

MAJANDUSTEADUSKONNA RAHVAMAJANDUSE INSTITUUDI TEADUS- JA ARENDUSTEGEVUSE AASTAARUANNE 2011

1. Instituudi struktuur

Instituudi direktor Kaie Kerem

- Majandusmatemaatika õppetool, Chair of Business Mathematics, Ants Aasma
- Majandusteooria õppetool, Chair of Theoretical Economics, Kaie Kerem
- Rahanduse ja panganduse õppetool, Chair of Finance and Banking, Enn Listra
- Statistika ja ökonomeetria õppetool, Chair of Statistics and Econometrics, Ako Sauga

2. Instituudi teadus- ja arendustegevuse (edaspidi T&A) iseloomustus

(NB! punktid 2.1- 2.6 täidab struktuuriüksus)

2.1

Majandusmatemaatika õppetool

2.1.1. teadustöö kirjeldus (inglise keeles);

The topic of the Chair of Business Mathematics is: linear, dynamic and stochastic optimization problems in economics. Problems under investigations: the structure of consumption in households of Baltic States; the impact of fiscal policy to decision-making of households; matrix transforms of summability and absolute summability fields of matrix methods, the acceleration of the rate of convergence of convergent processes by matrix methods; the solving linear programming problems using highly developed least squares techniques, finding the initial solution for the simplex method; investigation of large deflections of the beams under follower load; study the Numerov method for solution nonlinear boundary value problems.

2.1.2. aruandeaastal saadud tähtsamad teadustulemused (inglise keeles).

Using well-known Campbell-Mankiw's model, the share of „rule-of-thumb“ consumers in Baltic states, are estimated and compared with similar data's from the other countries; using inverse-transformation method some classes of factorable matrices, transforming the summability domain of normal matrix A into the summability domain of another matrix B, are characterized. As an application, the conclusions for the special cases, where A, or A and B both are Cesaro matrices, are derived; Ill-conditioned and degenerate linear programming problems are transformed to the system of linear inequalities and solved as non-negative least squares (NNLS) problems; using coordinate shifting in dual the dual problem, the initial solution for the prime-dual simplex method is found by the NNLS problem; the large deflections problem for curved cantilever subjected to follower force is solved numerically by using direct Numerov's method, equilibrium configurations of the curved cantilever under normal or tangential tip-concentrated follower force are presented.

2.2. Majandusmatemaatika õppetooli olulisem publikatsioon:

- Aasma, A. (2011). Factorable matrix transforms of summability domains of Cesaro matrices. International Journal of Contemporary Mathematical Sciences, 6(44), 2201 - 2206.

Majandusteooria õppetool

Majandusteooria õppetool

2.1.1. teadustöö kirjeldus (inglise keeles);

The members of Chair of Theoretical Economics participate in the research group „The analysis of the development perspectives of Estonia as a small open economy“. The group’s research topics are focused on the social issues of Estonian economy and its institutions. For steady growth exclusive economic institutions (that do not allow the majority of people to use their skills and talents as they see fit, and involve selective rules and criteria) must be substituted by inclusive ones. These institutions regulate also access to equal educational opportunities, labour market, banking sector and also foreign sector.

2.1.2. aruandeaastal saadud tähtsamad teadustulemused (inglise keeles).

We confirm that Estonian social model can be still classified under 'post-soviet' type, characterised by relatively high commodification and low social protection, also we indicate that under the recent crisis difficult choice – to conform either liberal (Anglo-Saxon) or Nordic model – must be implemented. What concerns foreign sector analysis, intra-industry trade (IIT) dynamics for Estonia, Latvia, and Lithuania in 1999-2007 shows that shares of IIT have increased within the period, with vertical IIT dominating. Analysis of Estonian banking sector shows that the measurement of credit risk determinants by banks has not sufficiently effective. Among factor endowment variables, we find difference in human capital to be significant in explaining IIT. The results are published in 18 papers and 12 from these are under ETIS categories 1.1., 1.2., 3.1.

