As the GDP decreases, the relative ratio of the tax burden increases significantly. In 2010, Estonia's relative increase of the tax burden was the highest in the European Union (Taxation Trends in EU, 2011, p.21).

In the midst of deep crisis, the government decided in mid-2009 to join the *eurozone* as of January 2011. Fulfillment of the Maastricht criteria meant proceeding further with the austerity measures. Such steps limited the government's room for maneuver in growth and labor market stabilization. In comparison with many other EU countries, Estonia had "space" for more active measures to smooth the business cycle volatility (Economic Crisis in Europe, 2009).

Estonia did not accept various stimulus packages which were used in most of the European Union countries (Szekely, 2011). Therefore, the author agrees with the opinion, that a narrow focus on Maastricht criteria strengthened the deepness of the crises (State of Region 2010, p. 2).

The question arises – how did the country maintain low public debt during the recession years and still attain economic growth without stimulus measures?

As was emphasized, the country's monetary policy measures are very limited in fixed exchange rate conditions. Even more, the fixed and stable exchange rate has been for decades one of Estonia's economic policy cornerstones. Therefore even the hypothetical possibility of the devaluation of the *kroon* made the society very nervous. The devaluation option wasn't politically or socially possible. For that reason Estonia did not have the option to depreciate its currency as was done in the UK, Poland, Sweden and many other countries.

Unlike many countries, Estonia did not opt for the rather common stimulation measures through public borrowing and increasing public debt. The actual Estonia's "stabilization package" was, in the European context, as unique as its "growth package" had been a few years earlier. As emphasized above, in the boom years' the public sector enjoyed extensive windfall revenues; a fraction of those revenues were channeled to a Stabilization fund. In the crisis year, those reserves were used to cover budget expenditure.

However, there were certain other, rather exclusive, sources for stabilizing government finances. Two of them should be emphasized here – the large-scale sale of various types of government assets and intensive use of EU structural funds donations.

To stabilize the budget, the Estonian government speedily sold the majority shares of Estonian Telecom to the Finnish-Swedish communication company TeliaSonera. In addition public companies accumulated profits were intensively channeled to the use of the public sector.

One extraordinary measure was the sale of so called pollution quotas or CO₂ emission rights quotas. Trade with those quotas generated a significant inflow of budget revenues.

Additionally, government forced the exploitation of EU structural funds. During the EU financial perspective of 2007-2013, Estonia has the option to use more than 3.40 billion euros (EU Structural Assistance). As most of those funds are distributed on a competitive basis, the government sector was forced to justify various “project money” from EU sources.

Considering these extraordinary budget measures, Estonia was able to maintain budget stability even during the deepest economic slowdown. However, the outcome of using such extraordinary revenues is deformation of the budget revenue structure. Namely, the state budget becomes largely dependent on non-tax revenues (Table 14).

Table 14. Estonian central government budget, million euros

	2001	2004	2005	2006	2007	2008	2009	2010
Central government budget	1,954	2,985	3,525	4,336	5,240	5,423	5,476	5,610
Tax revenues	90.6%	84.0%	83.2%	81.4%	82.6%	82.9%	74.4%	72.1%
Nontax revenues	9.4%	16.0%	16.8%	18.6%	17.4%	17.1%	26.0%	27.8%

Source: Estonian Ministry of Finance Homepage (Section State Budget, relevant years) and author’s calculations.

Non-tax revenues – assets sales and EU donations - were rather a minor part of budget revenues at the beginning of the century. During the crisis years those revenues have come to cover about one third of the entire budget. As one can recognize, those revenues exist only temporarily. The inflow of such revenues is going to sharply decline and must be replaced by regular tax revenues.

To generalize – Estonia experienced one of the severest GDP declines in the global context and very high unemployment rates. However, Estonia did not use standard fiscal policy tools to stabilize its economy and to keep the labor market “alive”

during the recession. The reasons behind the steps taken are the lack of experience and political choices.

7. Conclusions

The economic cycle in Estonia during the last decade has been very volatile. Such a high amplitude in the level of economic activities evidences inadequate discretionary policies and weak automatic stabilizers in the economy.

During the years, 2000-2007, Estonian economic growth was very high. The high rate of economic expansion was based on mix of various factors – the low initial economic level, the EU enlargement effect, the favorable global environment and economic policies supportive of expansion. However, during the period, macroeconomic imbalances accumulated – the growth was based on domestic consumption and unrestrained credit expansion. Unproductive FDI led to inefficient resources allocation. Macroeconomic policies and regulations were not able (monetary policy) or were not focused (fiscal policy) to curb such unbalanced economic expansion. To make matters worse, lowering income taxes and increasing public spending contributed to the economy's overheating. As an outcome, the country's economy lost its global competitiveness and businesses modernization was curtailed. As Estonia's growth become unsustainable, certain macroeconomic corrections were predictable.

However, the warning signals of the coming recession were largely ignored by Estonian government, partly because of inexperience in managing an economic cycle during crisis periods and partly for political reasons.

During the first phase of the crisis, 2008-2009, government actions were just the opposite of measures that professional economists widely consider helpful in stabilizing an economic slowdown. Radical cuts in state budgets and investment, and; increasing consumption and labor taxes deepened the crises even more. Eventually, the economic decline was one of the highest in the EU and unemployment reached almost 20%. The recession and unemployment was followed by the impoverishment of the population; accelerated emptying of remote regions and outmigration to foreign countries.

During 2010-2011, more stabilization measures were used – faster and expanded use of EU structural funds, the sale of pollution quotas (half of total global trade in them!) and the channeling of those funds in the form of public investments to the economy. Those measures allowed stabilizing public finances and stimulating economic growth at the same time. However, those extra-revenues will drastically decline during the coming years. The Estonian public sector should be able to compensate declining subsidies through expanded collection of tax revenues.

To conclude, the recent boom and severe recession provided a valuable lesson about unsuccessful business cycle management in Estonia. To secure sustainable growth in

the future, economic policies should be focused on attaining a manageable business cycle, economic modernization and increased global competitiveness.

References

1. **Āboltiņa S.**, (2011) Stability, partnership, responsibility – Latvia's way out of the global financial crisis, University of Turku, Baltic Rim Economies, 1/2011 p.1. <http://www.tse.fi/EN>
2. **Åslund A., Dombrovskis V.**, (2011) How Latvia came through the Financial Crisis, Peterson Institute for International Economics, Washington, DC, United Book Press.
3. Baltic State of Region report (2010), Baltic Development Forum. www.bdforum.org
4. Bank of Estonia. <http://www.eestipank.ee/frontpage/et/>
5. **Coenen, G. And others**, (2012), "Effects of Fiscal Stimulus in Structural Models." *American Economic Journal: Macroeconomics*, 4(1): 22–68.
6. EU Structural Assistance to Estonia. <http://www.struktuurifondid.ee/>
7. Economic Crisis in Europe: Causes, Consequences and Responses, EU Economy7/2009. <http://epp.eurostat.ec.europa.eu/>
8. Eurostat. <http://epp.eurostat.ec.europa.eu/>
9. Estonian Ministry of Finance. <http://www.fin.ee/>
10. International Monetary Fund (IMF). <http://www.imf.org/external/country/est/index.htm>
11. **Knoop T.**, (2010) Recessions and Depressions: Understanding business cycles, 2.ed., Praeger, USA.
12. **Purfield C., and B. Rosenberg C.**, (2010) Adjustment under a Currency Peg: Estonia, Latvia and Lithuania during the Global Financial Crisis 2008-09 International Monetary Fund WP/10/213 IMF Working Paper.
13. Statistics Estonia. <http://www.stat.ee/en>
14. **Szekely I., Roeger W., in't Veld J.**, (2011) Fiscal Policy in the Crisis: A Model-Based Approach With Applications to New EU member States in Society and Economy, Vol 33 Number 3 December 2011 Akademiai Kiado, Kluwer Group, Budapest.
15. Taxation trends in the European Union, European Commission, 2011.
16. World Economic Forum. <http://www.weforum.org/reports>
17. **Zhan J., and Sulstarova A.**, Foreign direct investments in Baltic States – lessons learned and prospects for the future University of Turku, Baltic Rim Economies, 1/2011 p.1. <http://www.tse.fi/EN>

KOKKUVÕTTED

ZUSAMMENFASSUNGEN

SUMMARIES

DETERMINANTS OF INSTITUTIONAL VARIETY

Clemens Buchen

EBS Universität für Wirtschaft und Recht, Wiesbaden

University of Tartu

The paper attempts an analysis of the relative importance of different determinants of institutional development including transition countries. Economic approaches to institutional emergence and change have been developed into roughly three approaches, which are to a certain degree complementary and competing in their explanations of institutional change. A first attempt is made to assess the relative importance of different approaches. In addition to OECD countries and some developing nations, the analysis includes also a number of transition countries. The latter point deserves special emphasis, because the institution-building in these countries can be observed over a fairly short period of time with countries that start from similar beginnings.

Competing theories of institutional determinants

There are political economy approaches, which see the root cause for institutions in both constitutional rules such as electoral rules and political preferences of the electorate. In theoretical models such as Pagano and Volpin (2005) it is put forward that a representative system will tend to go together with stricter labor market legislation and worse investor protection. On the other hand in majoritarian systems we observe less strict labor laws and higher investor protection. The model is built on the fact that different electoral rules allow for and depend on coalition building of the governing factions. In representative systems workers and managers tend to build a coalition in order to side against capital owners, while in majoritarian systems in general no coalitions are found. This in turn has the effect that politicians do not have the need to incorporate a large number of constituents. Similar models are used by Persson and Tabellini (2003) to explain not institutions but structural outcomes such as government spending.

A second set of works is rooted in the legal origins tradition, which sees institutions as tightly coupled with the legal tradition of a country (Djankov et al. 2003). It is shown that Common Law tend to have more flexible labor laws and better investor protection, while the Civil Law traditions are found to have stricter labor laws and worse investor protection. While the legal origins project is first and foremost an empirical approach there are theories, which can show that in general Common Law is the more flexible and adaptive than Common Law.

A third literature argues that institutional variety is ultimately caused by cultural differences between countries. Licht et al. (2005) show that cultural attitudes, which are based on country scores of three pairs of cultural preferences can explain the extent of corporate governance institutions in a country. Related empirical approaches can find correlations between those cultural attitudes and the general degree of corporatism in a country. Put in a nutshell, countries that place greater

importance on the individual in society have more market-oriented institutions than countries, in which well-being of the collective is the more important cultural trait.

Toward an empirical assessment

Armed with hypotheses from those three approaches about the determinants of institutions the paper attempts to capture their effect using a sample of countries including OECD countries, developing nations and transition countries. The inclusion of transition countries from Central and Eastern Europe appears particularly warranted, because the emergence of institutions from similar starting points can be observed in a fairly short period of time. In order to allow transition countries to have distinct intercepts and slopes a host of interaction variables is included.

The base model is an OLS model, which has an institutional score for labor market institutions and corporate governance institutions as the left-hand side variable and variables capturing the aforementioned approaches to institutional determinants as right-hand side variables next to control variables and interaction terms. All variables enter as averages over the longest possible period to capture the long-term effect of institutional development. This approach is limited by the fact that it is not possible to include more than one institutional determinant for obvious endogeneity issues.

In addition to institutional scores for labor market and corporate governance institutions, a composite index by Knell and Srholec (2007) is included on the left-hand side. This indicator attempts to capture the fact that across countries a certain clustering of labor market and corporate governance institutions can be observed. This means that countries that have stricter labor market institutions tend to have a corporate governance system that is bank-based to a larger degree and vice versa. In a nutshell, this indicator captures the overall degree of corporatism in an economy. The basic equation thus can be summarized as

$$y_i = \beta_1 + \beta_2 L_i + \beta_3 P_i + \beta_4 C_i + \mathbf{b}\mathbf{x} + \varepsilon_i$$

Three models per dependent variable are estimated one for each independent variable L , P and C . The variable L is simply a dummy variable indicating the legal tradition of a country (Common Law, German Civil Law, French Civil Law or Skandinavian Civil Law). The variable P captures the extent to which parliamentary seats are allocated according to proportionality. It follows Pagano and Volpin (2005) in the calculation of the index. The data come from Beck et al. (2001). It ranges from 0 (no seats according to proportionality) to 3 (all seats according to proportionality). Lastly, C captures cultural differences. It results from a weighted score of two of the dimensions of cultural attitudes used by Licht et al. (2005). The weights are given by a principal component factor analysis. Higher values indicate a greater emphasis on the collective as compared to the individual, while lower values indicate more importance of the individual in cultural attitudes.

As controlling variables in vector b the GDP per capita is included in all models and additionally interaction effects and transition dummy variables in some models. The results of the estimation can be seen in tables 2, 3 and 4 (in the paper) for the degree of proportionality, the legal origin and cultural differences, respectively.

Political influences as measured by the degree of proportionality of the electoral system have a discernible impact if the estimation controls for the high disproportionality of elections in transition countries. This can be seen in the conditional marginal effects depicted in Figure 2 in the paper. The horizontal axis shows the degree of disproportionality, while the vertical axis gives the marginal effect of proportionality for corporate governance, labor market regulations and the composite corporatism index. As can be seen, for high values of disproportionality the marginal effect of proportionality becomes insignificant, while for low values it has the expected sign. A possible interpretation of this phenomenon is that a high disproportionality of election results can neutralize the effect of a *de iure* proportionality, which is *de facto* a more majoritarian system.

For legal variables, the most common results in the literature are replicated. Common Law countries have more flexible labor markets, more market-oriented corporate governance institutions and they are as a whole less corporatist. Introducing transition countries into the analysis, it can be stated the transition countries with a German law tradition have better corporate governance indicators than non-transition countries. We find the opposite picture for labor market institutions. Taking transition countries as a whole, the legal tradition does not seem to matter for labor market institutions.

The cultural attitudes do not seem to play a role for the corporate governance institutions in transition countries, but there is a significant effect for labor markets and the overall corporatism. However, it seems that the fact that a country is in a transition process only matters for those societies that are comparatively more individualistically oriented. For those the transition dummy is significant, not for more collective-oriented societies. Stated differently, a transition country with a strong focus on individualist societies is organized more liberally than a non-transition country with the same cultural attitudes. It should be noted that the latter results should be taken with a grain of salt, because the number of observations for the cultural variable in transition countries becomes perilously small.

The paper is meant as a first stepping stone into an exploration of differential institutional development. Clearly, a larger number of observations and a panel data approach would be able to reexamine these early results and address additional questions. For instance, further independent variables could be included such as election results. Alternatively, other influences such as external factors (EU negotiations) could be addressed.

DIE EUROPÄISCHE PRIVATGESELLSCHAFT: BRAUCHEN WIR EINE WEITERE 28. PRIVATRECHTSGESELLSCHAFT IN DER EU? ZUM REGULIERUNGSWETTBEWERB IM UNTERNEHMENSRECHT

Martina Eckardt
Andrássy Universität Budapest

1. Einführung

Kleine und mittlere Unternehmen (KMU) sind von zentraler Bedeutung für Beschäftigung, Innovation und Wirtschaftswachstum in den Mitgliedstaaten der Europäischen Union. Nach der Klassifikation der EU-Kommission handelt es sich dabei um Unternehmen mit maximal 250 Beschäftigten, einem Umsatz von höchstens 50 Mio. Euro pro Jahr bzw. einer Jahresbilanzsumme von max. 43 Mio. Euro (EU Com 2003). 99,8% aller Unternehmen in der EU fallen in diese Kategorie. 40% davon sind auch international aktiv, sei es in Form von Import- oder Exportaktivitäten oder durch ausländische Direktinvestitionen. KMU benennen als zentrale Hindernisse für ihre Internationalisierung die damit verbundenen hohen Kosten, fehlendes Kapital, unzureichende Informationen und mangelnde staatliche Unterstützung (EU Com 2010a). Dies verweist auf die strukturellen Defizite von KMU (begrenzte verfügbare Kapital- und Personalressourcen). Dies verschärft sich noch bei Internationalisierungsaktivitäten.

KMU bevorzugen eindeutig Rechtsformen mit Haftungsbeschränkung; dies zeigt sich noch deutlicher bei KMU, die ausländische Fremdinvestitionen tätigen. Eine internationalisierungsfreundliche Gesellschaftsrechtsform sollte folgende Charakteristika aufweisen: (1) geringe Kosten, inkl. niedriger Transaktions- und Koordinationskosten, (2) sichere Property Rights für die Gesellschaftseigentümer, (3) Reduktion von Informationsasymmetrien und Verringerung von Agency-Konflikten zwischen den verschiedenen Akteuren (Eigentümer, Management, Beschäftigte, Gläubiger) (Eckardt 2012, Knoth 2008, Kraakman et al. 2009). Der Entwurf der geplanten, allerdings vom EU-Ministerrat noch nicht verabschiedeten Verordnung zur Europäischen Privatrechtsgesellschaft (EPG) erfüllt diese Anforderungen weitgehend (Eckardt 2012).

Fraglich ist jedoch, ob in jedem Fall eine zusätzliche supranationale Gesellschaftsrechtsform notwendig ist, um KMU eine internationalisierungsfreundliche Rechtsform bereitzustellen, oder ob nicht der horizontale Regulierungswettbewerb zum gleichen Ergebnis ohne zusätzlichen Staatseingriff führen kann. Seit der *Centros*-Entscheidung des EuGH 1999 gilt die Niederlassungsfreiheit innerhalb der EU in weitgehendem Maße auch für unterschiedliche nationale Unternehmensrechtsformen (Knoth, 2008, Schaper 2012). Im Folgenden wird daher zunächst vom Standpunkt der Theorie des interjurisdiktionellen Wettbewerbs untersucht, ob die Einführung einer supranationalen Gesellschaftsrechtsform wie der *EPG* aus normativer Sicht gerechtfertigt ist. Sodann wird aus einer positiven Perspektive gefragt, inwieweit der

horizontale Regulierungswettbewerb auf dem Markt für Gesellschaftsrechtsformen in der EU funktioniert.

2. Supranationale Gesellschaftsrechtsformen in der EU – die normative Sicht

Im Rahmen der Theorie des interjurisdiktionellen Wettbewerbs lassen sich drei Ansätze unterscheiden, anhand derer beurteilt werden kann, ob eine eigene supranationale Europäische Privatgesellschaft zweckmäßig ist oder nicht: wohlfahrtsökonomische, Public Choice- und evolutionsökonomische Ansätze (vgl. Eckardt 2007, Kerber/Eckardt 2007).

Im Rahmen der *wohlfahrtsökonomischen Theorie* steht die effiziente Ressourcenallokation im Mittelpunkt. Zentrale Argumente für eine zentrale Kompetenzzuweisung sind Marktversagen in Form von Externalitäten, Informationsmängeln, Transaktionskostensparnissen, Skalenerträgen oder der Herstellung einheitlicher Wettbewerbsverhältnisse. Für dezentrale Lösungen sprechen dagegen in erster Linie heterogene Präferenzen. Legt man diese Effizienzbetrachtungen zugrunde, so spricht nichts gegen das supranationale Angebot einer Unternehmensrechtsform mit Haftungsbeschränkung für KMU, wie sie die EPG darstellt. Hiermit würden für KMU, die in mehreren Mitgliedstaaten tätig sind, Informationsunterschiede verringert. Zudem könnten Skalenerträge realisiert werden. Insgesamt wäre mit einem positiven Effekt auf die Internationalisierung von KMU zu rechnen. Zwar sind heterogene Präferenzen ein starkes Argument gegen eine Zentralisierung. Da die EPG jedoch nur zusätzlich zu den bereits existierenden Gesellschaftsrechtsformen der EU-Mitgliedstaaten eingeführt werden soll, verringert sich damit nicht das Angebot an unterschiedlichen Rechtsformen, sondern es erhöht sich sogar im Gegenteil. Damit wirkt die EPG letztlich auch positiv im Hinblick auf die Befriedigung heterogener Präferenzen.

Public Choice-Ansätze des interjurisdiktionellen Wettbewerbs konzentrieren sich primär auf Verteilungsaspekte. Im Mittelpunkt steht die Frage, welche Kompetenzzuteilung die Anreize zu Rent-seeking-Aktivitäten möglichst gering hält und damit dazu beiträgt, den Missbrauch von wirtschaftlicher und politischer Macht zu begrenzen. Hierzu sollten die grundlegenden Spielregeln (Verfassungsregeln) den Spielern während des Spiels entzogen sein, um Manipulationen zu verhindern. Argumente zur Kontrolle des Missbrauchs durch Interessengruppen lassen sich dabei sowohl für als auch gegen eine zentrale Kompetenzzuweisung finden. So reduziert eine dezentrale Kompetenzzuweisung politische Informations- und Transaktionskosten. Andererseits bilden die im Unternehmensrecht geregelten Sachverhalte die grundlegende Verfassung eines Unternehmens als Rechtspersönlichkeit. Sie sollten daher dem Zugriff der Spieler während des Spiels weitestgehend entzogen sein, damit einheitliche Wettbewerbsbedingungen und Rechtssicherheit bestehen. Dies fördert zudem die Erwartungssicherheit bei wirtschaftlichen Entscheidungen. Entsprechend kann argumentiert werden, dass der *Public Choice*-Ansatz ebenfalls für, zumindest aber nicht gegen das Angebot der EPG durch die zentrale EU-Ebene spricht.

Evolutionsökonomische Ansätze, die auf Hayekianischen und Schumpeterschen Ideen beruhen, betonen schließlich die Bedeutung des Wettbewerbs für die Schaffung und Verbreitung von Innovationen (Kerber/Eckardt 2007). Argumente für eine dezentrale Kompetenzzuweisung berufen sich dabei auf die größere adaptive Flexibilität und Problemlösungsfähigkeit dezentraler Einheiten, da sie größere Kenntnis der zugrunde liegenden Probleme haben und rascher auf neue Probleme reagieren können. Argumente für eine zentrale Kompetenzzuweisung ergeben sich dagegen aus möglichen Skalenerträgen bei Innovationsaktivitäten und Problemen, die es bei der Verbreitung von Innovationen aufgrund der damit verbundenen Unsicherheiten und Externalitäten gibt. Hinzukommen mögliche Innovationsblockaden durch Interessengruppen, die um ihre bevorzugte Position fürchten. Entsprechend lassen sich keine eindeutigen Aussagen für oder gegen das Angebot der EPG durch die supranationale EU-Ebene machen. Allerdings gilt auch hier, dass die EPG ja nicht zu einer Verringerung, sondern im Gegenteil ja zu einer Erhöhung der Varietät an angebotenen Gesellschaftsrechtsformen führt und insofern tendenziell eher positiv zu bewerten ist.

Insgesamt kann festgestellt werden, dass aus Sicht der Theorie des interjurisdiktionellen Wettbewerbs normativ nichts gegen zusätzliche supranationale Unternehmensrechtsformen spricht.

3. Horizontaler Regulierungswettbewerb im Gesellschaftsrecht – die positive Sicht

Trotz der obigen Analyse stellt sich doch die Frage, ob die Einführung der EPG denn tatsächlich notwendig ist oder ob nicht allein der inzwischen mögliche Wettbewerb zwischen den 27 nationalen Gesellschaftsrechten in der EU zur Herausbildung von die Internationalisierung von KMU förderlichen Unternehmensrechtsformen führen würde. Hierzu wird im Folgenden zunächst dargelegt, welche Bedingungen für einen funktionsfähigen Regulierungswettbewerb erfüllt sein müssen, ehe auf die hierzu vorliegenden empirischen Befunde eingegangen wird.

3.1. Der Rahmen für den horizontalen Regulierungswettbewerb

Horizontaler Regulierungswettbewerb zwischen Unternehmensrechtsformen findet dann statt, wenn Staaten darum konkurrieren, dass sich Unternehmen unter ihrem nationalen Gesellschaftsrecht in ihrem Staat inkorporieren (Armour 2005, Scharper 2012). Wie auf Gütermärkten auch setzt dies voraus, dass die Unternehmen (= die Nachfrager) durch die Wahl zwischen unterschiedlichen Unternehmensrechtsformen Vorteile erzielen können (Arbitragegewinne) und dass die Staaten (= die Anbieter) einen Anreiz haben, durch die Ausgestaltung ihres nationalen Unternehmensrechts Unternehmen anzuziehen. In der primär die US-Erfahrung mit Aktiengesellschaften reflektierenden Literatur werden eine Vielzahl von Faktoren diskutiert, die einen solchen Wettbewerb abschwächen (Gelter 2008, Kirchner/Painter/Kaal 2005, Scharper 2012).

Auf Seiten der *Unternehmen* reduzieren insbesondere Mobilitätskosten, *Switching*-Kosten und die mit einer (Re-)Inkorporierung verbundenen Transaktionskosten die Anreize, sich in einem anderen als dem jeweiligen Herkunftsstaat zu inkorporieren. Hierzu zählen u.a. auch Übersetzungskosten bei Niederlassung unter einem fremdsprachigen Unternehmensrecht und die Kosten, die sich aus der höheren Unsicherheit aufgrund eines unbekannten Rechtssystems ergeben können. Unkenntnis über die Wirkungsweise und Effektivität einer fremden Gerichtsbarkeit verringern weiter die Anreize, sich unter einem unbekannten Gesellschaftsrecht zu inkorporieren. Neben den direkten Kosten, die sich aus dem jeweiligen Gesellschaftsrecht ergeben, sind zudem die Kosten, die sich aus den damit verbundenen Anforderungen im Hinblick auf Rechnungslegung, Besteuerung, Arbeitsrecht etc. ergeben, zu berücksichtigen (Becht/Mayer/Wagner 2008).

Intermediäre wie Rechtsanwälte, die auf ein bestimmtes nationales Gesellschaftsrechtssystem spezialisiert sind, können ebenfalls zur Reduktion des Wettbewerbs beitragen (Armour 2005). So ist anzunehmen, dass sie Unternehmen dahingehend beraten werden, das ihnen bekannte Gesellschaftsrecht zu übernehmen, um eine Entwertung ihrer spezifischen Humankapitalinvestitionen und einen Verlust an Klienten zu verhindern. Aufgrund der besseren Informationslage der Intermediäre ergeben sich für diese jedoch auch Anreize, sich gerade darauf zu spezialisieren, die Informationsnachteile von Unternehmen bzgl. fremder Gesellschaftsrechtsformen zu reduzieren und so zu einer Erhöhung der Wettbewerbsintensität beizutragen.

Als zentrale Anreize der *Staaten*, über die Gestaltung ihres nationalen Gesellschaftsrechts Unternehmen zur Inkorporierung unter ihrem Rechtssystem zu bewegen, werden in der auf die USA abzielenden Literatur primär die dabei anfallenden jährlichen bundesstaatlichen Abgaben auf die Unternehmensinkorporationen und der Druck, den nationale Anwälte als Interessengruppe ausüben, angesehen. Daneben wird auch die Bereitstellung einer effektiven spezialisierten Gerichtsbarkeit als wesentlich genannt (Gelter 2008).

In Bezug auf den Regulierungswettbewerb in der EU herrscht die Ansicht vor, dass dieser funktionieren wird trotz der vielfältigen Barrieren (so ist es den Mitgliedstaaten etwa im Gegensatz zu den US-Bundesstaaten z.B. nicht erlaubt, etwa jährliche nationale Abgaben auf die Unternehmensinkorporationen zu erheben). Als Folge stellt sich die Frage, ob ein solcher Wettbewerb zwischen den nationalen Gesellschaftsrechten zu einer Absenkung oder zu einer Erhöhung der Standards führen wird (race-to-the-bottom vs. race-to-the-top). Hier hat sich für die EU zunächst die Ansicht herausgebildet, dass es aufgrund der Heterogenität zwischen den Mitgliedstaaten zu keiner „one-size-fits-all“-Lösung kommen wird. Allerdings wird dem britischen Unternehmensrecht eine Wettbewerbsvorteil gegenüber kontinentaleuropäischen Gesellschaftsrechten eingeräumt (Armour 2005, Gelter 2008).

3.2. Empirische Ergebnisse zum horizontalen Regulierungswettbewerb

Das erforderliche Mindestkapital zählt zu den zentralen Kosten bei einer Unternehmensgründung bei Unternehmen mit beschränkter Haftung. Ein Vergleich des Mindestkapitals in den 27 EU-Mitgliedstaaten zeigt eine große Spannweite von 1 € bis hin zu einem Maximum von 35.000 € in Österreich. Allerdings wurden seit 2003 in zehn Mitgliedsstaaten Reformen durchgeführt. Diese beinhalteten eine substantielle Reduktion des erforderlichen Mindestkapitals zwischen 35% und 100%. Daten der EU-Kommission und der Weltbank zeigen zudem, dass es auch darüber hinaus in den letzten Jahren zu einem spürbaren Rückgang der notwendigen Zeit und der sonstigen mit einer Unternehmensgründung verbundenen Kosten kam (EU Commission 2010c; Worldbank 2005, 2012). Nach den Weltbankdaten sind dabei die Aufwendungen im Durchschnitt der EU-27 zwischen 2004 und 2011 um rund 45% gesunken. Das deutsche Gewerberegister erlaubt einige Rückschlüsse über die Reaktion der Unternehmen, andere Unternehmensrechtsformen zu wählen. So werden seit 2005 die in Großbritannien inkorporierten, aber in Deutschland registrierten *Private Company Limited by Shares (britische Limited)* ausgewiesen. Im Durchschnitt der Jahre 2005 bis 2011 wurden jährlich 5.200 *britische Limited* neu registriert, mit einem Höhepunkt im Jahr 2006. Mit der im Jahr 2008 durchgeführten GmbH-Reform in Deutschland besteht nun die Möglichkeit, eine *Unternehmergesellschaft* mit einem Mindestkapital von zunächst 1 € zu gründen anstelle einer *GmbH* mit einem Mindestkapital von 25.000€. Bereits im Jahr 2009 sind die Neuregistrierungen für GmbHs in Deutschland sprunghaft um 15% gegenüber dem Vorjahr angestiegen. Der seit 2011 ausgewiesene Anteil der Unternehmergesellschaft an den GmbHs beträgt dabei 17%. Der im gleichen Zeitraum zu verzeichnende jährliche Rückgang an neu registrierten *britische Limiteds* von durchschnittlich 27% seit 2007 lässt darauf schließen, dass das neue Angebot der Unternehmergesellschaft ebenso von den Nachfragern aufgegriffen wurde wie zuvor die Möglichkeit, mit der Gründung einer *britischen Limited* eine kostengünstige Alternative im Vergleich zur typischen deutschen GmbH zu nutzen.

Diese deskriptiven Daten sind in Übereinstimmung mit den Ergebnissen der wenigen ökonometrischen Arbeiten, die sich mit dem horizontalen Regulierungswettbewerb unter Gesellschaften mit beschränkter Haftung befassen. Becht/Mayer/Wagner (2008) haben erstmals für den Zeitraum von 1997 bis 2005 die Konsequenzen der Rechtsprechung des EuGH zur Niederlassungsfreiheit von Unternehmen in der EU seit 1999 für Großbritannien überprüft. Mithilfe einer Difference-in-Difference-Analyse konnten sie auf Basis einer Stichprobe von 2,14 Mio. britischer Limits zeigen, dass der Anteil von Unternehmensgründungen in Großbritannien aus dem EU-Ausland (und hier insbesondere aus Deutschland) signifikant höher war als von Gründungen aus dem Nicht-EU-Ausland, für das die EuGH-Entscheidung keine Konsequenzen hatte.

Hornuf (2010) und Braun et al. (2011) verwenden die gleiche Methode, um die Auswirkungen von gesetzlichen Reformen, die zu einer Reduktion des erforderlichen Mindestkapitals in Deutschland, Frankreich, Polen, Spanien, und Ungarn im Zeitraum von 2003 bis 2008 führten, zu untersuchen. Sie kommen zu

dem Ergebnis, dass im Fall von Deutschland, Frankreich, Polen und Spanien diese Reformen sowohl zu einer Erhöhung der Zahl an Inkorporationen in diesen Ländern als auch insgesamt zugleich zu einer Steigerung der Zahl an Start ups führten.

Für die USA haben Dammann/Schündeln (2008, 2010) und Kobayashi/Ribstein (2011) ebenfalls unter Verwendung quantitativer Methoden die Frage untersucht, ob Unterschiede im materiellen Unternehmensrecht Auswirkungen auf die Entscheidung der Unternehmen darauf haben, wo sie sich niederlassen. Während es eindeutig einen Größeneffekt gibt, sind die Ergebnisse für andere Einflussfaktoren, wie die Qualität der rechtlichen Infrastruktur und die Ausgestaltung des relevanten Gesetzesrechtes, uneinheitlich und stark von den jeweils zu ihrer Operationalisierung verwendeten Variablen abhängig. Gevurtz (2012) liefert auf Basis qualitativer Methoden eine Ergänzung zu den quantitativen Ergebnissen. Im Gegensatz zu diesen Studien kommt Häusermann (2011) zu dem Schluss, dass die Gründungskosten ausschlaggebend für die Wahl des Inkorporierungsstaates sind.

Die wenigen vorliegenden ökonometrischen Studien lassen bislang noch keine eindeutigen Aussagen auf Art, Ausmaß und Wirkung des horizontalen Regulierungswettbewerbs zu.

4. Schlussfolgerungen

Das Ergebnis der obigen Ausführungen zu den normativen Grundlagen des horizontalen Regulierungswettbewerbs zeigt, dass dieser nicht gegen die Einführung einer supranationalen *Europäischen Privatgesellschaft* spricht. Auch die bisher vorliegenden Schlussfolgerungen der empirischen Untersuchungen zum Ausmaß des horizontalen Regulierungswettbewerbs in der EU stehen dem nicht entgegen. Zwar reagieren Anbieter durch Reformen im Gesellschaftsrecht sowie Nachfrager durch Inkorporierung in Staaten mit geringeren Gründungskosten offensichtlich auf die durch die Entscheidungen des EuGH ermöglichte höhere Flexibilität. Allerdings ist bislang nicht klar, inwieweit derartige Anreize nur für Start ups gelten. Offen bleibt, ob sie auch positive Auswirkungen auf die Internationalisierung von KMU haben. Hierzu sind weitere empirische Analysen notwendig.

KATMATA INTRESSIPARITEET IDA- JA KESK-EUROOPAS: KONVERGENTS JA GLOBAALNE FINANTSKRIIS

Fabio Filipozzi, Karsten Staehr
Tallinna Tehnikaülikool

Käesolev uurimus esitab UIP (Uncovered Interest Parity, katmata intressipariteet) hüpoteesi ökonomeetrilise analüüsi tulemusi, mida kontrolliti Poola, Tšehhi Vabariigi, Ungari, Rumeenia ja Horvaatia andmete põhjal. Andmete valim algab 1999. aasta või pisut hilisema ajaga ja lõpeb septembriga 2011. aastal ning hõlmab seega ajavahemikku, mil antud riigid kogesid nii kiiret majanduslikku ja finantsintegratsiooni kui ka globaalse rahanduskriisi tekitatud langust. UIP hüpoteesi on testitud kolmekuulise kauplemistähtaaja suhtes, kasutades igakuiseid andmeid. Viis valitud riiki on peamised riigid Kesk- ja Ida-Euroopas, kus valitud ajavahemiku jooksul kehtis kõikum vahetuskurs.

Katteta intressipariteedi hüpotees rajaneb ideele, et arbitraaz viib kohaliku valuuta varade oodatud tootlused ja välisvaluutas võrreldavate varade oodatud tootluse samale tasemele. UIP hüpoteesi kontrollimine võib seega anda teavet selle kohta, kas käsitletavad vahetus- ja intressiturud toimivad nii, et kogu tegevusest saadav tulu on ära kasutatud, ehk teisisõnu seda, kas turud on efektiivsed. Käesolev uurimus tegeleb majanduspoliitiliselt oluliste faktoritega, mis võiksid selgitada erinevusi riikide ja aja lõikes, seostades tulemusi konvergenti erinevate faasidega ja 2007.–2009. aasta globaalse kriisiga, mis antud riikides aset leidsid.

Lihtne empiiriline metodoloogia kontrollimaks UIP hüpoteesi sisaldab hinnangut järgnevale standardsele regressiooni mudelile:

$$FX_CHG(3) = \alpha + \beta \cdot INT_SP + \varepsilon(3) \quad (1)$$

Muutuja FX_CHG on vahetuskursi protsentuaalne muutus kolme kuu vältel, (vahetuskurs on esitatud kohaliku valuuta ühikutes euro suhtes kuu lõpu seisuga). FX_CHG positiivne väärtus tähendab kohaliku vääringu nõrgenemist euro suhtes kolme kuu lõikes; negatiivne väärtus näitab aga tugevnemist. INT_SP muutuja on intressivahe, arvatud kolmekuulise kohaliku vääringu deposiitide ja kolme kuu Euribori erinevusena.

UIP vastab ühishüpoteesile, et konstant $\alpha = 0$, tõusu koefitsient $\beta = 1$ ja arvestatud veaväärtus on null; UIP hüpoteesi ei saa kummutada, kui ühtki neist tingimustest ei saa kummutada.

UIP mudel rajaneb eeldusel, et investorid on riski suhtes neutraalsed ega nõua riski preemiat, et omada üht või teist vääringut. See eeldus on praktikas ebarealistlik investorite riskikartlikkuse tõttu. Võrdlusesse võib kaasata muutumatu riskipreemia, lubades konstandil α nullist erineda. Riskipreemia olemasolu - ja eriti muutuv riskipreemia - ei räägi iseenesest UIP hüpoteesile vastu, kuid muudab keerukamaks empiirilise testimise, kuna teeb vajalikuks riskipreemia empiirilise tuvastamise.

