Summaries

EDITOR-IN-CHIEF'S COLUMN

How Can We Make It from the Hallway to the Drawing Room?

MART RAUDSAAR
Editor-in-shief of Riigikogu Toimetised

We could always do more and better, but Estonia has done an impressive job in economic development. From the Soviet era, I remember the queues at stores simply to get a shopping basket, which would only then allow you entry among the product shelves. The shelves had hardly anything on them. The most difficult times were obviously immediately before and after the restoration of the Republic of Estonia. Now we are entering a stage in our development where Estonia is no longer a country offering cheap labour. We should also not be a country offering cheap products; instead, we should move on to the next stage and offer products with a higher added value. This means that instead of a country that assembles components, we are making efforts to become a country that produces the end products, and this also involves branding. In other words, on the global market, we must enter into competition with the countries who previously used us as sub-contractors. This is where innovation comes in, helping us to be better not in strength or cheapness, but in smartness. This issue of *Riigikogu Toimetised* views the tasks in the Estonian economic development in the context of global economy.

Ülo Kaasik, Deputy Governor of Eesti Pank, discusses the European decade of crisis prevention from the financial point of view. Raul Eamets from the University of Tartu traces the directions of the future economic development, as well as the skills that we would come to need. Talking about the glass ceiling of our economy, Jaak Aaviksoo asks what would help us to make it from the hallway to the drawing room of the developed countries?

This question is dissected by Kadri Ukrainski, Indrek Tammeaid, Urmas Varblane, and others in their article *Stimuli Have to Be Changed to Change Estonia's Development Model.* Their article shows that over the past two decades we have managed to impressively reduce our economic lag compared to a number of wealthiest countries in the world; for example, our lag with the UK has been reduced by 25 years, and our lag with France by 18 years. However, we are chasing a moving target because other economies are developing as well and our lag is by no means insignificant. In order to reach a new level, we need the government to coordinate our innovation policy, the authors argue.

Statistics Estonia has contributed several interesting and comprehensive articles to the issue. This issue of *Riigikogu Toimetised* contains a number of other excellent articles, but I would like to conclude by recommending Rein Taagepera's essay on political thought, *Would Estonia's Electoral Law Allow for a "Polish" Outcome*? In other words, would it be possible for certain Estonian political parties to win the elections by such a landslide that, to all intents and purposes, Estonia would become a two-party system.

CONVERSATION CIRCLE

Less Spanners in the Works and More Smart Science

Riigikogu Toimetised panel discussion

This time, the *Riigikogu Toimetised* panel brought together representatives of five Riigikogu factions to discuss Estonia's economic development on 4 April. The panel was made up of Maris Lauri (Reform Party), Liisa Oviir (Social Democratic Party), Raivo Põldaru (Conservative People's Party), Erki Savisaar (Centre Party), and Sven Sester (Pro Patria and Res Publica Union).

SVEN SESTER: I believe that for a good while Estonia has been on a course that will take us from a lowly sub-contractor to the group of countries that provide higher added value. And if we look at what the government has done to stop this from remaining empty words, I believe that their actions have essentially been correct. If we want to make it in the global community, it is obvious that we cannot count on logic-defying domestic consumption. We have had an agreement across the party lines that one day we would achieve 1 per cent of the GDP contribution to research activities. If we direct money into research activities through the cooperation of researchers and businesses, this is very likely to lead us to improved productivity.

ERKI SAVISAAR: Estonia's strength must lie in smartness. We are small but quick to adapt, and I believe that we could indeed occupy the niche of making very nice things – even luxury goods, if you like – rather than mass produced goods. Estonia could naturally contribute more in the fields of ICT, robotics, and artificial intelligence. This field still has not advanced particularly far elsewhere in the world. We are on this train and could even pull one part of it, if we contribute together.

But if we ask why the progress has not been quick enough, I think that the problem is cooperation. Instead of different businesses trying to improve the productivity of the sector together and entering foreign markets, they tend to compete with one another. There is quite a lot of buying each other out or throwing spanners in the works.

LIISA OVIIR: Maybe we should very clearly take the direction which the Tiger Leap programme and others have made quite natural to us: I am talking about ICT robotics. Just like we started with ICT, the path from it naturally leads us to robotics and artificial intelligence. There will inevitably be changes if you force them [universities, businesses, etc.] to come with you. A great many things will not happen by themselves. I think that universities or research institutions should only receive funding if they can prove that a project is not started only because a PhD student wants something to study, but that this study also has an actual client and an impact on real economy.

MARIS LAURI: The concept of smart specialisation actually involves a dilemma. On the one hand, it makes sense to invest, use or direct the small existing resources to where you are successful and strong. On the other hand, you always run a risk when you specialise on a very narrow field, because the global economy is extremely dynamic and changes can come at a very high speed, and you might consequently find yourself in a very sorry state in the blink of an eye. This is why we must choose a sensible balance. Ideally, research could be given 2 per cent of the GDP, but we must achieve this step by step. When the businesses see that the government is investing where they can also reap the benefits, in a little while they will start to add to it, and this starts the growth. This growth will definitely not become visible in one or two years, but in three or four.