2.2. Majandusteooria õppetooli olulisemad publikatsioonid:

- Pöder, K.; Kerem, K. (2011). 'Social Model' in a European Comparison; Convergence or Divergence. *Eastern European Economics*, 49(05), 55 - 74.
- Pöder, K. (2011). Institutsioonide ajalugu ja majandusareng: kuidas majandusteooria, politoloogia ja ajalugu kokku saavad. *Ajalooline Ajakiri*, 3/4(134/137), 3 - 22.
- Fainštein, G.; Netšunajev, A. (2011). Intra-Industry Trade Development in the Baltic States. *Emerging Markets Finance and Trade*, 47(04S3), 95 -110.

Rahanduse ja panganduse õppetool

2.1.1. teadustöö kirjeldus (inglise keeles);

The members of the chair of Finance and Banking participate in the research group „Problems of Financial Environment of Entrepreneurship“. The group’s research topics are focused on the corporate finance issues of capital structure, on the topics of the information availability and its influence, behavioural finance and on the issues of economic developments in Eastern European countries. Recently, the group’s work has been moved towards the problems of economic cycles in Central and Eastern European Countries. The new research programme is connected with financial sector structure, development and procyclical behaviour of financial institutions.

2.1.2. aruandeaastal saadud tähtsamad teadustulemused (inglise keeles).

Main results of the research are under the topics of unemployment persistence, capital structure in domestic and multinational companies, economic reforms in post-communist countries, and public

announcements quality and liquidity and investor behaviour on stock Exchange. The results are published in 14 papers and articles under categories 1.1., 1.2., and 3.1.

2.2. Rahanduse ja panganduse õppetooli olulisemad publikatsioonid:

- Cuestas, J.-C.; Gil-Alana, L.A.; Staehr, K. (2011). A further investigation of unemployment persistence in European transition economies. *Journal of Comparative Economics*, 39(4), 514 - 532.
- Avarmaa, M.; Hazak, A.; Männasoo, K. (2011). Capital structure formation in multinational and local companies in the Baltic States. *Baltic Journal of Economics*, 11(1), 125 - 145.
- Staehr, K. (2011). Democratic and market-economic reforms in the post-communist countries. The impact of enlargement of the European Union. *Eastern European Economics*, 49(05), 5 - 28.
- Laidroo, L. (2011). Market Liquidity and Public Announcements' Disclosure Quality on Tallinn, Riga, and Vilnius Stock Exchanges. *Emerging Markets Finance and Trade*, 47(4), 54 - 79.
- Talpsepp, T. (2011). Reverse Disposition Effect of Foreign Investors. *Journal of Behavioral Finance*, 12(4), 183 - 200.

Statistika ja ökonomeetria õppetool

2.1.1. teadustöö kirjeldus (inglise keeles);

The members of the chair of Chair of Statistics and Econometrics participate in the research group "Dynamics of the Financial Sector of Estonian Economy and Affecting Factors". The first topic of the Chair of Statistics and Econometrics is stochastic processes and their applications to interdisciplinary spheres. Special attention will be paid to the application of noise-induced phenomena. The results expected would be important in preserving the stability of different dynamic systems in fluctuating environments. The second topic is economic growth and financial system development in consolidating and globalizing environment. The main goal is to analyse empirically the relationship between financial development and economic growth in the Baltic countries. The main hypothesis is that the well-functioning financial sector accelerates economic growth in the selected transition countries.

2.1.2. aruandeaastal saadud tähtsamad teadustulemused (inglise keeles).

The temporal behaviour of the mean-square displacement and the velocity autocorrelation function of a particle subjected to a periodic force in a harmonic potential well are investigated for viscoelastic media using the generalized Langevin equation. The interaction with fluctuations of environmental parameters is modelled by a multiplicative white noise, by an internal Mittag-Leffler noise with a finite memory time, and by an additive external noise. It is established that additive external and internal noises cause qualitatively different dependences of the autocorrelation functions on the external forcing and also on the time lag. The influence of the memory time of the internal noise on the dynamics of the system is also discussed.