Lisaks riskipreemia olemasolule on võimalik tuua välja veel mitmeid tegureid, mille tõttu võrrand (1) võib mitte paika pidada, nagu näiteks puuduv integratsioon rahaturgude vahel, mõnede turgude ebalikviidsus, kulutused tehingutele ja informatsiooni hankimisele. Need tegurid võivad muuta kahjumlikeks tehingud, mis teoreetiliselt võiksid tuua kasu UIP väikestest kõrvalekalletest. Lisaks on alati olemas ka võimalus, et vahetus- ja intressiturgude investorite ootused ei pruugi olla lõpuni ratsionaalsed.

Vahetuskursside ja intressivahemikkude aegridade omadusi uuriti „Augmented Dickey-Fuller“ testi abil. Aegread on $I(0)$ kõigi viie valitud riigi kohta, nii et võrrandit (1) sai hinnata kasutades harilikku vähimruutude meetodit (OLS). Tulemused on toodud ära tabelis 1.

Tabel 1. UIP võrrandi hinnang (OLS)

	$\hat{\alpha}$	$\hat{\beta}$	F-stat	R^2	Valim	Obs.
Horvaatia	1.401 (0.888)	-0.486 ^{**} (0.210)	31.660 [0.000]	0.035	2000:02- 2011:09	140
Tšehhi Vabariik	-2.447 (1.718)	-1.380 (0.972)	9.492 [0.000]	0.020	1999:01- 2011:09	153
Ungari	9.546 [*] (5.706)	-1.220 [*] (0.711)	10.120 [0.000]	0.028	1999:01- 2011:09	153
Poola	3.658 (6.479)	-0.342 (1.319)	0.642 [0.528]	0.001	2001:01- 2011:09	123
Rumeenia	2.023 (3.290)	0.308 ^{***} (0.087)	47.944 [0.000]	0.148	1999:01- 2011:09	153

Harilik vähimruutude meetod. Newey-West standardvead on näidatud ümarsulgudes. ülaindeksid ^{***}, ^{**}, ^{*} tähendavad, et koefitsiendi hinnang on statistiliselt oluline 1, 5 ja 10% tasemel. F-testi nullhüpotees on $\alpha = 0$ and $\beta = 1$; p -väärtus on näidatud nurksulgudes.

Regressioonide R^2 on väga madal. Vahetuskursside tootlused on oluliselt volatiilsemad kui intressivahemikud, ja see piirab võimalust intressivahemike põhjal vahetuskursi muutusi põhjendada. Tõusukoefitsientide osas on oluline märkida, et need kõik on negatiivsed, välja arvatud Rumeenia. Teemakohases kirjanduses on see nähtus hästi tuntud kui „forvard preemia anomaalia“. Kõik hinnangulised konstandid (v.a. Tšehhi Vabariigi oma) on positiivsed, aga statistiliselt erinevad nullist ainult ühe riigi puhul. Võib järeldada, et riski preemia modelleerimine konstandina tähendab mudelile liiga range piirangu seadmist.

Käesolevas artiklis on analüüsi all kolm võimaliku põhjendust, miks UIP hüpotees nende nelja riigi puhul ei kehti.

Esiteks võib selliseks arbitraaži tingimuste rikkumiseks olla globaalne finantskriis. Et paremini aru saada, mil moel globaalne finantskriis UIP-d on mõjutanud, ning üldisemas perspektiivis selgitamaks aja dimensiooni, oleme hinnanud võrrandit (1)

kasutades veereva valimi regressioone, mis koosnevad igakuistest andmetest viie aasta jooksul. Hinnangud põhinevad võrrandil (1), s.t lihtsal lineaarsel UIP testimisel. Artiklis on kajastatud α , β ja R^2 muutus. Esiteks on R^2 kogu perioodi vältel äärmiselt madal Poolas ja Rumeenias, samal ajal kui kolme ülejäänud riigi puhul on R^2 kõrgem enne globaalset finantskriisi (0.2 kuni 0.4), kuid langeb nulli lähedale, kui valim hakkab hõlmama ka globaalse finantskriisi perioodi, alates 2008. aasta sügisest. Käsitledes konstanti ja tõusu koefitsiendi parameetreid, saab ainsa järeldusena tulla arvesse, et nende väärtus on erakordselt volatiilne kõigi riikide puhul.

Teiseks, teemakohases kirjanduses on tihti nenditud UIP mittelineaarsust ning seda on testitud ka meie artiklis. Selleks oleme toonud välja kaks erinevat intressivahemike aegrida. Esimeses aegreas võrdub (INT_SP_LO) intressivahemik algse aegreaga, kui tegu on keskmisest väiksema intressivahemikuga, teistel juhtudel nulliga; teises aegreas (INT_SP_HI) intressivahemik võrdub algse aegreaga keskmisest suurema intressivahemiku korral, ja teiste juhtudel nulliga. Need kaks aegrida on lisatud võrrandile algupärase aegrea asemel:

$$FX_CHG(3) = \alpha + \beta^{LO} \cdot INT_SP_LO + \beta^{HI} \cdot INT_SP_HI + \varepsilon(3) \quad (2)$$

Tulemused on ootuspärased Poola ja Rumeenia puhul, mõlemal juhul on tõusu parameeter suure (β^{HI}) intressivahemiku korral positiivne ja statistiliselt oluline, samal ajal kui madala intressivahemiku puhul on tõusu parameeter statistiliselt ebaoluline. Kolme ülejäänud riigi puhul ei ole tulemused ühemõtteliselt tõlgendatavad.

Kolmandaks, investorite riskikartuse muutused võivad põhjustada, vähemalt ajutiselt, intressivahemike ja vahetuskursside kõrvalkaldeid UIPst. Teisisõnu, riski preemia ei ole konstantne. Selleks testisime võrrandi (1) kaht muudetud versiooni. VIX (S&P indeksi volatiilsus, arvutatud tuginedes indeksi optsoonihindadele) on lisatud põhiregressioonile globaalsete finantsturgude riskikartuse indikaatorina (võrrand 3). Samamoodi on põhiregressioonile lisatud SWE_FX_CHN (Rootsi krooni kolmekuuline tootlus Euro suhtes) Euroopa valuutaturgude välise riskikartuse indikaatorina (võrrand 4).

$$FX_CHG(3) = \alpha + \beta \cdot INT_SP + \gamma \cdot VIX + \varepsilon(3) \quad (3)$$

$$FX_CHG(3) = \alpha + \beta \cdot INT_SP + \delta \cdot SWE_FX_CHG(3) + \varepsilon(3) \quad (4)$$

Võrrandi (3) hinnangu tulemused on toodud ära tabelis 2. Kuigi hinnanguline R^2 ei muutu oluliselt, on VIX koefitsient positiivne kõigi riikide, ja statistiliselt oluline Horvaatia ja Poola puhul. Samal ajal on võrrandite konstant enamasti statistiliselt ebaoluline. Need tulemused viitavad asjaolule, et globaalse riskikartlikkuse arvessevõtmisel kaotab konstantne riski preemia oma põhjendava väärtuse. Võrrandi (4) hinnangu tulemused (siin mitte näidatud) on sarnased, ja SWE_FX_CHG koefitsiendid positiivsed ja statistiliselt olulised.

Kuigi globaalse riskikartlikkuse indikaatorid on statistiliselt olulised ja ootuspäraselt positiivsed, tuleb rõhutada et tõusu koefitsiendid on endiselt negatiivsed, s.t. et UIP

ei kehti. Ainus oluline muutus puudutab konstante, mis muutuvad ebaoluliselt, kinnitades nii, et riskikartlikkus tuleb modelleerida ajas muutuvana.

Tabel 2. UIP võrrandi hinnang VIX-i lisamise korral

	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	F-stat	R^2	Valim	Obs.
Horvaatia	-2.125 (1.912)	-0.65*** (0.230)	0.185** (0.094)	25.946 [0.000]	0.096	2000:02- 2011:09	140
Tšehhi Vabariik	-13.048** (6.133)	-2.176* (1.232)	0.488 (0.320)	3.746 [0.026]	0.131	1999:01- 2011:09	153
Ungari	2.585 (8.785)	-1.439* (0.757)	0.373 (0.430)	5.580 [0.005]	0.056	1999:01- 2011:09	153
Poola	-11.250 (9.412)	-0.755 (1.488)	0.748 (0.614)	1.156 [0.318]	0.075	2001:01- 2011:09	129
Rumeenia	-11.151* (6.385)	0.271*** (0.082)	0.639** (0.294)	40.687 [0.000]	0.210	1999:01- 2011:09	153

Harilik vähimruutude meetod. Newey-West standardvead on näidatud ümarsulgudes. Ülaindeksid ***, **, * tähendavad, et koefitsiendi hinnang on statistiliselt oluline 1, 5 ja 10% tasemel. F-testi nullhüpotees on $\alpha = 0$ and $\beta = 1$; p -väärtus on näidatud nurksulgudes.

Kokkuvõtlikult võib öelda, et rakendades UIP testimise põhimudelit Ida- ja Kesk-Euroopa andmetel ei saanud me oluliselt erinevaid tulemusi kui eelnevates uuringutes, nimelt, et UIP hüpoteesi ei saa üldiselt kehtivaks pidada. „forvard preemia“ anomaalia leiab kinnitust artiklis käsitletud riikide ja valimi puhul: tõusu koefitsient on negatiivne kõikide riikide, v.a. Rumeenia puhul.

Veereva valimi regressioonid näitavad lisaks, et koefitsientide väärtused on üldjuhul väga ebastabiilsed ja sõltuvad valitud valimist. Tšehhi Vabariigi, Ungari ja Rumeenia puhul on selgelt näha, et UIP regressioonide selgitav võime langeb oluliselt pärast globaalset finantskriisi.

Kulutused tehingutele ja informatsiooni hankimisele ei näi avaldavat UIP hinnangutele nii suurt mõju, nagu oodatud, vähemalt sel juhul, kui mittelineaarsus on modelleeritud ülaltoodud viisil. Siiski näitavad meie saadud tulemused, et intressivahemiku suurus on oluline, isegi kui selle mõju ei ole kõikides riikides sarnane: Poola ja Rumeenia puhul on tõusu koefitsient statistiliselt oluline suure intressivahemiku korral, kuid selle väärtus jääb endiselt statistiliselt ühest erinevaks.

Mitmed tulemused viitavad sellele, et riski preemia ei ole konstantne. Nii globaalne riskikartlikkuse indikaator (VIX) kui Rootsi krooni vahetuskurs euro suhtes näivad omavat olulist selgitusjõudu, kuigi mitte ühte moodi kõigis viies riigis. See võib viidata asjaolule, et globaalsed riskifaktorid mõjutavad oluliselt finantsturgude likviidsust ja järelikult ka UIP aluseks olevaid arbitraaži protsesse.

PEREETTEVÕTETE JÄTKUSUUTLIKKUS MAAPIIRKONDADES

Maret Kirsipuu
Eesti Mereakadeemia

Sissejuhatus

Antud uurimistöö eesmärgiks on analüüsida pereettevõtete jätkusuutlikkust. Olulist rolli jätkusuutlikkuses omab pereettevõtte üleandmine järgmistele põlvkondadele, kui see ebaõnnestub, siis lõpeb ettevõtlustegevus ja katkeb konkreetne pereettevõtlus.

Artikkel koosneb kolmest osast, esimeses osas antakse ülevaade pereettevõttest ja pereettevõtte jätkusuutlikkuse teemal läbiviidud uurimistöödest, teises osas esitatakse kasutatud uurimismetoodikat ja kolmandas osas esitatakse uurimistöö tulemused. Lähteandmetena kasutatakse erialast teaduskirjandust ja autori poolt läbiviidud küsitlusi ning intervjuusid pereettevõtjatega aastatel 2007-2011.

Pereettevõtte jätkusuutlikkus

Pereettevõtte eripäraks on see, et äri- ja isiklik tegevus on omavahel läbi põimunud, näiteks ajakasutus; elamis-, tegevus- ja tootmisruumide kokkulangevus jms. Lisaks ettevõtlusele on pereliikmed omavahel seotud nii sõprus- kui ka peresidemetega, abieluga (Kaseorg; Raudsaar, 2008). Sageli on pereettevõtte omanik pereettevõtte juht (Gersick et al., 1997) ja tema isiklikud eesmärgid määravad ettevõtte ärilised eesmärgid (Chrisman et al., 2003) ning ta eelistab ettevõtte omandi säilitamiseks ja kontrolliks hoida ettevõtet väiksena (Kaseorg et al., 2007a; Kaseorg et al., 2007b).

Pereettevõtete jätkusuutmatuse on tingitud sellest, et ei suudeta seada prioriteete ja ei arvestata sellega, et pereettevõtluse alustamisel võtab ettevõtlus kogu vaba aja, samas ei suudeta uskuda, et pereliikmed ei saa teha kõiki töid, milleks neil puuduvad oskused ja ei palgata tööjõudu väljapoolt perekonda.

Teistes riikides läbiviidud uurimistööde analüüsi tulemusel saab väita, et pereettevõtted on jätkusuutlikud (Nordqvist, 2005; Chrisman, Chua, Steier, 2005; Poutziouris, 2000; Quo..., 2003; Gallo, 1995; Poza, 1995; Hanzelkova, 2004; Popczyk et al., 1999; Yalin, 2008; Halttunen, 2004; Vasques et al., 2008; Vadrjal, 2005; Krošlakova, 2007; Balint, 2006; Perry-McLean, 2008), nad on tegutsenud aastakümneid, juhtimine on üle antud järeltulevatele põlvkondadele, pereettevõtete peretraditsioonid ei ole katkenud. Pereettevõtete jätkusuutlikkust tagab pereliikmete rollide jaotus, eriti naise kui pereema rolli tähtsustamine (Kakkonen, 2006; Römer-Paakkanen, 2002; Brazzale, 2007; Rautamäki, 2007), naised hoolitsevad kodusoojuse eest, kuid samas annavad suure panuse pereettevõtte arengusse. Samas põlvkondade vahelised probleemid takistavad pereettevõtte jätkusuutlikkust (Brun de Pontet, 2008; Moyer, 2006; Wickham, 2004). Pereettevõtte jätkusuutlikkus tagatakse pikaajalise peretraditsiooniga.

Pereettevõtete ülesehitust uurides on leitud, et esimese põlvkonna pereettevõttes peaksid olema juhiks vaid pereliikmed ja alates teisest põlvkonnast tuleks palgata lisaks tööjõudu väljastpoolt, kuid kindlasti peaksid pereliikmed töötama koos nendega tagamaks pereettevõtte jätkusuutlikkuse (Nedlin, 2003). Positiivne pereettevõtete maine on tingitud sellest, et pereettevõtjad omavad pikaajalisi ettevõtluskogemusi ja peavad kinni traditsioonidest (Kellermanns et al., 2008), mis omakorda tagavad usaldusväärsuse ja jätkusuutlikkuse.

Pereettevõtete püsijäämine sõltub suuresti juhust, kas pereettevõtte juht on liider või mitte. Järeltulijatega peavad olema head suhted, oluline on avatud suhtlemine ja üksteise saavutuste tunnustamine. Paljude pereettevõtete omanike (pereettevõtjate) arvates on pereettevõtte pikaealine kestvus oluline, tähtis on, et pereettevõtte läheks käest kätte. Erinevate uuringute tulemusel on selgunud, et 30% pereettevõtetest on teises põlvkonnas edukad ja vaid 10...15% kolmandas põlvkonnas (Aronoff, 1999; Kets de Vries, 1993; Ward, 1997).

Põlvkonnavahetusega seotud probleemide aktuaalsus suureneb, sellele on hakatud pöörama tõsisemat tähelepanu, oluline on omandi jagamisel tähtsustada järjepidevust ja traditsioone, sest iga uus põlvkond saab kaasa pärandi (Tormakangas, 2005). Erinevad põlvkonnad võivad edasisele pereettevõtte arengule ja strateegiale mõjuda erinevalt (Brun de Pontet, 2008). Koos esimese põlvkonna ettevõtjate vananemisega muutuvad aktuaalseks küsimused: mis saab pärast nende kõrvaletõmbumist; kas järeltulija on perekonnast; kuidas järeltulijale juhtimine üle anda, mitte ainult ametikoha üleandmine vaid oskuste, sidemete, juhirolli ja omandi üleandmine (Kirsipuu, 2007). Põlvkondadevahetused on edukamad siis, kui järeltulija on pereettevõtlusest huvitatud, kuid ainult tahtest on vähe, peab omandama erinevaid oskusi ja oskust kontrollida turgu (Brun de Pontet, 2008). Järeltulijatele oskuste üleandmisel tuleb teadvustada võimalikke tekkivaid probleeme (Hautala, 2006), et vältida olukordi, kus lapsed ei soovi osaleda pereettevõttes. Selleks peab olema valmis ja kiirelt otsustama, kellele sellisel juhul jätta pereettevõtte, keda määrata juhiks (Kakkonen, 2006). Kui lapsed soovivad jätkata vanemate alustatud, siis antakse teadmised ja oskused edasi lastele (Littunen, 2001).

Pereettevõtete jätkusuutlikkus on tagatud vaid siis, kui pereettevõtjad teavad nii jätkusuutlikkuse tagamise kui ka jätkusuutlikkust takistavaid tegureid (tabel) ja oskavad teha õigeid valikuid.

Pereettevõtete jätkusuutlikkusele on pööratud erilist tähelepanu ja leitud, et üheks põhiliseks valupunktiks on põlvkonnavahetustel tekkinud probleemid. Pereettevõtte jätkusuutlikkuse tagamise üheks eelduseks on pereettevõtjate ettevalmistus põlvkonnavahetuseks.

Tabel 1. Pereettevõtte jätkusuutlikkuse tegurid (autori koostatud)

Tegurid	Allikas
EDASIVIIVAD TEGURID	
Positiivne maine	Runge, 1998; Bianchi, 2007; Rutherford et al., 2008
Pereliikmete rollide oskuslik jaotamine	Römer-Paakkanen, 2002; Kakkonen, 2006; Maeda 2006; Brazzale, 2007; Rautamäki, 2007; Hite, 2007
Laste kaasamine	Tormakangas, 2005
Järeltulevate põlvkondade koolitamine koos väljaõppega väljaspool perekonda	Hautala, 2006; Sardeshmukh, 2008
Juhtimise üleandmine järeltulevale põlvkonnale koos omandi, juhtimise ja teadmistega	Littunen, 2001; Tormakangas, 2005; Hautala 2006
Ühine eesmärk, peretraditsioonide jälgimine	Gallo, 1995; Poza, 1995; Popczyk et al., 1999; Poutziouris, 2000; Römer-Paakkanen, 2002; Halttunen, 2004; Hanzelkova, 2004; Nordqvist, 2005; Chrisman, Chua, Steier, 2005; Vadnjal, 2005; Juutilaine, 2005; Tormakangas, 2005; Balint, 2006; Krošlakova, 2007; Yalin, 2008; Vasques et al., 2008; Perry-McLean, 2008; Kellermanns et al., 2008
TAKISTAVAD TEGURID	
Konfliktid nii mittepereliikmete kui ka pereliikmete vahel	Niemela, 2003; Sardeshmukh, 2008
Esimeses põlvkonnas juhib pereettevõtet mittepereliige	Nedlin, 2003; Kakkonen, 2006
Põlvkonnavahetusel juhtimise üleandmine mitte pereliikmele	Niemela, 2003; Hautala, 2006; Kakkonen 2006
Põlvkonnavahetusel tekkivad probleemid	Wickham, 2004; Hautala 2006; Moyer, 2006; Brun de Pontet, 2008

Metoodika

Uurimistöö eesmärgiks oli uurida pereettevõtjate jätkusuutlikkust ja põlvkonnavahetusega seotud probleeme kvalitatiivse uurimismeetodiga. Peamise uurimisvahendina antud uurimistöös kasutati struktureeritud ja struktureerimata küsimustikke ja intervjuusid.

Teoreetilistest andmetest lähtudes koostati küsimustikud ja intervjuud ning püstitati ülesanded, milleni taheti intervjuude käigus jõuda. Küsitlused ja intervjuud toimusid ajavahemikul 2007-2011, läbiviidud küsimustike ja intervjuude teemad saab jaotada kolme põhirühma:

- ettevõtjate taust, tegevusalad;

- tegevus pereettevõtjana;
- perekonna osalus ettevõtluses.

Antud artiklis käsitletakse vaid seda osa uurimistööst, mis on seotud pereettevõtete jätkusuutlikkusega. Uurimistöö andmed on kontsentreeritud, lihtsustatud ja teisendatud ning esitatud kokkusurutud informatsiooni kogumina (joonistena).

Tulemused

Aastatel 2007 kuni 2011 on küsitletud ja intervjueritud 1188 pereettevõtjat, analüüsi tulemused on koondatud ühtseks tervikuks. Pereettevõtjana alustamisel oli naisi 40% ja mehi 60%, alustades oli pereettevõtjate vanus 21. eluaastast kuni 55. eluaastani. Alustamisel tuli initsiatiiv 60% meestelt, kes siis kaasasid esmalt abikaasa ja seejärel lapsed ning sugulased. Perekonna koosseis oli pereettevõtlusega alustades väga erinev, alustati kahe kuni kuuekesi, seega pereettevõtlusega alustamine ei sõltu mitte perekonna suurusest vaid perekonna vajadustest, ambitsioonidest ja ettevõtlikkusest. Kõik need pereettevõtjad, kes said jätkata isasisade tehtut, olid 100% veendunud, et ainult abielu on õige perekonna alustala ja ainult läbi abielu saab luua, säilitada ja tagada pereettevõtte jätkusuutlikkus.

Pereettevõtlusega alustades loodi pigem pereettevõtted, kus said rakenduse vaid pereliikmed, alles hiljem hakati kaasama töötajaid, kes ei kuulu perekonda. Samas leiavad pereettevõtjad, et kooselava perekonnaga pereettevõttes toimetades praktiliselt probleemid puuduvad. Pereettevõtte juhtimises peetakse tähtsaks ainult pereliikmetest koosnevat juhtkonda, mitte väljastpoolt palgatud juhtkonda. Pereettevõtjad on veendunud, et nende pereettevõtte organisatsioonikultuur on suunatud inimsuhetele, nad on olemasoleva organisatsioonikultuuriga rahul, neile on väärtuste hindamine esmatähtis. Pereettevõtte organisatsioonikultuuri mõjutavad pereettevõtjad, palgatud tegevjuhtkonnal on ülesanne tugevdada läbi seatud eesmärkide olemasolevat organisatsioonikultuuri.

Need pereettevõtted, kes on orienteeritud tulevaste põlvkondade heaolu tagamisele, on jätkusuutlikumad ja tugevama pereettevõtluskultuuriga kui need, kellel selline orienteeritus puudub. Maapiirkonna pereettevõtjad soovivad investeerida järgmistesse põlvkondadesse jätkamaks kauaaegseid peretraditsioone, mis ligi 50. aastat olid purunenud. Hea meelega investeeritakse laienemisse ja koolitatakse pereettevõtte liikmeid (nii pereliikmetest töötajaid kui ka mittepereliikmetest töötajad), sest pereettevõtte soovitakse jätta järeltulijatele. Pereettevõtte, kus puudub võimalus jätta pereettevõtte tulevastele põlvkondadele, hakkab pikemas perspektiivis lagunema, kaovad huvid.

Koos „esimese ringi” pereettevõtjate vananemisega muutuvad aktuaalseks küsimused: mis saab pärast nende kõrvaletõmbumist; kas järeltulija on perekonnast ja kuidas järeltulijale juhtimine üle anda. Mitte ainult ametikoha üleandmine vaid oskuste, sidemete, juhirolli ja omandi üleandmine, millel kõigil on oluline tähtsus pereettevõtte jätkusuutlikkusele. Põlvkonnavahtusega seotud probleemid on

kerkinud päevakorda aktuaalsemalt põllumajandusega tegelevates pereettevõtetes, sest küsitletud maapiirkonna pereettevõtjatest enamus alustas tegevust 1991-1999 aastal, nende keskmine vanus oli tol hetkel 45.

Pea kõikidel uuritud pereettevõtjatel oli probleemiks ettevõtlusalaste teadmiste, kogemuste vähesus, eriti järeletulijatele juhtimise üleandmise kohta. Kõik pereettevõtjad soovisid seda, et pöörataks rohkem tähelepanu pereettevõtete rollile majanduses ning viidaks läbi pereettevõtjatele koolitusi, mis hõlmaksid juhtimist, strateegiat, ajaplaneerimist, pereettevõtete üleandmist järglastele jms. Samuti soovitakse konkurentsivõime kasvuks riigipoolset abi rahaliste vahendite osas, et tegutseda jätkusuutlikult. Ühine soov on korrektselt toimiv tarneahel, et tagada juurdepääs uutele turgudele. Enamus pereettevõtjaid on veendunud, et tugeva ja taibuka perekonnaga, õige juhtimise strateegiaga ning tugeva pereettevõttekultuuriga tagatakse eesmärkide täitumine ja suudetakse teenida kasumit.

Kokkuvõte

Pereettevõtete iseloomulikuks tunnuseks on see, et pereliikmetele on pereettevõtte peamiseks sissetulekuallikas. Üheks positiivsemaks pereettevõtte omaduseks on lühike otsustusahel, mis tagab seatud eesmärkide kiire elluviimise. Pereettevõtte tegevust ja edukust mõjutavateks teguriteks on pereliikmete omavahelised suhted ja põhjalikult ning läbimõeldult koostatud strateegiline tegevusplaan ja organisatsioonikultuur. Kõik teadmised pereettevõtluse valdkonnast on vajalikud selleks, et aidata luua uusi pereettevõtteid, arendada olemasolevaid, osata anda juhtimist üle järgmistele põlvkondadele ja muuta pereettevõtteid jätkusuutlikuks.

Maapiirkonna pereettevõtjate järeletulijad lähevad peale hariduse omandamist esmalt linnadesse, kuid peagi tullakse tagasi juurte juurde ja jätkatakse vanemate poolt alustatud. Perekonna seotus ettevõttega saab olla oluliseks konkurentsieeliseks. Pereettevõtte majandamine on perele jõukohane, tööjaotus toimub vaid pereliikmete vahel ja puudub vajadus aastaringselt palgata põhikohaga töötajaid.

Intervjuude analüüsi tulemusena selgus, et pereettevõtte jätkusuutlikkust tagatakse siis, kui:

- Tegutsetakse pikaajaliselt ja luuakse peretraditsioonid;
- Pereettevõttes on planeerimissüsteem, strateegilised plaanid ja tugev organisatsioonikultuur;
- Teadlikult koolitatakse järeletulevat põlvkonda;
- Laiendatakse ettevõtlust ja antakse üle ettevõtlus järgmisele põlvkonnale.

Intervjuude analüüsi tulemusena selgus, et pereettevõtte jätkusuutlikkust takistavateks teguriteks on:

- Ettevõtlusalaste kogemuste ja teadmiste vähesus;
- Järeletulevas põlvkonnas huvi tekitamine pereettevõtluses osalemiseks;
- Oskuste puudus juhtimise üleandmisel järgmisele põlvkonnale;
- Konfliktid põlvkonnavahtetel.

Uurimistööst saab järeldada, et pereettevõtjad soovivad tegutseda mitmes tegevusvaldkonnas pikaajaliselt ja saada traditsioonilisteks jätkusuutlikeks pereettevõteteks, kellel on kindel väljakujunenud pereettevõtluskultuur, selleks tuleb:

- Korraldada pereettevõtjatele ettevõtlusalaseid koolitusi;
- Korraldada erialaseid täiendõppeid;
- Korraldada koolitust juhtimise üleandmiseks järeltulijatele;
- Arendada maapiirkondades ühistegevust ja seltsindust;
- Propageerida enam pereettevõtlust;
- Teostada tasuta nõustamist täiendavate finantsvahendite leidmiseks;
- Tõhustada kohalike omavalitsuste ja pereettevõtjate koostööd.

Pereettevõtete jätkusuutmatust esimestel aastatel on tingitud sellest, et ei suudeta seada prioriteete ja ei arvestata sellega, et pereettevõtluse alustamisel võtab ettevõtlus kogu vaba aja, samas ei suudeta uskuda, et pereliikmed ei saa teha kõiki töid, milleks neil puuduvad oskused ja ei palgata tööjõudu väljapoolt perekonda.

Üheseid juhiseid pereettevõtjatele jätkusuutlikkuse tagamiseks ning juhtimise üleandmiseks järeltulevatele põlvkondadele anda ei saa. See, mis võib toimida hästi ühe pereettevõtte juures, ei pruugi toimida teise juures. Iga pereettevõtja peab võtma vastu otsuseid, mis ainult neile sobib ja arvestama enda pereettevõtte pereettevõtluskultuuri, omapära ja võimetega.

Eestis ei ole välja antud õpikuid ega käsiraamatuid pereettevõtjatele, samuti ei ole haridussüsteemis pereettevõtlusalast õppekava. Kuid teadmised pereettevõtluse valdkonnast on vajalikud selleks, et saaks luua uusi pereettevõtteid, arendada olemasolevaid, osata anda valutult pereettevõtete juhtimist üle järgmistele põlvkondadele ja muuta pereettevõtted jätkusuutlikuks. See tühimik tuleb täita. Pereettevõtete eripära ja spetsiifiliste probleemide teadvustamise vajadus Eestis pidevalt tõuseb, teadvustamata on juhtimise iseärasused; suhted pereliikmete ja mittepereliikmetest töötajate vahel ning järeltulijate probleemid.

Eesti pereettevõtlus on alles esimeses põlvkonnas, pereettevõtte üleandmine järgmisele põlvkonnale on peatselt saabumas, vähestel juba ka toimumas. Selleks, et pereettevõtte üleandmine toimuks probleemideta, tuleb juba praegu teha ettevalmistusi. See, kas Eesti pereettevõtete jätkusuutlikkuse edutegurid on samad mis mujal maailmas, on uurimisküsimuseks paarikümne aasta pärast. Kuid see, kas Eesti pereettevõtete jätkusuutlikkust takistavad tegurid on just needsamad, mis mujal maailmas, on uurimisküsimuseks juba lähiaastatel.

MAJANDUSKASV, KONVERGENTS JA INNOVATSIOON EUROOPA LIIDU REGIOONIDES

Tiiu Paas, Triin Vahi
Tartu Ülikool

Regionaalse arengu erinevused Euroopa Liidus ja neid selgitavad tegurid on oluline uurimisvaldkond, mis loob aluse regionaalpoliitiliste meetmete sihipäraseks väljaarendamiseks ja rakendamiseks eesmärgiga tugevdada riikide ja regioonide vahelist sidusust. Käesoleva artikli eesmärgiks on hinnata innovatsioonide rolli Euroopa Liidu riikide ja regioonide tuluerinevuste selgitamisel ning regionaalse tulukonvergenti võimalikul mõjutamisel. Läbi innovatsioonide loodavad regioonid saavutada konkurentsieelist, mis võimaldaks tõsta tootlikkust ning saavutada kõrgemat majanduskasvu.

Neoklassikalise majanduskasvu teooria kohaselt peaksid regionaalsed tuluerisused pikaajaliselt kaduma. Regioonidevaheliste tulutasemete täielikku ühtlustamist nimeatakse absoluutseks konvergenstiks. Selle kohaselt on esialgselt madalama tulutasemega regioonidel hea potentsiaal kiiremaks kasvuks kui seda on kõrgema arengutasemega regioonidel ning seeläbi peaksid erinevused madalama ja kõrgema tulutasemega regioonide vahel vähenema. Juhul, kui regioonid erinevad üksteisest tehnoloogilise arengu, innovatsiooni, institutsioonide, majandusstruktuuri või muude arengtegurite poolest, võib iga regioon liikuda oma tasakaaluseisundi poole, mille tulemusena leiab aset tingimuslik konvergenstiprotsess. Kiiremini kasvavad oma tasakaaluseisundist kaugemal asuvad regioonid, kuid regioonidevahelised tulutasemed ei pruugi kunagi ühtlustuda.

Käesoleva uurimuse üks rõhuasetusi on selgitada innovatsioonide rolli tingimuslikus tulukonvergenstis. Laialt levinud arusaama kohaselt loob innovatsioonisüsteem raamistiku innovaatiliseks tegevuseks regioonis. Regiooni innovatsioonisüsteemi kontseptsioon on veel arenemisjärgus ning sellest on kujunemas teoreetiline ning analüütiline raamistik, mis loob empiirilise aluse poliitika kujundamiseks, et toetada regionaalset majandusarengut ja -kasvu.

Regionaalsete tuluerisuste mõõtmiseks oleme selles töös kasutanud praktikas enamlevinud statistilist lähendit, milleks on hinnatasemega kohandatud SKP elaniku kohta (SKP *per capita* PPS). Empiiriline analüüs on läbi viidud Euroopa Liidu NUTS-2 ja NUTS-3 regioonide¹ näitel kasutades Eurostati andmed SKP elaniku kohta (PPS). Lisaks oleme kasutanud Eurostati ja EL-i regionaalse innovatsiooni uuringu (RIS²) andmeid NUTS-2 tasandi regioonide innovaatilisuse mõõtmiseks. Analüüsiperiood hõlmab aastaid 1995-2007, st ajaperioodi, mil toimusid olulised struktuursed ümberkorraldused Euroopa Liidu riikides seoses idasuunalise laiene-

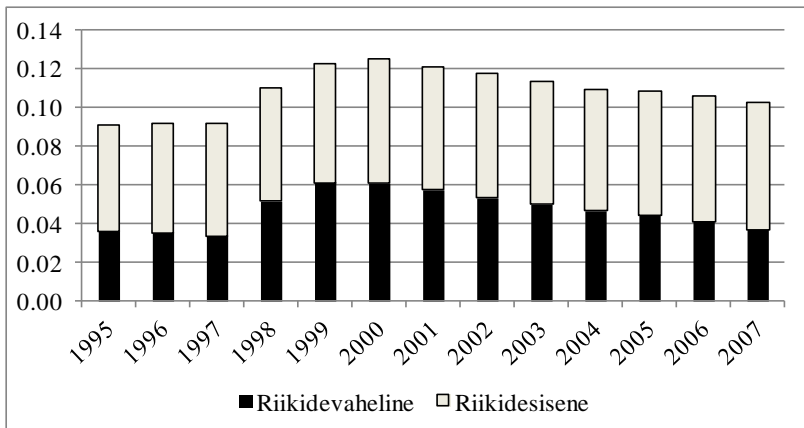
¹ NUTS (*Nomenclature of Territorial Units for Statistics*) – EL-i statistiliste territoriaaljaotuste klassifikatsioon, kus NUTS-0 tähistab riigi taset ning vastavalt 1, 2 ja 3 üha väiksemaid regioone

² *European Regional Innovation Scoreboard*

mise ettevalmistamise ning Euroopa Liidu laienemisega. Analüüsiperiood ei hõlma majanduskriisiga seonduvat ajaperioodi.

Majanduse arengutase varieerub EL-is olulisel määral, enamasti jääb 2004. a ja hiljem liitunud riikides ja regioonides tulutase allapoole ühenduse keskmist. EL-i regioonide tuluerisuste ja nende dünaamika analüüsimiseks vaadeldakse NUTS-3 tasandi regioonide tulutasemete (SKP pc) varieeruvust perioodil 1995-2007. a. Regioonidevahelisi tulutaseme erisusi võib analüüsida mitmete näitajatega (nt Gini indeks, variatsioonikordaja), kuid siinkohal on kasutatud Theili indeksit. Viimase eeliseks on võimalus näitaja dekomponeerimiseks, et võimalik on analüüsida, kui suur osa tulutasemete varieeruvusest on omistatav riikidevahelistele ja kui suur osa riikidesisestele erinevustele.

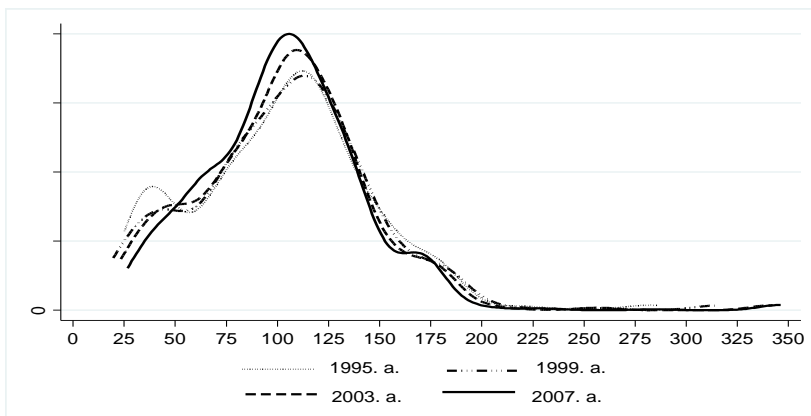
Alates 2000. a on tulutasemete (SKP pc) erinevused hakanud vähenema, mis viitab konvergenstprotsessile. Samas on konvergens olnud suhteliselt nõrk ja toimunud peamiselt riikidevaheliste tuluerisuste vähenemise tõttu. Riikidevahelised tuluerisused on järjekindlalt vähenenud alates 2000. aastast, kui algasid sihipärased ettevalmistused endise sotsialismibloki riikide integreerimiseks Euroopa ühtsesse majandussüsteemi. Tulevastes uutes liikmesriikides toimus kiire majanduskasv, mis väljendus ka riikidevahelises tulukonvergenstsis. Riikidesisesed tuluerisused regioonide vahel on olnud mõnevõrra stabiilsemad vanades liikmesriikides, uutes liikmesriikides on regionaalsed tuluerisused kasvanud kiiremini. Riikidesisese ebavõrdsuse osakaal oli kriisieelsel 2007. a ligikaudu 70%.