RAIVO PÕLDARU: Our private businesses invest around 0.7 per cent of the GDP into innovation, while the corresponding number around Europe is 1.3 per cent. I believe that these amounts will soon grow because the private sector can no longer function otherwise. And maybe we would need to reorganise the education system from the lowest levels up, and not just the higher levels. Because today very many students drop out of vocational education already during the first year. This means that they have received wrong career counselling or made overall wrong choices at the crucial points in their lives. Today, production methods and life change more rapidly than education can keep up

with. Talking about clusters, maybe political parties and national politicians should cooperate much more and dedicate themselves to ensuring that the Republic of Estonia continues, and continues in a way that makes our people happy to live her.

FOCUS

European Decade of Crisis Prevention

ÜLO KAASIK
Deputy Governor of Eesti Pank

Ten years have passed from the great economic recession of 2008. Although the economy started to recover rapidly from the first stage of the crisis, it became clear in a couple of years that it had revealed several significant deficiencies in the functioning of the European Economic and Monetary Union and the common currency euro.

During the crisis, several steps were taken to ensure the functioning of the European Economic and Monetary Union, like the interference of the European Central Bank on bond markets, loans to countries experiencing crisis, etc. Improvement of the functioning mechanisms of the euro area was also started in order to make it stronger in the future. As a result of that, adherence to the common agreements and rules of the euro area and the coordination of economic policies has considerably improved, the banking system and supervision over it has been noticeably strengthened, mechanisms for managing various economic crises have been established. Several researchers have drawn attention to the limited capability of the euro area to jointly smooth out the setbacks in the economies of the member states as one of the weaknesses of the Economic and Monetary Union. There have been no remarkable changes in this regard, although the Banking Union and better coordination of economic policies should improve the situation to a certain extent. Keeping in mind the experience of other federal countries, first of all the greater integration of capital markets through the private sector would enable to share risks and in this way mitigate the potential setbacks in particular countries.

In recent years, it has been proven that the belonging of a country to the monetary union is always a political choice, and the functioning of the Economic and Monetary Union largely depends on the political will and ability of its member states to contribute to its functioning. Although several improvements have been made in the European Union and the euro area to reduce the impact of possible crises, the stability of economy in the euro area is first of all protected by the responsible economic and budget policy of the member states. Main responsibility in preventing the crises, responding to them and managing them still lies with the member states. For Estonia, too, it means that the main responsibility for preventing setbacks and overcoming them is in the hands of the Estonian policy-makers. Responsible budgetary and economic policy would help us to overcome the crises by ourselves in the future, and increasing connection with other countries of Europe, mainly through investments, would help to reduce the impact of the shocks in Estonia on use.

The Development Trends of Future Economy and Future Skills[1]

RAUL EAMETS
Dean, Professor of Macroeconomics, Faculty of Social Sciences, University of Tartu

This article deals with the development trends that await us in the coming 20–25 years. On the basis of these trends, an overview of the skills and knowledge that will probably be necessary on the future labour market is drafted.

When we describe the future, it is necessary to keep in mind two things. First, we can predict the future events on the basis of the information we have today. Second, very many things will happen in the future about which we know nothing today. The most important trends that we have to face in the coming years are: ageing of the population, diversification of the labour market, increasing of inequality, and growth of flexibility of the labour market. People will change jobs and professions considerably more often than today, thus the importance of life-long learning will grow. Transferable skills that enable to cope in different sectors and professions will become essential. Such skills include the gross cultural competences, critical thinking, virtual collaboration, mathematical thinking and empathy.

New technologies and automation will change the production process, and also the services, and the need for IT skills will increase in all fields of life. The share of emerging economies in global economy will grow, new business ecosystems will emerge, and the importance of clusters and networks in business will increase.

At the same time, there will certainly be trends that work against globalisation. Like polarisation of workers, and increase of cybercrime and the stricter data protection it will bring along. The geopolitical developments of today indicate that protectionism will increase in the world, artificial intelligence (AI) will take away jobs also from the whit-collar workers, the development of MOOCs will reduce learning mobility, etc.

In the last section of the article, some visions on the developments of future economy in the long run are presented. With great probability, there will be great changes in the use of resources, such a notion as garbage will disappear, because everything will be recycled. We can see already today how many people, especially the younger generation, prefer to share and rent things instead of owning them. This will give an impetus to sharing economy and other innovative business models. At present, we are yet unable to assess the impact of climate change on tourism and agriculture. We already have climate refugees who look for better living conditions because of lack of clean water or desertification. Today, the divide between humans and artificial intelligence goes along the border of empathy, ability to adapt, culture, outlook on life, and conscience. Robots do not yet form a community or a society. If we speak of real threats, then the greatest threat in the perceivable future is that an evil person will use robots against other people by hacking into the systems, organising terrorist acts, etc.

The article ends with a quotation of the well-known Amara's law: *We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.*

[1] The article was written with the support of the financing of the study of the Foresight Centre "Supply of Labour Force in Estonia: Long-term Perspective" and RITA1 project "Migration dependency and integration challenges for Estonia, employers, communities and educational system".

