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FOREWORD

The current issue of the "Kroon & Economy" gives an overview of the methods of productivity measurement and analysis used in OECD countries. These methods differ for the purpose and object of analysis, and it is necessary to know the differences in order to avoid potential misunderstandings regarding the use of respective statistics.

The fresh issue also describes the problems and methods related to the measurement of Estonia's core exports. The changes in Estonia's exports have been historically very rapid and volatile, which has complicated the interpretation and forecasting of export indicators. Therefore, a more detailed concept has been developed to measure the core exports and provide a more accurate analysis of Estonia's exports.

The issue concludes with the labour market review, reflecting the latest developments in the Estonian labour market.

METHODS OF PRODUCTIVITY MEASUREMENT AND ANALYSIS IN OECD COUNTRIES

Natalja Viilmann

Productivity is a key indicator in the measurement of economic performance. Therefore, the statistics offices in the region of the Organisation for Economic Cooperation and Development (OECD) have increasingly become engaged in the measurement of productivity. There are many issues with regard to that, for instance potential approaches to the development of statistics on total productivity and problems regarding productivity measurement in specific economic sectors (e.g. the measurement of capital services). The following is a brief overview of some interesting studies in the area of productivity statistics.

This summary is based on a research called "Productivity measurement and analysis", which was conducted in 2008 as a result of two workshops arranged by the OECD Statistics Directorate and the Directorate for Science, Technology and Industry.

The study gives an overview of growth and innovation in productivity and raises the issue of labour input measurement. Despite the considerable success and efforts made in this area, the measurement of actual working hours still remains problematic. The differences between the principles and key statistical sources used in various countries complicate the conduct of international comparisons. In addition, there is a risk of underestimating the contribution of labour force to economic growth, if the measurement of labour input neglects the structural changes that occur in the labour force over time. The study describes various indicators of labour input, which have been adjusted according to changes in skills, acquisition of education and labour market experience. The results demonstrate the influence of changes in human capital on the contribution of the labour force to economic growth. In addition, the study covers the approaches of capital input measurement and describes the experience of selected countries in the measurement of industry-level multi-factor productivity (MFP).

Productivity growth and innovation: The case of Spain and Switzerland

Changes in the size of capital and labour used for the production process do not fully explain economic developments, because qualitative changes that are difficult to measure quantitatively also play a significant role. Therefore, several analysis models describe the part of economic growth, which cannot be explained by a rise in capital or labour utilisation, with the MFP approach. In that case, the influence of labour and capital growth is subtracted from total growth, which results in growth caused by various other factors. Technological developments and improvement in labour quality are the most important among these factors.

One of the key sources for multi-factor productivity growth is innovation. In their study, Guellec and Pilat[1] have taken the impact of innovation on productivity under observation. They have broken GDP growth (per capita) down to two groups: labour utilisation (number of working hours per capita) and its productivity, i.e. the efficiency of labour (GDP per hour worked). Labour utilisation is affected by three components: average working time, the rate of labour participation and the rate of unemployment. Productivity growth is also associated with several factors: improvement in labour force composition[2], growth in capital stock and its quality, and closely innovation-linked MFP (improvement in skills, advanced technology, organisational and management changes, better logistic schemes, etc.).

Guellec and Pilat give an overview of the international comparison of productivity and innovation in OECD countries, where indicators include the proportion of expenses on development, the number of technological patents, the degree of economic openness, the share of people with a doctor of science degree and the publication of research articles. The authors show how productivity can be influenced by favourable conditions in the increasingly popular technical areas, such as information technology and communications (ICT), and bio- and nanotechnology.

In their study, Mas and Quesada[3] provide a detailed description of the impact of ICT on multi-factor productivity in Spain at the aggregate and industry level. Their analysis indicates that throughout the whole period under analysis (1995–2004) the productivity of industries using ICT more intensively exceeded that of the industries using ICT less actively. Furthermore, productivity growth in the fields of activity with greater use of ICT was stronger and its contribution to total economic growth was higher.

Rais and Sollberger[4] present an experimental methodology applied for the measure-ment of multi-factor productivity at the Federal Statistical Office of Switzerland. The main difficulties to overcome are a lack of data on capital stocks, multiple interpretation opportunities of various methods and the reluctance of entrepreneurs to participate in new statistical studies. Although final solutions are yet to be reached, dealing with methodi-cal problems has also enabled to contemplate the opportunities of taking various capital groups into account.