Joonis 1. Theili indeks komponentideks lahutatuna EL-27 riikides ja nende NUTS-3 tasandi regioonides perioodil 1995.-2007. a (autorite arvutused tuginedes Eurostati andmetele).

Tuginedes regioonide SKP pc andmetele võib öelda, et aja jooksul on vähenenud regioonide arv, kus SKP pc jääb alla 50% ühenduse keskmisest (joonis2), kuid

suured erinevused regioonide tulutasemetes esitavad jätkuvalt Euroopa Liidu regionaalpoliitikale uusi väljakutseid. Jätkuvalt on tugev regionaalne polariseerumine, kuigi võrreldes 1995. aastaga on see mõnevõrra vähenenud.



Joonis 2. EL-i tulujaotuse (EL-27=100) tihedusfunktsioonid 1995.-2007. a (autorite arvutused tuginedes Eurostati andmetele).

Regionaalsete tuluerisuste ja innovatsiooni vahelise seose uurimisel lähtume seisukohast, et innovatsioon on mitmedimensiooniline nähtus ning seda ei ole võimalik mõõta vaid ühe näitajaga. Empiirilise analüüsi läbiviimisel tuginame algselt üheksale innovatsiooni iseloomustavale näitajale. Kaasatud on nii innovatsiooni sisendnäitajad (nt inimkapital, investeeringud) kui ka väljundnäitajad (nt tööhõive teadmiste ja tehnoloogiaintensiivsetes sektorites). Kaasatud innovatsiooni näitajatele tuginedes leidsime faktoranalüüsi peakomponentide meetodit kasutades innovatsiooni agregaatnäitajad. Kasutatud meetod võimaldab koondada innovatsiooni lähtenäitajates sisalduva informatsiooni innovatsiooni üldistavalt kirjeldavatesse näitajatesse, mis on omavahel sõltumatud. See aitab vältida võimalikku multikollineaarsuse probleemi edasise regressioonanalüüsi läbiviimisel.

Faktoranalüüsi tulemusel koondati innovatsiooni lähtenäitajad kolme faktorisse – agregeeritud innovatsiooni näitajasse, mis kirjeldavad 80,8% innovatsiooni lähtenäitajate koguvärueruvusest, sealjuures esimene faktor 38,7%, teine 22,0% ja kolmas 20,1%. Esimene faktor (F1) on tugevalt seotud teadmispõhises teeninduses hõivatus näitajaga, aga ka era ja avaliku sektori teadmispõhise majanduse näitajatega. Seetõttu tõlgendasime seda faktorit kui teadmispõhise teeninduse näitajat regioonides. Teine faktor (F2) on tugevalt seotud hariduse näitajatega ning seetõttu käsitleme seda agregeeritud näitajat kui inimkapitali taseme näitajat regioonides. Kolmas faktor (F3) on tugevamalt seotud kõrgtehnoloogilise sektori tööhõive näitajaga, samuti erasektori teadus- ja arendustegevuse ning patenteerimise näitajatega. Sellest tulenevalt tõlgendasime seda faktorit kui kõrgtehnoloogilise tööstuse taset regioonides iseloomustavat näitajat.

Sisuliselt tõlgendatud innovatsioonifaktorite taset EL-i riikide NUTS-2 tasandi regioonides iseloomustavad vastavad standardiseeritud näitajad – faktorkaalud. Kolme faktori faktorkaalude kaalutud summeerimise tulemusena leidsime ka regiooni üldise innovatsiooniindeksi. Kõigi kolme faktori ja kaalutud innovatsiooniindeksi väärtused on reeglina üle keskmise kõrgema tulutasemega vanade liikmesriikide regioonides. Regioonide jaotumine tulutasemete alusel on tugevalt seotud regioonide innovaativsusel ning ka üldise innovatsiooniindeksi alusel võib täheldada regioonide tugevat polariseerumist.

Selleks, et empiiriliselt hinnata innovatsiooni rolli regionaalarengus ja konvergenstsi-protsessis, hindasime regionaalse tulutaseme ja konvergenstsi modelid, kus regioonide innovatsiooni taseme mõõtmiseks kasutasime innovatsiooni agregaatnäitajaid (faktoreid F1, F2 ja F3) kui selgitavaid muutujaid (tabelid 1 ja 2). Regressioonanalüüs on läbi viidud Eurostati NUTS-2 tasandi 262 regiooni 2000. ja 2007. a andmetel. Kuna regionaalseid innovatsioone on võrreldavatel alustel kõikides EL-i riikides ja NUTS-2 tasandi regioonides mõõdetud vaid lühiajaliselt, siis ei ole kahjuks võimalik läbi viia pikaajalist konvergenstsianalüüsi ega analüüsida innovatsioonide pikaajalist rolli tingimuslikus tulukonvergenstsis.

Selgitamaks innovatsioonide rolli regioonide vahelistes tuluerinevustes hindasime regressioonimodeli, mille sõltuvaks muutujaks on SKP inimese kohta i-ndas regioonis ning selgitavateks muutujateks faktorite F1, F2 ja F3 faktorkaalud i-ndas regioonis ning riikide ja uute-vanade liikmesriikide regioonide fiktiivsed muutujad. Regressioonanalüüsi tulemused on esitatud tabelis 1.

Tabel 1. Regressioonimudelid regioonide vaheliste tuluerinevuste ja innovatsiooni vahelise seose hindamiseks

	Mudel 1	Mudel 2	Mudel 3
$F_{1,2007}$ – Teadmistepõhine teenindus	0,309 *** (0,019)	0,227 *** (0,022)	0,281 *** (0,026)
$F_{2,2007}$ – Inimkapital	0,055 *** (0,017)	0,049 *** (0,015)	0,052 *** (0,013)
$F_{3,2007}$ – Kõrgtehnoloogiline tööstus	0,075 *** (0,014)	0,071 *** (0,012)	0,114 *** (0,015)
D_{EL} (EL-15=0, EL-12=1)		-0,373 *** (0,049)	
D_{riik}	-	-	+
δ	10,019 *** (0,015)	10,098 *** (0,013)	10,022 *** (0,025)
R ²	0,634	0,737	0,846
Kohandatud R ²	0,630	0,732	0,827
n	262	262	262

Sõltuv muutuja: $\ln(Y_{2007})$ Sulgudes on toodud heteroskedastiivsuse suhtes kohandatud standardhälbed. Statistiliselt oluline nivool ***0,01, **0,05 ja *0,1.

Allikas: autorite arvutused.

Regressioanalüüsi kohaselt on ligikaudu 85% regioonide tulutasemete (SKP inimese kohta) varieeruvusest selgitatavad innovatsiooni faktoritega, kui arvesse on võetud ka riikidespetsiifiline mõju. Kõikide modelite korral on regioonide tulutase statistiliselt oluliselt ja positiivselt seotud innovatsiooni faktoritega (tabel 1). Seega mängib regiooni innovaatilises olulise rolli regioonide majandusarengu tasemetes ilmnevate erisuste selgitamisel.

Regressioonimodelite hinnangud tingimusliku konvergenstehüpoteesi testimiseks on toodud tabelis 2.

Tabel 2. Regressioonimudelid tingimuslik konvergenstehüpoteesi testimiseks

	Model 4	Model 5	Model 6
$\ln(Y_{2000})$	-0,215 ^{***} (0,027)	-0,117 ^{***} (0,033)	-0,063 ^{***} (0,022)
$F_{1,2000}$ – Teadmispõhine teenindus	0,018 [*] (0,09)	0,010 (0,008)	0,030 ^{***} (0,009)
$F_{2,2000}$ – Inimkapital	0,015 ^{***} (0,006)	0,013 ^{**} (0,006)	0,004 (0,004)
$F_{3,2000}$ – Kõrgtehnoloogiline tööstus	0,003 (0,006)	-0,003 (0,006)	0,004 (0,005)
D_{EL} (EL-15=0, EL-12=1)		0,127 ^{***} (0,029)	
D_{riik}	-	-	+
α	2,376 ^{***} (0,263)	1,395 ^{***} (0,322)	0,852 ^{**} (0,215)
R^2	0,472	0,533	0,861
Kohandatud R^2	0,464	0,524	0,843
n	262	262	262

Sõltuv muutuja: $\ln(Y_{2007}/Y_{2000})$. Sulgudes on toodud heteroskedastiivsuse suhtes kohandatud standardhälbed. Statistiliselt oluline nivool ***0,01, **0,05 ja *0,1.

Allikas: autorite arvutused.

Regressioonimodelite 1-3 põhjal oli kõige olulisem roll regioonide tulutasemete selgitamisel teadmispõhise teeninduse faktoril (tabel 1). Teadmispõhine teenindussektor on eelkõige arenenud kõrge tulutasemega vanade liikmesriikide regioonides, kus teadmispõhises teeninduses ja kõrgtehnoloogilistes sektorites on enam hõivatuid, panustatakse teadus- ja arendustegevusse nii avalikus kui ka erasektoris, toetatakse teadust ja tehnoloogiat jne. Statistiliselt oluline seos majandusarengu taseme ja inimkapitali faktori vahel viitab, et jätkuvad investeeringud kõrgharidusse ja elukestvasse õppesse loovad soodsa pinnase teadmiste vahetamiseks ja innovaatilisteks tegevuseks regioonis. Statistilist kinnitust leidis ka seisukoht, et kõrgtehnoloogilise tööstussektori arengutaset iseloomustaval näitajal on oluline roll regioonide vaheliste tuluerinevuste selgitamisel. Kõrge tulutasemega vanade liikmesriikide regioonides toetavad kõrgtehnoloogilist tööstust ettevõtete teadus- ja arendustegevuse alased investeeringud ja patenteerimistegevus. Madalama sissetulekuga uute liikmesriikide regioonides jäävad mainitud tegevused

nõrgemaks, pidurdades seeläbi kõrgtehnoloogilise tööstuse potentsiaali väljaarendamist ja rakendamist. Lisaks on kõrgtehnoloogilise tööstussektori eelduseks kvalifitseeritud tööjõu olemasolu, mis ei pruugi vaesemates regioonides alati olemas olla.

Tingimuslikest konvergensivõrranditest (mudelid 4-6, tabel 2) saab kinnitust regionaalsete tuluerisuste vähenemine, kuid innovaatiline tegevus pigem suurendab kui vähendab regioonide vahelisi erinevusi lühiajalises perspektiivis (2000-2007). Empiirilised tulemused näitavad, et innovatsiooni faktorid kirjeldavad 47,2% majanduskasvust ja lisaks on ligi 40% kasvufaktoritest selgitatavad muude riigispetsiifiliste teguritega (riigi fiktiivsed muutujad) nagu institutsioonid, poliitiline olukord, infrastruktuur jne.

Kokkuvõttes saab öelda, et regionaalareng ja konvergensiprotsess on seotud regioonide innovaatilisusega. Lisaks mõjutavad majandusarengut ka muud tegurid, millest sõltub regioonide võime võtta vastu, omandada, rakendada ja edasi arendada uusi teadmisi. Innovatsioonid toetavad küll regioonide majandusarengut, kuid ei toeta tulukonvergenti. Seega, kui regionaalne tulutasemete konvergens on majanduspoliitiliseks eesmärgiks, tuleb lisaks innovatsioonidele rakendada ka muid regionaalpoliitilisi meetmeid. Samas tuleb silmas pidada asjaolu, et regionaalsete tuluerinevuste vähendamine regionaalpoliitiliste meetmetega võib vähendada majandustegevuse efektiivsust, mõnikord ka innovaatilisust.

SOTSIAALTEENUSTE EEST TASU KÜSIMINE EESTI KOHALIKES OMAVALITSUSTES

Katrin Pihor, Kadi Timpmann
Poliitikauuringute keskus Praxis, Tartu Ülikool

Kasvav finantssurve on kogu maailma omavalitsusi sundinud otsima uusi vahendeid, millega rahastada avalike teenuste pakkumist.

Sotsiaalteenuste eest tasu küsimine on seni olnud pigem tagasihoidlik. Kuid kuna nende nõudlus on kasvava eluea ja vananeva rahvastiku tõttu selgelt suurenemas, siis on teenustasu küsimine üks viis, kuidas vähendada teenusemahu kasvust tulenevat finantssurvet kohalike omavalitsuste eelarvele. Juba see, et sotsiaalteenuste tarbimine on nii välistatav kui ka konkureeriv, annab teoreetilistest vaatenurgast hea võimaluse teenustasude rakendamiseks.

Selle artikli eesmärk on selgitada, millistest teguritest sõltub sotsiaalteenuste eest tasu küsimine postsotsialistlikus väikeses unitaarriigis ning millised võiksid olla nende teenuste rahastamise lisavõimalused. Selleks ühendati 2010. aastal sotsiaalministeeriumi tellimusel poliitikauuringute keskuse Praxis korraldatud küsitluse tulemused ning kohalike omavalitsuste rahvastiku- ja eelarvenäitajad.

Küsitluses uuriti kohalike omavalitsuste sotsiaalvaldkonna eest vastutavatel ametnikelt, milliste teenuste eest tasu küsitakse, miks ja kuidas teenustasusid reguleeritakse ning kuidas neid praktikas rakendatakse. Seega on tegemist omavalitsuse ametnike hinnangutega. Küsitlusele vastas 226 omavalitsust ehk 100%. Statistiliste andmete analüüsi osas kasutati 2009. aasta andmeid 225 omavalitsuse kohta, sest ühe, liitumise tulemusena tekkinud omavalitsuse kohta andmed puudusid. Statistikaameti rahvastiku- ja eelarveandmete töötlemisel saadi järgmised muutujad: rahvaarv; vanemaealiste (üle 65aastaste ja üle 85aastaste) osakaal rahvastikus; omavalitsusele laekunud tulumaks elaniku kohta, mis näitab elanike sissetulekute hinnangulist suurust; eelarve maht elaniku kohta, mis iseloomustab omavalitsuse rikkust; sotsiaalkulutuste osakaal eelarve kogukuludes, mis tähistab sotsiaalvaldkonna olulisust; vanemaealistele ja puuetega inimestele tehtavate kulude osakaal eelarve kogukuludes; vanemaealistele ja puuetega inimestele tehtavate kulutuste maht nii üle 65aastaste kui ka üle 85aastaste elanike kohta. Statistilises analüüsis kontrolliti kõigepealt hüpoteesi, et loetletud muutujate keskmised väärtused on tasu küsivates ja mitteküsivates omavalitsustes erinevad. Selleks kasutati mittepameetrilist Mann-Whitney U-testi. Lisaks hinnati logistilise regressiooni abil tõenäosust, et omavalitsus küsib sotsiaalteenuste eest tasu sõltuvalt valitud muutujatest.

Artikkel on jaotatud nelja ossa. Esimeses osas vaadeldakse teoreetilise kirjanduse alusel teenustasude kasutamise põhjusi ja piiranguid. Teises osas antakse põgus analüütiline ülevaade teenustasude kohast Eesti omavalitsuste tulubaasis ja teenustasude kasutamise õigusraamistikust. Kolmandas osas selgitatakse empiirilise analüüsi andmestikku ja meetodikat. Neljas, kõige mahukam osa käsitleb

sotsiaalteenuste eest tasu küsimise mõjutegureid nii küsitlusandmete kui ka logistilise mudeli tulemuste põhjal.

Teenustasuna mõistetakse siinses artiklis teenuse hinda, mida valitsusasutused avaliku teenuse kasutamise eest küsivad. Teenustasu abil rahastamine kätkeb mitut eelist. Kui avaliku teenuse eest küsitakse tasu, paneb see teenuse saaja hindama paremini teenuse väärtust ja kasutama seda mõistlikus mahu. Teenustasu puudumine põhjustab aga teenuse nõudluse ülemäärase kasvu. Teenustasu rakendamisega on võimalik kasvatada ka teenuse pakkuja vastutust teenuse kvaliteedi eest, sest turumehhanismide toimel vähendab halb kvaliteet nõudlust ja teenustasudest laekuvat tulu (Baily 1999).

Teenustasu võib teenida ka info kogumise eesmärgi, andes valitsussektorile teavet selle kohta, kui palju on tarbijad nõus teenuse eest maksma ja milline on teenuse nõutav maht. Teenustasude juurutamiseta jääb tarbijatele võimalus anda teenuste mahu ja kvaliteedi kohta tagasisidet vaid kaudselt, demokraatlike valimiste kaudu.

Teenustasu abil on võimalik jõustada ka õiglase jaotuse põhimõtet – need, kes teenust vajavad ja tarbivad, kannavad ka sellega seotud kulud.

Teenustasu kasutamisel on ka piirangud. Nii tuleb selle kehtestamisel arvestada teenuse tarbijate üldise maksevõimega (ingl ability to pay). Seepärast sobib teenustasu pigem tiheda asustusega linna kui maapiirkonda, kus teenuse pakkumise kulud võivad olla suuremad ja sellest tulenevalt võib olla kõrgem ka selle hind. Samuti tuleb arvesse võtta teenustasude kogumisega seotud halduskulud, mistõttu eeldab teenustasude kasutamine teatud kriitilist massi teenuse tarbijaid. Peale selle võivad turupõhised meetmed ohustada võrdset ja igakülgselt ligipääsu teenustele.

Eeltoodu põhjal püstitati artiklis järgmised hüpoteesid, mida kontrolliti empiirilise analüüsi käigus.

- Omavalitsused, kus elanikkonna keskmine sissetulek on suurem, kalduvad teenustasusid rohkem kasutama, sest sealsete elanike maksevõime on parem.
- Omavalitsused, kus teenuse tarbijate hulk on suurem, kalduvad teenustasusid enam kasutama, sest teenuse pakkumise ja teenustasude haldamise ühikukulud on väiksemad.

Eesti kohalike omavalitsuste kogutuludest moodustavad tulud kaupade ja teenuste müügist ligikaudu 10% ning see osakaal ei ole viimasel viiel aastal eriti muutunud. Enamik teenustasudest kogutakse haridusvaldkonnas (u 40% kaupade ja teenuste müügist). Sinna alla kuuluvad lasteaia kohatasud, kooli ja lasteaia toitlustamine jms. Tähtsad on veel kommunaalteenused (vee ja kanalisatsiooni kasutamine, jäätmekäitlus), mille osa on u 15%, ning transpordivaldkond (14%). Sotsiaalteenuste osakaal kaupade ja teenuste müügis on jõudsalt kasvanud – 2004. aasta 6%lt kerkis see 2010. aastaks 11%le.

Küsitluse alusel võtab mõne kohaliku sotsiaalteenuse eest tasu 153 omavalitsust, mis on 68% kõigist omavalitsustest. Tasu küsimine on teenuseti siiski väga ebaühtlane. Rohkem tuleb maksta üldhooldekoduteenuse ja sotsiaaleluruumide eest, kõige harvem küsitakse aga tasu sotsiaalnõustamisel ja varjupaigateenuse osutamisel. Teenustasude kehtestamisel järgib enamik omavalitsusi põhimõtet, et hädaabi peaks olema tasuta. Teiseks oluliseks tasu kehtestamise eelduseks on teenuse tarbijate võime teenuse eest tasuda – 83% tasu mitteküsiivatest omavalitsustest märkis, et tasuta teenuse tingib tarbijate võimetus maksta. Maksevõime olulisust rõhutas sealjuures ka 57% tasu küsiivatest omavalitsustest. Neist kaks kolmandikku kasutab teenustasu info kogumise eesmärgil, finantskaalutlusi märkis vaid kolmandik. Elanike vastuseis ja sellest tulenevad poliitilised kaalutlused mängivad vastanute hinnangul teenustasude kehtestamisel kõige vähem rolli.

Teenuse pakkumise eeldusi analüüsidest ilmneb tõsiasi, et Eesti omavalitsustes ei arvestata teenustasu ega selle suuruse määramisel tarbija maksevõimega, vaid teenuse pakkumisel eelistatakse sihtrühma kitsendamist. Omavalitsused pakuvad sotsiaalteenuseid üldjuhul vaid inimestele, kellel ei ole ülalpidamiskohustusega pereliikmeid. Seetõttu on osa teenuse vajajatest sunnitud teenust ostma turutingimustes, kuid väikese ja hajutatud nõudluse tõttu ei ole ettevõtetele hõredamalt asustatud piirkondades huvi teenust pakkuda. Teenuse laiem pakkumine kõigile abivajajatele ja teenustasude kehtestamine neile, kellel on ülalpidamiskohustusega pereliikmed, võimaldaks teenuse osutamist palju tõhusamalt korraldada.

Statistilise analüüsi tulemusena silmatorkavaid trende esile tuua ei õnnestunud. Siiski võib öelda, et omavalitsustes, kus füüsilise isiku tulumaksu laekub elaniku kohta rohkem, küsitakse sotsiaalteenuste eest tasu veidi tõenäolisemalt kui mujal. Seega leidis esimene hüpotees kinnitust.

Teist hüpoteesi aga kinnitada ei õnnestunud. Kuigi kahe omavalitsuste rühma keskmiste võrdlemisel ilmnes erinevus keskmises elanike arvus, ei näidanud logistiline regressioon, et elanike arvu suurenemine oleks seotud tasu küsimise tõenäosuse kasvuga. Analüüsi tulemused näitasid siiski, et see tõenäosus on suurem, kui sotsiaalkulutuste osakaal omavalitsuse kogukulutustes on kõrgem või kui sotsiaalkulude maht vanemaealise elaniku kohta on suurem. Seega ilmnes statistilises analüüsis pigem tasu küsimise seos teenuse rahastamise vajadusega. Kuna logistiline mudel ei kirjeldanud tasu küsimise tõenäosuse varieeruvust piisavalt hästi, võib arvata, et sotsiaalteenuste tasu juurutamise taga on veel mitu muud tegurit. Seetõttu oleks vaja uurida veel teenuse osutamise vorme, korda ja omavalitsuste vahelist konkurentsi, mis kõik võivad teenustasude kehtestamist suuresti mõjutada.

EESTI INNOVATSIOONIPOLIITIKA: AKTIIVSUS EUROOPA LIIDU RIIKIDE TAUSTAL

Janno Reiljan, Ingra Paltser
Tartu Ülikool

Tänapäeva globaalses konkurentsisis omandab üha suurema tähtsuse uuenduste sihipärane rakendamine ühiskonnas tervikuna ning eelkõige majanduses. Valitsussektori ülesandeks on uuendustegevust soodustava institutsionaalse keskkonna ja innovatsiooni edendavate komponentide tervikliku tasakaalustatud süsteemi väljaarendamine. Seega nihkub riigi arengu tagamisel keskele kohale avaliku sektori innovatsioonipoliitika. Ekstensiivse kasvu asemel peab hakkama püüdlema innovatsioonil rajaneva „arukas kasvu” poole. Selle saavutamiseks on tarvis tõsta hariduse kvaliteeti, suurendada teadustöö tulemuslikkust, edendada teadmusülekannet, kaitsta tõhusalt intellektuaalset omandit, täielikult ära kasutada info- ja kommunikatsioonitehnoloogia võimalused ning tagada innovaatiliste ideede alusel uute toodete ja teenuste turuletoomine. Innovatsioonipoliitika tõhusus sõltub kujundatud innovatsioonisüsteemi vastavusest riigi arengutasemele (rajasõltuvus) ja spetsiifilistele omadustele (suurus, ettevõtluse struktuur, tööjõu tööalane ettevalmistus ja väärtushinnangud jms) ning rahvusvahelise konkurentsikeskkonna iseloomule.

Käesoleva artikli eesmärk on innovatsiooni ja innovatsioonipoliitika olemuse teoreetilisest analüüsist lähtudes hinnata empiirilisel Eesti innovatsioonipoliitika aktiivsust EL-i riikide taustal. Eesmärgi saavutamiseks lahendati järgmised uurimisülesanded:

- süstematiseeriti teaduskirjandusest lähtudes innovatsiooni olemuse käsitus;
- analüüsiti innovatsioonipoliitika instrumentide olemust;
- hinnati empiirilisel Eesti innovatsioonipoliitika aktiivsust teiste EL-i riikidega võrreldes erinevate valdkondade lõikes.

Artikli esimeses osas avatakse innovatsiooni olemus ja täpsustatakse innovatsiooni määratlust, teises osas analüüsitakse innovatsioonipoliitika instrumente ning lõpuks hinnatakse Euroopa Liidu liikmesriikide ja lähinaabrite andmete alusel Eesti innovatsioonipoliitika aktiivsust erinevate valdkondade lõikes.

Innovatsiooni määratlusi ja tõlgendusi on arvukalt. Innovatsioon ei tähenda niivõrd millegi uue leiutamist, kuivõrd rakendatud ja turule toodud uuendus: innovatsioon hõlmab uue või olemasoleva teadmuse uudset rakendamist, mille tulemuseks on põhimõttelt uudse või parendatud omadustega vana toote/teenuse pakkumine, või toimub efektiivsuse suurendamist taotlev uuendus tootmis-, juhtimis- ja/või turundusprotsessis. Innovatsioon tekib selle osaliste pidevast vastastikusest toimest.

Innovatsioonipoliitika kujutab endast valitsussektori tegevusi innovatsiooni edendamiseks. Selle all võib välja tuua järgmised valdkonnad ja instrumendid: missioonipoliitikad – rahaline toetus uute tehnoloogiate alus- ja

rakendusuuringutele; leviku ja tehnoloogilise ülekande poliitikad – toetused (sh subsiidiumid ja maksusoodustused) uute innovatsiooniks vajalike masinate või seadmete ostmiseks; infrastruktuuripoliitikad – tehnoloogilist suutlikkust edendavate asutuste loomine, näiteks teadus- ja tehnoloogiapargid ning teadusinstituudid; tehnoloogiapiirkonnad – innovatsiooni ergutamine väike- ja keskmise suurusega ettevõtetes, toetades võrgustike loomist, milles ettevõtted, T&A asutused ning finantsinstitutsioonid töötavad koostöös välja uuendusi.

Järgnevalt tuuakse välja kaheksa valdkonda, mida innovatsioonipoliitika instrumendid peavad edendama: mittesoovitud tehnoloogiasse takerdumise (sel puhul jäädakse kinni vanadesse tehnoloogiatesse ega toimu uute tehnoloogiate levikut ja rakendamist) vältimine või loova hävitamise (majanduse struktuuri katkematu seestpoolt uueneda) edendamine; innovatsioonisüsteemi osapoolte vaheliste koostöösuhte juhtimine; võimalike osapoolte (eriti just kasutajate) innovatsioonisüsteemis osalemise edendamine; tingimuste loomine õppimiseks ja eksperimenteerimiseks; institutsioonide edendamine; institutsioonide ühtlase arengu tagamine (st liiga nõrkade või liiga tugevate institutsioonide vältimine); strateegilise teabe (*strategic intelligence*) levikuks baasi ja võrgustiku loomine; innovatsioonisüsteemi füüsilise ja teadmusinfrastruktuuri edendamine. Igas valdkonnas tuuakse välja poliitikainstrumendid, mille abil edendada innovatsioonisüsteemi funktsioneerimist ja arengut. Riigi innovatsioonipoliitika instrumentide valikut mõjutavad mitmed asjaolud: riigi tugevad ja nõrgad küljed, väliskeskonnast tulenevad võimalused ja ohud ning nende tajumine; riigi arengustaadium ja arengu lähtepunkt, millest innovatsioonipoliitikat hakatakse looma; poliitilised ideoloogiad ja valitsuse eesmärgid; poliitilise otsustusprotsessi iseloom; riigi ajalugu ja kultuur.

Empiirilises analüüsis kasutatakse valikut näitajaist, millega saab iseloomustada innovatsiooni toetavaid avaliku sektori tegevusi. Iga innovatsioonipoliitika valdkonna kirjeldamiseks võetakse analüüsi kaks kuni neli näitajat. Valiku aluseks on näitaja sisukus ja andmete kättesaadavus; analüüs hõlmab 17 näitajat.

Empiirilises analüüsis kasutatavad andmed pärinevad EL-i statistikaameti (*Eurostat*) ja OECD andmebaasist, Rahvusvahelise Juhtimise Arendamise Instituudi maailma konkurentsivõime aastaraamatust ning Maailma Majandusfoorumi globaalse konkurentsivõime raportist. Andmete statistiliseks analüüsimiseks kasutatakse andmetöötuspakette SPSS 16 ja STATA 10.

Innovatsiooni toetavate avaliku sektori tegevuste struktuuri kirjeldamiseks kasutatakse komponentanalüüsi. Komponentanalüüs võimaldab suure omavahel korreleeruvate näitajate hulgaga iseloomustatava nähtuse kirjelduse ilma olulise infokaota kokku suruda väikesele arvule sõltumatutele (mittekorreleeruvatele) sünteetilistele näitajatele (komponentidele). Sünteetilised komponendid esitatakse sarnase mõõtskaalaga – tsentreeritud (keskväärtus null) ja normeeritud (muutumise mõõtühikuks standardhälve) – kujul, mis lihtsustab vaatlusaluste riikide positsiooni võrdlevhinnangut eri komponentide alusel.

Käesolevas uurimuses kuuluvad analüüsitavasse valimisse 27 EL-i liikmeriiki ning

Horvaatia, Türgi, Island ja Norra kahe aasta väärtustega – seega koosneb valim 62 vaatlusest.

Komponentanalüüs tõi välja kuus innovatsioonipoliitika komponenti: Innovatsiooni üldise tugisüsteemi arendamine; Valitsussektori T&A rahastamise tase; Kõrgharidussektori T&A rahastamise tase; Ettevõtlussektori rahastamine EL-ist ja koostöö avaliku sektoriga; Ettevõtlussektori T&A rahastamine avalikust sektorist ning Ettevõtlussektori rahastamine keskvalitsuse tasandil.

Komponentskoorid iseloomustavad komponentide arvvaartusi iga vaatlusaluse riigi puhul. Komponentskoorid näitavad, et innovatsiooni toetavate avaliku sektori tegevuste struktuur varieerub riigiti oluliselt – riigid tähtsustavad erinevaid innovatsioonipoliitika valdkondi.

Eesti positsiooni vaatlusaluses riikide kogumis iseloomustatakse selliselt, et oleks näha erinevus kogumi keskmisest tasemest ja kaugus äärmuslikest väärtustest. Üldiselt jääb Eesti innovatsioonipoliitiline aktiivsus allapoole vaatlusaluse riikide kogumi keskmist taset. Samas võib Eesti tegevuse hinnata tasakaalustatuks – erinevus keskmisest on üldjuhul väiksem kui kaugus äärmuslikest väärtustest. Innovatsioonipoliitika diversifitseeritus näitab, et Eestis ei otsita arenguedu ühe „imevahendi” rakendamisest, vaid suund on võetud tervikliku tasakaalustatud innovatsioonipoliitika rakendamisele.

Innovatsiooni üldise tugisüsteemi arendamise aspektist on Eesti tase veidi (0,26 standardhälbe võrra) vaatlusaluste riikide keskmisest kõrgem ja Eesti asub riikide järjestuses kogumi keskel (15. positsioonil). Seega toetab avalik sektor Eestis innovatsiooni õigus- ja hariduskeskkonna arengut Euroopa keskmisel tasemel. Võrdlus teiste riikidega viitab aga pigem haridusalaste jõupingutuste suurendamise vajadusele. Kõige kõrgemad komponentskoorid on selle komponendi puhul Taanil (2,0), Rootsil (1,6) ja Islandil (1,4) ning kõige madalamad (negatiivsed) väärtused Horvaatial (-1,8), Slovakkial (-1,5) ja Türgil (-1,4). Arenguedu on saavutanud eelkõige just selle komponendi kõrgete väärtustega silma paistvad väikeriigid.

Valitsussektori T&A rahastamise tasemelt on Eesti 0,71 standardhälbe võrra vaatlusaluste riikide keskmisest madalamal ja asub riikide järjestuses 25. positsioonil. Seega ei loo valitsussektor oma uurimistööde ja teaduspersonaliga ettevõtlussektorile olulist toetuspotentsiaali. Kõige suuremad on selle komponendi väärtused väikeriikidel Islandil ja Sloveenil (2,6 ja 2,1) ning kõige väiksemad on need samuti väikeriikidel Maltal (-1,5) ja Taanil (-1,3). Väikeriikide lähenemisviisid on selles poliitikavaldkonnas äärmuslikult erinevad ja selle põhjused vajaksid selgitamist.

Kõrgharidussektori T&A rahastamise tasemelt asub Eesti 0,41 standardhälbe võrra vaatlusaluste riikide keskmisest kõrgemal ning riikide järjestuses asub Eesti 11. positsioonil. Seega pannakse Eesti innovatsioonipoliitikas suhteliselt suuri lootusi kõrgkoolidele kui innovatsiooni edendajatele. Väikese avatud riigi puhul tuleb seda pidada otstarbekaks, sest uus teadmus tuleb edastada eelkõige ettevalmistatavatele spetsialistidele õppeprotsessi kaudu ja seda suudavad teha ainult T&A-sse kaasatud

õppejõud. Teiste riikide kogemus tundub sellist hüpoteesi toetavat. Kolmanda komponendi alusel on Eesti sarnane Rootsi ja Suurbritanniaga ning kõige suuremad väärtused on Islandil (1,9) ja Soomel (1,7). Kõige madalamad on selle komponendi väärtused Luksemburgil (-2,0) ja Küprosel (-2,0), mis on aga ajaloolistel ja keelelistel põhjustel kõrghariduses olulisel määral orienteeritud suurte naabrite poolt pakutavale.

Ettevõtlussektori rahastamine EL-ist ja koostöö avaliku sektoriga on Eestis oluliselt allpool kogumi keskmist taset (komponentskoor -0,86) ning Eesti asub vaatlusaluste riikide seas 24. positsioonil. Selles valdkonnas tuleb kindlasti tunnustada Eesti innovatsioonipoliitika puudujääke – avalik sektor ei suuda ettevõtlussektoriga koostööd arendada, et aidata viimast EL-i toetuste taotlemisel ja rakendamisel. Kõige paremad tulemused on selles poliitikavaldkonnas Soomel (2,1), Sloveenial (1,8) ja Kreekal (1,8) – need riigid on EL-i toetusrahade saamisel tunnustatult edukad. Kõige madalam tase on Türgil (-1,7), Hispaanial (-1,2) ja Islandil (-1,2). Türgi ja Islandi positsioon tuleneb arvatavasti sellest, et nad ei kuulu EL-i ja seega innovatsiooni rahaline toetus EL-ist on väga väike.

Ettevõtlussektori T&A rahastamine avalikust sektorist (komponentskoor -0,65) on Eestis vaatlusaluste riikide keskmisest madalamal tasemel ning asub riikide järjestuses 22. positsioonil. Madal tase selles poliitikavaldkonnas tuleneb ilmselt asjaolust, et Eestis ei ole regionaalset valitsemistasandit ja kohalikel omavalitsustel puuduvad üldjuhul ettevõtlussektoris innovatsiooniprotsesside toetamiseks nii kompetents kui ka ressursid. Eestiga on sarnased riigid Slovakkia, Poola ja Küpros. Kõige kõrgemad komponentskoorid on Austrial (2,8), Hispaanial (1,8) ja Prantsusmaal (1,5). Kõige madalam tase on selle komponendi alusel Maltal (-1,6), Islandil (-1,3) ja Bulgaarial (-1,3).

Ettevõtlussektori rahastamine keskvalitsuse tasandil on Eestis komponentskooriga -0,60 ning Eesti asub riikide järjestuses 22. positsioonil. Ettevõtlussektori T&A projektide otsene rahastamine keskvalitsuse poolt eeldab valitsustasandil pikaajaliste innovatsioonipoliitiliste strateegiate väljatöötamiseks piisava kompetentsi olemasolu, aga samuti võimekust väga spetsiifiliste turu- ja süsteemitõrgete kõrvaldamisele suunatud arenguülesannete püstitamiseks ja lahendamiseks. Eestiga on sarnased Läti ja Rumeenia. Kõige enam toetab keskvalitsus ettevõtlussektori innovatsiooniprotsesse Norras ja Küprosel (komponentskoorid vastavalt 2,5 ja 1,7), kõige vähem Iirimaal (-1,4) ja Islandil (-1,4).

Kõiki kuut innovatsioonipoliitika komponenti korraga vaadates selgub, et vaatlusaluste riikide seas on kõige paremad tulemused Soomel – kõigi kuue komponendi komponentskoorid on positiivsed. Kõige kehvem sooritus on see-eest Bulgaarial, Poolal ja Portugalil – kõigil kolmel on viiel komponendil kuuest komponentskoor negatiivne. Eesti jääb kahe keskmist ületava ja nelja keskmisest madalamale jääva hinnanguga formaalselt miinuspoolele. Sisulise hinnangu andmiseks on vaja sügavamat analüüsi (erinevate poliitikavaldkondade sisestruktuuri üksikasjalikum käsitlus, arengutendentside väljatoomine, kvalitatiivne võrdlevanalüüs jms).