10 Ideas Regarding the Estonian Economy

JAAK AAVIKSOO
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The development of economy in Estonia during the last two decades has brought us among the developed countries, but future economic progress will not take place by itself. In order to achieve that, we need structural changes in business sector, and political decisions to support those changes. The article highlights ten activities that might speed up the development of Estonia. Five of them concern business, and five are related to government.

First, it is necessary to focus on increasing productivity in the whole society, treating it as an economic policy imperative. Second, it is important to pay special attention to the development of processing industry, which gives the main export revenue and to a great extent ensures the development of the service sector that is connected with it. Third, we have to support the concentration of capital and knowledge, which would contribute to the growth of the competitiveness of our extremely fragmented business landscape, in particular on foreign markets. Fourth, we should look for ways for leaving behind the mainly subcontracting-centred business model and start making final products that are sold under their own brands. Fifth, accelerated salary growth should be seen as an additional stimulator for boosting productivity and export capacity, and not as just an increase of costs.

As regards the national business policy, it is necessary to focus on overcoming specific shortcomings instead of attaching importance to places in various internationally compiled ranking tables. Second, we should not be afraid of specific decisions, if necessary, also for solving the problems of particular (large) companies. Third, considerably more attention should be paid to supporting research and education and increasing of intellectual property, especially in regard to processing industry. Fourth, the government should focus more on developing the education system in a balanced way that takes into account the real needs of the market economy. And finally, in order to speed up economic development, first of all to develop the necessary infrastructure that supports business, we should not be afraid to use loans.

Estonia needs bolder decisions for reaching the next level of development.

Decrease of Investments into Research and Development Threatens Estonia's Competitiveness

KATRIN PIHOR
Head of the Financing and Organisation Task Force for Research and Higher Education

The Financing and Organisation Task Force for Research and Higher Education was formed on the initiative of the Research and Development Council and operated with the support of the Government Office. One of its tasks was providing an assessment of the current situation of the competitiveness of Estonia's research and higher education system and submitting proposals on how to improve the situation. The Task Force was comprised of representatives of ministries, employers, universities and students. It analysed the recommendations of various experts and interest groups, and screened out the most realistic activities that can be implemented immediately. As a result of its work, the Task Force reached the following conclusions:

- Financing of research and higher education must be connected with the needs of the Estonian society and economy more directly than it has so far. In order to achieve this, it has to be ensured that the research and development trends important for the development of the sector have been deliberated and clearly brought out in the strategic planning of all sectors, and taken into account in financing of research and development.

- Additional resources of research and development have to be used for increasing the capability of implementing knowledge and technology in business and the public sector, and for sharing the risks relating to research and development with the business sector. As a result of that, the entrepreneurs and the representatives of public sector will be able to be more aware of themselves, to adapt and implement new knowledge, and the research workers will understand better what the possibilities for the implementation on research results are. The cooperation of businesses and companies in its different forms has to be supported.
- It is necessary to stand for establishing of the values and attitudes characteristic of an enterprising university that support openness and cooperation and favour better connecting of studies and research with the needs of the labour market and the society at all universities in public law.
- The purposefulness, relevance and cost effectiveness of free Estonian language higher education has to be assessed, and it is necessary to search for possibilities for increasing the responsibility of students in higher education so that more considered choices are made when starting the studies and the pressure on the quality of studies would increase.

Stimuli Have to Be Changed to Change Estonia's Development Model

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The article asks what the possibilities and stimuli for moving towards knowledge economy are in Estonia today, and how to create such stimuli. Estonia can choose between market-based and coordinated market economy models, and in the case of the latter, it has to be decided whether the coordinator is the state, the social partners or large corporations. International comparison shows that coordinated systems develop more rapidly, and it seems that as a result of the market-based model, education, research and production systems all develop in their own way in Estonia.

The market-based system supports radical innovation in new sectors as individual actors experiment and respond to external changes, but in the sectors where coordinated input is needed (education, innovation policy measures, etc.), such response is hindered. The so-called traditional industries, which also form a large part of our export, require coordinated approach. Existing stimuli do not favour self-coordination of the research system towards the needs of the society at any level (e.g., researcher, university, state).

The research and development (R&D) stimuli of companies are external and mainly based on the demand of the leading partners in the global value chain, and also the changes in the external environment, labour market situation, etc. There are few internal R&D stimuli, and they are individual-centred and casual. The international mobility of labour (incl. managers) is low, and the number of enterprises dealing with R&D is also small and concentrated. Government support does not involve the condition to increase the R&D capacity. At local level, too, the current financing system of local governments does not create them stimuli to develop the business environment.

The Estonian society has not accepted the inevitability of the increasing shared prosperity model of thought and activity, the discussion of the possibilities of coordinated and liberal models of economy has not been completed. The authors are of the opinion that it is necessary to strengthen the elements of the coordinated model in the Estonian innovation system. This is necessary especially for coordinating the R&D interests of the business sector, and also for better harmonisation of the national measures. In the article, several regulating instruments (sticks), financing instruments (carrots) and instruments relating to information and communications (sermons) are proposed for changing the stimuli. The aim of such measures is to influence the actors of the research, development and innovation system (researchers, companies, universities, public sector agencies, etc.) to move towards greater knowledge intensity (as well as internationalisation).