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[1] Dominique Guellec and Dirk Pilat "Productivity Growth and Innovation in OECD" (OECD).
[2] For instance, in several OECD countries the education level of people aged 25 to 34 who are entering the labour market is higher than that of the people aged 65 to 74 who are leaving the labour market.
[3] Matilde Mas and Javier Quesada "The Role of ICT on the Spanish Productivity Slowdown" (València and Instituto Valenciano de Investigaciones Económicas).
[4] Gregory Rais and Pierre Sollberger "Multi-Factor Productivity Measurement" (Federal Statistical Office of Switzerland).

Based on the data on Switzerland, Arvanitis and Sturm studied[5] how much innovations influence labour productivity in companies. Recently, Switzerland's economic and productivity growth has remained considerably below the OECD average, which makes the analysis of factors that affect productivity particularly topical for this country. The study was based on the results of three surveys (1996, 1999 and 2002), which included 793 industrial enterprises. Labour productivity growth was defined as growth in value added per employee. The factors that were tested as having an impact on productivity included changes in human capital[6] and basic innovation indicators[7]. The authors concluded that several factors of innovation, especially product innovations and entry into new markets, had a significant statistical effect on labour productivity.

The measurement of labour input

Maynard[8] presents a comparative study regarding working hours in the US and Canada, which covers many statistical issues with regard to international comparison. One of them is related to preliminary data sources. Traditionally, labour utilisation in Canada is reflected by two databases: the household survey (where the people in the sample are asked whether they are employed, how much time they spend on work and whether they are paid for work) and the entrepreneurs' survey (where companies provide direct information about the number of employees and the duration of their working days). The results of the two surveys do not coincide neither in terms of total working hours nor changes in working hours.

Sørensen and Heurlén[9] from Statistics Denmark employ data on Denmark to assess the impact of statistical sources used for the calculation of working hours on the indicators of labour productivity and their international comparability.

Eldridge and Pabilonia[10] from the US Bureau of Labour Statistics study whether people actually work longer outside the office due to ICT development, which would result in the underestimation of working hours. Their research shows that the impact of this factor remained modest that during the period monitored.

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[5] Spyros Arvanitis and Jan-Egbert Sturm "Innovation and Labour Productivity Growth in Switzerland" (KOF Swiss Economic Institute).

[6] For instance, the percentage of people with tertiary education in employment.

[7] Yes/no answers to the following questions: did you update production types or the production process this year; did you apply at least one patent; did you start exporting to a new market, etc.

[8] Jean-Pierre Maynard "On the Importance of Using Comparable Labour Input to Make International Comparison of Productivity Levels" (Statistics Canada).

[9] Kamilla Heurlén and Henrik Sejerbo Sørensen "Labour Productivity Based on Integrated Labour Accounts – Does It Make Any Difference?" (Statistics Denmark).

[10] Lucy P. Eldridge and Sabrina Wulff Pabilonia "Are Those Who Bring Work Home Really Working Longer Hours? Implications for BLS Productivity Measures" (U.S. Bureau of Labor Statistics).

The measurement of the composition of labour input

Several countries have started to generate indicators of labour input adjusted by labour quality, and in some cases (e.g. Italy, Spain, the European Central Bank) there are significant differences between the adjusted and unadjusted time profiles of labour input. This has raised the issue of the comparability of such adjustments. Haine and Karutin[11] from the European Central Bank and Eldridge, Manser and Otto[12] from the US Bureau of Labour Statistics point out that unweighted working hours do not reflect labour input adequately, as they do not consider the educational achievements, skills or experience of the employees.

Baldassarini and Di Veroli[13] from the National Statistical Office of Italy provide a detailed description of the method for calculation of actual working hours and present evidence regarding changes in labour quality. Schwerdt (Ifo Institute for Economic Research) and Turunen[14] (European Central Bank) observe that in the 1990s, growth in labour quality was boosted by an increase in the share of people with higher education and people in their prime working age. As a result, labour input accounts for a larger share of productivity growth, reducing the contribution of production factors to total productivity.

The measurement of capital input

The measurement of capital input also raises several important methodological issues, for instance problems related to the comparison of the levels of return on capital and the stock of assets, and various assumptions regarding operating costs and depreciation. Paul Schreyer[15] (OECD) compares the levels of input, productivity and intensity of capital.

The measurement of capital does not include all assets, and this practice is not likely to change in the near term. Nevertheless, the inclusion of assets in the assets as stocks of research and development (R&D) raises a few methodological and practical issues. Edworthy[16] (Office for National Statistics, UK) presents the first empirical estimate for the

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[11] Wim Haine and Andrew Kanutin "Main Sources of Quarterly Labour Productivity Data for the Euro Area" (European Central Bank).