KOHALIKE TEENUSTE NÕUDLUSPOOLE TEGURID EESTI OMAVALITSUSÜKSUSTES

Janno Reiljan, Aivo Ülper, Tarmo Puolokainen
Tartu Ülikool

Kohalike omavalitsuste ülesandeks on pakkuda lokaalsel tasandil otseselt elanikkonna heaolu suurendavaid individualiseeritavaid (välistatavuse ja rivaliteedi tingimusi täitvaid) avaliku sektori poolt pakutavaid teenuseid (üldharidus, vaba aja veetmine ja kultuur, majandus- ja olmeteenused). Individualiseeritavate avalike hüvede pakkumine tuleb struktuuriefektiivsuse tõstmiseks võimalikult paindlikult kohandada avalike teenuste nõudlusele. Kohalikul tasandil mõjutab avalike teenuste nõudlust eelkõige elanike arv ja elanikkonna struktuur. Üldtunnustatud on arvestatava seose olemasolu elanikkonna vanuselise struktuuri ja kohalike avalike teenuste nõudluse vahel. Eelkooliealiste laste arv kujundab nõudluse lasteaiakohtade ja koolieelse kasvatusse järele. Kooliealiste laste arvu suurenemine suurendab nõudlust koolikohtade ja haridusteenuse, aga samuti koolitranspordi järele. Väheneva laste arvuga kohalikes omavalitsusüksustes tuleb aga lahendada suuremast laste arvust lähtudes rajatud infrastruktuuri kasutamise majandusliku (kulu)efektiivsuse tagamisega seotud probleemid. Spetsiifilised probleemid tulenevad avalike teenuste nõudlusele ka töövõimelises eas aktiivse elanikkonna osa, eakate, töötute, puuetega inimeste jt elanikkonna kategooriate osatähtsusest elanikkonnas.

Kohalike avalike teenuste nõudluse sõltuvust elanikkonna vanulisest struktuurist tunnistatakse praktikas kohalike omavalitsuste (edaspidi KOV) kuluvajaduse põhjendamisel. Eestis on kehtestatud erinevad KOV kuluvajaduse määrad järgmistele vanusegruppidele: 0–6 aastat, 7–18 aastat, 19–64 aastat, 65 aastat ja vanemad, aga samuti hooldust vajavad eakad. Samalaadselt (kuigi erinevate kulunormatiividega) lähenetakse KOV kuluvajadusele Rootsisis. Saksamaal lähtutakse aga KOV elanike arvust, millele lisaks arvestatakse mõnel juhul ka õpilaste arvu.

Vastavalt elanikkonna struktuurile kujuneb ka avalike teenuste erinevate liikide pakkumise optimaalsete piirkondade suurus, millega arvestamine on kohalikele omavalitsustele keeruliseks innovaatilist lähenemist nõudvaks väljakutseks. Optimaalsete teenuste piirkondade kujundamise muudab eriti keeruliseks asjaolu, et sageli on vaja organiseerida mitme omavalitsuse koostöö. Eestis on omavalitsuste koostöö veel väga tagasihoidlikul arengutasemel.

Rahvastiku struktuuri kõrval ei ole uuringutes senini piisavalt tähelepanu pööratud teistele kohalike avalike teenuste nõudlust kujundavatele teguritele. Eeldatavalt kujundab nõudlust avaliku sektori teenustele elanikkonna sissetulekute tase ja struktuur. Kõrge sissetuleku tasemega (elaniku kohta) kohalikes omavalitsusüksustes on nõudlus sotsiaallabi teenuste järele eeldatavasti väiksem, kuid aktiivse elanikkonna vaba aja veetmise ja spordiürituste organiseerimisele tuleb enam tähelepanu pöörata. Olulist mõju avaldab avalike hüvede nõudlusele

eeldatavalt ka elanikkonna hõivestruktuur: madala kvalifikatsiooniga lihttööliste nõudlus kultuuriürituste järele on üldjuhul väiksem kõrge kvalifikatsiooniga „valgekraade“ nõudlusest neile teenustele. Seega tuleb avaliku sektori kohaliku tasandi poliitikate kujundamisel arvestada elanikkonna hõive struktuuriga tegevusalade lõikes. Käesolevas artiklis kaasatakse klassikaliselt käsitletava elanikkonna vanuselise koosseisu kõrval uuenduslikult ka need tegurid kohalike avalike teenuste nõudluspoole analüüsi.

Käesoleva artikli eesmärgiks on hinnata kvantitatiivselt Eesti kohaliku omavalitsuse üksuste elanikkonna arvukuse ja struktuuri, aga samuti elanikkonna töise sissetuleku (palga) taseme ja hõivestruktuuri seoseid kohalike omavalitsuste teenuste pakkumise struktuuri ja tasemega (elaniku kohta). Eesmärgist tulenevalt püstitati järgmised uurimisülesanded:

- Analüüsida teaduskirjanduse alusel kohalike avalike teenuste nõudluse seoseid elanikkonna arvu ja struktuuriga, aga samuti elanikkonna sissetulekute taseme ja hõive struktuuriga;
- Tuua avalike teenuste pakkumise optimaalsete piirkondade kujundamise mudelite alusel välja elanikkonna arvu ja struktuuri, aga samuti elanikkonna sissetulekute taseme ja struktuuri arvestamise olulisus;
- Hinnata empiirilisel elanikkonna struktuuri, aga samuti elanikkonna sissetuleku taseme ja hõivestruktuuri seoseid linnade ja valdade eelarvekulude taseme ja struktuuriga.

Artikkel koosneb kolmest osast. Esimeses osas käsitletakse kohalike avalike teenuste nõudluse seoseid kohaliku omavalitsusüksuse elanikkonda iseloomustavate peamiste parameetritega seniste teoreetiliste ja empiiriliste uuringute alusel. Teises osas tuuakse välja avalike teenuste pakkumise optimaalsete piirkondade mudelites arvestatud seosed elanikkonna koosseisu ja sissetulekute ning hõive taseme ja struktuuriga. Kolmandas osas analüüsitakse empiirilisel Eesti kohalike omavalitsusüksuste elanikkonna ealise struktuuri, aga samuti tööise sissetulekute (palga) ja hõive struktuuri seoseid kohalike omavalitsuste kulude struktuuriga (teenuste liikide lõikes).

Nõudlus avaliku hüve järele on turuhüvede nõudlusest oluliselt keerulisem nähtus. Esiteks, üksikisik ei taju üldjuhul piisavalt avaliku hüve maksumahust (maksumaksja kulutuste suurus) ja avaliku sektori eelarvepiirangut, mistõttu tema arvamus teda ennast või tema perekonda huvitava avaliku hüve vajalikkusest mahust ja kvaliteedist ületab tavaliselt ühiskonna majanduslikke võimalusi. Teiseks, nii poliitikutel kui ka nende valijail puudub adekvaatne info nõutava avaliku teenuse vajaliku hulga ja kvaliteedi hindamiseks, mistõttu kujunevad eelistused ja tehakse otsused hüvede pakkumisega seotud avaliku sektori väljaminekute (eelarvekulude) taseme ja struktuuri kohta. Kolmandaks, kuna ühiskonna (maksumaksjate) maksevalmidust avaliku hüve suhtes (st avaliku hüve nõudluse mahtu) on väga keeruline või võimatu tegelikkuses välja selgitada adekvaatsete empiirilise analüüsi meetodite puudumise tõttu, siis püütakse avaliku hüve mingi liigi nõudlust hinnata indiviidide küsitlusest selguva arvamusel vajadusest suurendada, samaks jätta või vähendada sellele

liigile tehtavate kulutuste osatähtsust avaliku sektori eelarves. Loomulikult on elanike eri gruppide arvamus avaliku sektori kulude mingi liigi suurendamisse või vähendamisse ning selle suhtumise mõju tegelik avaldumine poliitilistes otsustes erinevad nähtused.

Senistes teoreetilistes ja empiirilistes uuringutes on kohalike avalike teenuste nõudlust (kuluvajadust) kujundava tegurina erinevas ulatuses analüüsitud peamiselt elanikkonna vanuselist struktuuri. Teised tegurid ei ole olulist tähelepanu leidnud. Põhjus peitub ilmselt selles, et teiste tegurite kohta ei ole kohalike omavalitsusüksuste lõikes saada süsteemselt kogutavaid andmeid. Käesolevas uuringus kasutatakse Eesti Maksu- ja Tolliameti andmeid, mis võimaldavad välja tuua kohalike omavalitsusüksuse elanikkonna hõivatuse tegevusalade lõikes. Nende andmete alusel laiendatakse kohalike avalike teenuste nõudluspoolsete tegurite koosseisu ja kontrollitakse hüpoteesi, et KOV-de eelarve kulustruktuur sõltub ka elanikkonna tööalase hõivatuse struktuurist.

Avalike teenuste optimaalset pakkumist seostatakse sageli teenuse pakkuja (kohalike avalike teenuste puhul KOV) suurusega (omavalitsuste puhul elanike arv). Küllaltki levinud on arvamus, et suuremad omavalitsused suudavad avalikke teenuseid pakkuda optimaalsele tasemele lähemal kui väikesed. Tegelikult on seosed pakkumispirkonna suuruse ja teenuste pakkumise majandusliku efektiivsuse vahel on oluliselt keerulisemad. Üldiselt on omavalitsuse suuruse ja teenuste pakkumise majandusliku efektiivsuse vahel U-kujuline seos (pakkumispirkonna suurenemisega kaasneb algul pakkumise ühikukulu vähenemine, kuid mingist suurusest alates hakkab ühikukulu suurenema). Suuremad omavalitsused suudavad pakkuda kapitalimahukaid ja kõrget spetsialiseeritust nõudvaid teenuseid efektiivsemalt kui väikesed. Samas on väikesed omavalitsused efektiivsemad tööjõumahukate teenuste pakkumisel.

Ülaltoodust lähtuvalt on selge, et avalike teenuste nõudluse ja pakkumise ühildamiseks ning seeläbi teenuste pakkumisel suurima efektiivsuse saavutamiseks tuleb iga teenuse pakkumispirkonna kujundamisele läheneda individuaalselt. Eesmärgi saavutamiseks on võimalik püstitada kolme tüüpi optimeerimisülesandeid:

1. Ülesanded, kus fikseeritud suurusega (tavaliselt kohaliku omavalitsuse) piirkonnas ja fikseeritud kvaliteeditasemega teenuse pakkumiseks otsitakse teenindusasutusele parimat asukohta – nn asukoha ülesanded.
2. Ülesanded, kus teenuse pakkumise majandusliku efektiivsuse saavutamiseks tuleb leida optimaalne teenuste pakkumise kvaliteeditase, sest teenuse pakkumise asukohad ja piirkonnad on juba välja kujunenud ning neid ei ole mingitel põhjustel otstarbekas muuta.
3. Ülesanded, mille puhul tuleb teenuse pakkumise majandusliku efektiivsuse saavutamiseks leida optimaalne teenuse pakkumise piirkonna suurus, seejures on eelnevalt teada teenuse pakkumise asukohad ning on ette antud teenuse pakkumise kvaliteeditase ja vajaduse maht.

Kõigi kolme optimeerimisülesande tüübi puhul kasutatakse parimate lahendite leidmiseks lähteandmetena erinevate rahvastikugruppide suurust ja osakaalu, elanikkonna elatustaset ja tööhõive näitajaid.

Käesolevas töös on kohalike avalike teenuste eelarvekulu taseme ja struktuuri kujunemise osas püstitatud hüpotees, et neid mõjutavad oluliselt kohaliku omavalitsusüksuse elanikkonna struktuur ning elanikkonna sissetulekute tase ja hõivestruktuur. Hüpoteesi kontrollimiseks viiakse läbi kohalike teenuste pakkumist iseloomustavate kulunäitajate ja kohalike avalike teenuste nõudluspoolt iseloomustavate näitajate korrelatsioonanalüüs STATA andmetöötluspaketti kasutades.

Erinevalt tavapärasest lähenemisest ei vaadelda käesolevas uurimuses küsitluse teel saadud üksiku indiviidi arvamust kohaliku omavalitsuse eelarve muutmise vajadusest koos seda indiviidi iseloomustavate parameetritega (vanus, sissetulek jms), vaid vaatluse objektiks on iga üksiku kohaliku omavalitsuse eelarvekulude struktuur koos selle kohaliku omavalitsusüksuse elanikkonda iseloomustavate parameetritega (erinevate vanusegruppide osatähtsus elanikkonna struktuuris, elanikkonna hõive struktuur tegevusalade lõikes jms). Empiirilise analüüsi viime läbi selliselt, et võime eeldada indiviidide keskmise (nn mediaanvalija) arvamuse adekvaatse väljundiga poliitilises protsessis, st eeldatakse kohalike omavalitsuste eelarve struktuuri kujundamist vastavalt mediaanvalija arvamusele kulutuste struktuuri muutmise vajalikkusest. Mõnedes valdades ja linnades toimub elanike arvamuste agregeerimise poliitilises protsessis mingi avaliku teenuse vajaduse ülehindamine, teistes aga alahindamine, mistõttu suurema kohalike omavalitsusüksuste kogumi keskmine peaks lähenema mediaanvalija seisukohale teenuse rahastamise osatähtsusest avaliku sektori eelarves. Erinevused kohaliku omavalitsuse üksuste kulutuste struktuuris tulenevad sel eeldusel eelkõige erinevustest avaliku teenuse nõudlust kujundavates tegurite tasemes ja struktuuris. Võimalike tegurite mõju olulisuse, suuna ja intensiivsuse saab sel juhul kindlaks teha stohhastiliste seosteanalüüsi meetoditega (nt. korrelatsioonanalüüs). Nende meetodite kasutamisele rajanebki käesoleva uuringu empiiriline osa.

Empiirilise analüüsiga hõlmavad kohalikke omavalitsusüksusi iseloomustavad näitajad võib jaotada kolme gruppi:

1. Avalike teenuste pakkumist iseloomustavad näitajad: erinevate valdkondade kulude (haridusele; vaba aja veetmisele, kultuurile; (kommunaal)majandusteenustele; sotsiaalarbile) osatähtsus kohaliku omavalitsusüksuse eelarves; kohalike avalike teenuste kulude tase ühe elaniku kohta; kulude tase teenust kasutava elanikerühma liikme kohta (hariduskulu kuni 18-aastastekohta).
2. Kohalike avalike teenuste nõudlust kujundavad rahvastikunäitajad: rahvastiku struktuur vanusegruppide lõikes; ülalpeetavate määr ja demograafiline töötururusve; töötute osatähtsus.
3. Elanikkonna tööiste sissetulekute tase ja struktuur: tööiste sissetulekute tase elaniku ja maksumaksja kohta; elanikkonna sissetulekute struktuur tegevusalade (EMTAK klassifikatsioon) lõikes.

Eesti kohalike omavalitsusüksuste rahvastiku ealist struktuuri ja kohalike omavalitsuste teenuste taset ning struktuuri analüüsitakse Eesti Statistikaameti (ESA) andmete alusel, elanikkonna tööste sissetulekute (palga) taset ja tööhõive struktuuri tegevusalade lõikes aga Eesti Maksu- ja Tolliameti (EMTA) andmete alusel. Vaatluse all on 213 omavalitsusüksust kolmel aastal: 2004 (majandusbuumi eelne periood), 2008 (majandusbuumi tipp kohalikes omavalitsusüksustes) ja 2010. Analüüsist jäeti kõrvale alla 500 elanikuga omavalitsusüksused, milles suur riiklike eriprogrammide mõju võib oluliselt mõjutada kulustruktuuri võrreldes autonoomsete otsuste alusel kujunevaga ning KOV-d, mille kohta ei olnud mõned analüüsitavad näitajad kättesaadavad.

Üldiselt tuleb märkida, et statistiliselt olulisid seoseid leiti küllaltki palju, kuid näitajate ühisvariatsiooni tase (korrelatsioonikordaja ruut) on enamasti küllaltki väike, ulatudes ainult mõnel üksikul juhul üle 10% koguvariatsioonist. Seoste struktuuris ilmnevad aastate lõikes olulised erinevused. Ilmneb, et rahvastiku vanuselist, sissetulekute ja hõive struktuuri näitajatel on loogiliselt põhjendatud suunaga korrelatiivsed seosed KOV-de eelarvekulude struktuuriga ja kulude tasemega elaniku kohta. Sellest võib järeldada, et kohalike avalike teenuste pakkumine kohandub Eesti KOV-des üldjuhul hästi nende teenuste nõudlusega. Samas viitasis elanikkonna tulude taseme ebastabiilsed seosed KOV-de eelarve struktuuriga ja tasemega elaniku kohta asjaolule, et KOV-de ja nende elanike tulude taset kiirelt suurendanud majandusbuum ja sellele järgnenud järsk tulude langus majanduskriisis destabiliseerisid aga mõneti kohalike teenuste nõudluse ja pakkimise vahelisi seoseid. Käesoleva analüüsi tulemused tõestavad, et senistes empiirilistes uuringutes tähelepanuta jäänud KOV-de elanikkonna hõive ja sissetulekute struktuuril on mitmekülgsed ja statistiliselt olulised seosed kohalike avalike teenuste pakkimist iseloomustavate KOV-de eelarvekulu osatähtsuse ja tasemega elaniku kohta.

Samas oli käesolevas uuringus vaatlusalune kogum kvalitatiivselt suhteliselt mittehomogeenne, mis võib varjutada ja moonutada kvantitatiivset seosteanalüüsi tulemusi. Edasises uuringus võtame vaatluse alla kvalitatiivselt homogeensemad kohalike omavalitsusüksuste grupid (linnad, suurlinnade lähedased vallad, linnadest kaugele jäävad „puhtakujulised“ maavallad. Kvalitatiivselt homogeensetes omavalitsusüksuste kogumis peaksid seosed kohalike avalike teenuste nõudlus- ja pakkimispoolle vahel avalduma selgemalt ja täpsemalt.

Kuna kohalike avalike teenuste nõudluspoolsete tegurite kogum on suurearvuline ja erinevad tegurid on omavahel statistilises seoses, siis tekivad nõudluspoolt iseloomustavate indikaatorite vahel paratamatult ka väärkorrelatsioonid, mis raskendavad seoste olemuse mõistmist. Edasise empiirilise analüüsi käigus tuleb süsteemselt modelleerida nõudluspoolse teguritekompleksi siseseoseid ja tuua komponentanalüüsi meetodit rakendades välja kohalike avalike teenuste nõudluspoolt iseloomustavad sõltumatud kompleksnäitajad. Seosta fragmente iseloomustavate korrelatsioonikordajate asemel saame sel juhul edasises analüüsis toetuda nõudluspoolse tegurite mõju komplekselt kirjeldavatele mitmikregressiooni mudelitele.

EESTI TEADUS JA ARENDUSTEGEVUSE STRATEEGIA PROBLEEMID JA NÕUDLUSPOOLSED INNOVATSIOONIPOLIITIKAD

Tõnu Roolah
Tartu Ülikool

Euroopa Liidu liikmesriikide konkurentsivõimes on oluline roll kõrgtehnoloogilisel tootmisel, juhtivatel teenustel ning ressursside kõrgel tootlikkusel. Vastavalt Innovatsiooniühenduse 2010. aasta edetabelile omavad domineerivat rolli innovatsiooni liidritena Rootsi, Taani, Soome ja Saksamaa. Need riigid on suutnud ülesse ehitada tugevad innovatsioonisüsteemid, mis suudavad omavahel tasakaalustada teadus- ja arendustegevuse sisendite (nagu finantseerimine), vahenduskanalite (ettevõtlikkus, võrgustikud ja intellektuaalomand) ja majandusliku efektina ilmnevate väljundite (kõrgtehnoloogiasektori käive, eksport ja tootlikkus) vahelised keerukad seosed. Nendegi jaoks pole seesuguse tasakaalu leidmine olnud lihtne ülesanne, sest arendustegevuse finantseerimine keskmisest kõrgemal tasemel ei tarvitse veel tingimata viia soovitud väljunditeni. Eriti kui näiteks üliolulised institutsionaalsed võimekused on ebapiisavad või puudu. See on põhjuseks miks riigid püüavad rakendada hästi läbitöötatud teadus- ja arendustegevuste ning innovatsiooni strateegiaid, seades sihiks teadus- ja arendustegevuste ning nende raamtingimuste tugevdamise. Lisaks seonduvad need strateegiad sageli Euroopa Liidu üleste strateegiatega nagu „Euroopa 2020“, et olla kooskõlas liiduülese arenguvisioniga.

Eesti on väikene avatud majandusega Euroopa Liidu liikmesriik, mis taasiseseisvus 1991 ning rajas oma konkurentsieelised madalate kulude ja küllaltki hea kvaliteediga tootmisele. Samas on eriti pärast 2004 Euroopa Liitu astumist kulude tase siin märkimisväärselt tõusnud. See loob vältimatu vajaduse leida endale teiste riikide seas uus konkurentsieelis. Tegelikult võttis Eesti selleks initsiatiivi juba enne Euroopa Liitu astumist, asudes ellu viima Eesti teadus- ja arendustegevuse strateegiat „Teadmistepõhine Eesti 2002-2006“. Sellega seati sihiks Eesti muutmine kulupõhisest majandusest teadmispõhiseks majanduseks. Strateegias toodi välja teatud võtmevaldkonnad, nagu infotehnoloogia, biotehnoloogia ja materjaliteadused, mis peaksid olema uue konkurentsivõime liidrid, ning samuti kogum teadus- ja arendustegevuse edusammudega seonduvaid poliitikameetmeid ja eesmärgi.

2007. aasta alguses võttis Riigikogu vastu jätkustrateegia nimega „Teadmistepõhine Eesti 2007-2013“. Nüüd aastal 2012 on kätte jõudnud aeg hinnata progressi selle jätkustrateegiaga seatud sihtnäitajate suunas, sest kolmanda põlvkonna strateegia on juba väljatöötamisel ning võib vahetulemuste analüüsi abil paremaks saada. See analüüs peaks esile tooma valdkonnad, mis võivad vajada ümberkohandamist tagamaks paremat kooskõla strateegia, selle elluviimiseks rakendatud meetmete ja dünaamilise keskkonna vahel. Koostatud on mitmeid vahearuandeid ja kodu- ning välismaiseid hindamisraporteid millele tugineda. Need analüüsid kalduvad arvama, et strateegia rakendamine on olnud üldjoontes edukas kuid vastakate tulemustega. Tulemuste kohaselt on teadustegevuse areng olnud isegi loodetust edukam, kuid arenduse ning innovatsiooni valdkonnas on mitmeid sihte, mis jäävad 2013. aasta

lõpuks tõenäoliselt saavutamata. Üheks võimaluseks, mille abil soodustada uurimistulemuste kommersktasutust ning teadus- ja tööstussektori koostööd on kasutada nõudluspoolsed innovatsioonipoliitika.

Käesoleva uuringu eesmärgiks on pakkuda välja roll nõudluspoolsed innovatsioonipoliitikate aitama edendada kommersiaalset arendustööd ja innovatsiooni. Arutelu käigus selgitatakse nõudluspoolsed innovatsioonipoliitikate tunnustooni teadus- ja arendustegevuse ning innovatsiooni soodustamise valguses. Tuginedes neile teoreetilistele ja empiirilistele töödele ning praeguse strateegia raames saavutatud tulemuste hindavale analüüsile, antakse soovitusi kuidas kaasata nõudluspoolsed innovatsioonipoliitika rakenduskavadesse ning seda pikemalt kui ainult käesoleval strateegia perioodil.

Väga innovaatilised uuendused kipuvad olema radikaalsed ning seetõttu seotud suure ebakindluse. Ettevõtte on väga riskantsete projektidega tegelemise osas kõhklevad, sest selle kasu on ebakindel ja keerukalt hinnatav. Nõudluspoolsed innovatsioonipoliitika meetmed aitavad muuta uute ja innovaatiliste lahenduste nõudlustingimused läbipaistvamaks ning tõsta erasektori huvi nende lahenduste rakendamise vastu. Asjakohaste standardite ja eeskirjade jõustamine, riigihangete programmid, toetused ja muud vahendid on suunatud ettevõtjate ja tarbijate käitumise muutmisele uuenduslikumaks, parandades seeläbi riigi arenguvõimalusi.

Nõudluspoolsed innovatsioonipoliitika on defineeritud kui riiklike meetmete kogumit, mis on suunatud innovatsioonide nõudluse suurendamisele, innovatsioonide kasutuselevõtu tingimuste parandamisele ja/või nõudluse olemuse määratlemisele, et seeläbi anda tõuge nii innovatsioonidele kui nende levikule. Mõnevõrra uuemateks aspektideks antud poliitikate sihina on eeltoodud innovatsioonide kasutuselevõtu soodustamine ja nõudluse olemuse selgumisele kaasaaitamine. Antud meetmete tugev seotus Euroopa Liidu tasandi standardite, hanketingimuste ja tööstuspoliitika normidega viitab sellele, et teataval määral reguleeritakse neid poliitika liiduülel tasandil. Siiski saab riigi innovatsioonipotentsiaali arengut tõhusalt soodustada ainult kasutades paindlikke ning hea reageerimisvõimega süsteeme, mis arvestavad muutusi kohalikus tegevuskontekstis. Kaasaegsed nõudluspoolsed poliitika lisavad väärtust eeskätt tervikliku lähenemisenurga abil ja meetmete vastastikkuseid seoseid arvestades. Need innovatsioonipoliitika peaksid aitama kõrvaldada turu- ja süsteemitõrkeid, realiseerida eripäraste ühiskondlike eesmärgi, ajakohastada majandust ning luua juhtiva turu tekkevõimalusi.

Pärast Euroopa Liiduga ühinemist on Eesti innovatsioonistrateegia ja vastavad poliitika oma arengujõulisust mõneti kaotanud, sest nii-öelda jätkustrateegia aastateks 2007-2013 ei paku kuigi palju uudseid poliitikaideid, vaid kujutab endast paljuski varasemate initsiatiivide jätkumist. Innovatsioonipoliitika elluviimine toimub Eestis peamiselt kahe suurema haru kaudu – Eesti Majandus- ja Kommunikatsiooniministeerium koos oma sihtasutustega, nagu EAS ning Eesti Haridus- ja Teadusministeerium (samuti koos mitme sihtasutustega). See duaalsus

koos muude institutsionaalsete ja halduslike probleemidega (ning võib olla, et ka Eesti praegune majandusharude struktuur) on loonud olukorra, kus suurenenud Euroopa Liidu poolne rahastamine, kombineerituna siseriikliku rahastamisega, on edukalt suundunud eeskätt teadusliku uurimistöö valdkonda. Seega strateegia eesmärgid, mis puudutavad teadustegevuse infrastruktuuri ja arengut saavutatakse ning isegi ületatakse, kuid ettevõtete innovatsioonide ja arendustegevustega seotud eesmärgid jäävad strateegia rakendamise käigus tõenäoliselt õigeaegselt täitmata.

Soovituse kasutada rohkem nõudluspoolseid instrumente on andnud ka väliseksperdid, kes väljendavad muret, et pakkumise tõukele keskenduvad innovatsioonipoliitikad ei tarvitse anda soovitud tulemusi. Pakkumispoolsed meetmed on ebapiisavad olukorras, kus Eesti praegune tööstusharude struktuur ei toeta intensiivsemaid teadmusülekandeid teadussektori ja ettevõtete vahel. Seetõttu on vaja nõudluspoolseid impulsse suurendamiseks majanduse võimekust keerukamaks teaduspõhiseks koostööks. Kuni Eesti majandus on sõltuv traditsioonilisematest madal- ja kesktehnoogilistest tööstustest, puudub arvestatav potentsiaal tipptasemel teadusest tekkiva teadmuse omaksvõtuks. See ei tähenda, et ettevõtted, mis kasutavad madaltehnoloogiat ei tegeleks innovatsiooniga. Pigem on tegemist olukorraga, kus uurimisasutustes arendatavad (kõrgtehnoogilised) teadmusprofiilid ei tarvitse vastata olemasolevate tegevusharude teadmusvajadustele.

Hindava analüüsi tulemused koos eesti innovatsioonipoliitika laiemaga kontekstiga pakuvad järgnevaid võimalusi poliitika arendamiseks:

- Tulenevalt sellest, et praegused võtmevaldkonnad on osutunud liiga laiadeks, tuleks läbi viia sõelumis- ja seireuuringud, mille abil selgitada välja kitsamad eesrindlikud valdkonnad, kus võib isegi olla juhturaks kujunemise potentsiaali.
- Tasuks kaaluda kasutajakesksete innovatsioonide toetamise meetmeid, sest see oleks ühtlasi oluliseks innovatsiooniteadlikkuse tõstmise vahendiks ühiskonnas. Hetkel on olemas küll mõningaid innovaatiliste ideede konkursse (Ajujaht, Tiiger), kuid sinna esitatavad ideed ei väljenda mitte alati kasutajapoolset vaadet. Seetõttu võiks kaaluda veelgi fokuseerituma meetme lisamist.
- Samuti on potentsiaali kommertsialiseerimiseelsete tegevuste avalike hangete laadsete meetmete rakendamiseks, et saavutada uurimistöö ja innovatsioonide paremat tasakaalu, aidates maandada mõningaid arendusriske. Seejuures, nagu ka mõningates teistes valdkondades, võiks olla avaliku ja erasektori partnerlus väärtuslikuks institutsionaalseks lahendiks.
- Eesti teaduspoliitika, mida suunab Haridus- ja Teadusministeerium, peaks senisest enam väärtustama rakendusüuringuid, uurimistulemuste rakendamist ettevõtluses ja uurimiskoostööd ettevõtetega. Mõningad EASi toetused ja programmid juba üritavad seda eesmärki täita, kuid üldine teaduspoliitika on jätkuvalt liiga publitseerimiskeskne.
- Eesti innovatsioonipoliitika meetmete killustatus on ühest küljest seotud rahastamise killustatusega, kuid teisalt ka Eesti innovatsioonisüsteemi halduslike kahestumistega. Seepärast on vähemasti vaja oluliselt suurendada koordineerimist (edendamaks uurimistööga seotud innovatsioone) või isegi kaaluda koordineeriva põhirolli ümberlülitamist hariduse suunamise poole pealt

majanduse suunamise poole peale. Pikaajalisemas perspektiivis võiks kogu strateegia ellurakendajaks olla ühtne läbimõeldud struktuuriga juhtagentuur. Jah, see tähendab potentsiaalset ohtu suurema bürokraatia tekkimiseks, kuid arvestades Eesti väiksust võiks see tagada teadus- ja arendustegevuse ning innovatsioonide terviklikumaks arendamiseks vajaliku organisatsioonisisese läbipaistvuse. See tähendab kogu süsteemi pööret nõudluspoolsete kaalutluste suunas.

- Avalik sektor peaks ergutama majandusharude esindajaid looma innovatsioonidele orienteeritud tegevusstandardeid, tugevdades selleks globaalsete arengute peamiseid trende selgitava informatsiooni pakkumist.
- Samuti leidub võimalusi saavutamaks ühiskonnas konsensust tarbijaid ning tootjaid puudutavate regulatsioonide osas, mis soodustaksid üleminekut uematele tehnoloogilistele platvormidele. Mõningad seesugustest regulatsioonidest võiksid olla isegi ajutise iseloomuga, et luua katalüsaatorina kriitiline hulk nõudlust.
- Nõudluspoolse innovatsioonipoliitika uus laine võiks lähtuda erinevate projektide hindamise juures edutegurina kolmest võimekuses – teadustöö võimekusest, koostöö ja võrgustike loomise võimekusest ning kommertskasutuse võimekusest. Teine võimekus viitab otseselt uurimistulemuste äritegevusse leviku potentsiaalile ning hilisemale innovaatiliste ideede levikule juba turule. Mõlemad need levikud toetuvad suuresti võrgustike loomisele.
- Teadus- ja arendustegevuse ning innovatsiooni strateegia, aga samuti rakendusprogrammid ja –kavad peaksid selgesõnaliselt sisaldama nõudluspoolseid eesmärgesid ning põhjusliku seose abil mõõdetavaid indikaatoreid, mis seostaks rahastamise ja väljaõppe alased meetmed pikaajalise majandusliku mõjuga. See aitaks vähendada „raha vajab ära kasutamist“ mõtteviisi „tarvis on saavutada efektiivsust“ mõtteviisi ees.

Mõningad neist soovitustest (eriti viimane) võivad näida vastupidised Euroopa Liidu rahastamisega pahatihti seonduvale loogikale. Siiski on nad väga tähtsad, vältimaks ületamatu lõhe kujunemist rahastamisvõimaluste ning tõeliselt innovaatiliste ja turustatavate äriideede vahel. Eestis on juba käivitumas avalik arutelu ettevõtetele pakutavate rohkete toetuste mõjukuse üle. Ilma nõudluspoolsete poliitikate lisandumiseta võivad pakutavad toetused tõepoolest pigem erainvesteeringuid välja tõrjuda kui erasektori algatusi sobivalt täiendada.

Käesoleva uuringu oluliseks piiranguks on Eestis rakendatavate nõudluspoolse innovatsioonipoliitika meetmete kohta käiva informatsiooni vähesus. Hindamiste raportid ja programmikirjeldused pakuvad mõnes mõttes liiga üldist vaadet nõudluspoolsetele aspektidele. Harupõhised sõelumis- ja seireuuringud võiksid pakkuda paremaid tõendeid kohaliku, regionaalse ja globaalse nõudluse olemasolust võtmevaldkondades tehtavatele innovatsioonidele.

Teoreetilised järeldused käesolevast arutlusest seonduvad vajadusega elavdada oluliselt teaduslikku diskussiooni ja uuringuid nõudluspoolse innovatsioonipoliitika

meetmete positiivseid ja negatiivseid külgede kohta. Kuigi neid poliitikaid on terviklikumalt vaadeldud juba enam kui viis aastat, napib endiselt selleteemalist kirjandust, mis poleks seisundi- või hindamisraportid.

Käesoleva uuringu juhtimisalased järeldused on seotud tõdemusega, et majandusharu liidrite ja juhtide kaasatus asjakohaste nõudluspoolse innovatsioonipoliitika meetmete alasesse arutellu on väga oluline, et saavutada sisulist innovatsioonialast koostööd, mitte üksnes formaalseid kontakte. Juhtide huvi keekulisemate innovatsioonide vastu omab võtmetähtsust uurimistöö tulemuste vastu nõudluse tekitamisel.

Tulevane uurimistöö peaks keskenduma nõudluspoolse innovatsioonipoliitika meetmetega seotud väljakutsete ja riskide põhjalikule analüüsile. Samuti on kahtlusi nõudluspoolsete innovatsioonipoliitikate efektiivsuse osas väikesel turul, mis vajavad samuti käsitlemist. Nõudluspoolsete meetmete sisseviimine nõuab uudeid halduslikke struktuure ja institutsionaalseid võimekusi, mida tuleks ka analüüsida.

INDIKAATORID ÜLIKOOLIDE JA ETTEVÕTETE KOOSTÖÖ MÕÕTMISEKS

Marge Seppo, Alo Lilles
Tartu Ülikool

Ülikoolide ja ettevõtete vaheline koostöö pälvib tähelepanu kogu maailmas. Nii valitsusasutused, ülikoolid kui ka ettevõtted on huvitatud heast ja tõhusast koostööst, mis oleks kasulik kõigile osapooltele. Selleks, et soodustada ülikoolide ja ettevõtete koostööd, ja seega teadmiste ja tehnoloogia ülekannet, peavad rohkem kui kunagi varem nii teadlased, poliitikud kui ka ettevõtjad pöörama tähelepanu teaduse ja tehnoloogiapoliitika kujundamisele ning arendamisele. Seejuures on oluline määratleda ja kasutada asjakohaseid näitajaid poliitiliste otsuste kavandamiseks ning hindamiseks.

Teadmuse edasiandmine toimub läbi erinevate kanalite, kuid tihti kasutatakse ettevõtete ja ülikoolide koostöö hindamiseks vaid selliseid näitajaid nagu teadus- ja arendustegevuse (T&A) kulutused või patentide ning võrsefirmade (ingl.k. *spin-offs*) arv. Patendid ja võrsefirmad on aga vaid murdosa teadmusest, mis kodifitseeritud kujul edasi antakse. Antud artikli eesmärk on ülikoolide ja ettevõtete erinevate koostöövormide ning võimalike indikaatorite käsitluste analüüsi põhjal kirjeldada mõõdikute süsteemi, mis hõlmaks ülikoolide ja ettevõtete koostööd laiemalt. Sellest lähtuvalt leiavad artiklist käsitlust ülikoolide ja ettevõtete erinevad koostööliigid ja -vormid, mille lõikes erinevaid koostöö indikaatoreid ka analüüsitakse. Artiklis kujundatud mõõdikute süsteemi on võimalik kasutada ka Eesti kõrgkoolide ja ettevõtete vahelise koostöö mõõtmise parendamiseks. Oluline on töötada välja konkreetseid näitajaid, mis arvestavad ettevõtete ja ülikoolide vahelise koostöö eripäradega ning mida saaks paremini kasutada erinevate riiklike strateegiatega ja meetmetega kujundamisel ning mis viiks kokkuvõttes parema koostöö mõjuni erinevate huvigruppide jaoks.

Kõige olulisemaks eesmärgiks ja tulemuseks ülikoolide ja ettevõtete koostöös peetakse tavaliselt teadmuse ülekannet ülikoolidest ettevõtetesse, aga ka ettevõtetest ülikoolidesse. Teadmuse ülekanne kirjeldab laiemas käsitluses teadmiste, ideede, kontseptsioonide ja tehnoloogiate kandumist ühelt osapoolelt teisele ning seeläbi ka ühiskonnale üldisemalt.