Forest Industry is a Pillar of the Estonian Economy

HENRIK VÄLJA
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Estonia could become a pioneer of bio-economy if we increase the use of renewable resources to replace the non-renewable ones. Forest is for our country what oil is to some others, and it is up to us to make wise choices in managing this resource.

Today, the forest industry is our strongest and most competitive field of industry, and has laid the foundation on which we have built our country. The added value created by the forestry and wood processing companies has increased tenfold over the past 20 years, now forming nearly 5.3 per cent – over one billion euros – of the Estonian GDP.

Currently, Estonia receives four euros in return for every euro paid to the EU. This will change in August 2021, when the European aid to Estonia will undergo a significant reduction. The termination of the European aid would mean that we would have to find our own solutions to increase our national income. While our attraction centres are catching up with the European living standards, our rural areas are still struggling. In the forest industry, most jobs are located outside the attraction centres; the industry has created around 35,000 jobs in rural areas.

We should think big: Why haven't we built any wooden ministries, shopping centres, or high-rise buildings in Estonia? Why couldn't wooden buildings make up a higher percentage among all the new constructions in Estonia? While the Estonians built the world's highest wooden building in Norway, there are still no wooden high-rise buildings on our home soil. Wood is light and easy to construct in, and cross laminated timber is also more fire-resistant than steel, which will start to melt and bend at considerably lower temperatures. Replacing a ton of cement with wood in construction keeps two tons of CO_2 from being released into the atmosphere.

But is the active use of wood good for the climate? Everything that is produced today from fossil materials can be produced from wood. Modern technologies make it possible to use wood to produce packaging, clothing, buildings, cars, sun panels, cosmetics, and even computer screens. In fact, wood is a true 21st century material – it is ecological, reusable and stores carbon during it growth cycle. We could make Estonia into the first eco-state where we replace the non-renewable natural resources and non-biodegradable materials with renewable ones.

Naturally, we must take care to leave our children and grandchildren healthy, strong, and biologically diverse forests. If we neglect our forests now, we are stealing income from our children and grandchildren. Maintenance and renewal of the forests helps us to better balance the benefits from these, whether in the form of wood for construction, or manufacturing furniture or consumer goods, or as a natural environment that forms the habitat of different species and a possible tourist attraction.

The decisions we make today determine the state of the forests when we hand them over to the future generations. Hoping that they remain beautiful and healthy without care or renewal is tantamount to wanting a field to yield a good crop without sowing or harvesting.

Excise Duty Policy – an Equation with Several Denominators

MARJE JOSING
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Alcohol excise duty has several purposes. The most important of them is restricting consumption through increasing the retail price, but the revenues of the state budget, suppressing of shadow economy and the problems of border trade are also relevant factors. Several factors (among other things, the prices in neighbouring countries and the competitiveness of companies) have to be simultaneously taken into account in establishing optimal excise duty rates, and if a mistake is made with the level of the excise duty rates, it will be accompanied by negative consequences in the society.

In 2014, the Government of Estonia decided that in the coming years, the excise duty rates of alcohol would be raised at an advanced pace (by 15 per cent instead of the agreed upon 5 per cent). The aim was to increase the budget revenue and to reduce the consumption of alcohol. This decision was not preceded by correct impact analysis, and during the next years, the real processes taking place on the alcohol market were not taken into account.

The result is that now the retail prices of alcoholic drinks in Estonia are among the highest in the European Union in comparison to the purchasing power of the population. The retail prices in Estonia are almost two times higher than in Latvia. Large-scale border trade has emerged, much of the alcohol that is consumed is bought from Latvia, shadow economy has increased, budget revenues decrease, and the most important original goal, reduction of consumption, has not been achieved.

This process shows that the national alcohol policy has to be balanced and consist of several simultaneous measures – restrictions on advertising, limiting of availability, changing of attitudes, distributing of information, providing alternative opportunities for spending leisure time, etc. Increasing of retail price is one of the possibilities for restricting availability, but if the price rise is too rapid and drastic, border trade and black market emerge.

It all is a vivid example of how a tax change that is made hastily and without a thorough analysis may bring along results that are contrary to what was expected.

Geo-economic Shifts and Estonia's Changing Playground[1]

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The article compares three possible paradigms for explaining the processes taking place in global economy and macroregions: globalisation-centred, geopolitical and geo-economic paradigms. Their focus topics are dealt with, and the limits of their explanatory capacities for comprehending the processes that are going on are discussed. It is found that although globalisation continues, the normative type of globalisation-centred approach, which requires that the states move to the background is not longer sufficient. Business and technology centred globalisation has setbacks, it can be noticed that the states have started to make stronger attempts to curb globalisation (neo-mercantilism, certain protectionist tendencies, in Ian Bremmer's terminology: gated globalisation).