Using the first-purchase Bass diffusion model the consumer behaviour in the Baltic States is investigated. The coefficients of innovation and imitation are estimated and also the similarities and differences between the Baltic States and other European countries are examined. The estimation results can be used to forecast the diffusion pattern for analogous products and are useful to firms who operate in the Baltic market or who have such plans.

The relationship between financial development and economic growth in Baltic countries is analysed. Results from the fixed effect estimates tend to suggest that that financial development, as measured by six independent proxies, has not been strongly contributing to the output level of the countries in the sample. The positive link is confirmed only for stock market capitalization and ratio of broad money to GDP, but minor effect on economic growth.

The results are published in 4 papers and articles under categories 1.1., 1.2., and 3.1.

2.2. Statistika ja ökonomeetria õppetooli olulisemad publikatsioonid:

- Mankin, R.; Laas, K.; Sauga, A. (2011). Generalized Langevin equation with multiplicative noise: Temporal behavior of the autocorrelation functions. *Physical Review E*, 83(6), 061131-1 - 10.

2.3 Loetelu struktuuriüksuse töötajate rahvusvahelistest tunnustustest.

2.4 Loetelu struktuuriüksuse töötajatest, kes on välisakadeemiate või muude oluliste T&A-ga seotud välisorganisatsioonide liikmed.

Prof. K. Kerem on COPE Council Directors (Congress of Political Economists) liige.

Prof. E. Listra on BMDA (Baltic Management Development Association) juhatuse liige, EIBA (European International Business Academy) juhatuse liige ja kuulub ajakirja Technological and Economic Development of Economy (ETIS 1.1) toimetuskolleegiumi.

Prof. A. Sauga on rahvusvahelise multidistsiplinaarse ajakirja *Physical Review E* retsensent.

Prof. B. Shvartsman on ajakirja *International Journal Advances in Theoretical and Applied Mechanics*, Hikari Ltd. toimetuse liige.

Prof. K. Staehr on liikmeks: European Economic Association (EEA);

European Association for Comparative Economic Studies (EACES);

European Association for Labour Economists (EALE);

International Network for Economic Research (INFER);

Nationaløkonomisk forening (Danish Economic Association);

Society for the Study of Emerging Markets.

Dots. A.Aasma on referatiivajakirja *Mathematical Reviews* referent.

Dots. Tatjana Põlajeva on Baltic University Program programmi koordinaator ja ajakirja *Business, Management and Education* (Vilnius Gediminas Technical University) toimetaja;

Baltic University Programme (BUP) koordinaator Eestis;

Baltic University Programme (BUP) nõukogu liige, Uppsala University;

Congress of Political Economists (COPE) direktorite nõukogu liige;

Global Business and Technology Association liige.

Vanemteadur Aaro Hazak on teadusajakirja *Research in Economics and Business: Central and Eastern Europe* juhtivtoimetaja ning *Emerging Markets Finance and Trade* eriväljaande külalistoimetaja ning on vanemliige (Senior Member) *International Economics & Development Research Centre* (Hong Kong).

Vanemteadur K. Põder on ISNIE liige (International School of New Institutional Economics).

Lektor Kaja Lutsoja on projekti LLP, Multilateral Projects Development and Implementation of Common Bachelor Programme in the European Context TTÜ poolne koordinaator.

2.5 Aruandeaasta tähtsamad T&A finantseerimise allikad.

2.6 Soovi korral lisada aruandeaastal saadud T&A-ga seotud tunnustusi (va punktis 2.3 toodud tunnustused), ülevaate teaduskorralduslikust tegevusest, teadlasmobiilsusest ning anda hinnang oma teadustulemustele.