Euroopa ülikoolides läbi viidud ulatusliku uuringu järgi on võimalik eristada kaheksat ülikoolide ja ettevõtete vahelist koostöövormi (Davey *et al.* 2011): õppekava arendamine ja ellu viimine, elukestev õpe, üliõpilaste mobiilsus, teadlaste mobiilsus, T&A tulemuste kommersialiseerimine (nt. patendid, võrsefirmad), teadus- ja arendustegevusalane koostöö, ettevõtlus ja juhtimine. Koostöö tüübid on suhteliselt tihedalt seotud ülikoolide missioonide – õpetamine, teadustöö, ühiskonna teenimine – ning ettevõtete vajadustega, milleks üldjoontes on kvalifitseeritud töötajad ja paremad tegevustulemused ning areng.

Ülikoolide ja ettevõtete vahelises koostöös ei ole oluline aga ainult koostöö iseenesest, vaid selle koostöö tulemus. Pertuzé *et al.* (2010) toob veelgi täpsemalt välja, et oluline ei ole ainult tulemus vaid hoopis koostöö mõju – see kuidas ettevõtte saab ülikooliga tehtud koostöö tulemusi tulemuslikult rakendada. Ettevõtete seisukohalt on oluline pöörata tähelepanu sellele, millist mõju avaldab koostöö ettevõtete toodetele, protsessidele või inimestele. Sama kehtib ka teiste huvigruppide – ülikoolide ja valitsuse – kohta.

Ülikoolide ja ettevõtete koostöö tulemuslikkuse mõõtmise indikaatorid võib jagada kolme kategooriasse (Langford *et al.* 2006): sisend-, väljund- ja mõjuindikaatorid. Sisendindikaatorid on eelkõige sobilikud soovitud väljundi hindamiseks, kuid ei garanteeri seda. Mõju- ja väljundindikaatorid seevastu tegelevad koostöö tulemuste hindamisega.

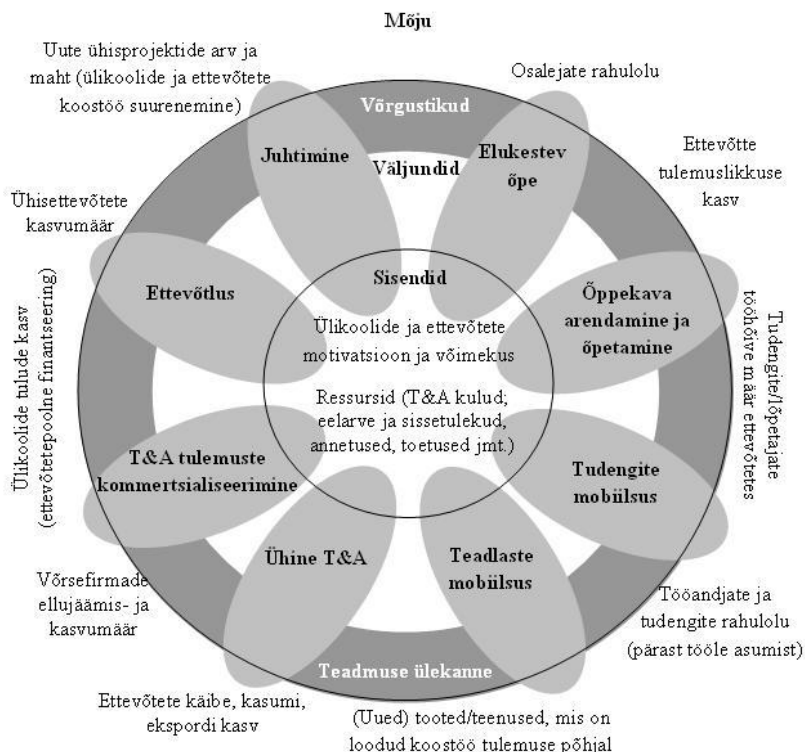
Jensen *et al.* (2009) toovad oma uurimuses välja kvantitatiivsed ja kvalitatiivsed parameetrid ülikoolide ning ettevõtete vahelise teadmussiirde ulatuse mõõtmise kohta. Pakutud parameetrid baseeruvad teadmuse ülekande tegevuste ning nende efektidele ja need võib jagada üheksasse kategooriasse: võrgustikud, pidev kutsealane areng, nõustamisteenused, teaduskoostöö, lepinguline teadustegevus, litsentseerimine, võrsefirmad, õpetamine ja muud/teised näitajad.

Ülikoolide ja ettevõtete vahelised koostöövormid, motivatsioon ja ka eesmärgid võivad olla väga erinevad. Seetõttu on ka ülikoolide ja ettevõtete vahelise koostöö näitajad kohati üsna erinevad. Joonisel 1 on välja toodud erinevate ülikoolide-ettevõtete vahelise koostöö ja eri liiki koostöö näitajate mõõtmise seoseid.

Üldiselt pole sisendindikaatoreid võimalik eristada koostööliikide lõikes. Välja arvatud T&A kulutused, mis on pigem seotud teadus- mitte õppegevusega. Igasugune koostöö vajab ressursse (sh. raha) ning ülikoolide, teadlaste ja ettevõtete motivatsiooni ning võimekust koostööd teha.

Kõik koostöövormid peaksid viima ettevõtete ja ülikoolide vaheliste võrgustike loomise ning arendamiseni. Kuna võrgustikud on olulised teadmuse ja eriti varjatud või kodeerimata teadmuse ülekandmiseks, siis tuleks ettevõtete ja kõrgkoolide koostöö hindamisse kindlasti kaasata ka vastavad indikaatorid. Tabelis 1 on toodud välja erinevad väljundindikaatorid ettevõtete ja ülikoolide vaheliste koostöövormide lõikes ning võrgustike ja teadmussiirde hindamiseks sobivad indikaatorid.

Joonisel 1 on välja toodud ka mõjuindikaatorid. Edukas koostöö õppekava arendamise ja rakendamise alal peaks viima kõrgema lõpetajate tööhõivemäärani. Lisaks kvantitatiivsetele indikaatoritele tuleks koostöö mõju mõõta ka lõpetajate ja tööandjate rahulolu uurides. Ka elukestva õppe puhul on oluline osalejate rahulolu, mille alusel saab hinnata ettevõtete ja ülikoolide koostöö mõju. Inimressursside arendamise (õppekava arendamise ja elluviimise, tudengite mobiilsuse ja elukestva õppe) mõju peaks avalduma ettevõtete suuremas tootlikkuses.



Keskmise ja pikaajalise mõju indikaatorid:

Tootmise teadusmahukuse määr, tootlikkus, tootlikkuse uuendusmäär, uute ettevõtete loomise määr, kõrge kasvumääraga ettevõtete arv ja osakaal, töökohtade arvu kasv, tööhõive kasv, SKP inimese kohta, otseste välisinvesteeringute osakaal SKPst

Joonis 1. Ülikoolide ja ettevõtete koostöö hindamise indikaatorite süsteem.

Teadlaste mobiilsus, ühine T&A ja T&A tulemuste komertsialiseerimine seostub rohkem teadustööga ning selle mõjuindikaatoriteks on näiteks uued tooted, teenused ja protsessid, mis on loodud koostöö tulemuste põhjal. Nii ettevõtete kui ka ülikoolide jaoks on oluliseks mõjuindikaatoriks tulude kasv. Kui ettevõtete puhul on olulised käive, kasum ja eksport, siis ülikoolide puhul annab positiivsest koostöö mõjust märku ettevõtetepoolse finantseeringu kasv. Kuna T&A tulemuste komertsialiseerimine hõlmab ka võrsefirmade loomist, siis on nende ettevõtete ellujäämis- ning kasvumäär samuti üheks mõjuindikaatoriks. Samamoodi on ettevõtluse tulemuste positiivseks mõjaks ühisettevõtete kasvumäär. Juhtimise, kuid ka teiste koostöövormide mõjaks on nii ettevõtete kui ka ülikoolide kultuuriline areng, mille indikaatoriks on ettevõtete ja kõrgkoolide suurem koostöö. Keskmise ja pikaajalise mõju indikaatorid võimaldavad hinnata suurenevat teadusmahukust

ettevõtete tootmises, majanduse üldist tootlikkust, innovatiivsete ettevõtete arengut, tööhõivet ja riigi jõukust.

Tabel 1. Ettevõtete ja ülikoolide vahelise koostöö ning nende vahelise teadmussiirde väljundindikaatorid koostöötüüpide alusel

Koostöö tüübid	Väljundindikaatorid	Võrgustike ja teadmussiirde indikaatorid
Õppekava arendamine ja elluviimine	Koostöös ettevõtetega loodud õppekavad; ettevõtete külalislektorite poolt loetud kursuste/loengute arv; ettevõtete poolt pakutud magistri- või doktoritöö teemade arv; lõpetanute arv.	Koostöö intensiivsus; seminaride ja kohtumiste arv; ettevõtete poolt korraldatud seminaritel/konferentsidel osalevate teadlaste arv; koostöösuhte pikkus; koostöö käigus koostatud uurimisprojekti arv.
Elukestev õpe	Kursuste arv; kursusel osalenud inimeste arv; teadlaste vahetuste arv ettevõtete ja ülikoolide vahel.	
Üliõpilaste mobiilsus	Praktikantide arv ettevõttes; doktorantide vahetuse arv ettevõtete ja ülikoolide vahel; ettevõtete poolt pakutud stipendiumid.	
Teadlaste mobiilsus	Teadlaste vahetuse arv ülikoolide ja ettevõtete vahel; koostöös tekkinud doktori ning järeldoktori kohtade arv.	
T&A tulemuste kommertsialiseerimine	Patenditaotluste arv; patentide arv; litsentside arv ja väärtus; võrsefirmade arv ja turuväärtus; võrsefirmade käive; kommertsialiseerimisteguvut toetavate inimeste arv.	
T&A koostöö	Konsultatsioonilepingute arv; lepinguliste uurimisprojekti arv ning väärtus; koostööprojekti arv ja väärtus; ühispublikatsioonide arv; ühisleiuiste arv; koostöö raames loodud uute toodete/teenuste arv.	
Ettevõtlus	Ühisettevõtete arv; ülikoolis loetavate ettevõtluskursuste arv; ettevõtluskursustel osalevate inimeste arv.	
Juhtimine	Ettevõtete esindajate arv ülikooli juhtkonnas; teadlaste arv ettevõtete juhtkonnas.	

Teadmussiirde tulemuslikkuse mõõtmisel kasutatakse erinevaid meetodeid. Üldiselt eelistatakse aga kvantitatiivseid uurimismeetodeid, mida on üldiselt suhteliselt lihtne koguda ja analüüsida. Samas pole aga nende puhul võimalik vastata küsimustele "miks" või "kuidas". Kvalitatiivsed uurimismeetodid (nt. juhtumiuuringud, intervjuud, fookusgrupi intervjuud jne.) võimaldavad koostööst ja võimalikest probleemidest paremini aru saada. Seetõttu on oluline kasutada andmete kogumisel kindlasti ka kvalitatiivseid uurimismeetodeid.

Ülikoolide ja ettevõtete vahelise koostöö indikaatorid on olulised teadus- ja arendustegevuse ning kõrghariduspoliitikate paremaks planeerimiseks ning hindamiseks. Levinud koostöö indikaatoriteks on näiteks patentide ja litsentside arv ning maht, kuid need ei väljenda ettevõtete ja ülikoolide vahelist teadmussiiret ning koostööd kõige adekvaatsemalt. Teadmussiire leiab aset ka vähem formaliseeritud koostöövormides ning seetõttu on oluline, et hindamissüsteem hõlmaks palju laiaulatuslikumat indikaatorite käsitlust.

Kuigi üldiselt on kergem kasutada sisend- ja väljundindikaatoreid, siis tuleks poliitikate kujundamisel olulist tähelepanu pöörata koostöö majanduslikule mõjule. Samuti on oluline kaasata suhtel ning suhtlemisel põhinevaid indikaatoreid.

Eestis on hetkel ülikoolide ja ettevõtete vahelise koostöö mõõtmise pööras erinevatel sisendindikaatoritel nagu teadus- ja arendustegevuse personali hulk ja erinevatel väljundindikaatoritel nagu sissetulek õppetööst, sissetulek patentide ja litsentside müügist või teadus- ja arendustegevuse lepingutest. Mõjuindikaatorid on oluliselt vähem tähelepanu saanud. Kuna ülikoolide ja ettevõtete koostöö on üks osa innovatsioonisüsteemist, siis võiks koostöö tulemuseks olla suurem innovatsioon, tootlikkus, konkurentsivõime ja majanduskasv nii ettevõtetel Eestis kui riigis tervikuna. Neid soovitud eesmärke tuleks arvestada ka majanduspoliitikate kujundamisel.

Balti Uuringute Instituut, Praxis ja Technopolis Group kirjeldavad Euroopa Liidu tõukefondi perioodi 2007-2013 teadus- ja arendustegevuse ning kõrghariduse meetmete rakendamise vahehindamise raportis, et praeguse süsteemi peamine probleem Eestis on strateegilised puudujäägid riiklikul tasandil, mida võib pidada tõsiseks piiranguks piirkondliku ja valdkondliku arengu toetuste süsteemi vajalike eesmärkide saavutamiseks. Ülikoolide ja ettevõtete vahelist koostööd kirjeldavad poliitikad peaks pöörama tähelepanu mitte ainult sisend- ja väljundindikaatoritele, vaid vaatama ka tulevikku ning hindama võimalikke mõjuindikaatoreid. Lisaks sellele peaksid ka ülikoolid ja ettevõtted hindama omavahelise koostöö ja teadmussirde tulemuslikkust.

Käesoleva uuringu piiranguks on see, et antud uuringu puhul on tegu pigem teoreetilise käsitlusega. Kinnitamaks indikaatorite sobivust ning täpsustamaks nende seost erinevate koostöövormidega, tuleks tulevikus läbi viia empiiriline uuring. Tulevikus oleks oluline viia läbi ka täiendavaid uuringuid mõistmaks sektorite eripärasid. Ettevõtted on oma olemuselt väga erinevad, kuid neile kõigile kehtivad ühesugused poliitikad. Arvestades sektori spetsiifikat võivad ka ülikoolide ja ettevõtete vahelise koostöö indikaatorid olla väga erinevad.

ÜLIKOOLIDE JA ETTEVÕTETE KOOSTÖÖ MOTIIVE JA BARJÄÄRE PUUDUTAVAD POLIITIKASOOVITUSED

Marge Seppo, Tõnu Roolah
Tartu Ülikool

Käesoleval ajal on mitmes Euroopa Liidu liikmesriigis tõsiseid raskusi senise globaalse ja regionaalse konkurentsivõime säilitamisega. Uued teadmispõhised konkurentsieelised eeldavad aga edu uurimis- ja arendustöö ning innovatsiooni valdkonnas. Seda on aga ebatõenäoline saavutada ilma laialdase ja mitmekülgse koostööta ülikoolide ja ettevõtete vahel. Ülikoolid kui akadeemilised organisatsioonid võtavad selge juhtpositsiooni fundamentaalteaduse valdkonnas. Samas rakendusuuringud ja tulemuste kommersialiseerimine läbi innovatsioonide nõuavad ettevõtete kaasatust ning ettevõtlusinitsiatiive. Seega on ülikoolide ja ettevõtete koostöö ülioluliseks kanaliks, mille kaudu kanda üle juhtivate uuringute tulemusi ettevõtetesse ning muundada neid turustatavateks ärilahendusteks. Kuigi see võib tunduda väga iseenesestmõistetav, on koostöösuhete loomine tegelikult keerukas ning väljakutseid esitav protsess.

Kuigi üldisemas plaanis on mõlemad osapooled motiveeritud koostööd tegema, ei ole see esmane huvi sageli piisav, et tagada rahaliste vahendite, teadmuse ja inimressursside pikaajaliselt toimivaid viljakaid ülekandeid. Tõkendid ülikoolide ja ettevõtete koostööle tulenevad mitmest erinevast allikast. Mitmetes riikides on ülikoolid avalikud organisatsioonid, mille missioon ja arengueesmärgid erinevad eraettevõtete omadest. Need erinevused peegelduvad ja võimenduvad väärtuste ning organisatsioonikultuuri võimalike erinevuste kaudu. Erinevused tegevusloogikas ja -keskkonnas muudavad üksteisemõistmise keerukaks, samas kui akadeemiliste töötajate hindamis- ja hüvitamissüsteemid ei sea fookust uurimistulemuste kommerskaskutuse aspektile. Impulsid ja ideed uurimistööks luuakse pigem akadeemiliste ringkondade sees, tuginedes varasemale teadusdiskursusele, ja mitte koostöös ettevõtluspraktikutega. Selle tulemusena rajavad akadeemilised ülikoolid ja ettevõtted kahjuks eraldiseisvad kogukonnad, millel puuduvad ühised fookused, arusaamad ja huvid. Seega kujuneb uurimistöö arendustegevusest ja innovatsioonist lahutatuks.

Juhul kui ülikoolid ja ettevõtted kas ei oska või ei soovi neid ohte tunnustada võib riiklikel poliitikatel olla ülioluline käimalükkav roll osapoolte lähendamisel. Isegi siis kui ülikoolid on asunud muunduma ettevõtlikumaks, et ettevõtetele teadmust pakkuda, on võimalik riiklike poliitikate abil situatsiooni parandada. Nimelt toetades antud muundumisprotsessi asjakohase seadusandluse ja muude meetmete kaudu. Samavõrd oluline on motiveerida ettevõtteid ülikoolide juurest uusi teadmiseid ja abi otsima ning neid selle eest tunnustada. Mõni soodustuspoliitikatest võib küll olla pigem Euroopa Liidu üleseid initsiatiive kajastav, samas kui teised poliitikad on suunatud lokaalsematele probleemidele.

Käesoleva uuringu eesmärgiks on pakkuda välja poliitikaid, mille abil suurendada motivatsioone ning/või vähendada tõkendeid ülikoolide ja ettevõtete koostöök.

Analüütilise arutluse käigus tuuakse põhjalikumalt välja ülikoolide- ning ettevõtetepoolsed motiivid koostööks ja ühisprojektide elluviimiseks. Neid motiive ning kogu ülikoolide ja ettevõtete koostööd laiemalt mõjutavad mitmed tõkendid. Mõningaid nendest tõkenditest on sobivate poliitikate abil võimalik kas kõrvaldada või vähemalt langetada. Poliitilised meetmed võivad samuti luua lisamotiive koostööks või mõjutada samaaegselt nii motiivide kui tõkendite aspekti.

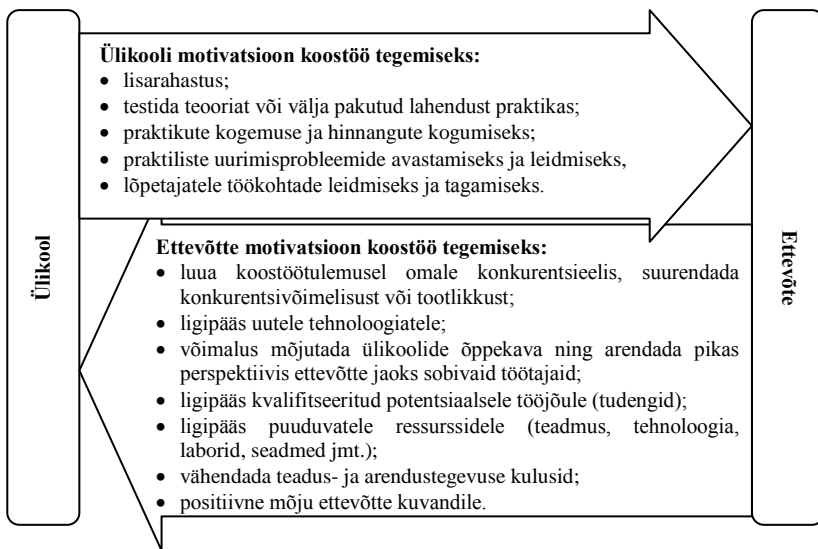
Keskaegsed ehk äsjaloodud ülikoolid olid suhteliselt suletud organisatsioonid ning samas kultuuri säilitajad ja edasikandjad. Aja jooksul on ülikoolid muutunud üha enam integreerituks ümbritseva keskkonna ja sealhulgas ettevõtete vajaduste ning tegevusega. Kõrgkoolide arv on oluliselt suurenenud, mis tähendab omakorda aga seda, et konkurents tudengite ja rahastuse saamiseks on ka ülikoolide vahel aja jooksul üha intensiivistunud. Wissema (2009) toob välja ülikoolide arengus kolm põlvkonda: keskaegne ehk esimese põlvkonna ülikool, Humboldt'i teadusülikool ehk teise põlvkonna ülikool ja ettevõtlik ehk kolmanda põlvkonna ülikool. Seejuures on praegusel hetkel tegu üleminekuperioodiga teiselt kolmandale põlvkonnale ning pigem saab kolmanda põlvkonna ülikoolidest rääkida tulevikus. Ülikooli rolli ühiskonnas on kirjeldatud ka akadeemiliste revolutsioonide kaudu, mille käigus üks põlvkond teisega asendub. Esimese akadeemilise revolutsiooni ajal lisandus ülikooli esmastele ülesannetele olla teadmuse säilitaja ja edastaja ka uurimistöö funktsioon. Teine akadeemiline revolutsioon on toonud kaasa ülikoolide suurema seose ettevõtetega ning ka ülikooli enda suurema ettevõtlikkuse.

Ettevõtliku ülikooli mõiste ühtib eelpool välja toodud ülikoolide kolmanda põlvkonna käsitlusega. Pärast esimest akadeemilist revolutsiooni hakkasid ülikoolid otsima võimalusi kuidas oma uurimistööna valminud tulemusi turustatavaks kaubaks muuta. Ettevõtlik ülikool on innovaatiline nii oma organisatsiooni, tehnoloogiate kui ka finantstegevuse osas. Etzkowitz (2003) kohaselt saab ülikoolide ettevõtlikkuse puhul rääkida erinevatest tasanditest või ka liikidest:

- üleminekufaasis ettevõtlik ülikool – tegutseb jätkuvalt uurimisprobleemide formuleerimise ja uurimiseesmärkide seadmisega, mis kõik leiab aset organisatsiooni sees akadeemilise distsipliini raames,
- lõpuni arenenud ettevõtlik ülikool – kõige olulisemaks tunnuseks on see, et uurimisprobleemi määratlus tuleb nii ülikoolivälistest allikatest kui ka ülikoolisisest akadeemilisest distsipliinist,
- ettevõtlik ülikool kui teaduspargi laiendus – investeerivad oma ressursse uute ettevõtete loomisesse ning osalevad aktiivselt koos ettevõtetega ühises majandustegevuses, mille eesmärk on oma sissetulekuid suurendada.

Iseloomustamaks ja soodustamaks ettevõtete ja kõrgkoolide omavahelist koostööd on määratletud erinevaid koostöömudeleid. Varasemad mudelid on olnud lineaarsed ja järjestikulised. Tänapäeval on trend aga pigem ringikujuliste, spiraalsete ja interaktiivsete mudelite poole. Lineaarsete mudelite puhul arvati, et publitseerimisest piisab oma teadmuse jagamiseks. Praktikas avastati, et nii lihtsalt see ei toimi. Nii lineaarne kui ka tagurpidi lineaarne mudel on osa interaktiivsest innovatsioonimudelitest, kus teaduse tõuge ja turupoolne tõmme töötavad üheaegselt.

Ülikoolide ja ettevõtete koostöö motiivid võtab kokku joonis 1.



Joonis 1. Ettevõtete ja kõrgkoolide motivatsioon koostöö tegemiseks.

Olulisemateks koostöö tõkenditeks ülikoolide ja ettevõtete vahel on:

- erinevad eesmärgid, uurimissuuna fookus (alusuuringud vs rakendusuuringud) ja kultuurilised erinevused organisatsioonide vahel;
- konfliktid seoses intellektuaalse omandi õigustega;
- puudub arusaam partneri tegevuskeskkonnast;
- ülikoolides puudub koostööd ettevõtetega soodustav motivatsiooni-, tasustamis- ja karjäärisüsteem;
- ettevõtete madal võimekus;
- ülikoolide madal tehnoloogiline võimekus;
- ülikoolide teadus- ja uurimistulemusi on raske kommersialiseerida;
- ettevõtte ja ülikooli vaheline geograafiline kaugus.

Eesti ülikoolide statistikast nähtub, et eraülikoolid on ühinemiste kaudu sulandumas suurtesse avalikesse ülikoolidesse ning tudengite üldarv on seejuures enamikes neis avalikes ülikoolides seni kasvanud. Need ühinemise ja kasvuprotsessid võivad samuti soodustada mõningast organisatsioonikultuurilist nihet erasektori ettevõtetega koostöö tihenemise suunas. Erinevad ettevõtlussektori uuringud toovad siiski välja, et ülikoolide tähtsust koostööpartnerite seas hinnatakse pigem madalaks ning seesuguse koostöö arendamisel tunnetatakse mitmeid tõkendeid. Nende seas näiteks ettevõtete ja/või ülikoolide koostööhuvi puudumine, teadustöötulemuste vähene rakendatavus praktikas, asjakohase informatsiooni vähene kättesaadavus ettevõtjale ning uurimis- ja arendusastutustega kontaktide leidmise keerukus.

Tõkendina nähakse täpsemalt ka ülikoolide vähest huvi väikesemahuliste ja lühikese valmimistähtajaga projektide vastu.

Siiski on ülikoolidepoolseid andmeid, et eelarvevälistest finantseerimisallikatest saadavad summad, mis hõlmavad ettevõtluslepingute kaudu saadud vahendeid, on viimastel aastatel oluliselt kasvanud. Huvipuuduse ja ettevõtete vaatenurgast liiga pikkade pakutavate projektikestvuste kui koostööprobleemide ületamise üheks keskseks eelduseks peetakse teadustöötajate ettevõtlikku hoiakut. See väljendub valmisolekus tegeleda ettevõtluspoolega, kas ettevõtete töövahenditele tuginedes, osajaga ise ettevõtjana tegutsedes, või headel isikutevahelistel suhetel põhinevaid püsikonsultatsioone tehes.

Ülikoolide ja ettevõtete koostööbarjääride kõrvaldamine on pikaajaline ja mitut osapoolt hõlmav protsess. Seetõttu peab antud koostöö stimuleerimiseks püstitama pikaajalise strateegia, mille raames elluviidavad abinõud arvestavad ülikooli muutuva rolliga ühiskonnas.

Teiste riikide kogemuse kohaselt on enim edu toonud poliitikaabinõud, mis toetavad kasutajate poolt defineeritud uurimistöid, väike- ja keskmikettevõtete koostööd ülikoolidega, teadlaste mobiilsust, uurimistulemuste kommertskasutust läbi uute ettevõtete loomise ja seesuguste institutsionaalsete regulatsioonide väljaarendamist, mis toetavad ülikoolide ja ettevõtete vahelist teadmusvahetust.

Artiklis toodud analüüs ning Eesti uurimis- ja arendustöö või innovatsiooni kontekst laiemalt võimaldavad tuua järgnevad soovitusel poliitika arendamiseks:

- Soodustamiseks ülikoolide ja ettevõtete koostööd Eestis tuleks rohkem tähelepanu pöörata rakendusuuringutele. See võib hõlmata eriotstarbelisi uurimistoetusi ettevõtete poolt algatatud uurimisteemadele või uurimistöö tulemuste praktilises rakendatavuses kasutamist senisest olulisema hindamiskriteeriumina uurimistoetuse taotluste juures.
- Ettevõtluspartneri sisuline kaasatus teatud uurimistulemuste saavutamisse võiks olla mõningates uurimisvaldkondades kohustuslik. Samas on oluline, et seesuguse partneri panus projekti oleks selgesti välja toodav ning mõõdetud.
- Hariduspoliitika valdkonnas tuleks ülikoolide õppekavade arendamisse kaasata senisest enam asjassepuutuvate ettevõtlussektorite juhtisikuid. Kuigi formaalselt on meede “Ettevõtete ja kõrgkoolide koostöö” Sihtasutuse Archimedes poolt juba olemas, on ettevõtted sisulises plaanis kavaarendusse väga vähe kaasatud. See näitab, et vastavaid koostööprotseduure on ebapiisavalt soodustatud, määratletud või jälgitud.
- Ettevõtete juhtide kaasamist ülikoolide külalislektorina võiks samuti soodustada sihtotstarbelise finantseerimise abil, mis seda huvi suurendaks.
- Ülikoolide ja ettevõtete koostööd tuleks soodustada samuti selge fookusega praktikaprogrammide abil tudengitele ja õppejõududele, mis taas tagaks ettevõtetele väärilise kompensatsiooni nende panuse eest praktikantide juhendamisse.

- Ülikoolide ja ettevõtete suhete soodustamise pikaajaline poliitika võiks hõlmata mõningate uurimislaborite osalist või täielikku erastamist, et motiveerida neid veelgi enam osalema kommertssuunitlusega testimistes.
- Võib-olla oleks võimalik luua ka uurimistöö tulemustega seotud intellektuaalomandi ülikooli ja ettevõtte vahel jagamise nõ hea tava juhend.
- Ülikoolide karjääri- ja tasustamissüsteemid peaksid tunnustama panuseid rakendusuuringutesse võrdväärselt akadeemilise uurimistööga. Sellekohase juhendi väljatöötamisel võiks võtta juhtrolli Haridus- ja Teadusministeerium.
- Ülikoolide tehnoloogiliste võimekuste arendamine ning ettevõtete poolse uute teadmiste omaksvõtvõimekuse arendamine peaks olema veelgi eriotstarbelisemate teadus- ja arendustegevuse programme siht, mis on suunatud just nendele aspektidele.
- Tuleks luua riiklikult finantseeritud infovahetussüsteem, mis koondaks endasse uurimistöö ja innovatsiooni infosisendid nii ülikoolidest kui tööstusharudest.

Need poliitikaabinõud ei tarvitse anda kiireid tulemusi. Siiski aitaksid nad aja jooksul nihutada teadustöö fookust rohkem ettevõtete vajaduste suunas. Ettevõtluse Arendamise Sihtasutus juba pakub uusettevõtete programmi ja innovatsiooniosakute programmi, mis peaksid tekitama seoseid ettevõtete ja ülikoolide vahel. Samas näib, et need meetmed ja Sihtasutuse Archimedes poolt algatatud meetmed on ebapiisavad loomaks laialdasemat ja sisulisemat osapoolte koostööd.

Käesoleva uuringu piirangud seonduvad tõsiasjaga, et tegu on üsnagi esmase vaatega probleemistikule, mis tugineb eeskätt kirjandusele ja teiste uuringute tulemuste tõlgendamisele. Samas on ta sellisena asjakohane kui sobiv alguspunkt teema detailsemale analüüsile.

Uuringu järeldid teooriale seisnevad võimalustes seostada omavahel ülikoolide arengut ja teisenemist puudutavat kirjandust ning teadus- ja arendustöö või innovaatika soodustamist käsitlevat kirjandust. Selline ülikoolidepoolse seest välja vaate ja ühiskonna või ettevõtete poolse väljast sisse vaate seostamine võimaldab luua paremat tervikpilti. Järeldid juhtimisele seisnevad ärivõimalustes, mis seonduvad ülikoolidega koostöö kasvust saadavate paremate ressursside ja kompetentsidega. Juhtide võime töös kirjeldatud poliitikameetmetest kasu saada sõltub nende poolsest omaksvõtuoskusest.

Tulevased uuringud peaksid keskenduma veelgi parema arusaama saavutamisele ülikoolide ja ettevõtete koostöö ning teadmusvahetuse motiivide kohta. Selleks tuleks küsitlusandmeid kasutada koos intervjuudest ja grupiaruteludest saadavate põhjalikumate kvalitatiivsete andmetega.

FINANTSTULEMUSTE MÕJU VÄLJAMAKSEPOLIITIKALE EESTI ETTEVÕTETES

Argo Teral, Oliver Lukason, Priit Sander
Tartu Ülikool

Sissejuhatus

2000. aastal viidi Eestis läbi unikaalne maksureform, mille sisuks oli lükata ettevõtte tulude maksustamise moment edasi tulu teenimise hetkelt tulu jaotamise hetkeni. Sellise maksusüsteemi tingimustest on ettevõtte tulumaksust riigile laekuv tulu otseselt sõltuv ettevõtetes langetatavatest kasumijaotusotsusest. Kuigi otseste maksude (ja eriti ettevõtte tulumaksu) roll Eesti riigieelarves on üsnagi väike, on eelarve koostamise protsessis vajalik siiski prognoosida ettevõtte tulumaksu laekumist tulevikus. Seoses eelnevaga võiks ka eelarveprotsessiga seotud isikutele huvi pakkuda kuidas langetatakse ettevõtetes kasumijaotusotsuseid. Käesoleva uurimuse fookuses on ettevõtete finantsindikaatorite ja omanikele tehtud väljamaksete vahelised seosed finantskriisi tingimustest (st vaatluse alla on võetud ettevõtete väljamaksepoliitika aastatel 2008-2009).

Ettevõtete dividendipoliitikat mõjutavate tegurite teoreetiline lühiülevaade

Ettevõtete dividendipoliitika on väga laialdaselt uuritud valdkond, kuid sellest hoolimata pole endiselt jõutud ühestele seiskohtadele, mis täpselt mõjutab ettevõtete kasumijaotusotsuseid. Suurem osa teoreetilistest mudelitest selgitab ettevõttes langetatavaid dividendiootsuseid reageeringuga turu ebatäiuslikkuse ilmingutele (maksude ja tehingukulude olemasolu, asümmeetriliselt jaotunud informatsioon, huvide konflikt erinevate ettevõttega seotud osapoolte vahel jms).

Empiirilistes uuringutest on neid turu ebatäiuslikkuse ilminguid tavaliselt mõõdetud erinevate asendnäitajatega (*proxy*). Tüüpiliselt on leitud, et ettevõtte dividendipoliitika sõltub nii eelnevate kui ka tulevaste perioodide kasumitest, tulude volatiilsusest, investeerimis- ja finantseerimisvõimalustest, ajaloolistest traditsioonidest dividendide maksmisel aga ka sellistest teguritest nagu näiteks ettevõtte üldjuhtimine (*corporate governance*) või õiguslik keskkond. Nimelt selle viimase aspekti tõttu on aktuaalne uurida dividendipoliitika kujunemist Eesti ettevõtetes. A. Hazak (2007) koostas teoreetilisele mudeli, mille kohaselt peaks kahju saamise tõenäosuse suurenemine tooma Eesti tulumaksusüsteemi tingimustes kaasa aktsionäridele tehtavate väljamaksete olulise suurenemise. Kuigi varasemad empiirilised uurimused erinevates riikides on kinnitanud, et ettevõtted ei taha dividendimakseid vähendada, on suuremate kriiside ajal seda siiski üsna laialdaselt tehtud. Sellised mõneti vastuolulised arvamused varasemas kirjanduses on tekitanud vajaduse täiendavate lisauuringute järele ning 2008-2009 aasta finantskriis pakkus nende läbiviimiseks soodsat keskkonda.

Eesti ettevõtete dividendipoliitika empiiriline uuring: andmed ja metoodika

Uurimuse läbiviimiseks hangiti Äriregistrist andmed 14 müügitulu alusel suurima Eesti tööstusharu kõigi ettevõtete kohta aastatel 2006-2009. Seejärel jäeti vaatluse alt kõrvale mitteaktiivsed (müügitulu mitteomavad) ettevõtted. Järgmise sammuna grupeeriti ettevõtted sõltuvalt sellest, kas nende majanduslik olukord paranes (Grupp III), halvenes vähem kui sektoris keskmiselt (Grupp II) või halvenes rohkem kui sektoris keskmiselt (Grupp I). Ettevõtete grupeerimise aluseks oli viie erineva pankrotimudeli alusel arvutatud pankrotiskoori tulemused.

Kahjuks ei sisaldanud Äriregistri andmebaas infot omanikele teostatud väljamaksete kohta. Seetõttu olid autorid sunnitud arvutama ligikaudse väljamaksete suuruse ettevõtte bilansi- ja kasumiaruannete kirjade alusel. Ettevõtte võib omanikele väljamakseid teha nii dividendidena kui ka muul moel (nt seoses aktsiakapitali vähendamisega). Dividendide suuruse leidmise alusvalemina kasutati järgmist lihtsustatud seost:

$$\text{dividendid} = (\text{jaotamata kasum}_{t-1} + \text{aruandeaasta kasum}_{t-1}) - \text{jaotamata kasum}_t$$

Seejärel kohandati spetsiifiliste algoritmidega saadud tulemusi võtmaks arvesse võimalust, et jaotamata kasumi arvel võidi suurendada hoopis ettevõtte aktsia- või reservkapitali. Samuti vaadeldi aktsiakapitali vähendamisi, kusjuures väljamaksetena läksid arvesse üksnes sellised aktsiakapitali vähendamised, mille puhul eelmiste perioodide jaotamata kasumi ja puhaskasumi summa oli positiivne. Lisaks väljamakse rahalisele suurusele vaadeldi ka väljamaksekordajat, mis leiti väljamakse jagamisel puhaskasumiga. Kahjuks ei võimaldanud kasutatud algoritmid ning ebatäpsused andmetes siiski elimineerida kõiki võimalikke vigu, mistõttu väljamaksete arvestuslik suurus võib mõnel juhul ka erineda tegelikust väljamaksest.

Finantsindikaatoritena, mille korrelatiivseid (kasutades Pearsoni korrelatsiooni-kordajat) seoseid dividendiga uuritakse, vaadeldakse käesolevas uurimuses võlakordaja muutust (ΔDA); brutorentaabluse muutust (ΔBS); puharentaabluse muutust (ΔNS); lühiajalise kattekordaja muutust (ΔCAL); müügitulu muutust (ΔS); brutokasumi muutus (ΔBP); ning puhaskasumi muutust (ΔNI). Analüüsi käigus uuriti dividendide seost ülaltoodud finantsindikaatoritega perioodil $t-1$, perioodil t ja perioodil $t+1$.