[12] Lucy P. Eldridge, Marilyn E. Manser and Phyllis Flohr Otto "U.S. Quarterly Productivity Measures: Uses and Methods" (U.S. Bureau of Labor Statistics).

[13] Antonella Baldassarini and Nadia Di Veroli "Labour Input Productivity: Comparative Measures and Quality Issues" (National Statistical Office of Italy – Istat).

[14] Guido Schwerdt and Jarkko Turunen "Changes in Human Capital: Implications for Productivity Growth in the Euro Area" (Ifo Institute for Economic Research, European Central Bank).

[15] Paul Schreyer "International Comparisons of Levels of Capital Input and Multi-factor Productivity" (Organisation for Economic Co-operation and Development – OECD).

[16] Emma Edworthy and Gavin Wallis "Research and Development as a Value Creating Asset" (Office for National Statistics; HM Treasury).

R&D assets as stock, which also sheds light on the key practical issues (e.g. the composition of R&D costs, construction of suitable deflators, estimation of depreciation rates). This study boasts the first estimate calculation of the impact of R&D on productivity growth.

Parham[17] (Australia's Productivity Commission) questions whether it is correct to consider R&D as 'just another type of asset' in national accounts and how to treat R&D assets in productivity measurement. This establishes a fascinating association with the study of Mas[18] (University of Valencia and IVIE) on the capital of infrastructure, given that physical infrastructure capital and 'knowledge infrastructure' have much in common. Mas also presents a clear definition of infrastructure assets and shows how to measure their contribution to growth.

The use of assets, which also affect the indicators of capital services, tend to vary substantially across countries, and it is not always clear whether such differences reflect economic reality or differences in the assumptions of statisticians. Iommi and Jona-Lasinio[19] present the methodology adopted by the Statistical Office of Italy (ISTAT), where the measurement of capital services is focused on the assessment of the various assumptions on depreciation rates and the rates on return in the measurement of the user cost of capital, and on age-efficiency profiles in the measurement of productive capital stock.

The measurement of industry-level multi-factor productivity

A growing number of OECD countries are involved in multi-factor productivity measurement. They describe the experimental results on industry-level multi-factor productivity measures, which show that they are feasible but they also entail problems regarding measurement. Recurrent problems include the measurement of output in the services sector, the availability of capital data by asset types and economic sectors, and the choice of the rate of return for capital services by economic sectors. The study of van den Bergen, van Rooijen-Horsten, de Haan and Balk[20] presents the experience of Statistics Netherlands in industry-level MFP measures.

Bartelsmann, Corrado and Lengermann[21](Free University of Amsterdam and US Federal Reserve Board) address the issue whether the information on recent developments in

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[17] Dean Parham "Empirical Analysis of the Effects of R&D on Productivity: Implications for productivity measurement?" (Productivity Commission, Australia).

[18] Matilde Mas "Infrastructures and New Technologies as Sources of Spanish Economic Growth" (Universitat de Valénicia and Instituto Valenciano de Investigacionece Econòmicas).

[19] Massimiliano Iommi and Cecilia Jona-Lasinio "New Technologies and the Growth of Capital Services: A Sensitivity Analysis for the Italian Economy over 1980–2003" (Istat – Directorate of National Accounts).

[20] Dirk van den Bergen, Myriam van Rooijen-Horsten, Mark de Haan and Bert M. Balk "Productivity Measurement at Statistics Netherlands" (Statistics Netherlands).

[21] Carol Corrado, Paul Lengermann, Eric J. Bartelsman and Joseph Beaulieu "Sectoral Productivity in the United States: Recent Developments and the Role of IT" (Federal Reserve Board; Free University of Amsterdam and Tinbergen Institute; Brevan Howard, Inc.).

industry productivity can be used to compute estimates of growth trends in aggregate multi-factor productivity.

Roberts[22] (Australian Bureau of Statistics) discusses issues related to the measurement of MFP at the industry level in Australia, and provides a detailed summary of the measurement problems in that respect.

Creusen, Vroomen and van de Wiel[23] from CPB Netherlands Bureau for Economic Policy Analysis, analyse the productivity of the Dutch retail trade for the period 1993–2002, focusing on competition and innovation as the drivers of productivity growth.