[1] The article is written in cooperation of the author and the Foresight Centre of the Riigikogu.

The emergence of new centres of economic growth is analysed, the redistribution of economic power in the world as a result of their influence and its potential impact on nation states is emphasised, using the approach characteristic of geo-economics. The article reaches the conclusion that it is likely that three large geo-economic spaces will emerge, one of them will form around the USA, the second in East Asia (China will be the central actor there), and the third will be the European Union. The strongest of them will be the East Asian economic space, which will have the power to include also Japan and Australia. The European Union will have problems to be competitive with the other two.

The relations between different centres of global economy (China-USA, China-EU) are discussed. In this context, an overview of Russia's possible choices in the geopolitical and geo-economic competition is tackled. Estonia's present and future position in the economic relations between the above-mentioned geopolitical spaces is touched upon. Estonia is a member of the EU's highly developed but slowly growing economic space. Hence, it should in spite of large geographic distances by acting smartly connect itself better with the fast growing markets at global level, especially the East Asian economic space.

POLITICS

Would Estonia's Electoral Law Allow for a "Polish Outcome"?

REIN TAAGEPERA
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Various circumstances combined enable a party in Poland to win a majority of parliamentary seats with 38 percent of the votes. It is now using this fluke outcome to ensconce itself permanently, following the Hugo Chavez path in Venezuela. In Estonia, the largest party has rarely reached even 30 percent of the seats, and fond opinions have been voiced that Estonia's electoral law supposedly prevents a one-party majority. This article reviews Estonia's electoral history and the desiderata for adequate electoral rules. It presents the universal laws that connect the number and size of parties to the number of seats available, as documented in Shugart and Taagepera, *Votes from Seats* (2017). Given Estonia's electoral rules (nationwide proportional representation plus a 5 per cent threshold), one would expect its largest party to have around 42 per cent of the seats, with an occasional 51 per cent quite likely. Cultural-historical features have kept the largest party unusually small. This need not be permanent. When people become bored with stability and vote massively for a populist party, no electoral law can prevent this party from gaining a majority. Only when this happens shall we find out whether democratic culture is more resilient in Estonia than it proved to be in Venezuela or Poland. Electoral rules do matter, and their average outcome can be predicted. But political culture and sheer random chance weave a widely varying fabric around this average.

STUDIES

The Investment Patterns and Role of Companies in Global Value Creation

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In developed countries, productivity growth to a considerable extent depends on the export capabilities and investment patterns of companies. There is a need for a concept that would explain a company's development process towards higher value creation through smart investments and international integration, the key drivers of value formation. Several value chain or life cycle based models of company development have previously been discussed in literature, but they are characterised by limited applicability due to their superficiality. The authors of the article present a value chain based concept of company development that reflects the investment needs and scope of value creation in an international context. The concept can be used both from the perspective of industries or entire countries, and from the viewpoint of a single company, describing the process of moving from one stage of development to the next. In addition to relying on acclaimed theoretical and empirical literature on the factors of value creation growth, the authors propose their innovative concept by scrutinising secondary data on productivity, investment and exporting in European countries. The original model of company development consists of six stages. A company can move from one stage to the next via "quality leaps" which are induced by certain activities. Each consecutive step is characterised by a stronger focus on intangible rather than tangible assets, a global rather than a local outlook, and most importantly, higher value creation. In the first stage, that of the "price-competing subcontractor", the competitiveness of the company mainly arises from the low price of its products. In order to move to the next stage of "renowned supplier", the company has to improve product quality, invest in modern technologies, implement automation and carry out process innovation. Renowned supplier has moved on from simple price competition, and is delivering reliability and quality to its clients. The second quality leap consists of investing in design and product development, and undertaking product innovation. After making this leap, the company has entered the "innovator" stage: it provides quality innovative products and competes by originality and uniqueness. The next quality leap entails investing in research and development, and creating and monetising intellectual property, thereby coming up with ground-breaking innovations and becoming a "market inventor". The next stage of development is "global brand". To reach a global brand status, the company has to have achieved excellence in what it does and become the primary provider of the type of products it creates. The final stage of development, obtainable only to a few, is "ecosystem leader". Examples of that include companies like Microsoft, Apple or Google, which have created an ecosystem of products and processes to which other companies conform.

Export and Innovation in Companies: A Comparative Study of Transitional Countries

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Sustainable growth in the European transitional economies is based on the international competitiveness of companies and their position in the global value chain. Research literature presents strong evidence that openness to foreign markets supports economic growth. However, under the conditions of limited labour force and capital, increasing of export volumes alone does not ensure long-term growth, and the capability to increase the added value of export will become the key factor. In modern economy, the creation of added value depends on the level of technological development and innovation, which in turn is influenced by business environment, existence of qualified labour and the availability of stable financing. Several studies have pointed out that in comparison to the companies targeted at domestic market, the exporters are larger, more productive and more innovative. This research focuses on explaining the connections and impact factors between innovation and export in the companies of Russia and the European transit economies. The key question is whether innovation brings along export activities, or whether the knowledge and experience obtained from export are the factors that create the necessary preconditions for innovation. Besides that, the article deals with the factors that increase or hinder the readiness of the companies in transitional countries to export and innovate. The study is based on synthesis of research literature, describes the data graphically and conducts an original econometric analysis by two different evaluation methods. The results of the analysis correspond to the information of earlier research literature, and also provide additional perspectives. First of all, the study points out that for the European transition economies, learning from export is a necessary precondition for innovation, and whereas the readiness for export can be explained by the company-based indicators reflecting financial capability and effectiveness, the emergence of innovation requires additional qualitative, dynamic and business environment based conditions. Establishing of conditions supporting the creation of added value is of key importance for changing the business environment and stimulating the companies in the way that stimulates them to contribute to higher creation of value in the international competition.