2.7 Instituudi teadus- ja arendustegevuse teemade ja projektide nimetused (*Eesti Teadusinfosüsteemi, edaspidi ETIS, andmetel*)

- Haridus- ja Teadusministeerium

sihtfinantseeritavad teemad:

- SF0132723s06 “ Mittelineaarsed stohhastilised protsessid nano- ja ökosüsteemides: teooria ning rakendused materjaliteadustes ja ökoloogias“, A. Sauga (põhitäitja)

baasfinantseerimise toetusfondist rahastatud projektid (sh TTÜ tippkeskused):

- B617A, Majandustsüklid Kesk- ja Ida-Euroopa üleminekumajandustes, K. Staehr

riiklikud programmid:

- Teiste ministeeriumide poolt rahastatavad riiklikud programmid:

- Uuriija-professori rahastamine:

- SA Eesti Teadusfond
grandid:

- ETF8796, Ettevõtete jätkusuutlikkus majandustsükliliste tegurite ja seadusandlike regulatsioonide mõju tingimustes, A. Hazak
- ETF8627, Aproximeerimisega seotud funktsiooni- ja jadaruumid ning nende rakendused, A. Aasma
- ETF8760 (TTÜ Energeetika teaduskond), Soojuselektrijaama vektoroptimeerimine arvestades info mittetäielikkust, E. Übi (põhitäitja)
- ETF7319 (Tallinna Ülikooli matemaatika ja loodusteaduste instituut), Värvilise müra konstruktiivne roll populatsioonide mittelineaarsete mudelite dünaamikas, A. Sauga (põhitäitja)

ühisgrandid välisriigiga:

järel doktorite grandid (SA ETF ja Mobilitas):

tippteadlase grandid (Mobilitas):

- Ettevõtluse Arendamise SA

eeluuringud:

arendustoetused:

- SA Archimedesega sõlmitud lepingud
 - riigihanke (hankija SA Archimedes) Loodus-, ja täppisteaduste ning tehnoloogia (LTT) valdkonna gümnaasiumi valikkursuste õppekomplekti osa 8: „Majandusmatemaatika elemendid“ koostamine; A. Aasma, A. Sauga, E. Übi, A. Org
 - litsentsileping nr 27-5/51 R (SA Archimedesega) Rakendusmatemaatika õpikuväljaandmiseks; E. Übi, K. Keres

infrastruktuur (nn „mini-infra“, „asutuse infra“):

Eesti tippkeskused:

riiklikud programmid:

muud T&A lepingud:

- SA Keskkonnainvesteeringute Keskusega sõlmitud lepingud:
- Siseriiklikud lepingud:
 - Tippkeskuse projekt TK114 “Mesosüsteemide teooria ja rakendused“; A. Sauga
- EL Raamprogrammi projektid:
- Välisriiklikud lepingud:
 - Uurimisprojekt „Estonian-Hungarian joint research project (under the agreement on scientific cooperation between the Estonian Academy of Sciences and the Hungarian Academy of Sciences 2010-2012)“; G. Fainštein

2.8 Struktuuriüksuse töötajate poolt avaldatud sihtfinantseeritava teadusteema taotlemisel arvestatavad eelretsenseeritavad teaduspublikatsioonid (*ETIS klassifikaatori alusel 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3, 4.1 ja 5.1*).

1.1

Pöder, K.; Kerem, K. (2011). 'Social Model' in a European Comparison; Convergence or Divergence. *Eastern European Economics*, 49(05), 55 - 74.

Cuestas, J.-C.; Gil-Alana, L.A.; Staehr, K. (2011). A further investigation of unemployment persistence in European transition economies. *Journal of Comparative Economics*, 39(4), 514 - 532.

Avarmaa, M.; Hazak, A.; Männasoo, K. (2011). Capital structure formation in multinational and local companies in the Baltic States. *Baltic Journal of Economics*, 11(1), 125 - 145.

Staehr, K. (2011). Democratic and market-economic reforms in the post-communist countries. The impact of enlargement of the European Union. *Eastern European Economics*, 49(05), 5 - 28.

Mankin, R.; Laas, K.; Sauga, A. (2011). Generalized Langevin equation with multiplicative noise: Temporal behavior of the autocorrelation functions. *Physical Review E*, 83(6), 061131-1 - 10.