Eesti ettevõtete dividendipoliitika empiiriline uuring: tulemused ja diskussioon

Esmalt hinnatakse väljamaksete ning erinevate finantsnäitajate vahelist seost grupis, kus majanduslik olukord halvenes rohkem kui harus keskmiselt. Valimisse on kaasatud kõik grupi ettevõtted, mis teostasid omanikele väljamakseid 2008. aastal. Kokku teostas konkreetse grupis 2008. aastal väljamakseid 2377 ettevõtet. 2008. aastal tehtud väljamaksetel puudusid statistiliselt olulised korrelatiivsed seosed 2007. ja 2008. aasta finantsnäitajate muutustega. Küll aga esinesid tugevad korrelatiivsed seosed 2008. aastal teostatud väljamaksete ja 2009. aasta finantsindikaatorite vahel. Väljamaksed (ja ka väljamaksekordajad) olid positiivselt seotud

müügitulu, bruto- ja puhaskasumi muutustega. 2009. Aastal tehtud väljamaksetel puudusid samuti statistiliselt olulised korrelatiivsed seosed eelmiste ja sama perioodi finantsindikaatoritega. Autorite käsutuses polnud uuringu koostamisel veel andmeid 2010. aasta kohta, mistõttu puudus võimalus vaadelda 2009. aastal makstud dividendide seost järgmise (st. 2010) aasta finantsindikaatoritega.

Teiseks hinnatakse väljamaksete ning erinevate sõltumatute muutujate vahelist seost grupis, kus ettevõtte majanduslik olukord halvenes vähem kui harus keskmiselt. Vaatluse all on kõik ettevõtted, kes 2008. või 2009. aastal teostasid väljamakseid. 2008. aastal teostas konkreetses grupis väljamakseid 695 ettevõtet. Kui eelmise grupi puhul puudusid statistiliselt olulised seosed väljamaksete ja eelmise või sama perioodi finantsindikaatorite vahel, siis käesolevas grupis esines üksikuid statistiliselt olulisi seoseid (vt tabel 1), kuid seosed olid nõrgad. Tugevad ja statistiliselt olulised seosed esinesid aga 2008. aasta väljamaksete ja 2009. aasta finantsindikaatorite (võlakordaja muutus, puhaskasumi muutus, puhasrentaabluse muutus) vahel. Väljamaksekordajate puhul olid aga seosed vastasmärgilised võrreldes seostega grupis I.

Kolmandaks hinnatakse väljamaksete ning erinevate sõltumatute muutujate vahelist seost grupis, kus ettevõtte majanduslik olukord eelmise aastaga võrreldes paranes. Sarnaselt eelmistele gruppidele, on sõltuvateks muutujateks nii 2008. aastal kui ka 2009. aastal teostatud väljamaksed. 2008. aastal teostas konkreetses grupis väljamakseid 2616 ettevõtet. Sarnaselt grupiga I puudusid ka sellesse gruppi kuuluvate ettevõtete puhul korrelatiivsed seosed väljamaksete ja sama ning eelmise aasta finantsindikaatorite vahel. Statistiliselt olulised seosed eksisteerivad väljamaksete ja järgmise aasta finantsindikaatorite vahel. Rahaliste väljamaksete korral olid need seosed samad kui grupis üks, kuigi oluliselt nõrgemad. Väljamaksekordaja puhul on aga seoste suund sarnane grupis II esinenud seoste suunaga. Kokkuvõtteks on leitud statistiliselt olulised seosed esitatud tabelis 1.

Uuringutulemused näitavad, et enamasti puuduvad statistiliselt olulised korrelatiivsed seosed ettevõtte eelmiste perioodide finantsindikaatorite ning omanikele tehtud väljamaksete vahel. Saadud tulemused on mõneti vastuolus nii varasemates Eesti suurettevõtete andmetele tuginevates uuringutes kui ka enamikes rahvusvahelistes empiirilistes uurimustes tehtud järeldustega. Korrelatiivsete seoste puudumine on autorite hinnangul seletatav eelkõige kahe asjaoluga. Esiteks moodustasid käesoleva uuringu valimist väga suure osa (83-92%) mikroettevõtted, kus kasumijaotusotsused tehakse eelkõige omaniku rahavajadust arvestades, mitte aga ettevõtte finantsnäitajaid silmas pidades. Mitmed küsitlusuuringud nii Eestis kui ka teistes riikides on kinnitanud, et tuumikaktsionäri soovid ja ootused on kõige olulisemaks dividendipoliitikat mõjutavaks teguriks. Arvestades kõrget omanike kontsentratsiooni Eesti ettevõtetes (isegi aktsiaseltside puhul kuulub valdav osa ettevõtteid ühele-kahele aktsionäri) pole selles midagi imekspandavat, sest kasumijaotusotsus on sisuliselt tuumikaktsionäri kontrolli all.

Tabel 1. Statistiliselt olulised korrelatsioonikoefitsiendid väljamaksete ja finantsindikaatorite vahel (sig. = 0.05)

Ettevõtete grupp Indikaatori aasta	2008. aasta		2009. aasta	
	Väljamaksed	Väljamakse- kordajad	Väljamaksed	Väljamakse- kordajad
I				
2006/2007	-	-		
2007/2008	-	-	-	-
2008/2009	ΔS (0.230), ΔBP (0.348), ΔNI (0.300)	ΔS (0.573), ΔBP (0.849), ΔNI (0.729)	-	-
II				
2006/2007	-	-		
2007/2008	ΔDA (0.171)	-	-	ΔNI (0.128)
2008/2009	ΔDA (0.079)	ΔNS (-0.795), ΔNI (-0.808)	-	-
III				
2006/2007	-	-		
2007/2008	-	-	-	-
2008/2009	ΔS (0.095), ΔBP (0.098), ΔNI (0.089)	ΔNI (-0.186)	-	-

Allikas: Äriregistri andmebaas, autorite koostatud.

Korrelatiivsete seoste puudumine dividendimaksete ja eelmiste perioodide finantsindikaatorite vahel võib olla seotud ka meie poolt vaadeldava ajaperioodi eripäraga. Finantskriisi tingimustes muutusid majandusolud ja ettevõtete väljavaated sageli kuude kui mitte nädalatega. Sellises olukorras on loomulik, et ettevõtted arvestavad pigem hetkeolukorra ja tulevikuväljavaadete kui eelmiste perioodide majandustulemustega. Uurides dividendide seost järgmise perioodi finants-tulemustega ilmnemiseid tõepoolest mitmed statistiliselt olulised korrelatiivsed seosed. Seosed polnud küll kõigis vaadeldavates gruppides ühesuunalised, mis viitab kaudselt ettevõtete üldise finantsseisundi mõjule otsuste langetamisel, kuid vihjasid siiski võimalusele, et ka Eesti tulumaksusüsteemi tingimustes tehakse väljamakseid omanikele eelkõige siis kui on oodata finantsseisundi paranemist. Sarnaselt mitmele varasemale uurimusele viitavad meie poolt saadud tulemused, et dividendidel võib olla teatud ennustuvõime ettevõtte tuleviku osas.

Järeldused

Eesti ettevõtete laiapõhjalise (üldkogumile läheneva) valimi uurimisel selgus, et korrelatiivsed seosed ettevõtte eelmise perioodi finantsnäitajate ning dividendimaksete vahel on nõrgad või puuduvad üldse. Seega ei saa nende põhjal ennustada ka ettevõtete dividendipoliitikat, mis raskendab Eesti tulumaksusüsteemi tingimustes ettevõtetelt laekuva tulumaksu prognoosimist riigieelarve koostamise protsessis. Dividendietsused langetatakse eelkõige tuumikaktsionäri suva järgi ning seega mudelid ja teooriad, mis jätavad dividendietsuste uurimisel kõrvale aktsionäride soovid ja ootused ei suudagi täielikult selgitada ettevõtete dividendietsuste tagamaid. Dividendide seos järgmise aasta finantsnäitajatega on aga tunduvalt tugevam. Uurimuse käigus leidsime statistiliselt olulisi korrelatiivseid seoseid nii müügitulu, brutokasumi kui ka puhaskasumi ning võlakordaja muutustega. Seega võivad dividendid kanda endas täiendavad informatsiooni ettevõtte lähituleviku kohta.

EESTI: KRIISI SISENEMINE JA VÄLJUMINE

Viktor Trasberg
Tartu Ülikool

Viimase kümnendi jooksul on Eesti majanduskasv olnud äärmiselt volatiilne. Majanduse sajandialguse taastumisele peale Aasia ja Vene kriisi järgnes väga kiire kasvu periood kuni 2008 aastani.

Alljärgnev artikkel käsitleb majandustsükli juhtimist majandusbuumi perioodil ning selle järgnenud kriisiaastatel. Autor väidab, et selline suure amplituudiga majandusareng peegeldab majandustsükli ebaõnnestunud juhtimist nii buumi kui kriisiperioodil. Samuti tuleks otseselt välja tuua majandustsükli erinevate faaside põhjuslik seos ja vastasmõju. Seega ei olnud Eesti majanduslanguse ainupõhjus mitte globaalne majanduskriis, vaid eelneva perioodi liigkiire kasvu poolt tekitatud tasakaalustamatus ja majandusstruktuuri deformatsioon.

Artikli esimeses osas iseloomustatakse viimase kümnendi majandustsükli kulgu ja majanduse ülekuumenemist ning sellele järgnenud järsku majanduslangust. Teises osas selgitatakse Eesti majanduspoliitilisi valikuid ning võimalusi majandustsükli juhtida. Artikli kolmandas osas vaadeldakse valitsussektori tegevust akuutsel kriisiperioodil ning hinnatakse selle vastavust teoreetilistele seisukohtadele.

Eesti majanduskasvu kriisieelsel perioodil toetasid erinevad tegurid. Tähtsamad neist on eelnev madal võrdlusbaas, Euroopa Liiduga ühinemise mõju ning laenamisel põhinev sisetarbimine. Toetavaks teguriks saab lugeda ka stabiilse ja kasvava nõudlusega globaalse väliskeskonna.

Artikkel toob esile kiirele majanduskasvule omaseid näitajaid – SKP tase ja kasvumäär; tööhõive ja palgataseme kasv. Eesti sisemaise koguprodukti tase ühe elaniku kohta jõudis 70% Euroopa Liidu keskmisest ning palgatase kahekordistus 5 aastaga. Euroopa Liiduga ühinemine soodustas välisinvesteeringute sissevoolu ja Eesti ettevõtete äri võimaluste kasvu nii kodu kui välisturgudel.

Majanduskasvu mootoriks aastatel 2000-2007 oli sisenõudlus. Eelkõige kasvas eratarbimine ja investeeringud. Valitsussektori osakaal kasvukomponendina oli mõõdukas, samuti oli puhaseksport pidevalt negatiivne.

Sisenõudluse allikaks oli laienev tööturg, kiiresti kasvavad tulud ja laenuvõimendus. Eesti kommertspankade laenujääk suurenes 2001-2008 kokku 7 korda ning väljastatud laenude maht jõudis 90% SKP-ga võrrelduna. Eraisikute laenud moodustasid 48% kogu laenujäägist.

Tugev sisetarbimine tekitas ka suure impordinõudluse, mida finantseeriti lisaks laenamise ja välisinvesteeringutest laekuvate vahendite arvel. Jooksevkonto oli suures puudujäägis perioodil 2000-2008, mida aga tasakaalustas positiivne finantskonto.

Kiire majanduskasv suurendas küll elanikkonna tulusid, kuid samal ajal deformeeris majandus- ja tööhõive struktuuri. Väga kiiresti kasvas tööhõivet siseturule suunatud tegevusaladel – ehituses; kaubanduses ja teenindus-toitlustussektoris. Samal ajal hõive kasv suurimas tegevusvaldkonnas – tööstuses- oli väga tagasihoidlik. Siseturu kõrge nõudlustase vähendas ettevõtete motiive minna välisurule. Kuigi majandus kasvas kümnendi keskel kiiresti, ei kaasnud sellega ettevõtete moderniseerumist ja seega majanduse globaalne konkurentsivõime alanes. Kõrge sisenõudluse tase forsseeris ettevõtlust ehitus- ja kinnisvarasektoris ning kaubanduses ja teeninduses, mille puhul on asjakohane nimetada seda „kinnisvaramulliks“. Kiire tulude tõus ja nõudluse võimendamine laenuraha toel õhutas ka hinnakasvu. Kiire inflatsioon fikseeritud vahetuskursi tingimustes viis reaalse vahetuskursi tugevnemisele Eesti peamiste kaubanduspartnerite suhtes ning halvendas veelgi konkurentsi-ja ekspordivõimekust.

Kiire hõive kasv ja tööjõunõudlus suurendasid tööjõukulusid oluliselt kiiremini kui Põhjamaades ja EL-is keskmiselt. Kuigi perioodi vältel kasvas ka töö tootlikkus, siis buumiaastatel tootluse kasv sisuliselt peatus. Seega, tootlikkuse kasv jäi alla kulude kasvule ning riigi konkurentsivõime vähenes.

Artikli teine osa iseloomustab Eesti makromajanduspoliitikate rolli majandustsükli juhtimisel. Eesti majanduspoliitika on läbi aegade olnud väga *pro-tsükiline* ning võimendanud majandustsükli erinevaid faase. Samal ajal on majanduses toimivad automaatsed stabilisaatorid olnud suhteliselt nõrgad.

Fikseeritud vahetuskursi ja väikese avatud majanduse tingimustes ei ole rahapoliitika efektiivne vahend majandustsükli juhtimiseks. Rahapoliitika on sellisel juhul suunatud vahetuskursi stabiilsusele ega saa tõhusalt mõjutada intressimäära, inflatsiooni ega raha pakkumist. Eesti Pank ei suutnud takistada ka ülemääraseid välismaiseid krediitvooge, mis tekitasid ülekuumenemise kinnisvara ja ehitussektoris.

Eesti majandustsükli juhtimise peamine vahend saab olla fiskaalpoliitika oma erinevate instrumentide vahendusel. Samas on Eesti fiskaalpoliitika aastakümnedite vältel lähtunud suhteliselt piiratud eesmärkidest. Oluliseks on peetud eelarve tasakaalu ja madalat maksude taset, kuid fiskaalpoliitika kui stabilisatsiooni-mehhanism ei ole teadvustatud eesmärgiks kunagi olnud. Seega kriisieelne fiskaalpoliitika (maksude alandamine, valitsussektori kulude suurendamine jm.) soodustasid otseselt majanduse ülekuumenemist ning majandusstruktuuri deformatsiooni.

Eesti eelarvekulude-tulude tase oli kriisieelsel perioodil oluliselt madalam kui Põhjala naaberriikide ja EL keskmine tase. Ka eelarve oli enamuses aastatel positiivne ning riigivõlg äärmiselt madal. Samas on Eesti maksude struktuuris domineerivaks tarbimismaksud ja sotsiaalkindlustusmaksed. Tulumaksude osakaal võrreldes Põhjamaade ja EL riikide keskmise tasemega on olnud mitmekordselt madalam.

Autori arvates tuleb majanduse ülekuumenemist, majandusstruktuuri deformeerumist ja konkurentsivõime vähenemist otseselt seostada ebaõnnestunud

fiskaalpoliitikaga, mis otseselt soodustas tasakaalustamatut arengut. *Pro-tsükiline* fiskaalpoliitika lähtus kitsastest poliitilistest eesmärkidest huvidest ega võtnud arvesse majandustsükli juhtimise ja tasakaalustamise eesmärgi. Seega oli kriis otsene järelm Eesti sisemajanduses tekkinud „mullile“ ja sektoriaalsele deformatsioonile.

Kuidas Eesti valitsussektor toimis kriisisituatsioonis? Kriisiperioodi tuleks vaadelda tinglikult kaheks etapina – akuutne kriis ja majanduslangus aastatel 2008-2009 ning stabiliseerumine ning kriisist väljumine aastatel 2010-2011. Esimeses kriisifaasis oli Eesti majanduse juhtimine ebaadekvaatne, mis võimendas oluliselt majanduslangust ning tööpuudust. Üldistatult võiks sellise käitumise taga näha kahte omavahel seotud põhjust – kogemuse puudumist majandustsükli juhtimisel kriisisituatsioonis ning ebaõnnestunud majanduspoliitilisi valikuid. Majandustegevuse toetamise ja stimuleerimise asemel keskenduti kitsapiirilistele majanduspoliitilistele eesmärkidele – eelarvetasakaalu hoidmisele järskude maksutõusude ja eelarvekärbete näol.

Standardne kriisisituatsioonis käitumise kava näeb ette valitsussektori kulutuste ja – investeeringute suurendamist; tarbimis- ja tööjõumaksude alandamist ning tulusiirete suurendamist madala sissetulekutega tulusaajatele. Selliste meetmete efektiivsust on tõendanud ka mitmed hiljutised prominentsed uuringud. Paraku tegi Eesti valitsus täpselt vastupidiselt neile soovidele – suurendas tarbimis- ja tööjõumakse; vähendas järsult avaliku kulutusi ja investeeringuid ning tulusiirdeid madalapalgalistele. Sellise käitumise tulemus oli aga suuresti vastavuses majandusteooriaga – väga järsk ja suuremahuline majandustegevuse kokkutõmbumine aastatel 2008-2009 ning valitsussektori eelarve defitsiit. Seda vaatamata asjaolule, et Eestil puudus vajadus toetada oma pangandussektorit ning eelnevalt oli olemas ka stabiliseerimisreservid.

Järgnevatel aastatel püüti majandustegevust stimuleerida ning eelarvet tasakaalustada erinevate finantsinstrumentide kaudu. Kuna võimalused maksude tõusuks puudusid ning laenukoormust ei soovitud suurendada, siis kasutati eelarvetasakaalustamiseks suuremahulist riigivarade müüki ja dividendide väljavõtmist riiklikest ettevõtetest. Eriti markantne tegevus oli CO₂ kvootide suuremahuline müük, millest saadud vahenditega tasakaalustati kriisiperioodil valitsussektori eelarveid.

Teine oluline „stimuleerimismehhanismi“ osa on Euroopa struktuurivahendite laiaulatuslik ja efektiivne kasutuselevõtt, mis võimaldas samuti suunata vahendeid majandustegevuse ergutamiseks.

Teiselt pool suurenes mittemaksuliste tulude osakaal Eesti riigieelarves pea kolmandikuni. Seega ei ole eelarvepositsioon pikaajaliselt jätkusuutlik ilma maksukoormuse tõusuta.

KROONIKA

CHRONIK

CHRONICLE

PROFESSOR VLADIMIR KOSLOV
(17.02.1928 – 7.01.2012)
IN MEMORIAM



Eesti majandusteaduse ajalukku on Vladimir Koslov (pseudonüüm Vlady Kellik) jäänud ühe erudeerituma ja omanäolisema professorina. Tema uurimuste objektiks ja eriliseks huvialaks oli teaduslugu ning filosoofia. Oma teadustöös pidas ta kõige tähtsamaks majanduslase konstruktiivse süsteemmõtlemise ja väitluskultuuri kujundamist. Tema sulest on ilmunud üle 200 publikatsiooni. Aktiivne ühiskonnakriitiline mõtteviis ja huvi maailma majanduses toimuva vastu ajendas teda kuni viimase ajani avaldama oma seisukohti mitmetes ajaleheartiklites. Vladimir Koslovi kolleegid mäletavad teda alati heatahtliku ja heatujulisena, uuendusmeelse ja väitlushimulisena. Pingelise õppe- ja teadustöö kõrval leidis ta aega ja tahtmist nõustada algajaid kolleege ning juhendada magistri- ja doktoritöid. Ta oli alati rõõmsameelne, erudeeritud ja vaheda sulega kolleeg.

Vladimir Koslovi haridustee algas Tartu 1. Keskkoolis, mis on tuntud H. Treffneri Gümnaasiumina. Selle ta lõpetas 1947. aastal hõbemedaliga. Kuna ta oli sündinud ja lapsepõlve veetnud talus Tartumaal Ahja lähedal, tundis ta end maapoisina. Seepärast loobuski ta füüsika õppimisest pärast ühe aastast õppetööd Tartu Riiklikus Ülikoolis (kuhu ta astus 1947. aastal) ning jätkas õpinguid Eesti Põllumajanduse Akadeemias (EPA) metsatööstuse erialal, lõpetades selle 1952. aastal *cum laude*. 1951. aastal võeti ta NLKP-sse ning valiti EPA komsomolikomitee sekretäriks, samuti Tartu Linna Töörahva Saadikute Nõukogu (TSN) rahvasaadikuks. Nii ei saanudki ta omandatud erialal metsamajanduses töötada.

Aastail 1953-1954 viibis ta Leningradi Riikliku Ülikooli ühiskonnateaduste õppejõudude ettevalmistuskursustel, kus sai poliitilise ökonoomia õppejõu kvalifikatsiooni. 1954-1962 töötas ta EPA poliitilise ökonoomia kateedri vanemõpetajana, omandades ühtaegu nii praktilised pedagoogilise töö kogemused kui ka teadustöö alged.

1961. aastal kaitses Vladimir Koslov kõrgete nõudmiste poolest tuntud Moskva Riiklikus Majandusinstituudis majandusteaduste kandidaadi kraadi. Väitekirj valmis teemal „Metsavarumise mehhaniseerimise rahvamajanduslikust efektiivsusest (Eesti NSV näitel)“. Tegelikult oli töö valmis juba kaks aastat enne kaitsmist. Olgugi et dissertatsioon käsitles konkreetset majandusharu, ilmnas juba siin autori püüdlus laiimate, rahvamajandusliku tasemega üldistuste tegemisele.

Majandusteaduste kandidaadi kraadi omistamise järel kutsuti ta tööle Tallinna Polütehnilise Instituudi (TPI) poliitilise ökonoomia kateedri dotsendi ametikohale.

Konkursi läbis ta edukalt ja siit sai alguse palju aastakümneid väldanud töö TPI-s. 1962. aastal algas ka tema elu peamine, loominguline periood. 1963. aastal omistas Moskvast NSV Liidu Kõrgem Atestatsioonikomisjon talle dotsendi kutse. 1964. aastal viibis ta täienduskursustel Kiievi Riiklikus Ülikoolis, 1970.-1972. aastatel ja 1976. aastal aga Leningradi Riiklikus Ülikoolis.

1972. aastal ilmusid trükist tema aastatepikkuse tõsiseltvõetava uurimuse tulemused – „Majandusliku tegevuse teoreetilisi lähtekohti“. Kui jätta kõrvale tookordne kohustuslik marksistlik fraseoloogia, siis panid töö esimesed peatükid aluse tema edaspidistele metodoloogilistele uurimustele. Töös käsitles autor teadmiste süsteemsuse ning teaduslike definitsioonide täpsuse probleemi, rõhutades järeldusena, et mõisted erinevad definitsioonidest. Autor näitas, et poliitökonoomia koos filosoofiaga on majandusteaduse metodoloogiliseks aluseks ning väljendas arvamust, et majanduse peamiseks liikumapanevaks jõuks on vastuolu tootmise kasvu ja ressursside, eeskätt tööaja säästmise vahel. Ta lõpetas töö majandusliku tegevuse küberneetilise tõlgendusega – luues põhjuslike seoste süsteemi vajaduste, huvide, eesmärkide, vahendite, tegevuse, tulemuse ja tarbimise spiraalalabelas.

Eelnimetatud uurimus tõi Vladimir Koslovile üldise tunnustuse. Aastail 1973-1974 oli ta TPI poliitilise ökonomia kateedri juhataja kohusetäitja. Pühendunud teadusmehena ei hinnanud ta aga administratiivset ametikohta, pidades seda koormuseks, mis ei soodusta, vaid kisub eemale loometööst. Sellest kohustusest vabanemise üle tundis ta ainult rõõmu. Küll aga hoolitses ta noorteadlaste järelkasvu eest. Tänu tema tõhusale abile kaitses 1975. aastal edukalt teaduskraadi kateedri assistent, hilisem õppetooli juhataja ning rahvamajanduse instituudi direktor, professor Kaie Kerem.

Suur oli Vladimir Koslovi panus nõukogude ajal ainukese omalaadse õpiku „Sotsialismi poliitiline ökonomia. Loengud“ kirjutamisel 1974. aastal. Seda õppeainet tohtis õpetada ainult Moskvast väljaantud õpikute alusel. Need raamatud olid üldsõnalisel, deklaratiivsel, peamiselt sotsialismi eelistest ja üllastest eesmärkidest ning ei rahuldanud ei õppejõude ega üliõpilasi. Sotsialismi reaalseid probleeme sai käsitleda ainult suuliselt loengutes ja seminaridel. Õpiku koostamises osalesid professionaalid nii Tallinnast kui Tartust. Õpiku liiduvabariikides kirjutamise keelust mindi mööda lihtsalt ja arukalt, asendades pealkirjas sõna „õpik“ mõistega „loengud“. Niisugune Moskvast tulevate korralduste „loominguline“ täitmine oli omane tolle aja Eestis paljudes erinevates valdkondades. Ilmunud õpik oli sisult asjalik, rikas näidete poolest, vaba dogmade korrutamisest ning sisaldas viiteid klassikutele minimaalselt nõutud määral. Seda väljaannet kasutasid tudengite mitmed põlvkonnad kuni Eesti taasiseseisvumiseni.

Loomult tahtejõulise ja edasipüüdlikuna töötas Vladimir Koslov kõik need aastad pingeliselt oma doktoritöö kallal. Töö oli tal ammuigi sisuliselt valmis, kuid selle kaitsmine poliitilise ökonomia valdkonnas oli nõukogude ajal seotud suurte raskustega. Kommunistliku partei kõrgema juhtkonna arvates oli selle valdkonna teooria lahutamatu seotud riigis teostatava majanduspoliitikaga ning neile ebasoovitavate järelduste ja ettepanekute vältimiseks olid doktoritööde kaitsmise komisjonid moodustatud ainult mõnes Nõukogude Liidu suuremas keskuses –

Moskvas, Leningradis, Kiievis. Töö pidi olema kirjutatud vene keeles ja selle kaitsmine võis toimuda samuti ainult vene keeles. Seetõttu kvalifitseeriti poliitökonoomia alased uurimused Eestis tavaliselt mingi konkreetse rahvamajandusharu alla kuuluvaks ning siis oli õigus neid kaitsta Eestis. Vladimir Koslov sellele kompromissile ei läinud ning saavutas töö lülitamise Leningradi Riikliku Ülikooli doktoritööde kaitsmiste plaani.

Dissertatsioonis teemal „Poliitökonoomia osa suurendamine tootlike jõudude ja tootmissuhete arengus: metodoloogia küsimused“ arendas dissertant majandusanalüüsi põhimõtteliselt uusi metodoloogilis-loogilisi käsitlusi, andes esmakordselt majandussuhete üldistava loogilise mudeli, arendades teooriat hüvest kui majanduse „algrakukesest“, vastandades end väljakujunenud dogmaatilistele seisukohtadele. Faktidele tuginedes tõendas ta vajadust jälgida nähtuste klassifitseerimisel nende aspektipuhust, lähtuda alati kausaalsest ehk põhjuslikust seosest. Need põhimõtted said aluseks kogu tema edaspidisele teaduslikule tööle. Uudsed olid tema seisukohad ka aja kokkuhoiu klassifitseerimisel ja toodangu kvaliteedist kui tulevikutöö kokkuhoiust. Ta käsitles tegevuse efektiivsuse kolme astet: algeffekt (säät), vaheffekt (fonditootlus, tasuvusaeg), lõppeffekt (hüve).

Doktoritööde kaitsmisele oli toleks ajaks loodud teinegi üldlevinud tõke – nimelt läks esimene kaitsmine tavaliselt nõ „aia taha“. Seda tehti otsitud võtetega: näiteks tõdemusega, et töös polevat käsitletud mingisuguseid väidetavalt olulisi marksismi klassikute töid, et töö ei vasta mingile parteilis-poliitilisele suunisele jne. Nõnda juhtus ka Vladimir Kosloviga, kes kaitses seda tööd sama autoreferaadiga Leningradi Riiklikus Ülikoolis kahel korral, nimelt 1976. ja 1978. aastal. Teisel korral sõitis peaaegu kogu TPI poliitilise ökonoomia kateeder Leningradi kaitsmist kuulama. Kaitsmine oli edukas. NSV Liidu Kõrgem Atestatsioonikomisjon omistas Vladimir Koslovile professori kutse 1979. aastal. Kui tehnilistel erialadel saadakse professoriks ka 30-ks eluaastaks, siis tollel ajal oli tema saavutus 51-aastasena humanitaaralade jaoks tavaline – erinevalt tehnilistest aladest oli siin lisaks loomulikule andekusele ja töökusele vaja omada ka suurt praktilist elukogemust, mis omandatakse aastatega.

Majandusteaduste doktori kraadi kaitsmist hinnati TPI-s kõrgelt. TPI poliitökonoomia kateedri professoriks valiti ta juba 1977. aastal. Aastatel 1983-1988 oli Vladimir Koslov TPI ühiskonnateaduste teaduskonna dekaan. Teaduskonda kuulusid filosoofia, NLKP ajaloo, poliitökonoomia ja teadusliku kommunismi kateedrid. Aega nõudsid ka osalemine Eesti NSV Ministrite Nõukogu tööjõuressursside komitee teaduslikus majandusnõukogus, Eesti NSV Teaduslik-tehniliste Ühingute vabariikliku nõukogu ökonoomiakomitees, Eesti NSV Teaduste Akadeemia Majanduse Instituudi teadusnõukogus ja doktoritööde kaitsmise nõukogus. Aega ja energiat nõudsid ka tegevus ühingu „Teadus“ majandusteaduste sektsiooni esimehena, Tallinna Linna TSN rahvasaadikuna aastatel 1980-1988, samuti TPI nõukogu liikmena, Teadlaste Maja liikmena, töö mitmesugustes komisjonides ja teaduskonverentside korraldamisel. Kõige selle kõrval täitis ta kogu selle aja jooksul veel ka kateedri sotsialismi poliitökonoomia ainekomisjoni esimehe ülesandeid, korraldades metoodiliste materjalide koostamist ning redigeerides

kolleegide poolt teaduskonverentsidele esitatavaid käsikirju. Ning uskmatu – ta tuli kõikjal toime! Seepärast omistati talle 1986. aastal Eesti NSV teenelise teadlase nimetus, mis majandusteadlaste puhul oli täiesti ainulaadne.

Vaatamata õppetööle ja tohutule ühiskondliku töö koormusele suutis Vladimir Koslov pidevalt tegeleda ka teadustööga. Muidugi nõudis see paljustki loobumist. Näiteks aja kokkuhoiu huvides ei vaadanud ta põhimõtteliselt kunagi telesaateid. Veel professori kutse omistamisega samal aastal nägi valgust tema käsikiri „Efektiivsus ja kvaliteet“, mis käsitles tõhususe praktilist kujunemist erinevates majandusharudes ning selle mõõtmise võimalusi tolle aja puuduliku statistilise andmestiku tingimustes. Järgnevas tõsisemas töös „Töödistsipliin ja majandus“ jõudis ta juba teoreetiliste üldistusteni enesedistsipliinist, distsipliinist kui töökooperatsiooni alusest, ülemineku perspektiivist isemajandavatele, ühtse töökäsuga tootmisüksustele.

Vladimir Koslovi teadusliku loomevõimekuse tipuks kujunesid tema 60-ndad eluaastad. Nende aastate tulemuste kokkuvõtte avalikustas ta töös „Majanduse loogika: ökonoloogika struktuurne mõisteaparaat“ I ja II, vastavalt 1990. ja 1991. aastal, kokku üle 330 lehekülje. Siin analüüsis ta majanduselu loogikat, seostades süsteemselt kõiki levinud abstraktseid mõisteid, eeldades, et lugeja omab mõtlemiskunsti teatud taset ning suudab täita skeemid elunähtuste „lihaga“. Autor taotles lugeja suunamist iseseisvale mõttetööle, abistades teda mõttematerade, lendlauset, müstifikatsioonide, müütide lisamisega, tähestikuliste mõisteteloenditega. Et tegemist oli sotsialismilt (*toimetaja: käsumajanduselt*) turumajandusele üleminekuperioodi algusega, sai Vladimir Koslov lülitada oma mudelisse ka marginalistlike koolkondade käibetermineid. Siiski jäi ta elu lõpuni tööväärtusteooria pooldajaks ning luges majanduse aluseks omandisuhteid.

1992. aastal lõppes Vladimir Koslovi ametiaeg Tallinna Tehnikaülikooli (TTÜ, endine Tallinna Polütehniline Instituut – TPI) poliitilise ökonomia kateedri professorina. Juba oli kõige kaduva teed läinud ühiskonnateaduste teaduskond, mille dekaan ta oli olnud ning poliitilise ökonomia kateedrit asendas majandusteooria õppetool. Kateeder oli juba varem TTÜ Mustamäe kolmandast õppekorpusest üle viidud Koplis asuvasse majandusteaduskonda, mille koosseisus moodustati nüüd instituudid. Nii mõnedki tema kolleegid lahkusid, suutmata ümber kvalifitseeruda mikro- ja makroökonomika õpetamisele. Vladimir Koslov elas reorganiseerimised üle. Majandusloogika jäi õppekavadesse ning aastateks 1992-1996 oli ta valitud teoreetilise majandusteaduse ja -metodoloogia instituudi majandusloogika erakorraliseks professoriks.

Väljatöötatud majandusmõistete süsteemne mudel võimaldas Vladimir Koslovil ka edaspidi suhteliselt kerge vaevaga uurida suvalisi majandusvaldkondi. Küllaltki populaarseks osutus 1994. aastal sarjas „Noortele majandusest“ ilmunud „Aeg on raha. Neosünteesiteooria aabits“, mille üks sissejuhatavatest motodest kõlab järgmiselt: „Kahtle kõiges! Ilma teisitimõtlemiseta poleks areng üldse mõeldav“. Igasugustes valmistõdedes kahtlemine oli Vladimir Koslovile omane ning seda võib lugeda ka teadusliku mõtlemise üheks peamiseks eelduseks.

Vladimir Koslov ei võtnud täielikult omaks mitte ühtki majandusteaduslikku koolkonda, olles seisukohal, et nad kõik lähtuvad suuremal või väiksemal määral mingisugustest dogmadest. Ta kinnitas, et piiritu uskumine mingisse dogmasse, st. tunnustatud teoriasse, väitesse, välistab teadusliku analüüsi võimaluse. Juba oma doktoridissertatsiooni eesmärgiks pidas ta dogmade kummutamist. Seda oli tookord tegelikult võimatu teha, kuna marksistlikud dogmad ei kuulunud arvustamisele ning nendes kahtlemine oli lubamatu. Seepärast sai ta alles uuemal ajal väljendada oma usku uue majandusteooria – neosünteesi kujunemisse, mis tema arvates pidi üle võtma nii algklassikalistelt kui praegustelt neoklassikalistelt teooriatelt hinnatud pärandi ning lähtuks faktidest, keskendudes rohkem tootmisele.

Töös „Aeg on raha“ uuris Vladimir Koslov lihtsalt ja huvitavalt keerulisi tootmisprobleeme, aja ja raha seoseid. Näiteks esitas ta küsimuse – kumba eelistada, kas 100 rahaühikut kohe või 200 ühikut 15 aasta pärast? Ning vastas sellele majanduse teleskoopefekti küsimusele diskonteerimise ja protsenteerimise skeemi abil, näidates, et aeg on primaarne, raha – sekundaarne nähtus, seda nii ajalooliselt kui kaasajal. Majandusõppe abivahendis „Rahalugusid“ näitas ta, kuidas mõõdutunde minetamine majanduses toob kaasa tõbede teravnemise, olgu siis tegemist kas „köva“ raha poliitikaga või panga krediitdivabrikuks muutmisega. Mõõdukuse tähtsust elu igas valdkonnas armastas Vladimir Koslov ikka ja jälle meelde tuletada.

1996. aastal sai 68-aastasest Vladimir Koslovist TTÜ majandusteooria õppetooli emeriitprofessor. Tema osalus õppetooli töös jäi aga endiselt aktiivseks. Harva leidis Tallinna Tehnikaülikooli, majandusteaduskonna või õppetooli üritust, millel ta poleks osalenud. Nii esines ta kolleegide makroökoonoomika seminaridel raha probleemidest, luges majandusloogika kursust mitmes Tallinna õppeasutuses. Kuid seda kõike tundus pensionärile vähe olevat. Ta püstitas enda ette ülesande – oma majanduslike mõistete süsteemi alusel töötada ümber majanduslike õpetuste ajalugu alates Hiina konfuutslusest ja antiiksetest vaadetest kuni kõige kaasaegsemate õpetusteni.

Selle töö tohutu maht teda ei kohutanud ning 2000. aastal ilmuski tema pseudonüümi Vlady Kellik all trükist raamat – „Majandusmõtteleost: koolkondade dialoog“, mille koostamisele olid nõu ja jõuga kümnekond kolleegi ja mõttekaaslast kaasa aidanud. See on järjekordne tõend, et kõrges vanuses inimese intellektuaalne loomevõime ei lange tihti peale oluliselt. Raamatu ülesehitus on täiesti originaalne, kordumatu. Selleks oli vaja lugeda ning läbi töötada tohutu hulk kirjandust. Kogu töös on hulgaliselt autori omapoolseid märkusi, paralleele, sidumist kaasajaga, ka humoorikaid piprateri.