Implementation of the Business Ecosystem Concept in the Estonian Context[1]

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Using of the business ecosystem concept has grown drastically during the last five years. This concept describes the interaction between companies mutually and with other key actors of business on the basis of central attraction. Different approaches to business ecosystem focus on the creation of new companies and establishing suitable environment for them. The best-known example of business ecosystems is Silicon Valley (USA).

The purpose of this study was the creation of preconditions for the implementation of the business ecosystem concept in Estonia, and putting together the picture that would describe the Estonian business ecosystem and could be used as a basis for drafting development perspectives relating to productivity. Proceeding from theoretical literature, a hypothesis was presented in the study that Estonia is one business ecosystem, mainly due to Estonia's smallness and the high concentration of economic activity around Tallinn. As the scope of the study was limited, it was not possible to prove that hypothesis, or to overturn it. However, the analysis performed in the study showed that at present, we can speak of sub-ecosystems, or economic communities that have certain characteristics of a business ecosystem. Because of that, the study focused on communities that connect companies and can be defined by economic sectors. They were analysed on the basis of the theoretical starting points of a business ecosystem.

Four economic communities were analysed in the study: community of small boat construction, community of biotechnology, community of food product producers and community of log house producers. The economic communities were analysed on the basis of the cohesion rate of communities and the share of R&D in the development of product/service. Proceeding from the business ecosystem concept, it may be expected that the communities which are based on research and better cohesion as a community have higher productivity. In the case of coherent communities, there is greater probability that the success of some of its members will also contribute to the growth of general entrepreneurship activity. As a result of the study, it can be said that human capital, R&D activities and markets have the greatest impact on productivity. Estonia's smallness, openness and orientation on export makes business ecosystems sensitive also to changes taking place outside Estonia, and the growth of cohesion with actors outside Estonia will probably continue. At the same time the price levels in Estonia, including labour expenses, are rapidly approaching the prices of our trade partners, and if no investments are made to improve competitiveness in the nearest future, there is a great threat that our advantages will disappear.

[1] Peer-reviewed article.

The Structural Change of Employment in Estonia in 1989–2017 and Its Regional Specifications

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Changing and developing economy has influenced the way people use their knowledge and skills and earn their living. In longer perspective, this has meant the shift of labour force first into industry, and after that, into service. How has the labour market of Estonia developed after liberation from the Soviet Union? The article discusses the changes on the Estonian labour market after the restoration of independence, pointing out the regional differences and studying the location of Estonia on the European level to establish the context.

From the point of view of the employed, the period under observation can be divided into four main sections: decrease in the number of employed due to the change of social system (1989–1999); increase in the number of the employed during the economic boom (1999–2008); rapid decrease in the number of the employed during the economic recession (2008–2010); recovery from the economic recession and increase in the number of the employed (2010–2017).

Although the rate of employment in Estonia was lower in 2017 than in 1989, it has grown during the years following the economic recession. The employment rate in Estonia can be considered relatively high: in 2017, it was the third among the countries of the European Union in the age group of 20–64.

The location of the employed and the change of their number differ by counties. The differences between counties in the rate of employment are noticeable, therefore it may be concluded that the development of the Estonian labour market is not balanced.

The differences between counties are apparent in the structure of employment by economic sectors. During nearly three decades, the decrease of the importance of primary sector and the increase of the tertiary sector can be noticed in all counties.

Regarding more specific fields of activity, the main employers in Estonia and in the European Union on the average are the processing industry and wholesale and retail trade, and also repairing of motor vehicles and motorbikes. In the comparison of 1989 and 2017, the number of people employed in trade has increased the most in Estonia; information and communication, and administration and ancillary activities can also be pointed out as fields of activity that have developed. The number of people employed in agriculture, forestry and fishing has decreased the most, and to a large extent, also the number of employed in processing industry.

The analysis of the employment structure in the higher developed regions of the European Union showed that the strongest positive correlation between the level of GDP (*per capita*) and the rate of the employed was in vocational, research and technology sectors, and in administration and ancillary activities. The correlation was relatively strong also in finance and insurance and in information and communications. The strongest negative correlation was in agriculture, forestry and fishing. The authors warn that this should not be interpreted as the need to considerably reduce the role of the primary sector.