Pöder, K. (2011). Institutsioonide ajalugu ja majandusareng: kuidas majandusteooria, politoloogia ja ajalugu kokku saavad. *Ajalooline Ajakiri*, 3/4(134/137), 3 - 22.

Fainštein, G.; Netšunajev, A. (2011). Intra-Industry Trade Development in the Baltic States. *Emerging Markets Finance and Trade*, 47(04S3), 95 - -.

Laidroo, L. (2011). Market Liquidity and Public Announcements' Disclosure Quality on Tallinn, Riga, and Vilnius Stock Exchanges. *Emerging Markets Finance and Trade*, 47(4), 54 - 79.

Talpsepp, T. (2011). Reverse Disposition Effect of Foreign Investors. *Journal of Behavioral Finance*, 12(4), 183 - 200.

1.2

Matina, J. (2011). A Causal Relationship between the Export of Goods, FDI and Economic Growth in Estonia. *Journal of International Scientific Publications: Economy & Business*, 5, 219 - 233.

- Laidroo, L. (2011). Determinants of the Quality of Public Announcements of Listed Companies Disclosed on the Stock Exchanges in the Baltic Countries. *International Journal of Management*, 28(1, 2), 272 - 288.
- Roo, R. (2011). Disclosure Discourse: A Shift in Estonian Public Companies' Interim Report Commentaries during the Turn towards Recession. *Research in Economics and Business: Central and Eastern Europe*, 3(1), - [ilmumas]
- Männiste, M.; Hazak, A.; Listra, E. (2011). European Listed Companies' Share Price Reactions to Global Credit Crunch: Typology of Winners and Losers. *International Journal of Trade, Economics and Finance*, 2(6), 478 - 483.
- Aasma, A. (2011). Factorable matrix transforms of summability domains of Ces_aro matrices. *International Journal of Contemporary Mathematical Sciences*, 6(44), 2201 - 2206.
- Aarma, A.; Vainu, J. (2011). Has the Global Economic Crisis Affected the Stability of Estonian Banking? *Journal of International Research Publications: Economy & Business*, 5, 27 - 37.
- Sauga, A. (2011). New product diffusion in the Baltic States. *Journal of Business Management*, 4, 47 - 52.
- Koljajeva, I.; Danilova, O. (2011). Social Business Responsibility and Sustainable Development. The Prospects of Modern Russia. *Journal of International Scientific Publications: Economy & Business*, 5, 69 - 83.
- Listra, E.; Rahu, K.; Vaiser, N. (2011). Systematic differences of retail exchange rate spreads in some EU countries: the banks against financial integration. *Discussions on Estonian Economic Policy*, 19(2), 72 - 86.
- Novikov, I.; Fainštein, G. (2011). The Comparative Analysis of Credit Risk Determinants In the Banking Sector of the Baltic States. *Review of Economics & Finance*, 3, 20 - 45.
- Kokkora, R. (2011). The Influence of Economic Crisis on Welfare in the Baltic States. *Journal of International Scientific Publications: Economy & Business*, 5, 190 - 201.
- Fainštein, G. (2011). The Political Economy of International Tax Governance. By Thomas Rixen. Book review. *The European Legacy*, 16(5), 681 - 682.
- Fainštein, Grigori; Novikov, Igor (2011). The role of macroeconomic determinants in credit risk measurement in transition country: Estonian example. *International Journal of Transitions and Innovation Systems (IJTIS)*, 1(2), 117 - 137.
- Randveer, M.; Rõõm, T. (2011). The Structure of Migration in Estonia: Survey-Based Evidence. *Research in Economics and Business: Central and Eastern Europe*, 3(1), 25 - 47.