The study of Hagen and Skytesvall[24] (Statistics Sweden) on Sweden's economic growth describes the implementation of capital services and MFP measures based on the KLEMS decomposition of the business sector.[25]

Pyo, Keun, Rhee and Ha[26] (Seoul National University, Korea Productivity Center and Pukyong National University) strive to determine the sources of economic growth by economic sectors in Korea, where the catch-up process with industrial countries has been primarily facilitated by the manufacturing sector and by increasing inputs (capital and labour force) without an improvement in the efficiency of inputs.

Conclusion

Economic analyses employ various productivity indicators, depending on the aim and object of analysis. Policy makers and other statistics users are not always aware of the conceptual and empirical reasons for differences between different analyses, which may cause misunderstandings.

Hopefully, this brief overview offers an insight into the issues of productivity measurement for the more experienced as well as random users of statistics.

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[22] Paul Roberts "Estimates of Industry Level Multifactor Productivity in Australia: Measurement Initiatives and Issues" (Australian Bureau of Statistics).
[23] Harold Creusen, Björn Vroomen and Henry van der Wiel "Shopping with Friends Give More Fun; How Competition, Innovation and Productivity Relate in Dutch Retail Trade" (CPB Netherlands, Bureau for Economic Policy Analysis).
[24] Tomas Skytesvall and Hans-Olof Hagén "Economic Growth in Sweden, New Measurements" (Statistics Sweden).
[25] KLEMS – a method used to analyse productivity, where the impact of factors such as capital (K), labour (L), and intermediate inputs such as energy (E), materials (M) and services (S) on production are monitored separately.
[26] Hak K. Pyo, Keun Hee, Rhee and Bongchan Ha "Estimates of Labor and Total Factor Productivity by 72 Industries in Korea" (Seoul National University, Korea Productivity Center ja Pukyong National University).

DEVELOPMENT OF THE TIME SERIES OF CORE EXPORTS

Keit Musting

Changes in Estonia's exports have always been very rapid and volatile. For instance, from 2003 to 2008 Estonia's exports increased more than twice. The fast developments have also brought along extensive and rapid changes in the structure of exports. As the Estonian economy is relatively small, the dynamics of exports have been greatly influenced by outsourced production and transit related products. Their contribution to total exports is high but their import content is also relatively high, which is why their value added is quite low.

The high volatility of some components of Estonia's exports complicates the interpretation and forecasting of export indicators. Therefore, it has been necessary to develop an indicator describing export developments, which would be "cleaned" from the volatile components and would better characterise the impact of exports on Estonia's economy. Various indicators have been used before for a more detailed analysis of Estonia's export developments, for instance exports without mineral fuels or exports without fuels and electrical machinery. The purpose of the current study is to develop a more detailed concept for the measurement of core exports.

The development of time series of Estonia's core exports has been based on the input-output tables, the supply and use tables and data on external trade. The input-output tables and the supply and use tables have been the basis for calculating the added value of exports. The exclusion of components with high import content from total exports has drawn on the fact that the components of core exports are products with at least 50% of value added. Based on external trade data, this criterion has been applied to all components with four-digit code accuracy (see Appendix *Nomenclature*). The result is a relatively time-stable composition of components, which enables to better interpret at least the data of recent years. At this point, it should be stressed that the core exports indicator does not replace the general exports indicator – their parallel use provides additional opportunities for analysing exports.

Data

The current study aims to calculate the added value of exports through the import content. In order to establish the time series of core exports, the existing data has to be converted to a suitable form to find the import content of the export items. Data required for the conversion can be found in the input-output tables, the supply and use tables and external trade statistics compiled by Statistics Estonia. In order to calculate the import content on the basis of the input-output tables, these tables are required for each year. However, as these indicators have not been calculated for each year, the supply and use tables are used, which are converted to a suitable form.

The existing supply and use tables date from 1997 and 2000–2004. The added value of later years is derived on the basis of regression analysis and expert assessment.

Symmetric input-output tables have been compiled for 1997, 2000 and 2005 by Statistics Estonia. In addition, the supply and use tables for 2001–2005 are available. However, transition from the supply and use tables to symmetric input-output tables by economic sectors and products requires the regrouping of data as follows[1]:
- distribution of secondary products in the supply table between the industries where they are the principal products;
- transition of the columns of the use table from inputs into industries to inputs into homogeneous industries.

This is a procedure that implies the use of supplementary statistics and technical information or, in the case of production technology, application of certain assumptions. A more widespread conversion technology is the so-called product technology, which assumes that all products in a chapter have the same input structure, regardless of the industry where they are produced. Yet in practice, the application of the product technology assumption entails the following problem: the input-output coefficients generated are negative. The solution is a technical algorithm based on certain assumptions[2], which has also been tested with Estonia's data[3]. It has been found that this gives relatively good results compared to the conversion with the help of supplementary information.