Järgneva 11 aasta jooksul ei tulnud Vladimir Koslovil kunagi isegi mõttesse jääda saavutatuga rahule ning lubada endale puhkust sisuliselt eluaeg kestnud pingelisest mõttetööst. Pidevalt tegeles ta teeside koostamisega eelseisvateks teaduskonverentsideks või ajaleheartiklite kirjutamisega. Tema kõrgetasemelised kirjatükid tekitasid arvukalt vastukajasisid. Ainuüksi viimase eluaasta jooksul ilmus tema tõsine analüüs rahvusvahelisest finantsmajandusest „Mis juhtus USA-ga?“,

uurimus süsteemkriisist, mitte kriisist süsteemis, samuti „Mõttetehnoloogia“ kus ta tõdes, et mõtlemine on inimese jaoks kõige raskem töö, ning viimase publikatsioonina arutus innovaatilise inimkapitali tootmise vajadusest.

Oma artiklid ehitas ta üles väljakujunenud loogilise skeemi põhjal, tema enda väite kohaselt analoogselt arsti ja patsiendi suhtele: haiguse sümptomite väljaselgitamine (situatsiooni kirjeldus) – diagnoos (olukorra analüüs ja järeldused) – retsept raviks (ettepanekud). Vladimir Koslov oli tähelepanuväärselt kompetentne ja nõudlik eesti keele grammatiliselt õige kasutamise suhtes. Ta tegi kolleegidele sageli sellelaadseid sõbralikke märkusi ning parandas halastamatult keelelisi vääratusi nende kirjatöös. Muide, arvatavasti mitte juhuslikult ei hakanud ta juba teadusliku tegevuse algusaastatel esinema pseudonüümi Vlady Kellik all, et rõhutada oma eestlaslikku päritolu.

Vladimir Koslov oli punktuaalne ja ääretult kohusetundlik mitte ainult teadustöös, vaid ka suhtlemises kolleegide ja lähedastega. Tal olid fikseeritud kohustused, millest ta alati kinni pidas. Ta saatis ka viimsele tee peaaegu kõiki temast varem lahkunud kolleege. Isegi oma viimse hingetõmbe tegi ta Pärnamäe kalmistul kunagise koolikaaslase ärasaatmisel. Mälestus Vladimir Koslovist kui harukordselt võimekast teadlasest, sõbralikust ja abivalmis kolleegist, heast perekonnaisast, kes viimastel aastatel jagas oma aega teadustöö tegemise ja lastelaste eest hoolitsemise vahel, jääb alati seks meiega.

Kasutatud allikad

1. **Kellik, V.** (1994). Aeg on raha. Neosünteesiteooria aabits. Tallinn: Eesti Teaduste Akadeemia.
2. **Kellik, V.** (1990). Majanduse loogika I. Tallinn: TTÜ kirjastus.
3. **Kellik, V.** (1991). Majanduse loogika II. Tallinn: TTÜ kirjastus.
4. **Kellik, V.** (2000). Majandusmõteloost. Koolkondade dialoog. Tallinn: TTÜ kirjastus.
5. **Koslov, V.** (1979). Efektiivsus ja kvaliteet: Mõnda teooriast ja eesrindlikest kogemustest. Tallinn: Eesti Raamat.
6. **Koslov, V.** (1972). Majandusliku tegevuse teoreetilisi lähtekohti. Tallinn: Eesti Raamat.
7. **Koslov, V.** (1976). Poliitökonoomia osa suurendamine tootlike jõudude ja tootmissuhete arengus: Metodoloogia küsimused. Autoreferaat (vene keeles). Leningrad: Leningradi Riiklik Ülikool.
8. **Koslov, V.** (1983). Töödistsipliin ja majandus. Tallinn: Eesti Raamat.
9. Rahalugusid. (2000). Abimaterjal majandusõppeks. Koostanud professor Vladimir Koslov. Tallinn: Eesti Mereakadeemia.
10. Sotsialismi poliitiline ökonoomia. (1974). Loengud. Autorite kollektiiv. Tallinn: Eesti Raamat.

Aprill 2012

Kaupo Kumm
Tallinna Tehnikaülikool

PROFESSOR VLADIMIR KOSLOV
(17.02.1928 – 7.01.2012)
IN MEMORIAM

Vladimir Koslov (Pseudonym Vlady Kellik) ist in die Geschichte der estnischen Wirtschaftswissenschaft als einer der eruditesten und originellsten Professoren eingegangen. Sein Forschungsobjekt und sein besonderes Interessengebiet waren Wissenschaftsgeschichte und Philosophie. Er ist Autor der über 200 erschienenen Publikationen. Seine aktive gesellschafts-kritische Denkweise und sein Interesse für die Prozesse in der Weltwirtschaft gaben ihm den Anlass, bis zur letzten Zeit seinen Standpunkt in mehreren Zeitungsartikeln auszudrücken. Im vorliegenden Artikel werden 6 originelle Forschungen von Vladimir Koslov dargestellt und beschrieben, die für die Entwicklung der estnischen Wirtschaftsdenkweise wesentlich waren.

Nach der Beendigung der Estnischen Landwirtschaftsakademie (ELA) 1952 cum laude im Fach der Holzindustrie hat er sich an der Leningrader Staatlichen Universität im Kurs der politischen Ökonomie als Lehrkraft qualifiziert und in den Jahren 1954-1962 als Oberlehrer des Politökonomie-Lehrstuhls an der ELA gearbeitet. 1961 hat er am Moskauer Staatlichen Wirtschaftsinstitut den wirtschaftswissenschaftlichen Kandidatengrad verteidigt zum Thema der volkswirtschaftlichen Effektivität der Mechanisierung der Holzbeschaffung anhand der Estnischen SSR. Danach wurde ihm die Stellung eines Dozenten im Lehrstuhl für Politökonomie am Tallinner Polytechnischen Institut (TPI) angeboten. Bald darauf schrieb ihm die Moskauer Oberattestierungskommission Dozentenberuf zu. Vladimir Koslov hat sich an der Kiewer und Leningrader Staatlichen Universitäten weiterqualifiziert.

In seiner ersten größeren Forschung „Theoretische Ausgangspunkte der Wirtschaftstätigkeit“ zeigte Vladimir Koslov, dass Politökonomie mit der Philosophie zusammen methodologische Grundlage der Wirtschaftswissenschaft bilden, dass die Hauptkraft, die Wirtschaft bewegt, der Widerspruch des Produktionszuwachses und der Ressourcen ist, vor allem beim Sparen der Arbeitskraft. Sein Beitrag war groß bei der Herausgabe des einzigen originellen Lehrbuches „Politische Ökonomie des Sozialismus. Vorlesungen“, das die realen Wirtschaftsprobleme der damaligen Zeit betrachtete. 1978 hat er an der Leningrader Staatlichen Universität die Doktordissertation verteidigt zum Thema „Erhöhung der Rolle der Politökonomie in der Entwicklung der Produktionskräfte und der Produktionsverhältnisse: Fragen der Methodologie“, die moderne Standpunkte über ursächliche

Zusammenhänge der Wirtschaft, über Produktionsqualität als Ersparen der künftigen Arbeit beinhaltet. 1979 erhielt er Professorenberuf und wurde zum Dekan der Fakultät für Gesellschaftswissenschaften am TPI gewählt sowie in viele andere Ämter, er befasste sich in seinen Forschungen mit Fragen der praktischen Produktionsleistungserhöhung und deren Messungsmöglichkeiten in verschiedenen Branchen, mit Perspektiven des Übergangs auf eigenbilanzierende Produktionseinheiten.

Zur Spitze des Schaffensvermögens von Vladimir Koslov ist „Logik der Wirtschaft (strukturhafter Begriffsapparat der Ökologik)“ I und II, in der er in ein System alle in der Wirtschaftstheorie verbreiteten Begriffe verband, zuzüglich der Begriffe sowohl der Arbeitswerttheorie als auch der marginalistischen Schulrichtungen. In der Periode des Übergangs Estlands zur Marktwirtschaft 1992-1996 arbeitete er als außerordentlicher Professor für Wirtschaftslogik am Institut für theoretische Wirtschaftswissenschaft und Methodologie. Als Ziel seiner Forschungen betrachtete er das Widerlegen von allen Dogmen, er hielt für sinnvoll, eine neue Neosynthese-Wirtschaftstheorie aufgrund des wertvollen Erbes der Theorien der Klassiker und der Neoklassiker und der reale Fakten zu entwickeln. 1996 ist er Emeritusprofessor des Lehrstuhls für Wirtschaftstheorie der Tallinner Technischen Universität (TTU, ehemalige Tallinner Polytechnische Institut – TPI) geworden, 2000 veröffentlichte er das fundamentale Werk „Über die Geschichte des Wirtschaftsdenkens: Dialog der Schulrichtungen“, mit der systematischen Analyse der gesamten Geschichte des Wirtschaftsdenkens der ganzen Menschheit.

Professor, Verdienter Wissenschaftler Estlands Vladimir Koslov hat die Wirtschaftstheorie zum gesamten logischen System entwickelt, dem konstruktiven systemhaften Wirtschaftsdenken und der Diskussionskultur wesentlich beigetragen. Sein Tod ist ein schwerer Schlag für estnische Wirtschaftswissenschaftler.

April 2012

Kaupo Kumm
Tallinner Technische Universität

PROFESSOR VLADIMIR KOSLOV
(17.02.1928 – 7.01.2012)
IN MEMORIAM

Vladimir Koslov (pseudonym Vlady Kellik) has secured a place in the history of Estonian economics as one of the most erudite and distinctive professors. His subject of research and special sphere of interest were the science of science and philosophy. He has written more than 200 publications. Active with a socially critical cast of mind and concern for what was going on in the world economy inspired him until most recently to express his views in many newspaper articles. This paper presents and describes 6 original scientific research works written by Vladimir Koslov, which have been significant in the development of Estonian economic thought.

After graduating cum laude from the Estonian Agricultural Academy (EAA) in 1952 as a forestry specialist, he qualified in courses at Leningrad State University for the lector of political economy and in 1954-1962 worked as a senior teacher at the chair of political economy at the EAA. In 1961, he defended at Moscow State Institute of Economics the thesis about national economic efficiency of the mechanisation of forestry operations at the example of Estonian SSR and was awarded the degree of the candidate of economic sciences. Thereupon he was invited to work at the chair of political economy at Tallinn Polytechnical Institute (TPI, today – Tallinn University of Technology), as an associate professor. Moreover, the Moscow Higher Evaluation Committee awarded him the rank of associate professor. Vladimir Koslov continued his educational path at Kiev and Leningrad State Universities.

In his first real scientific research paper “Theoretical Benchmarks of Economic Activity” Vladimir Koslov demonstrated that political economy combined with philosophy serves as the methodological foundation for economics, that the main locomotive force in economy is the conflict between production growth and resources, primarily labour cost saving. He made a huge contribution by writing the only textbook of the kind – “Sotsialismi poliitiline ökonoomia. Loengud” (The Political Economy of Socialism. Lectures) discussing real problems of the economy of that time. In 1978, he defended at Leningrad State University his doctoral thesis, “Enhancing the Role of Political Economy in the Development of Productive Forces and Production Relations: Methodological Issues”, discussing new aspects of causal relationships in economy, product quality and future work saving.

After having obtained in 1979 the rank of professor he was elected the dean of the faculty of social sciences at Tallinn Polytechnical Institute. In his research he dealt with the real-life development of production efficiency and its methods of measurement in various economic sectors, with perspectives of the transition of production entities to self-financing.

Vladimir Koslov’s creative capability peaked with “Majanduse loogika: ökoloogika struktuurne mõisteparaaat” (Economic Logic: Structural Terminology Apparatus of Ecologies) I and II, where he provided systematic relationships of all popular

abstract terms of economic theory, including the so called labour theory of value as well as everyday terms of marginal schools. In the period of Estonia's transition to a market economy, in 1992–1996, he was working at the Institute of Theoretical Economics and Methodology as economic logic professor extraordinaire. He committed his research to refuting all kind types of dogmas, regarding it practical to develop on the basis of a combination of legacies of original classics and neoclassical theories and of real facts – a new, neosynthesised economic theory. After getting the position of professor emeritus of the chair of economic theory at Tallinn University of Technology in 1996, he published a pivotal work in 2000 – “Majandusmõtteleost: koolkondade dialoog” (The Story of Economic Thought: Dialogue of Schools), where he analysed systematically the history of the currently known economic thought of mankind.

Professor, honoured scientist of Estonia, Vladimir Koslov elaborated economic theory into a complete logical system, contributed substantially to the development of economic constructive systematic thinking and debating culture. The loss of him is a big blow to Estonian economics.

April 2012

Kaupo Kumm
Tallinn University of Technology

KAHEKÜMNENDAT KORDA MAJANDUSPOLIITIKA TEADUSKONVERENTSID EESTIS

Alates 1984. aastast alguse saanud majanduspoliitika teaduskonverentsidest on ülevaated esitatud 2002. ja 2007. aastal, siis kui toimusid vastavalt kümnes¹ ja viieteistkümmes² konverents. 2012. aastal toimub juba kahekümmes konverents. Alates XV konverentsist on toimumise kohaks jäänud ainult Võrska (varem viibiti pool esimesest päevast Tartus ja seejärel jätkati Võrskas). Konverentsi põhielemus on jäänud varasemate kordadega samaks: esimesed kaks päeva on ettekanded, mis on istungiteks jagatud (kuni kuus istungit). Traditsiooniliselt on konverentsi raames toimunud ka piknik ja kultuuriprogramm (esimesel päeval), spordi ja terviseprogramm (teisel päeval)³ ning loodusprogramm (kolmandal päeval).

Kuna viieteistkümnenda konverentsi (2007) sisulise töö kohta ei ole varem kroonikas kirjutatud (publikatsioon ilmus enne konverentsi toimumist), siis käesoleval juhul antakse siin ka lühiülevaade selle kohta.

2007. aastal (28.-30.juuni) toimus **XV** teaduskonverents teemal „Eesti majanduspoliitika – kolm aastat Euroopa Liidus“. Konverentsi esimene päev oli põhiliselt pühendatud Eesti regionaal- ja kohaliku omavalitsuse poliitikale. Diskussioonide algatamiseks oli kavandatud ettekanded eeskätt Põlva maakonna kohaliku omavalitsuse spetsialistidelt – *Raul Kudre* (Võrska Vallavalitsus), *Haimar Sökk* (Põlva Maavalitsus) ja *Tarmo Tamm* (Põlva Linnavalitsus). Päeva lõpetas emeriitprofessor *Peter Friedrichi* (München-Tartu) ettekanne-diskussioon.

Konverentsi teine päev oli jagatud kolmeks istungiks.⁴ Esimest istungit juhatas *Mart Sõrg* (Tartu Ülikool⁵) ning ettekanded oli kavandatud neljalt osalejalt: *Eckhard Freyer* (Merseburgi Ülikool, Saksamaa LV), *Hanna Kanep* (TÜ), *Enno Langfeldt*

¹ Ülevaadet esimese kümne konverentsi kohta on võimalik lugeda eesti ja inglise keelsetest artiklist: **Raudjärv, Matti; Sepp, Jüri**. Majanduspoliitika kümme konverentsi kui osa Eesti majandusteadusest ja akadeemilisest majandusharidusest / Ten conferences on economic policy as a part of Estonian economic science and academic economic education. – Euroopa Liiduga liitumise mõju eesti majanduspoliitikale / Die Integration der Europäischen Union und ihre Wirkungen auf die Wirtschaftspolitik Estlands / Effect of Accession to the European Union on the Economic Policy of Estonia. Berlin, Tallinn: Berlin Verlag Arno Spitz GmbH, Mattimar OÜ, 2002, lk. / S. / pp. 601-620.

² Ülevaadet 11.-14. konverentsi kohta on võimalik lugeda eesti, saksa ja inglise keelsetest artiklist: **Raudjärv, Matti**. Majanduspoliitika konverentsid kui traditsioon Eesti majandusteaduses ja kõrghariduses. – Eesti majanduspoliitilised väitlused/ Estnische Gespräche über Wirtschaftspolitik/ Discussions on Estonian Economic Policy. Berlin, Tallinn: Berliner Wissenschafts-Verlag, Mattimar, 2007, lk./ S./ pp. 97-112.

³ Enne Võrska SPA-keskuse valmimist toimus kultuuriprogramm konverentsi teise päeva ehk reede õhtul.

⁴ Kõik ettekanded tuginesid artiklitele, mis on avaldatud teadusajakirjas/teaduskogumikus „Eesti majanduspoliitilised väitlused/ Estnische Gespräche über Wirtschaftspolitik/ Discussions on Estonian Economic Policy - XV. Berlin, Tallinn: Berliner Wissenschafts-Verlag, Mattimar, 2007.

⁵ Tartu Ülikool, edaspidi lühendatult TÜ

(Kieli Rakendusülikool, Saksamaa LV), *Raivo Linnas* (Tallinna Tehnikaülikool⁶). Teist istungit juhatas *Olev Raju* (TÜ) ning ettekanded toimusid järgmiselt: *Mart Sõrg* (TÜ), *Leo Adel* (TTÜ), *Urmes Hallika* (TTÜ), *Sulev Mäeltsemees* (TTÜ) ja *Uno Silberg* (Eesti Maaülikool). Kolmandat istungit juhatas *Sulev Mäeltsemees* (TTÜ) ning ettekanded kavandati järgmistele inimestele: *Jaanus Kiili* (TTÜ), *Merle Looring* (TÜ), *Olev Raju* (TÜ) ja *Matti Raudjärv* (TÜ).

Konverentsi esimese päeva õhtul toimus traditsiooniline piknik Seto talumuuseumis. Samas oli ka kontsert ning uudistati muuseumi hooneid ning väljapanekuid. Loodusprogrammi osas tehti muudatus ning juba teisel päeval külastati Meenikunno raba Põlvamaal. Seetõttu oli konverentsil osalejatel laupäeval võimalik ka Tallinnas X Noorte Peost osa saada (29.06-01.07.2007 toimusid „Laulupidu 2007“ ja „Tantsupidu 2007“).

2008. aastal (26.-28. juunil) toimus Värskas XVI teaduskonverents teemal „Majanduspoliitika Euroopa Liidu riikides – aasta 2008“ ning konverentsitöö oli kavandatud kahele päevale – esimesel päeval kaks ja teisel neli istungit. Konverentsi avasid *Matti Raudjärv* (TÜ) ning TÜ majandusteaduskonna dekaan *Toomas Haldma*, kes oli sel ajal ka Eesti Majandusteaduse Seltsi president.

Esimest istungit juhatas *Sulev Mäeltsemees* (TTÜ) ning ettekanded olid kavandatud järgmistelt osalejatelt: ⁷ *Florian W. Bartholomae* ja *Alina M. Popescu* (mõlemad Müncheni Bundeswehri Ülikool, Saksamaa LV); *Harald Zschiedrich* (Berlini Tehnika ja Majanduse Rakendusülikool); *Tiiu Paas* ja *Liis Lill* (mõlemad TÜ). Esimese päeva teist istungit juhatas *Janno Reiljan* (TÜ) ning kavandati järgmised ettekanded: *Peter Friedrich* ja *Janno Reiljan* (mõlemad TÜ); *Mikk Lõhmus* ja *Sulev Mäeltsemees* (mõlemad TTÜ); *Olev Raju* (TÜ).

Teisele konverentsipäevale jäi neli istungit. Järjekorras konverentsi kolmandale istungile (juhatas *Mart Sõrg* TÜ-st) kavandati kolm ettekannet: *Armin Rohde* (Greifswaldi Ülikool, Saksamaa LV); *Danel Tuusis* (TÜ) ja *Raivo Linnas* (TTÜ). Neljandal istungil (juhatas *Enno Langfeldt* Kieli Rakendusülikoolist, Saksamaa LV) olid järgmised esinejad: *Michael Franck* (Saksamaa LV); *Lothar Funk* (Düsseldorfi Rakendusülikool, Saksamaa LV) ja *Pille Mõtsmees* (TÜ). Viiendat istungit juhatas *Armin Rohde* (Greifswaldi Ülikool, Saksamaa LV) ning ettekandjad oli järgmised: *Enno Langfeldt* (Kieli Rakendusülikool); *Ott Koppel* (TTÜ) ja *Toomas Saal* (TTÜ/Mainori Kõrgkool). Kuueandat istungit juhatas *Matti Raudjärv* (TÜ) ning siin tegi ettekande Eesti Vabariigi Valitsuse nõunik *Kalev Kukk*, andes põhjaliku ülevaate väljaspool Eestit elanud eestlasest majandusteadlasest *Ragnar Nurkse*st (1907-1959) ja tema viljakast teadustegevusest. Kuues istung oli ühtlasi ka konverentsi lõppistungiks.

Esimese päeva õhtu veedeti jällegi Seto Talumuuseumis ning sealses Tsäimajas toimus nii õhtusöök kui kultuuriprogramm. Kuna 2007. aasta sügisel oli valminud

⁶ Tallinna Tehnikaülikool, edaspidi lühendatult TTÜ

⁷ Siin ja edaspidi on toodud kõik artikli-ettekande autorid (kuigi tavaliselt oli üks ettekandja).

uus SPA-keskus Värskas Sanatooriumi vahetus läheduses, siis pandi 2008. aasta konverentsil alus ka iga aastasele traditsioonile, et konverentsi tööprogrammi lõppedes teise päeva õhtul, veedeti aega just SPAs, kus on erinevate veeprrotseduuride ja saunade kõrval võimalus loodusliku mineraalvee vannides lesida ning 25 m basseinis ujuda. Loodusprogrammi raames, konverentsi kolmandal päeval, külastati Taevaskoda, tehti mootorparvesõit ülespaisutatud Ahja jõel ning lõunatati Põlva restoranis „Pesa“. Lisaks korraldati programmiväliselt saksa külalistele ühepäevane sisutihe ekskursioon Lahemaale, mille raames toimus ka meeleolukas rahvuslik lõunasöök Altja kõrtsis.

2009. aastal (01.-03.juulil) toimunud **XVII** konverentsi teemaks oli „Majanduspoliitika Euroopa Liidu riikides – aasta 2009“. Konverentsi avamisel võtsid sõna Matti Raudjärv (TÜ), konverentsi kaaskorraldaja Manfred O.E. Hennies (Kieli Rakendusülikool, Saksamaa LV) ja TÜ majandusteaduskonna teadusprodekaan Urmas Varblane.

Esimesel päeval toimus kaks istungit, millest esimest juhatas *Peter Friedrich* (TÜ) ning sinna istungile olid kavandatud ettekanded: *Armin Rohde ja Johannes Treu* (mõlemad Greifswaldi Ülikool, Saksamaa LV), *Sulev Mäeltsemees* (TTÜ), *Andres Agan ja Triin Kask* (mõlemad TÜ). Sama päeva teist istungit juhatas *Armin Rohde* (Greifswaldi Ülikool) ning ettekandjad olid kavandatud: *Urmas Varblane, Rein Jürjado ja Oliver Lukason* (kõik TÜ), *Tiiu Paas ja Helje Kaldaru* (mõlemad TÜ) ning *Harry W. Trummer* (Frankfurdi/ Main/ Ülikool, Saksamaa LV). Viimane ettekandja pidi küll tööülesannete tõttu pärast oma ettekannet kohe kodumaale siirduva lennuki peale kiirustama.

Teisel päeval toimus neli istungit. Neist esimest juhatas *Janno Reiljan* (TÜ) ning ettekannete autorid olid: *Raul Eamets ja Kaia Philips* (mõlemad TÜ), *Katrin Tamm, Anneli Kaasa ja Helje Kaldaru* (kõik TÜ) ning *Kerly Krillo ja Jaan Masso* (mõlemad TÜ). Teise konverentsipäeva teist istungit juhatas *Urmas Varblane* (TÜ) ja istungi ettekannete autorid olid järgmised: *Ingra Paltsar, Peter Friedrich ja Janno Reiljan* (kõik TÜ), *Liisi Sepp ja Urmas Varblane* (mõlemad TÜ), *Andre Kuusik, Rein Ahas ja Margus Tiru* (kõik TÜ). Pärastlõunast ja teise päeva kolmandal istungil juhatas *Raul Eamets* (TÜ) ning ettekannete autoriteks olid: *Priit Sander* (TÜ), *Reelika Irs ja Tuuli Reisberg* (mõlemad TÜ), *Reelika Irs, Kulno Türik ja Maaja Vadi* (kõik TÜ) ning *Helen Poltimäe ja Andres Võrk* (mõlemad TÜ). Päeva viimast ja ühtlasi konverentsi lõppistungit juhatas *Tiiu Paas* (TÜ) ning ettekanded olid kavandatud järgmistelt osalejatelt: *Maret Kirsipuu* (Eesti Mereakadeemia/ TTÜ), *Tõnu Roolah* (TÜ) ning *Siret Vildo ja JaanMasso* (mõlemad TÜ).

Konverentsi raames toimus kultuuriprogramm Värskas valla piiriäärses Saatse külas, kus külastati kohalikku ajaloolist kirikut ja surnuaeda, tutvuti Euroopa Liidu toetusrahade kaasabil vastvalminud pansionaadiga ning viibiti kohalikul matkarajal. Sellele järgnes piknik ja kultuuriprogramm looduses Saatse muuseumi kõrval oleval kultuskõrgendikul. Loodusprogrammi raames toimus konverentsi kolmandal päeval osalejatele ligi mõnetunnine laevasõit Värskas lahel ja Pihkva järvel, mille korraldas kohalik firma „Setoline“.

2010. aastal (01.-03.juulil) toimunud **XVIII** konverentsi teema oli „Majanduspoliitika Euroopa Liidu riikides – aasta 2010“. Konverentsi avamine oli seekord pikem kui tavaliselt: peale avasõnavõttu konverentside seeria initsiaatorilt *Matti Raudjärv* (TÜ), esines lühiettekandega teenekas ja kauaaegne konverentsi kaaskorraldaja emeritprofessor *Manfred O.E. Hennies* (Kieli Rakendusülikool, Saksamaa LV). Seejärel oli sõnavõtt TÜ majandusteaduskonna dekaanilt *Toomas Haldmalt*, kes andis *Manfred Henniesile* üle TÜ rektori *Alar Karise* auaadressi teenete eest nii Tartu Ülikooli kui Eesti majandusteaduse ees. Järgnevana esines TÜ Pärnu Kolledži direktor *Henn Vallimäe*, kes annetas *Manfred Henniesile* kolledži kuldmärgi pikaajalise ja sisuka koostöö eest. Avamisel esines sõnavõttuga ka TTÜ sotsiaalteaduskonna dekaan ja pikaajaline Värskas konverentsi kaaskorraldaja *Sulev Mäeltsemees*.

Esimesel päeval toimus kaks istungit. Esimest istungit juhatasid *Armin Rohde* (Greifswaldi Ülikool, Saksamaa LV) ja *Eve Parts* (TÜ). Ettekandjateks samal istungil olid: *Urmass Varblane* (TÜ), *Toomas Haldma* (TÜ) ning *Johannes Treu ja Armin Rohde* (mõlemad Greifswaldi Ülikool). Sama päeva teist istungit juhatasid *Janno Reiljan ja Eve Tomson* (mõlemad TÜ). Kõik istungi ettekandjad esindasid TÜ-d: *Andres Kuusk, Arvi Kuura ja Danel Tuusis*.

Teisel päeval toimus neli istungit, millest esimest juhatasid *Üllas Ehrlich* (TTÜ) ja *Maret Kirsipuu* (Eesti Mereakadeemia). Ettekannetega esinesid *Diana Eerma* (TÜ), *Sirje Pädam* (TTÜ) ja *Jüri Kleesma* (TTÜ). Ennelõunast teist istungit juhatasid TÜ esindajad *Mart Sõrg ja Olev Raju*. Ettekannetega esinesid *Ivo Karilaid* (TTÜ), *Tõnu Roolah* (TÜ) ja *Priit Sander* (TÜ). Konverentsi viiendat ja teise päeva kolmandat istungit juhatasid *Sulev Mäeltsemees* (TTÜ) ja *Mark Kantšukov* (TÜ). Ettekanded tegid TÜ esindajad *Peter Friedrich, Kristi Ploom ja Reelika Irs ning Andres Kuusk*. Konverentsi viimast, kuuendat istungit ja lõpetamist juhatas *Matti Raudjärv* (TÜ). Istungil tehti kaks ettekannet TTÜ esindajatelt (*Kerly Lillemets ja Kaire Põder*).

Konverentsi esimese päeva õhtul toimus piknik Värskas Sanatooriumi kõrval järve äärsel aasal, kus esines Seto laulu- ja tantsuansambel Mikitamäelt. Loodusprogrammi raames külastati Pihkva järve äärseid külasid ning tutvuti kohalike inimeste eluoluga. Põhjalikumalt tutvuti Podmotsa külaga ning viibiti küla tsässonis (õigeusu külakabel Setumaal) kus tehti ka rahalisi annetusi. Podmotsa tsässon on ehitatud 1760. aastal ning mitmel korral hiljem ümberehitatud (1893, 1932, 1995, 2003). Podmotsa küla asub 6 km Värskas keskusest vene piiri poole (külast jääb riigipiirini ca 200 meetrit). Külast avaneb kaunis vaade üle Kulje lahe Venemaa Kulje külale ja sealsele kirikule. Tegemist on tuntud kalapüügikohaga, kus armastas kala püüda ka legendaarne bariton, eesti laulja Georg Ots (21.03.1920 Petrogradis – 05.09.1975 Tallinnas). Loodusretke käigus roniti ka Velna soo serval olevasse vaatetorni, kus imetleti toredalt laiuvat soomaastikku, järvi, metsi ja külasid. Kuna üle soo kulgev laudtee oli vee kõrgseisu tõttu mitteläbitav, siis jalgsimatki tuli ära jätta (nn Pikalombi loodusrajad – pikkustega 3,8 ja 9,1 km). Jääb lootus, et ehk edaspidi on siiski võimalik ka ca kahe-kolme tunnine jalutuskäik Pikalombi radadel sooritada, et põhjalikumalt huvitava kohaliku looduse ja soomaastikuga tutvuda.

2011. aastal (30. juuni – 02. juuli) toimunud **XIX** konverents oli teemal „Majanduspoliitika Euroopa Liidu riikides – aasta 2011“ ning konverentsitöö jagunes kahe päeva vältel kuuele istungile. Konverentsi avasõnavõtted kuulusid *Matti Raudjärvele* (TÜ) ja konverentsi pikaajalisele (alates aastast 1999) kaaskorraldajale *Armin Rohdele* (Greifswaldi Ülikool, Saksamaa LV).

Esimese päeva esimest istungit juhatas *Armin Rohde* ning ettekanded olid järgmistelt osalejatelt kavandatud: *Frank Erhold ja Armin Rohde* (mõlemad Greifswaldi Ülikool, Saksamaa LV), *Olev Raju* (TÜ), *Mojmir Helisek* (Praha Rahandusülikool, Tšehhi), *Enn Listra* (TTÜ) ja *Mark Kantšukov* (TÜ). Esimese päeva teist istungit juhatas *Janno Reiljan* (TÜ). Selle istungi ettekandjateks olid plaanitud: *Priit Sander* (TÜ), *Tõnu Roolah* (TÜ), *Meelis Angerma* (TÜ) ja *Jürgen G. Backhaus* (Erfurdi Ülikool). Viimne jäi paraku konverentsile saabumata, kuna ebaõnn Saksamaal enne lennukile asumist ei võimaldanud tal Eestisse tulla.

Teine päev algas järjekorras konverentsi kolmanda istungiga, mida juhatas *Michael Kull* (Soome Majandusuuringute Keskus). Ettekanded: *Mikk Medijainen* (TÜ), *Tiiu Paas* (TÜ), *Maret Kirsipuu* (Eesti Mereakadeemia) ja *Peter Friedrich* (TÜ). Ennelõunast istungit juhatas *Mart Sörg* (TÜ) ning ettekandjad olid kavandatud: *Paul Tammert ja Uno Silberg* (Sisekaitseakadeemia), *Diana Eerma*, *Viktor Trasberg ja Merle Tambur* (kõik kolm ettekannet TÜ-st). Pärastlõunast (ja viiendat istungit) juhatas *Sulev Mäeltsemees* (TTÜ). Ettekandjad olid plaanitud järgmiselt: ühisettekanne - *Mikk Lõhmus* (TTÜ), *Sulev Mäeltsemees* (TTÜ), *Michael Kull* (Soome Majandusuuringute Keskus); *Milan Palát* (Brno Ülikool, Tšehhi), *Arvi Kuura* (TÜ) ja *Zuzanna Potužáková* (Praha Metropolitan Ülikool, Tšehhi). Konverentsi viimast, kuuendat istungit ja lõpetamist juhatas *Matti Raudjärv* (TÜ) ning toimus kaks plaanitud ettekannet TTÜ esindajatelt (*Jüri Kleesmaa ja Sirje Pädam*).

Esimese päeva õhtu veedeti Värskas Sanatooriumi järve-äärsel aasal piknikul, kus rahvamuusikat tegi Seto lõõtsa- ja akordionimees. Teise päeva õhtul oli nii nagu juba alates 2008. aastast – traditsiooniline spordi- ja terviseprogramm Värskas SPA-s. Kolmandal päeval külastati loodusprogrammi raames Mooste mõisa huvitavaid restaureeritud hooneid Põlvamaal ning seal oli ka lõuna. Mooste mõis on üks terviklikumalt säilinud hoonestikuga mõisaid Eestis. Sajanditetagune ehitiste rivi paikneb Mooste järve lõunakaldal ja moodustab huvitava komplekse mõisaansambli. Euroopa Liidu Euroopa Regionaalarengu Fondi toetusega taastati 2011. aastaks näiteks mõisa valitsejamaja, karjalaut ja hobusetall vastavalt kunstikeskuseks, folgikojaks ja restauraatorite kojaks. Mõned hooned ootasid veel restaureerimisjärge.

2012. aastal (28.-30. juunil) toimub **XX** konverents (mida võib ilmselt ka nn juubelikonverentsiks nimetada) ning traditsiooniliselt jällegi Värskas, teemaks „Majanduspoliitika Euroopa Liidu riikides – aasta 2012“.⁸

⁸ Siinjuures selles väljaandes 20. konverentsil põhjalikult ei peatuta, kuna kavandatud on suures osas lugejal käesoleva publikatsiooni alusel ülevaade saada. Pole ka konverents ajalisel

Konverentsi temaatika on suhteliselt laialdane (analoogne on see tegelikult olnud ka varasematel aastatel). Keskenduda on soovitatud järgmistele majanduspoliitika valdkondadele nagu: 1) ettevõtluspoliitika; 2) ettevõtte strateegia; 3) fiskaal- ja rahapoliitika; 4) keskkonnapoliitika; 5) regionaal- ja kohaliku omavalitsuse poliitika; 6) sektoraalne (rahvamajandusharude) majanduspoliitika; 7) sotsiaalpoliitika; 8) töö- ja sisetulekute poliitika.

Alati on kavas olnud (samuti 2012.aastal) ka teised majanduspoliitika valdkonnad (näiteks majanduskriis jt). Oodatud on olnud ka ettevõttemajanduse alased ettekanded (ja ka artiklid) kõigis valdkondades. Siin on autoritele seni olnud ja on ka edaspidi tingimus, et ettekandes/artiklis näidatakse-kirjutatakse, kuidas riigi majandus-poliitika mõjutab ettevõtteid ja (või) vastupidi – kuidas ettevõtteid riigi majanduspoliitikat mõjutavad. Seega peavad ettevõttemajanduse alased tööd majanduspoliitikaga seotud olema ning majanduspoliitikaga mitteseotud tööd on retsensentide soovitusel tagasi lükatud!

Kindlasti on ka juubelikonverentsil kavas nii kultuuri-, spordi-tervise- kui ka loodusprogramm. Lisaboonusena kavandatakse kultuuri- ja loodusprogrammi laiendusena konverentsist osavõtjate ekskursiooni Petseri kloostrisse.⁹

Viimasel viiel aastal on eestlaste kõrval konverentsil osalejateks olnud peamiselt kolleegid Saksamaa LV ülikoolidest, kuid mitte ainult – osalejaid (kõik ei ole siiski mitte alati ettekannetega esinenud) on olnud ka näiteks Lätist, Poolast, Prantsusmaalt, Tšehhist ja 2012. aastal ka Ungarist. Varasematel aastatel on osalejaid olnud ka Belgiast, Leedust, Soomest ning mitmetest teistest eelpool nimetatud riikide kõrgkoolidest-uurimisasutustest. Edaspidi võib ilmselt osalejaid nii Venemaa kui Ukraina ja Gruusia ülikoolidest oodata (nii on vähemalt mõnegi sealse ülikooli esindaja allkirjutajale lootustandvalt väitnud).

Matti Raudjärv

majanduspoliitika konverentside initsiaator ja peakorraldaja

2011. november – 2012. märts

(Tallinnas Piritä-Kosel, Pärnus ja Virumaal Kaasiku talus)

publikatsiooni trükikojast kättesaamisel veel toimunud. Küll aga on kavas sellest lähemalt kirjutada järgmisel, 2013. aastal kui nii konverentsitöö ja lisaprogrammid on juba toimunud ning ajalooks saanud. Võib ju tegelikkus kavandatavasse mõningaid muudatusi tuua.