Tertiarisation, the inevitable phenomenon of open economies, has also taken place in Estonia, and in spite of different starting positions, the employment structure by economic sectors (and more specifically, by fields of activities) has become similar to that of the Western countries. Tertiarisation has taken place at the expense of the primary sector. Even if the general trends are similar, there are considerable regional differences in the employment structure of Estonia. Although it is complicated to say what the optimal employment structure should be like, it can be said that successful labour market is flexible and able to adapt.

Earlier Development and Current State of Estonia's Competitiveness by Region

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The article discusses the assessment of the competitiveness of regions, and the simplified methods for performing this activity. The featured regions are local government units, and more in-depth example analyses have been conducted on five rural municipalities. The article defines five scenarios of competitiveness: dynamic scenario, chaotic scenario, escape scenario, catastrophe scenario, and success scenario.

The article shows that it is possible to categorise local government units by different scenarios, and that this type of systematisation would help to assess the dynamic and the static states in Estonia's competitiveness. The scenarios can be those described in the article, or slightly different, and they can be five or more; regardless of this, these provide us an excellent framework for assessing what is happening to the competitive position of our regions at the moment.

The presented discussion on competitiveness and the developed scenarios are almost completely based on the estimations of the movement of people into and out of specific regions, and on comparing these to the dynamics of income. Yet, competitiveness is an extremely complex term, and generally a wide variety of factors need to be taken into account when assessing the competitiveness of a region.

At the same time, the competitiveness of a region in the modern world is still mainly linked to the people. Technology is easily accessible, the capital markets are open, and the logistical solutions are working efficiently. Where (to which country) do the factors that offer the greatest added value concentrate in modern economies depends exclusively on the location where the people who develop such solutions concentrate, i.e. where the talent concentrates. This largely determines the competitiveness of the countries, but the competitiveness can be assessed similarly for smaller regions as well.

In light of the above, the article suggests that treating competitiveness in a somewhat simplified way still creates certain content for assessments. In this way, it is possible to assess fairly adequately what is happening in one or another region from the competitive point of view; where does a region take steps forward or backward; and what could be the future outlook of the region.

Assessing the competitiveness of regions holds a great practical significance. If we know the developmental trends of a region, we can also forecast its economic situation in a year or two. The latter in turn provides the basis for developing the necessary economic and political measures.

In order to ensure that the competitiveness of regions can be measured constantly and systematically, this process cannot be too complicated or science-based. This illustrates the convenience of the simplified method for measuring competitiveness discussed in the article.

Ten Years of Centralisation of State Agencies' Support Services – an Example of an Extreme Reform

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In the opinion of the National Audit Office, the centralisation of support services of state agencies has generally been successful, the quality of accounting has improved, and accounting has become more effective.

Therefore it would be beneficial to analyse the implementation of a similar model in local governments, i.e. to concentrate the accounting services to central units. It would allow to save working time on performing routine accounting procedures and to use this time for financial management, which helps to use public funds better and more expediently.

On 28 May 2015, the government decided to transfer the financial, personnel and wage accounting of all ministries and authorities in their area of government of the State Shared Service Centre.

A decision was also made to start concentrating the organisation of public procurements to the State Shared Service Centre, the objective of which is a better quality and economic savings in carrying out public procurements as well as of the items and services to be purchased.

The audit of the National Audit Office shows that the quality of financial, personnel and wage accounting in state agencies has improved as a result of introducing common accounting standards, implementing common business software and concentrating accounting to the support services units of ministries and subsequently to the State Shared Service Centre.

Transition to common information systems was the main lever that enabled making financial, personnel and wage accounting more effective.

The specialisation that took place during centralisation, where consolidation of similar sections of work has enabled to organise the work more effectively and reduce the number of employees, has also increased effectiveness.

What Helps One Become a Digital Citizen?[1]

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Today's world is becoming increasingly computerised. Estonia is well-known as a country where the citizens' communication with the state has been digitalised and many services have been taken online. However, there is a considerable digital age divide – 80% of the 75+ people in Estonia do not use the internet. This is problematic for communication between the state and its citizens, but also for the state's ability to retrieve reliable data from surveys that increasingly rely on the web for data collection.

The article gives an overview of a scientific experiment called CRONOS, the aim of which was to include computer illiterate people in the digital world. Respondents of the European Social Survey were asked to take part in a year-long web panel survey, whereas tablets with paid-for internet connection were made available to off-liners together with instructions on how to use them. Nevertheless, only around 10 per cent of the offline sample accepted the offer. The tablet offer was disproportionally more often taken up by Estonian-speaking and younger off-liners, those who value understanding different opinions and a strong state that is able to care for its citizens. Gender, educational level and health were not related to the willingness of going online.

Giving out tablets helped the panel achieve rather good representativeness among those up to 75 years old, and while it also increased participation in the 76+ group, the numbers were too low for a balanced final sample. Overall, men were somewhat underrepresented in comparison to women. However, the slight underrepresentation was rather uniform among men's age groups, whereas younger and middle-aged women were overrepresented and older women strongly underrepresented.