In the current paper, the input-output tables of 2001–2004 have been compiled on the basis of this algorithm. In interpreting the results (comparing different years), it should be taken into account that there are small differences between "actual" tables and those used in this paper[4]. In addition, there are significant differences between 1997 and 2000: the table from 1997 has been last updated in 2004 and, therefore, it may not be consistent with the statistics reviewed in the interim years. At the same time, the tables are in current prices, i.e. time changes can also be explained by changes in relative prices.

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[1] For further information see the European System of Integrated Economic Accounts 1995.

[2] Almond, C. (1998). How to Make a Product-to-Product Input-Output Table.

[3] Dedegkajeva, I., Parve, R. (2005). Compilation of a product-by-product input-output table for Estonia.

[4] For instance, it is possible to compare the symmetric input-output tables of 2000 calculated by Statistics Estonia with the algorithm used in the current paper. For different products, the differences range between –9%...+4% on average. The differences are much bigger than average in the case of other transport equipment (–31%), basic metals (21%) and financial intermediation services (15%).

Methodology

The derivation of the time series of core exports involves three steps. The first is to calculate the import content and the value added on the basis of the existing input-output tables and the supply and use tables. The second step includes finding the value added of the missing years with the help of regression analysis and expert assessment. The third step entails the calculation of the time series of core exports by using external trade statistics and the derived value added.

The import content of exports with indirect influence factors shows as follows (by default, it is assumed that the production of both the unit of gross domestic production and the unit of export production require the same amount of imports):

$$X_M = (I-A)^{-1} M_Y,$$

where X_M – vector of the import content of one export unit;
         A – coefficient matrix of the direct input coefficients for domestic production;
         M_Y – vector of the import content of one production unit.

Making a simplified assumption that consumption and investment do not have indirect impact on exports, the value added of exports can be expressed as follows:

$$X_{VA} = 1 - X_M,$$

where X_{VA} – vector of the value added of one export unit.

The most difficult to find is the value added of exports for the years after 2005, as starting from 2005, there is no data on the input and output tables. The value added of the missing years is derived on the basis of regression analysis and also expert assessment.

The value added (*VA*) is calculated as a percentage, which is left of exports (M_E) after the import input used for the production of exports has been deducted. In the case of recent years, regression analysis has been used. The regression uses, based on external trade statistics, the quotient of total imports and exports ($\frac{M}{X}$) as the approximation of the import content of exports.

This can be presented as the following formulas:

$$VA = 1 - M_E$$

$$M_E = \alpha X \cdot \frac{M}{X} + c,$$

Expert assessment has been used for the adjustment of the value added when the results of the regression analysis do not appear realistic, i.e. when the time changes and the general knowledge about the development of the chapter do not coincide. For instance, the value added of basic metals and metal products has been adjusted according to expert assessment. For these chapters, it is more difficult than usual to reconcile industries (input-output tables) with chapters (external trade statistics). Therefore, the majority of metal products of external trade statistics have been placed in the group of metal products in the input-output table.

The value added of exports has been used for finding the time series of core exports. External trade data rows required for the calculation of the time series of core exports have been previously grouped as similarly as possible with the subdivision of the value added (see Appendix *Nomenclature*), using a code of up to four digits. In finding the time series of core exports, the current paper uses the 50% limit for the value added intensity. This means that the time series of core exports includes chapters whose value added exceeds 50%.

Results

The results together with the value added by chapters found in the course of regression analysis and, if necessary, adjusted according to expert assessment, are given in Table 1. Since the value added may change across periods, the basket has been fixed at the average data of 2009. However, these assessments have to be reviewed every year to consider the changes in external trade, and, if necessary, the structure of the basket has to be changed. Although for many chapters, the value added of recent years could be fixed on the basis of the last (i.e. 2005) input-output table, there are also articles in the case of which the use of regression analysis would change the basket of core exports, which is why the value of recent years has been established with both the regression analysis and the expert assessment.

As at 2009, Estonia's core exports include the following chapters: agricultural products; fish and fishing products; coal, peat, etc.; other mining products; food and beverages; timber and timber products; paper products, printed matter and recorded media; other non-metallic mineral products; metal products; furniture, and electricity.

After Estonia's accession to the European Union, the exports of coke and oil products have picked up strongly together with imports. This is not domestic production but the so-called transit-related component, in the case of which the value added per production

unit remains low. Therefore, the value added has been reduced on the basis of expert assessment. Since 2006, this chapter has been excluded from core exports. The classification of basic metals and metal products according to the nomenclature of the input-output table is relatively complicated; thus, the value added of basic metals is marked as zero and the value added of metal products is higher than 50%. This also explains why the exports of scrap metal in recent years have raised also the value added.