⁹ Eestiga liideti Petseri ja Petserimaa (etnilise alana ka Setumaa) pärast Vabadussõda, Eesti ja Venemaa vahel sõlmitud Tartu rahu (2.02.1920) jõustudes. Vene NFSV Pihkva oblasti moodustamisel (23.08.1944) ning Eesti ja Venemaa piiri suundmuutmisega arvati suur osa Petserimaast (sh Petseri linn) Pihkva oblasti piiresse. Petseri linnast sai Petseri rajooni keskus Pihkva oblasti koosseisus. Tuginedes Tartu rahule, mis määras Eesti idapiiri, tunnistas Eesti Vabariigi Ülemnõukogu Presidium 12. septembril 1991 Eesti NSV varasemad piiri käsitlevad aktid õigustühiseks ning esitas taotluse lahendada riigipiiririküsimus Eesti ja NSV Liidu (Venemaa osavõtul) läbirääkimistega. Eesti käsitleb oma idapiirina Petserimaal 1920. aasta Tartu rahuga määratud Eesti ja Vene riigipiiri ning peab Põlva- ja Võrumaa ning Vene Föderatsiooni Petseri rajooni piiri, mille NSV Liit määras 1944 Eesti NSV idapiiriks, faktiliselt majandus- ja halduspiiriks. (Vt.: EE (Eesti Entsüklopeedia), 7. Kd. Tallinn: Eesti Entsüklopeediakirjastus, 1994, lk. 282-283.)

ZWANZIG JAHRE WIRTSCHAFTSPOLITISCHE WISSENSCHAFTSKONFERENZEN IN ESTLAND

Über die wirtschaftspolitischen Wissenschaftskonferenzen, die seit 1984 veranstaltet werden, sind bisher zwei Übersichten veröffentlicht worden: Im Jahre 2002, als die X. Konferenz abgehalten wurde¹, und 2012 nach der XV. Konferenz². Im Jahre 2012 findet die XX. Konferenz statt. Ab der XV. Konferenz wird die Tagung nur in Värskas ausgetragen, in den vorangegangenen Jahren tagte man am ersten Tag in Tartu und danach in Värskas. Im Wesentlichen ist der Inhalt und die Struktur der Konferenz unverändert geblieben: Die ersten zwei Tage gelten den Vorträgen, die in Sitzungen eingeteilt sind (bis zu sechs Sitzungen). Es ist auch zur Tradition geworden, dass im Rahmen der Konferenz am ersten Tag ein Picknick mit Kulturprogramm, am zweiten Tag ein Sport- und Gesundheitsprogramm³ und am dritten Tag ein Naturprogramm angeboten wird.

Weil die Inhalte der XV. Konferenz (2007) bis jetzt nicht in einer Konferenzchronik festgehalten worden sind (diesbezügliche Publikation erschien vor der Austragung der Konferenz), wird darüber an dieser Stelle in Kurzform berichtet.

Vom 28.-30. Juni 2007 fand die **XV.** Wissenschaftskonferenz zum Thema „Estonische Wirtschaftspolitik – drei Jahre in der Europäischen Union“ statt. Der erste Tag der Konferenz war im Wesentlichen der estnischen Regional- und Kommunalpolitik gewidmet. Um einen Gedankenaustausch unter Konferenzteilnehmern anzuregen, waren drei Vorträge von Kommunalvertretern aus dem Landkreis Põlva, in dem auch der Austragungsort liegt, geplant. Den letzten Vortrag des ersten Tages hielt Professor Emeritus *Peter Friedrich* (München-Tartu), der auch die anschließende Diskussionsrunde leitete. Während des zweiten Tages der Konferenz, der in drei Sitzungen geteilt war, wurden 13 Vorträge gehalten.

Am Abend des ersten Tages wurde zum traditionellen Picknick im Seto-Bauernmuseum eingeladen. Zum kulturellen Teil gehörte ein Folklore-Konzert und die Besichtigung der Museumsanlage und Exponate. Im Naturprogramm wurde eine

¹ Eine Übersicht über die ersten zehn Konferenzen ist nachzulesen in den folgenden estnisch- und englischsprachigen Beiträgen: **Raudjärv, Matti; Sepp, Jüri:** Majanduspoliitika kümme konverentsi kui osa Eesti majandusteadusest ja akadeemilisest majandusharidusest / Ten conferences on economic policy as a part of Estonian economic science and academic economic education. – Euroopa Liiduga liitumise mõju eesti majanduspoliitikale / Die Integration der Europäischen Union und ihre Wirkungen auf die Wirtschaftspolitik Estlands / Effect of Accession to the European Union on the Economic Policy of Estonia. Berlin, Tallinn: Berlin Verlag Arno Spitz GmbH, Mattimar OÜ, 2002, S. 601-620.

² Eine Übersicht über die XI.-XV. Konferenz ist nachzulesen in den folgenden estnisch-, deutsch- und englischsprachigen Beiträgen: **Raudjärv, Matti.** Majanduspoliitika konverentsid kui traditsioon Eesti majandusteaduses ja kõrghariduses. – Eesti majanduspoliitilised väitlused/ Estnische Gespräche über Wirtschaftspolitik/ Discussions on Estonian Economic Policy. Berlin, Tallinn: Berliner Wissenschafts-Verlag, Mattimar, 2007, S. 97-112.

³ Bevor in Värskas das Wellness-Zentrum eröffnet wurde, fand das Kulturprogramm am zweiten Tag der Konferenz (d.h. am Freitag) statt.

Änderung vorgenommen und schon am zweiten Tag genoss man die Wanderung durch das Meenikunno-Hochmoor im Landkreis Põlva. So wurde es den Teilnehmern möglich, in Tallinn dem X. Sänger- und Tanzfest der Jugend (29.06-01.07.2007) beizuwohnen.

Vom 26.-28. Juni 2008 wurde in Värskas die **XVI.** Wissenschaftskonferenz zum Thema „Die Wirtschaftspolitik in den EU-Mitgliedstaaten – 2008“ ausgetragen. Die Konferenzaktivitäten waren auf zwei Tage verteilt – am ersten Tag zwei und am Folgetag vier Sitzungen. Die Eröffnungsreden hielten Matti Raudjärv (Universität Tartu) und Toomas Haldma, der Dekan der wirtschaftswissenschaftlichen Fakultät der Universität Tartu, zu dieser Zeit auch Präsident des Estnischen Wirtschaftswissenschaftlichen Vereins.

Während der beiden Sitzungen des ersten Tages wurden drei Vorträge gehalten. Die zwölf Referate des zweiten Tages waren auf vier Sitzungen verteilt. In der Abschluss Sitzung sprach Kalev Kukk, der Berater der estnischen Regierung. Sein gründlich recherchiertes Referat galt Ragnar Nurkse (1907-1992), dem renommierten estnischen Wirtschaftswissenschaftler, der erfolgreich im Ausland tätig war.

Der Abend des ersten Tages wurde wieder im Seto-Bauernmuseum im dortigen Teehaus „Tsäimaja“ verbracht, neben dem reichhaltigen Abendessen konnte man folkloristische Darbietungen genießen. Weil das im Herbst 2007 fertiggestellte Wellness-Zentrum in der unmittelbaren Nähe des Värskas-Sanatoriums liegt, wurde 2008 das Sportprogramm eingeführt. Nach den Sitzungen des zweiten Tages geht es gemeinsam ins Wellness-Zentrum, wo verschiedene Wasseranwendungen (z. B. Mineralwasserbäder) angeboten werden und wo man saunieren und im 25-Meter-Becken seine Bahnen abschwimmen kann.

Der dritte Tag war dem Naturprogramm gewidmet. Diesmal war der Besuch von Taevaskoja, einem eindrucksvollen Landschaftsgebiet vorgesehen. Nach der Wanderung und dem anschließenden Fahrt mit einem Motorfloß auf dem Ahja-Stausee ging die Fahrt weiter zum Mittagessen ins Landkreiszentrum Põlva. Zusätzlich zum offiziellen Konferenzprogramm wurde den deutschen Gästen ein inhaltsreicher Tagesausflug in den Nationalpark Lahemaa organisiert. Das Mittagessen mit estnischen Spezialitäten im alten Dorfkrug von Altja war einer der Höhepunkte dieser Reise.

Das Thema der **XVII.** Konferenz (01.-03. Juli 2009) lautete „Die Wirtschaftspolitik in den EU-Mitgliedstaaten – 2009“. Bei der Eröffnung sprachen Matti Raudjärv (Universität Tartu), Manfred O.E. Hennies, Mitveranstalter der Konferenz (Fachhochschule Kiel, Deutschland), und Urmas Varblane, Prodekan für Forschung an der wirtschaftswissenschaftlichen Fakultät der Universität Tartu. Am ersten Tag wurden in zwei Sitzungen sechs Beiträge vorgetragen und der zweite Tag war in vier Sitzungen mit insgesamt dreizehn Vorträgen geteilt.

Das Kulturprogramm der Konferenz führte die Teilnehmer ins Dorf Saatse, das in der Gemeinde Värskä dicht an der Staatsgrenze liegt. Besichtigt wurden die örtliche historische Kirche mit dem Friedhof und das mit Hilfe der EU-Fördergelder neu fertiggestellte Gästehaus. Auch der örtliche Wanderweg wurde ausprobiert und dann der Picknickkorb ausgepackt. Neben dem Heimatmuseum Saatse befindet sich eine Anhöhe, die den rituellen Zwecken dient. Diesmal gab es hier folkloristische Darbietungen. Im Rahmen des diesjährigen Naturprogramms am dritten Tag wurde von dem örtlichen Anbieter „Setoline“ eine mehrstündige Schifffahrt auf der Värskä-Bucht und dem Peipussee organisiert.

Das Thema der **XVIII.** Konferenz (01.-03. Juli 2010) hieß „Die Wirtschaftspolitik in den EU-Mitgliedstaaten – 2010“. Für die Eröffnung der Konferenz wurde diesmal mehr Zeit anberaumt als gewöhnlich. Der Eröffnungsansprache des Initiators der Konferenzreihe *Matti Raudjärv* (Universität Tartu) folgte der Kurzvortrag vom Prof. Dr. *Manfred O.E. Hennies*, der sich als langjähriger Mitveranstalter der Värskä-Konferenzen verdient gemacht hat. Danach wurde dem Dekan der wirtschaftswissenschaftlichen Fakultät der Tartuer Universität *Toomas Haldma* das Wort erteilt. Er überreichte Prof. Hennies im Auftrag des Universitätsrektors *Alar Karis* eine Ehrenurkunde für seine Verdienste um die Kooperation mit der Universität Tartu und um die estnische Wirtschaftswissenschaft. Prof. Hennies wurde noch eine weitere Ehrung zuteil. *Henn Vallimäe*, der Direktor des College Pärnu der Tartuer Universität, überreichte ihm das goldene Ehrenzeichen des College für seine langjährige und sehr inhaltsreiche Zusammenarbeit.

Ein Grußwort bei der Eröffnung sprach auch *Sulev Mäeltsemees*, der Dekan der sozialwissenschaftlichen Fakultät der Technischen Universität Tallinn und der langjährige Mitveranstalter der Konferenzen. Auf dem Programm des ersten Tages standen zwei Sitzungen mit sechs Vorträgen und am zweiten Tag vier Sitzungen mit insgesamt elf Vorträgen.

Den ersten Konferenztag ließ man mit einem Picknick auf der Wiese am Seeufer neben dem Sanatorium ausklingen. Das Auftreten der Folkloregruppe aus Mikitamäe fand allgemeinen Zuspruch. Das Naturprogramm führte diesmal in die Dörfer am Peipussee, um die hiesige Lebensweise kennen zu lernen. Näher hat man sich das Dorf Podmotsa angeschaut und die typische russisch-orthodoxe Dorfkapelle im Setu-Gebiet, genannt „tsässon“, besucht. Viele nutzten die Gelegenheit, der Kirche etwas zu spenden. Die Dorfkapelle in Podmotsa wurde 1760 erbaut und danach mehrmals umgebaut (1893, 1932, 1995, 2003). Das Dorf Podmotsa befindet sich 6 km vom Ortszentrum Värskä entfernt und liegt dicht an der russischen Grenze. Nur 200 Meter trennen den Dorfrand von der Staatsgrenze. Vom Dorf aus hat man eine schöne Aussicht über die Kulje-Bucht bis hin zum russischen Dorf Kulje samt Dorfkirche. Die hiesige Gegend ist als ein guter Fischfangplatz bekannt. Hier ging auch der legendäre estnische Bariton Georg Ots (21.03.1920 Petrograd – 05.09.1975 Tallinn) auf Fischfang. Im Laufe der Naturwanderung wurde der Aussichtsturm am Rande des Velna-Sumpfes bestiegen. Ein herrlicher Ausblick über die weite Sumpf- und Waldlandschaft mit verstreuten Dörfern war die Belohnung für die Anstrengung. Durch den hohen Wasserstand war der Bretterweg

nicht passierbar und so musste die Fußwanderung im Sumpf auf den Wanderpfaden Pikalombi (3,8 und 9,1 km lang) leider ausfallen. Hoffentlich wird es in der Zukunft doch möglich, diese Fußwanderung nachzuholen, um von der beeindruckenden Sumpflandschaft einen richtigen Eindruck zu bekommen.

Die **XIX.** Konferenz zum Thema „Die Wirtschaftspolitik in den EU-Mitgliedstaaten – 2011“ fand vom 30. Juni bis zum 2. Juli 2011 statt. Die Konferenz tagte an zwei Tagen und es gab sechs Sitzungen. *Matti Raudjärv* (Universität Tartu) und *Armin Rohde* (Universität Greifswald), seit 1999 ein bewährter Mitveranstalter der Konferenz, hielten die Eröffnungsansprachen. Für den ersten Konferenztag waren zwei Sitzungen mit sieben Vorträgen und für den Folgetag vier Sitzungen mit 12 Vorträgen geplant.

Für das Picknick am ersten Abend wählte man wieder die Wiese am Seeufer. Dort spielte auch ein Musikant für das Seto-Gebiet typische Instrumente. Am Abend des zweiten Tages stand wie seit 2008 üblich, der Besuch des Wellness-Zentrums Värka auf dem Plan. Im Rahmen des Naturprogramms war diesmal die Besichtigung des sorgfältig restaurierten Gutshofes Mooste im Landkreis Põlva vorgesehen. Dort wurde auch das Mittagessen eingenommen. Der Gutshof Mooste gehört zu den wenigen Gutshöfen in Estland, deren Gebäudeensemble fast vollständig erhalten geblieben ist. Die jahrhundertealte Häuserreihe steht am Südufer des Mooste-Sees. Durch Förderung des Europäischen Fonds für regionale Entwicklung wurden bis 2011 das Haus des Gutsverwalters, der Rinder- und der Pferdestall restauriert und für neue Zwecke umfunktioniert und werden jetzt entsprechend als Kunst-, Folkmusik- und Restaurierungswerkstatt benutzt. Einige Gebäude warten noch auf ihre Restaurierung.

Vom 28.-30. Juni 2012 wird die **XX.** Konferenz ausgetragen, die wohl als „Jubiläumskonferenz“ bezeichnet werden darf und traditionsgemäß in Värka stattfindet. Das Thema lautet diesmal „Die Wirtschaftspolitik in den EU-Mitgliedstaaten – 2012“.⁴ Die Konferenzthematik ist breit gefächert, so wie auch in den vorangegangenen Jahren. Es wird empfohlen, sich auf folgende Bereiche der Wirtschaftspolitik zu konzentrieren:

1. Unternehmenspolitik
2. Unternehmensstrategie
3. Fiskal- und Geldpolitik
4. Umweltpolitik
5. Regional- und Kommunalpolitik
6. Sektorale Wirtschaftspolitik
7. Sozialpolitik

⁴ In dieser Ausgabe wird nicht ausführlich auf die XX. Konferenz eingegangen, weil durch diese Publikation der Leser über die Planung eine vorläufige Übersicht bekommt. Zudem hat die Konferenz zum Zeitpunkt des Erscheinens dieser Publikation noch nicht stattgefunden. Aber es ist sehr wohl geplant, über die XX. Konferenz im nächsten Jahr, d. h. 2013, einen Überblick zusammenzustellen, wenn die Konferenz und ihre Begleitprogramme zur Geschichte geworden sind. Die Wirklichkeit kann ja Korrekturen ins Geplante bringen.

8. Arbeits- und Einkommenspolitik

Es ist immer möglich, auch über andere Bereiche der Wirtschaftspolitik zu berichten (z. B. Wirtschaftskrise u.a.). Betriebswirtschaftliche Vorträge (auch Artikel) sind genauso willkommen. An dieser Stelle wurde und wird auch weiterhin den Autoren eine Bedingung gestellt, und nämlich: der Vortrag oder der Artikel muss zeigen, welche Auswirkungen die staatliche Wirtschaftspolitik auf einzelne Betriebe hat oder auch umgekehrt – wie Betriebe die staatliche Wirtschaftspolitik beeinflussen können. Also müssen die Beiträge mit betriebswirtschaftlicher Thematik einen deutlichen Zusammenhang zur Wirtschaftspolitik aufweisen. Beiträge ohne diesen Bezug werden auf Anraten der Rezensenten nicht angenommen!

Zur Jubiläumskonferenz gehören mit Sicherheit wieder ein Kultur-, Sport- und Naturprogramm. Als „Jubiläumsbonus“ für die Konferenzteilnehmer ist ein Ausflug ins Petschur-Kloster⁵ in Planung.

In den letzten Jahren haben neben estnischen Teilnehmern vor allem Kollegen aus Deutschland an der Konferenz teilgenommen. Aber Gäste kamen – ob mit oder ohne Vortrag im Gepäck – auch aus Lettland, Polen, Frankreich, Tschechien. 2012 wird Besuch aus Ungarn erwartet. Im Laufe der Jahre gab es Teilnehmer aus Belgien, Litauen und Finnland. In der Zukunft kann man mit der Teilnahme von Wirtschaftswissenschaftlern aus einiger russischen, ukrainischen und georgischen Universitäten rechnen, mindestens haben sie dem Autor dieses Beitrags ihren Teilnahmewunsch signalisiert.

Matti Raudjärv

Initiator und Hauptveranstalter der
wirtschaftspolitischen Konferenzen
November 2011 – April 2012

(In Tallinn / Pirita-Kose, in Pärnu und
auf dem Hof Kaasiku im Landkreis Virumaa)

⁵ Nach dem Ende des Freiheitskrieges wurden die Stadt Petschur (auf Estnisch Petseri), der Landkreis Petserimaa und das besondere ethnische Gebiet Setumaa auf Grund des Friedensvertrages von Tartu (02.02.1920) für estnisches Staatsgebiet erklärt. Als im Laufe des II. Weltkrieges 1944 die Rote Armee immer mehr weiterrückte, wurde am 23.08 die estnisch-russische Grenze zwangsweise geändert und große Teile des Landkreises Petserimaa (darunter auch die Stadt Petschur) dem russischen Bezirk Pskov (auf Estnisch Pihkva) angegliedert. Nach der Wiedererlangung der Unabhängigkeit im Jahre 1991 erklärte das oberste Gremium des damaligen estnischen Parlaments am 12. September alle die in der Sowjetzeit verabschiedeten Rechtsakte zur Grenzfrage für rechtswidrig und beantragte neue zwischenstaatliche Verhandlungen zur Festlegung der Staatsgrenze. Bis jetzt ist diese Frage ungelöst geblieben. Für die estnische Seite verläuft ihre Ostgrenze weiterhin so, wie sie 1920 gemäß dem Friedensvertrag gezogen wurde. Die Grenze zwischen den estnischen Landkreisen Põlvamaa und Võrumaa und dem Rayon Petschur (auf Russisch Petschory) der russischen Föderation wird als Wirtschafts- und Verwaltungsgrenze angesehen. (Quelle: EE (Eesti Entsüklopeedia), 7. Band. Tallinn: Eesti Entsüklopeediakirjastus, 1994, S. 282-283.)

THE 20TH SCIENTIFIC CONFERENCE ON ECONOMIC POLICY IN ESTONIA

Overviews of the scientific conferences on economic policy which have been organised since 1984 have been published in 2002 and 2007 when the 10th¹ and the 15th² conference took place, respectively. The conference that will be held in 2012 will already be the 20th. Starting from the 15th conference, only Värskas has remained the venue of the conference (earlier, a half of the first day was spent in Tartu and then the conference was continued at Värskas). The essence of the conference has remained the same as in the earlier years: presentations on the first two days, divided into sessions (up to 6 sessions). Traditionally, the conference has included also a picnic and a cultural programme (on the first day), a sports and health programme (on the 2nd day)³ and a nature programme (on the 3rd day).

As the essence of the work of the 15th conference (2007) has not been discussed before in the chronicles (the publication appeared before the conference), a brief overview of that conference will also be provided below.

In 2007 (28–30 June) the **15th** scientific conference was held on the subject „Economic Policy of Estonia – Three Years in the European Union“. The first day of the conference was mainly dedicated to the policies of Estonian regional and local governments. Three presentations above all from specialists of local governments of the Põlva County had been planned for starting the discussions. The day ended with the presentation/discussion by Professor Emeritus *Peter Friedrich* (Munich-Tartu). The second day of the conference was divided into three sessions with 13 presentations in total.

The traditional picnic on the evening of the first day of the conference took place at the Seto Farm Museum. The participants listened to a concert there and looked at museum buildings and exhibits. The nature programme was changed and the Meenikunno Bog at Põlvamaa was visited already on the second day. Thus the

¹ An overview of the first ten conferences has been provided the papers published in Estonian and in English: **Raudjärv, Matti; Sepp, Jüri**. Majanduspoliitika kümme konverentsi kui osa Eesti majandusteadusest ja akadeemilisest majandusharidusest / Ten conferences on economic policy as a part of Estonian economic science and academic economic education. – Euroopa Liiduga liitumise mõju eesti majanduspoliitikale / Die Integration der Europäischen Union und ihre Wirkungen auf die Wirtschaftspolitik Estlands / Effect of Accession to the European Union on the Economic Policy of Estonia. Berlin, Tallinn: Berlin Verlag Arno Spitz GmbH, Mattimar OÜ, 2002, lk. / S. / pp. 601–620.

² An overview of the 11th–14th conferences has been provided in the papers published in Estonian, German and English: **Raudjärv, Matti**. Majanduspoliitika konverentsid kui traditsioon Eesti majandusteaduses ja kõrghariduses. – Eesti majanduspoliitilised väitlused/ Estnische Gespräche über Wirtschaftspolitik/ Discussions on Estonian Economic Policy. Berlin, Tallinn: Berliner Wissenschafts-Verlag, Mattimar, 2007, lk./ S./ pp. 97–112.

³ Before completion of the construction of the Värskas SPA Centre the cultural programme was in the evening of the second day of the conference, i.e. on Friday.

participants in the conference were able to see the 10th Youth Festival in Tallinn (the Song Festival 2007 and Dance Festival 2007 were held on 29.06–01.07.2007).

In 2008 (26–28 June) the **16th** Scientific Conference was held at Värskas on the subject „Economic Policy in the EU Member States – 2008“ and the work of the conference was planned to two days – two sessions on the first day and four on the second day. The conference was opened by Matti Raudjärv (University of Tartu) and Toomas Haldma, Dean of the Faculty of Economics of the University of Tartu who was also the President of the Estonian Economic Association at that time.

Two sessions were held on the first day, three presentations in each. The second day of conference consisted of four sessions and in total 12 presentations. In the 6th session which was also the final session of the conference a presentation was made by *Kalev Kukk*, Adviser to the Government of the Republic of Estonia, who gave a comprehensive overview of the life and fruitful research activities of the Estonian expatriat economist Ragnar Nurkse (1907–1959).

The evening of the first day was again spent at the Seto Farm Museum and its Tsäimaja (Teahouse) where both dinner and the cultural programme took place. As the construction of the new SPA Centre had been completed in the autumn of 2007 in the immediate vicinity of the Värskas Resort, a new annual tradition was started with the conference of 2008 – the evening of the second day, after the end of the conference work programme, is spent at the SPA where it is possible to take baths with natural mineral water and swim in a 25 m swimming-pool besides the different hydrotherapy procedures and saunas. Within the nature programme on the third day of the conference the participants visited Taevaskoja, took a motorised raft trip on the dammed-up Ahja River and had lunch in Põlva. In addition, an interesting 1-day trip to the Lahemaa National Park was organised for guests from Germany outside the programme with an entertaining ethnic lunch in Altja Tavern.

The subject of the **17th** conference held in 2009 (01–03 July) was „Economic Policy in the EU Member States – 2009“. The conference was opened with opening addresses by Matti Raudjärv (University of Tartu), co-organiser of the conference Manfred O.E. Hennies (Kiel University of Applied Sciences, Federal Republic of Germany) and Urmas Varblane, Vice-Dean of Research of the Faculty of Economics of the University of Tartu. Two sessions with six presentations were held on the first day and four sessions with in total 13 presentations on the second day.

The cultural programme of the conference took place at the Saatse Village in Värskas Rural Municipality at the state border where the local historical church and the cemetery were visited and a boarding house recently built with assistance from EU support funds, and the participants walked on the local hiking trail. This was followed by a picnic and the cultural programme in open air, on the hill next to the Saatse Museum, a traditional place of worship. The nature programme on the third day of the conference included a cruise of a few hours on the Värskas Bay and Lake Pihkva, organised by the local company Setoline.

The subject of the **18th** conference held in 2010 (01–03 July) was „Economic Policy in the EU Member States – 2010“. The opening of this conference took longer than usual: the opening address by *Matti Raudjärv* (University of Tartu), initiator of this series of conferences, was followed by a brief presentation by Professor Emeritus *Manfred O.E. Hennies* (Kiel University of Applied Sciences, Federal Republic of Germany), the meritorious long-term co-organiser of the conference. Then *Toomas Haldma*, Dean of the Faculty of Economics of the University of Tartu took the floor and presented the decorated citation of honour to *Manfred Hennies* from *Alar Karis*, Rector of the University of Tartu, for his services both to the University of Tartu and to the Estonian economic science. The next person to take the floor was *Henn Vallimäe*, Director of the Pärnu College of the University of Tartu, who presented the Golden Badge of Honour of the College to *Manfred Hennies* for long-term and substantial cooperation. Also *Sulev Mäeltsees*, Dean of the Faculty of Social Sciences of the Tallinn University of Technology and long-term co-organiser of the Värskä Conference gave a speech at the opening of the conference. Two sessions with six presentations were held on the first day and four sessions with in total 11 presentations on the second day.

A picnic was held in the evening of the first day of the conference on the meadow by the lake next to Värskä Spa with a concert by the Seto Song and Dance Ensemble from Mikitamäe. The nature programme consisted in visiting villages on the shores of Lake Pihkva and becoming familiar with the life of the local people. The participants made a longer visit to the Podmotsa Village and its tsässon (Orthodox village chapel in Setomaa) where also donations were made. The Podmotsa Tsässon was built in 1760 and has been reconstructed for several times (in 1893, 1932, 1995, 2003). The Podmotsa Village is situated at the distance of 6 km from the centre of Värskä towards the Russian border (it is ca 200 metres from the village to the state border). There is a beautiful view of the Kulje Village in Russia and the church over the bay from the village. It is a well-known fishing site where also the legendary Estonian baritone Georg Ots liked to go fishing (21.03.1920 in Petrograd – 05.09.1975 in Tallinn). When walking on the nature trail, the participants climbed the watchtower at the edge of the Velna Bog where the fine expanses of bog landscape, lakes, forests and villages were admired. As the boardwalk over the bog could not be used due to the high water level, the hike had to be cancelled (on Pikalombi nature trails – with lengths of 3.8 and 9.1 km). We hope we can still take walking tours of about two or three hours on Pikalombi trails in the future in order to become more familiar with local wildlife and the bog landscape.

The **19th** conference held in 2011 (30 June – 02 July) was on the subject „Economic Policy in the EU Member States – 2011“ and the work of the conference consisted of six sessions during two days. The opening addresses of the conference were made by *Matti Raudjärv* (University of Tartu) and *Armin Rohde* (University of Greifswald, Federal Republic of Germany), a long-term co-organiser (since 1999) of the conference. Two sessions with seven presentations were held on the first day of the conference and for the second day, four sessions with 12 presentations were planned.

The evening of the first day was spent at a picnic on the meadow by the lake next to Värskas Spa with ethnic music played by a Seto harmonic and accordion player. The evening of the second day had been the same already since 2008 – the sports and health programme at Värskas SPA. On the third day the participants had the nature programme and visited also interesting restored buildings of the Mooste Manor at Põlvamaa and had also lunch there. Mooste Manor is one of the Estonian manors with the most fully preserved buildings. The buildings from centuries ago are standing in line on the southern shore of Lake Mooste and constitute an interesting full ensemble of manor buildings. With the support from the European Regional Development Fund, for instance, the building of the manor manager, the cattleshed and the horse stable were restored in 2011 into an art centre, a folk music chamber and a restorers' chamber. Some other buildings were still waiting for their turn to be restored.

In 2012 (on 28–30 June), the **20th** conference will be held (it can probably also be called a jubilee conference) and traditionally again at Värskas, on the subject „Economic policy in the EU Member States – 2012“.⁴ The range of topics that will be discussed at the conference is relatively wide (analogously with the previous years). It has been recommended to focus on the following areas of economic policy:

1. Entrepreneurship policy
2. Corporate strategy
3. Fiscal and monetary policy
4. Environmental policy
5. Regional and local government policy
6. Sectoral economic policy (for different sectors of national economy)
7. Social policy
8. Labour policy and income policy

Also other areas of economic policy have always been possible (e.g. the economic crisis, etc.). Also presentations (and papers) on business administration have always been welcome in all fields. In that respect, the condition has always been set authors that they should describe/write in their presentation/paper the effect of the national economic policy on businesses and/or the other way round – the effect of businesses on national economic policy. Thus, papers on business administration have to be related to economic policy, and any papers not related to economic policy have been rejected according to recommendations from reviewers!

The jubilee conference will certainly also have cultural, sports and health, and nature programmes. As an additional bonus, it is planned to add also a trip to the Petseri

⁴ This publication will not dwell upon the 20th conference in detail as it is planned to give just an overview to readers on the basis of this publication. The conference will also not have taken place at the time of receiving this publication from the printing office. But it is planned to discuss it in more detail next year, in 2013 when both the conference work and additional programmes have already taken place and become history. In reality the plans may change to a certain extent, after all.

(Pskovo-Pechersky) Monastery to the cultural and nature programme of the participants.⁵

In the course of the last five years, other participants of the conference besides those from Estonia have been mainly colleagues from German universities but also from other places – there have been participants (not all of them have given presentations, however) also, for instance, from Latvia, Poland, France, Czech Republic and in 2012 also from Hungary. In the earlier years we have had participants also from Belgium, Lithuania, Finland and several other establishments of higher education and research of the above-mentioned countries. In the future we can probably expect participants from universities of Russia, Ukraine and Georgia (at least the respective statements of quite a few representatives of the universities from these countries allow the undersigned to hope that).

Matti Raudjärv

Initiator and main organiser of the conferences

on economic policy

November 2011 – March 2012

(At Pirita-Kose in Tallinn, in Pärnu and

on Kaasiku Farm in Lääne-Viru County)

⁵ Petseri (in Russian: Petchora) and the Petseri County (also called Setomaa as the ethnic area) became a part of Estonia after the Estonian War of Independence, with the coming into effect of the Tartu Peace Treaty signed between Estonia and Russia (on 02.02.1920). With the formation of the Pskov Oblast of the Russian Federal Soviet Republic (on 23.08.1944) and forced alteration of the border between Estonia and Russia, a large part of the Petseri County (incl. the Petseri town) was included in the Pskov Oblast. Petseri town became the centre of the Pechora District of the Pskov Oblast. Based on the Tartu Peace Treaty which determined the Eastern border of Estonia, the Presidium of the Supreme Soviet of the Republic of Estonia deemed on 12 September 1991 the earlier legislative acts of the Estonian Soviet Socialist Republic regulating the border as null and void and requested that the issue on state border be solved by way of negotiations between Estonia and the U.S.S.R. (with the participation of Russia). Estonia recognises the state border between Estonia and Russia in Petseri County, established with the Tartu Peace Treaty in 1920, and regards the borders of the Põlva County and Võru County and the border of the Pechora District of the Russian Federation, established by the U.S.S.R. as the Eastern border of the Estonian S.S.R. in 1944 as being factually an economic and administrative border (see: EE (Eesti Entsüklopeedia), Volume 7, Tallinn: Eesti Entsüklopeediakirjastus, 1994, pp. 282-283).

MAJANDUSPOLIITIKA TEADUSKONVERENTSID EESTIS (1984-2012)

WISSENSCHAFTLICHE KONFERENZEN ÜBER WIRTSCHAFTSPOLITIK IN ESTLAND (1984-2012)

SCIENTIFIC CONFERENCES ON ECONOMIC POLICY IN ESTONIA (1984-2012)

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|------|------|--|
| I | 1984 | Ühiskondliku tootmise intensiivistamise probleemid Eesti NSV-s |
| II | 1994 | Majandusteadus ja majanduspoliitika Eesti Vabariigis |
| III | 1995 | Majanduspoliitika teooria ja praktika Eesti Vabariigis |
| IV | 1996 | Aktuaalsed majanduspoliitika küsimused Euroopa Liidu riikides ja Eesti Vabariigis /I ja II/
Aktuelle wirtschaftspolitische Fragen in den Ländern der Europäischen Union und in der Republik Estland /I und II/
Topical Problems of the Economic Policy in the Member States of the European Union and the Republic of Estonia /I and II/ |
| V | 1997 | Eesti Vabariigi majanduspoliitika ja integreerumine Euroopa Liiduga
Die Wirtschaftspolitik der Republik Estland und die Integration mit der Europäischen Union
Economic Policy of the Republic of Estonia and Integration with the European Union |
| VI | 1998 | Eesti Vabariigi integreerumine Euroopa Liiduga – majanduspoliitika eesmärgid ja abinõud
Die Integration der Republik Estland mit der Europäischen Union – Ziele und Mittel der Wirtschaftspolitik
Integration of the Republic of Estonia into the European Union – Goals and Instruments of Economic Policy |
| VII | 1999 | Eesti Vabariigi majanduspoliitika ja Euroopa Liit
Wirtschaftspolitik der Republik Estland und die Europäische Union
Economic Policy of the Republic of Estonia and the European Union |
| VIII | 2000 | Eesti Vabariigi majanduspoliitika tulemuslikkus ja Euroopa Liit
Wirksamkeit der Wirtschaftspolitik der Republik Estland und die Europäische Union
Effectiveness of the Economic Policy of the Republic of Estonia and the European Union |
| IX | 2001 | Harmoniseerimine ja vabadus Eesti Vabariigi majanduspoliitikas integreerumisel Euroopa Liiduga
Harmonisierung und Freiheit der Wirtschaftspolitik Estlands in EU-Integrationsprozess
Harmonisation and Freedom in the Economic Policy of Estonia integrating with the European Union |
| X | 2002 | Euroopa Liiduga liitumise mõju Eesti majanduspoliitikale
Die Integration der Europäischen Union und ihre Wirkungen auf die Wirtschaftspolitik Estlands
Effect of Accession to the European Union on the Economic Policy |

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| XI | 2003 | Eesti majanduspoliitika teel Euroopa Liitu
Die Wirtschaftspolitik Estlands auf dem Weg in die Europäische Union
Estonian Economic Policy on the way towards the European Union |
| XII | 2004 | Eesti majanduspoliitilised perspektiivid Euroopa Liidus
Wirtschaftspolitische Perspektiven Estlands als Mitglied der Europäischen Union
Economic Policy Perspectives of Estonia in the European Union |
| XIII | 2005 | XIII majanduspoliitika teaduskonverents
Die XIII wirtschaftspolitische Konferenz
13 th Scientific Conference on Economic Policy |
| XIV | 2006 | XIV majanduspoliitika teaduskonverents
Die XIV wirtschaftspolitische Konferenz
14 th Scientific Conference on Economic Policy |
| XV | 2007 | Eesti majanduspoliitika – kolm aastat Euroopa Liidus
Die Wirtschaftspolitik Estlands – drei Jahre in der Europäischen Union
Economic Policy of Estonia – three Years in the European Union |
| XVI | 2008 | Majanduspoliitika Euroopa Liidu riikides – aasta 2008
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2008
Economic Policy in the EU Member States – 2008 |
| XVII | 2009 | Majanduspoliitika Euroopa Liidu riikides – aasta 2009
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2009
Economic Policy in the EU Member States – 2009 |
| XVIII | 2010 | Majanduspoliitika Euroopa Liidu riikides – aasta 2010
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2010
Economic Policy in the EU Member States – 2010 |
| XIX | 2011 | Majanduspoliitika Euroopa Liidu riikides – aasta 2011
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2011
Economic Policy in the EU Member States – 2011 |
| XX | 2012 | Majanduspoliitika Euroopa Liidu riikides – aasta 2012
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2012
Economic Policy in the EU Member States – 2012 |

NB! Järgmine majanduspoliitika teaduskonverents toimub / Die nächste wirtschaftspolitische Konferenz findet statt / The next scientific conference on economic policy will be held:

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|-----|---|
| XXI | 27.-29.06.2013 (Eesti-Estland-Estonia): |
| | Majanduspoliitika Euroopa Liidu riikides – aasta 2013
Die Wirtschaftspolitik in den EU-Mitgliedsstaaten – 2013
Economic Policy in the EU Member States – 2013 |

Täpsem informatsioon alates oktoobrist-novembrist 2012 / Genauere Informationen ab Oktober-November 2012 / More detailed information from October-November 2012: www.mattimar.ee