1.3

2.1

2.2

3.1

Ruubel, R.; Hazak, A. (2011). Company Profitability and Labour Intensity under Different Phases of the Economic Cycle: A Pan-European Empirical Study. Zhang, M. (Toim.). Economics, Business and Management (178 - 182).IACSIT Press

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Dzielinski, M.; Rieger, M. O.; Talpsepp, T. (2011). Volatility asymmetry, news and private investors. Mitra, G; Mitra, L. (Toim.). The Handbook of News Analytics in Finance (255 - 270).John Wiley & Sons Ltd

Listra, E; Raudonen, S. (2011). The Impact of Corporate Income Taxation on Foreign Direct Investment into European Union Manufacturing Sector. In: Book of Proceedings: The 4th Annual Conference of the EuroMed Academy of Business, Elounda, Crete, Greece, 20th - 21st October 2011. EuroMed, 2011, xxxx. [ilmumas]

3.2

Kornilov, S.; Põlajeva, T. (2011). Strategic Approach in Risk-Adjusted tariff Policy. G. Startienė; E. K. Zavadskas, (Toim.). Economics and Management (780 - 784). Kaunas: Kaunas University of Technology

Põlajeva, T. (2011). Structural Corruption and its Influence on the Business Environment . G. Startienė, E. K. Zavadskas, (Toim.). Economics and Management (576 - 581). Kaunas: Kaunas University of Technology

Kondor, K.; Staehr, K. (2011). The impact of the global financial crisis on output performance across the European Union: vulnerability and resilience. Rusek, Antonin; Lacina, Lubor; Rozmahel, Petr (Toim.). Financial and Economic Crisis: Causes, Consequences and the Future (128 - 158). Bucovice: M. Parchomovskij

Ленсмент, А.; Ахмет, И. (2011). Особенности идентичности русских в Эстонии. In: Национальная философия в контексте современных глобальных процессов. Материалы международной научной конференции г. Минск, 16–17 декабря 2010 года : Национальная философия в контексте современных глобальных процессов, г. Минск, 16–17 декабря 2010 года. (Toim.) В.Г. Гавриленко. Минск: «Право и экономика» , 2011, 191 - 193.

Коляева, И.В. (2011). Оценка в Эстонии социальной составляющей предпринимательской концепции. Деловая этика и национальные модели поведения. Санкт-Петербургский государственный университет экономики и финансов. Санкт-Петербург., 2011. [ilmumas]

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3.3

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Dabusinskas, A.; Rõõm, T. (2011). Survey Evidence on Wage and Price Setting in Estonia. Eesti Panga Toimetised No 6/2011 (1 - 90).Eesti Pank

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Männasoo, K.; Meriküll, J. (2011). R&D in Boom and Bust: Evidence from the World Bank Financial Crisis Survey.

Männasoo, K.; Meriküll, J. (2011). R&D, demand fluctuations and credit constraints: comparative

evidence from Europe.

4.1

Hazak, A., Venesaar, U. (2011). Economies of Central and Eastern Europe: Convergence, Opportunities and Challenges. Guest Editors' Introduction. Selected Papers from the International Conference Economies of Central and Eastern Europe: Convergence, Opportunities and Challenges, Tallinn, Estonia, June 14-16, 2009. *Emerging Markets Finance and Trade*, 47(Supplement 3), 3 - 4.

Hazak, A. (2011). Central and Eastern European Economies in the Winds of Change. Guest Editor's Introduction..

5.1

2.9 Struktuuriüksuses kaitstud doktoriväitekirjade loetelu (*NB! struktuuriüksus lisab struktuuriüksuse töötaja juhendamisel mujal kaitstud doktoriväitekirjade loetelu*)

Igor Novikov, rahvamajanduse instituut

Teema: *Credit Risk determinants in the banking sectors of the Baltic States* (Balti riikide pangandussektorite krediidiriski determinandid)

Juhendaja: dotsent Grigori Fainštein

Kaitstes: 16.12.2011

Omistatud kraad: filosoofiadoktor (finantsökonoomika)

2.10 Struktuuriüksuses järel doktorina T&A-s osalenud isikute loetelu (*ETIS-e kaudu esitatud taotluste alusel*)

2.11 Struktuuriüksuses loodud tööstusomandi loetelu

3. Struktuuriüksuse infrastruktuuri uuendamise loetelu