In order to establish the time series of core exports, the exports of chapters for which the value added has been created in Estonia and exceeds 50% (shown in bold in the table), are totalised. Annual growth of these indicators is shown in Figure 1.

Table 1. Exports value added (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agricultural products	72	70	66	69	68	70	69	68	68	69
Fish and fishing products	66	57	60	66	60	63	62	61	61	62
Coal, peat, oil shale, natural gas and crude oil	75	76	76	76	76	76	76	76	76	76
Metal ores										
Other mining products	70	72	72	71	72	73	73	71	69	70
Food and beverages	58	56	55	58	56	56	56	56	56	56
Tobacco products										
Textiles	40	43	40	41	38	42	39	39	39	38
Clothing and fur	32	33	33	35	38	38	23	23	23	23
Leather and leather products	28	20	21	23	25	31	25	25	25	25
Timber and timber products	66	65	66	66	61	58	57	55	60	64
Pulp, paper and paper products	54	54	58	58	55	50	60	62	62	61
Printed matter and recorded media	66	65	64	64	64	69	66	66	66	66
Coke, refined oil products	66	73	73	79	77	75	49	49	49	49
Chemicals and chemical products	44	48	44	41	36	37	43	41	40	42
Rubber and plastic products	40	45	46	42	43	38	41	41	40	40
Other non-metallic mineral products	59	54	52	54	54	59	56	55	59	61
Basic metals	0	0	0	0	0	0	0	0	0	0
Fabricated metal products	51	51	51	51	51	52	52	53	54	54
Machinery and equipment	44	51	54	54	52	50	47	46	45	43
Office machinery and computers	22	14	9	17	16	20	20	28	26	24
Electrical machinery and apparatus	25	26	28	26	30	32	29	30	30	30
Radio, television and communication equipment	4	3	3	4	5	6	4	3	2	3
Medical and optical instruments	37	29	34	39	41	36	32	39	48	44
Motor vehicles	53	49	46	42	44	40	42	41	38	34
Other transport equipment	65	24	37	37	36	54	45	46	46	46
Furniture, other manufactured goods	55	54	53	54	50	52	54	55	54	52
Electricity, gas, steam and hot water	65	68	68	71	71	74	70	70	69	70

Figure 1. Growth in core exports

Until the end of 2006, the developments of core exports were quite similar to the developments of oil exports, but in 2007, the growth rate of core exports was higher. However, in light of the events of the second half of 2009, exports as well as core exports have decreased, even though the latter has declined somewhat slower (see Figure 1).

There have been no major changes in the structure of core exports from 2001. Lately, the share of timber has decreased a little, but the shares of electricity, paper products and agricultural products have increased to the same extent (see Figure 2).
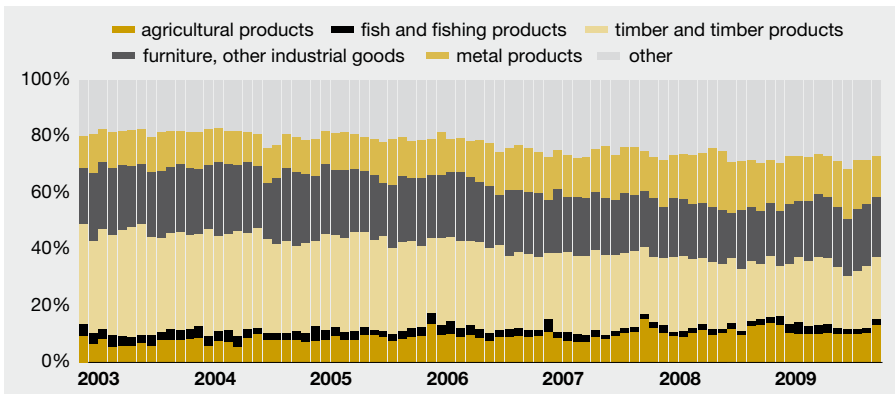