The authors conclude that at present the using of web surveys as the sole mode of data collection does not allow gathering data representative to the Estonian population yet. This is mainly due to

[1] Peer-reviewed article.

the underrepresentation of older people, which cannot be compensated for by providing tablets. In addition, those accepting tablets are a selective group. In the case of long-term web panel studies (omnibus studies), higher attrition among younger age groups may become problematic as well.

VARIA

Research Career Model as a Support to the Competitiveness of a Country[1]

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The article outlines the principles of contemporary research career models together with descriptions of their chief elements, modifications in the recent past, and known bottlenecks. An optimal research career model is found to be one of the cornerstones of a knowledge-based society. Ideally, it is also a transfer mechanism of researchers' capacity into practices meeting societal needs in the best possible way. The conceptual framework, recommended basic principles, as well as possible proportions of models suitable for Estonia are discussed.

The best-suited career model to be implemented in Estonia has to be clear and transparent and, at the same time, sufficiently flexible and exception-tolerant. It is expected to communicate a motivating message to talented young researchers, enable creaming off excellent researchers in a relatively early stage of their careers, and contribute to promoting equal opportunities. The chief aim of the model is to attract the very best (top) researchers into the Estonian academic landscape and to keep them here.

It is recommended that the core of such a model is formed by a tenure system (temporary positions on the tenure track followed by permanent tenure positions), launched as an extension to the currently existing research and development system. Desirably, the tenure system should encompass a relatively small cohort of top researchers. Career paths in the tenure system should be threshold-based and follow the principle of legitimate expectation. Stable funding is an undisputed prerequisite for the tenure system and must be the responsibility of the entire institution.

While the principles of the tenure system should be established by law, it makes good sense to give universities a wide span of control for determining the details.

In all probability, this kind of a system will make research careers attractive, offering enhanced job security and internationally competitive working conditions to the successful candidates. A

[1] The article is based on the analysis by Soomere, T. *et al.*, which was conducted in cooperation of the Estonian Academy of Sciences, Tallinn University and Tallinn University of Technology, and financed by the European Regional Development Fund within the framework of activity 4 of the programme "Strengthening of Sectoral R&D (RITA)".

broad-based academic community has to be upheld in parallel with the tenure system in order to ensure the flexibility of the research landscape.

The specific features of tenure-type models are analysed with respect to research mobility, fostering of cutting edge science, evolution of research collaboration and hindering factors. Also, the issues of gender inequality in context of career models are described. For the evaluation of researchers' performance, it would be fair to take into account their achievements during the period of time when they were actively involved in research.

Recommendations for implementing separate elements of such a system in Estonia are formulated and possible sources for its funding are indicated. Smooth functioning of the system is guaranteed only if the researchers' exit occurs in a timely and dignified manner. The possible solutions for shaping an extended academic labour market in Estonia are described. Continuing the institutionalisation of the so-called industrial PhD education and launching of topical Academy Research Professor's institution are recommended.

New Economy and Labour Market: Challenges to Labour Force

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The Estonian labour market is not ready for the coming of new economy. Labour market is shaped by legislation, employment mediation institutions, and the parties of work process with their attitudes, expectations and qualifications. In this article, new economy means ensuring high quality of life by spending as little resources as possible, increasing the value of human labour, and spreading of corporate responsibility, sharing economy, flexible working, and smart and individual work. The preconditions for new economy are robotisation, artificial intelligence and smart solutions in the whole economy.

Several categories of workers are excluded or even discriminated against, which is a sign of the unpreparedness of our labour market. Segregation of labour market into valuable and less valuable labour force considerably reduces the state's ability to develop more competitive new economy.

The article discusses the exclusion of older middle-age people on the labour market, where age starts to have a negative impact already on the 45-year-olds. At the same, the average life expectancy in Estonia has increased to 83 years for women and 73 years for men, which means that for a large part of their lives, people may experience age discrimination, regardless of their qualification or earlier success as a qualified specialist.

One of the preconditions for new economy is the development of technology, which has reached the global top level in several sectors in Estonia. However, we have not amended the labour market regulations and institutions so that the whole society would gain from it. There is a widespread false belief that high-technology economy does not suit older people. It is becoming a new threat to older workers.

During the first half of 2018, Estonia has organised at least three conferences on the changes of labour market and economy. Increasingly more materials have been published in the media about the exclusion of older workers, and this topic is dealt with in TV programmes on society and economy. However, it has got no further than raising the issue, as the information received by the NGO Golden League Initiative shows that from a certain age (45–50 years), people are not invited to job interviews any more, and in the case of reorganisation of companies and agencies, people over 50 are the first to lose their jobs. The author of the article has information that age discrimination also occurs in public sector regrettably often. Getting work in private enterprises is also complicated for older people, but a manager who is interested in profit usually does not turn away good workers.

The solution of the problem first of all depends on the political level and adjusting the goals of government agencies to the new needs. The public sector should be an example to the private sector, cooperate with interest protection associations, and investigate the situation more thoroughly in order to train managers and human resources specialists.

New economy needs experienced workers with different life and professional experience, which characterises the older generation. New economy will create possibilities for the emergence of totally new jobs and places of work, where social skills, empathy, calculated and resource efficient behaviour are considered valuable resources.