Figure 2. Structure of core exports

Growth in Estonia's core exports has been largely driven by timber products, but last year's changes in the timber industry have affected also core export growth. Agricultural and food products have also played an important role through times, but the export volumes of these chapters have declined as well during the economic crisis (see Figure 3). From 2006 to 2007, also pulp and paper products contributed significantly to Estonia's core export growth, when the pulp factory in Kunda (Eastern Estonia) gradually achieved a considerable production output. At this point, core export growth is driven by food products, printed matter and electricity.
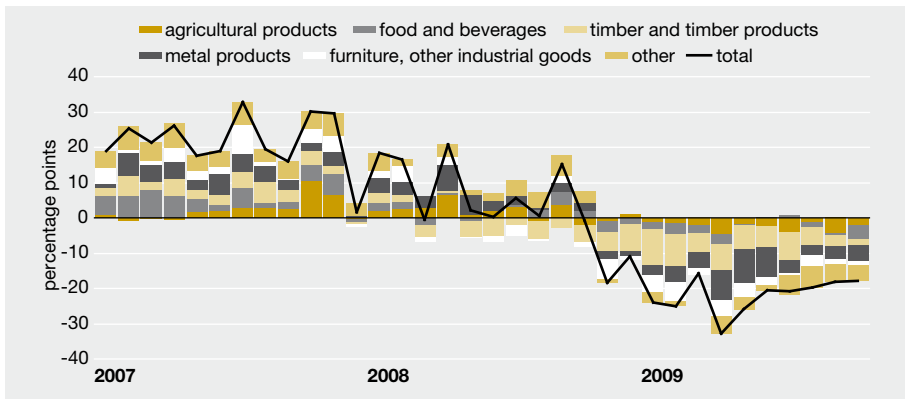
Figure 3. Contribution of products to core export growth

As a result of the development of the time series of core exports, it is somewhat easier to explain the high volatility of Estonia's exports. The exports of transit-related products, which increased abruptly after Estonia's accession to the European Union, also complicated the interpretation of total exports. Yet the core exports indicator reduces such volatility and enables to better explain export developments during both the monthly monitoring and the preparation of economic forecasts.

Appendix. Nomenclature

Nomenclature of input-output tables				Nomenclature of foreign trade statistics			
			Group 21		Group 99	4-digit code	
1	Agricultural products	2	Vegetable products	1	Live animals		
		3	Animal or vegetable fats and oils and their cleavage products	2	Meat and edible meat offal		
				4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included		
				5	Products of animal origin, not elsewhere specified or included		
2	Fish and fishing products			3	Fish and crustaceans, molluscs and other aquatic invertebrates		
3	Coal, peat, oil shale, natural gas and crude oil					2703	Peat (including peat litter), whether or not agglomerated
						2706	Tar distilled from coal, from lignite or from peat, and other mineral tars, whether or not dehydrated or partially distilled, including reconstituted tars
						2707	Oils and other products of the distillation of high temperature coal tar; similar products in which the weight of the aromatic constituents exceeds that of the non-aromatic constituents
4	Metal ores	14	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof	26	Ores, slag and ash		
5	Other mining products			25	Salt; sulphur; earths and stone; plastering materials, lime and cement		
6	Food products and beverages	4	Prepared foodstuffs; beverages, spirits and vinegar				
7	Tobacco products			24	Tobacco and manufactured tobacco substitutes		
8	Textiles			50	Silk		
				51	Wool, fine coarse animal hair; horsehair yarn and woven fabric		
				52	Cotton		

	Nomenclature of input-output tables		Group 21	Nomenclature of foreign trade statistics		
					Group 99	4-digit code
				53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	
				54	Man-made filaments; strip and the like of man-made textile materials	
				55	Man-made staple fibres	
				56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	
				57	Carpets and other textile floor coverings	
				58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	
				59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	
				60	Knitted or crocheted fabrics	
9	Wearing apparel; furs			43	Furskins and artificial fur; products thereof	
				61	Clothing and accessories, knitted or crocheted	
				62	Clothing and accessories, not knitted or crocheted	
				63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	
10	Leather and leather products	12	Footwear, headgear, umbrellas, etc.	41	Raw hides and skins (other than furskins) and leather	
				42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut)	
11	Timber and timber products	9	Timber and timber products			
12	Pulp, paper and paper products			47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	
				48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	

Nomenclature of input-output tables		Nomenclature of foreign trade statistics				
		Group 21		Group 99		4-digit code
13	Printed matter and recorded media			49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	
14	Coke, refined petroleum products					The rest of mineral products, excl. 2716, 2703, 2706, 2707
15	Chemicals and chemical products	6	Products of the chemical or allied industries			
16	Rubber and plastic products	7	Plastics and articles thereof; rubber and articles thereof			
17	Other non-metallic mineral products	13	Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware			
18	Basic metals			72	Iron and steel	
19	Fabricated metal products			73	Articles of iron or steel	
				74	Copper and articles thereof	
				75	Nickel and articles thereof	
				76	Aluminium and articles thereof	
				78	Lead and articles thereof	
				79	Zinc and articles thereof	
				80	Tin and articles thereof	
				81	Other base metals; cermets; articles thereof	
				82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	
				83	Miscellaneous articles of base metal	
20	Machinery and equipment					The rest of nuclear reactors, etc., excl. 8470, 8471, 8472
21	Office machinery and computers					8470

4-digit code description (row 21): Calculating machines and pocket-size data-recording, reproducing and displaying machines with calculating functions; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers

Nomenclature of input-output tables	Group 21	Group 99	4-digit code
			Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included — 8471
			Other office machines (for example, hectograph or stencil duplicating machines, addressing machines, automatic banknote dispensers, coin-sorting machines, coin-counting or -wrapping machines, pencil-sharpening machines, perforating or stapling machines) — 8472
22 Electrical machinery and apparatus			The rest of electrical equipment, excl. 8517, 8518, 8519, 8521, 8522, 8523, 8525, 8526, 8527, 8528, 8529
23 Radio, television and communication equipment			Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network), other than transmission or reception apparatus of heading 8443, 8525, 8527 or 8528 — 8517
			Microphones and stands thereof; loudspeakers, whether or not mounted in their enclosures; headphones and earphones, whether or not combined with a microphone, and sets consisting of a microphone and one or more loudspeakers; audio-frequency electric amplifiers; electric sound amplifier sets — 8518
			Sound recording or sound reproducing apparatus — 8519
			Video recording or reproducing apparatus, whether or not incorporating a video tuner — 8521
			Parts and accessories suitable for use solely or principally with the apparatus of headings 8519 to 8521 — 8522
			Discs, tapes, solid-state non-volatile storage devices, 'smart cards' and other media for the recording of sound or of other phenomena, whether or not recorded, including matrices and masters for the production of discs, but excluding products of Chapter 37 — 8523
			Transmission apparatus for radio-broadcasting or television, whether or not incorporating reception apparatus or sound recording or reproducing apparatus; television cameras, digital cameras and video camera recorders — 8525
			Radar apparatus, radio navigational aid apparatus and radio remote control apparatus — 8526

Nomenclature of foreign trade statistics

		Nomenclature of foreign trade statistics		
Nomenclature of input-output tables		**Group 21**	**Group 99**	**4-digit code**
				8527 — Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock
				8528 — Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus
				8529 — Parts suitable for use solely or principally with the apparatus of headings 8525 to 8528
24 Medical and optical instruments	18 Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus			
25 Motor vehicles		87 Vehicles other than railway or tramway rolling stock, and parts and accessories thereof		
26 Other transport equipment		86 Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electromechanical) traffic signalling equipment of all kinds		
		88 Aircraft, spacecraft, and parts thereof		
		89 Ships, boats and floating structures		
27 Furniture, other manufactured goods		94 Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings		
		95 Toys, games and sports requisites; parts and accessories thereof		
		96 Miscellaneous manufactured articles		
28 Electricity, gas, steam and hot water				2716 — Electricity (optional heading)

LABOUR MARKET REVIEW

Compiled by Natalja Viilmann

MAIN DEVELOPMENTS IN THE SECOND HALF OF 2009

The current review concentrates on the developments of the labour market in the second half of 2009 when the slowdown in Estonia's recession reduced the pessimism in the expectations of economic agents but still did not bring along significant changes in labour market developments. Yet the Estonian labour market was much more flexible compared to other countries: when the depth of the recession became apparent, cuts in labour costs were rather quick and extensive.

In the first half of 2009, the changes in labour market indicators were very drastic, whereas the second half of the year witnessed a gradual slowdown in the growth of unemployment and a stabilisation in the number of employees. Although further cuts in wage costs continued mainly on account of employment, the influence of the reduction of working hours and wages became more apparent among the measures used. While productivity per employee continued to decrease, based on the number of working hours, a positive change in productivity was observed already in the second quarter, which was the first proof that the Estonian labour market was sufficiently flexible in the conditions of economic decline. In the second half of the year, further decline in wages also led to a fall in unit labour costs. Despite significantly decreased demand, labour supply remained high, which still indicates the possibility of a reduction of labour costs (see Figure 1).

The economic decline and the reduction of the number of jobs did not affect all fields of activity equally but concentrated noticeably in the construction and real estate sector, which boomed in previous years, and in several manufacturing industries. Consequently, a relatively large share of the robust unemployment growth is becoming structural. In such circumstances, using active labour market policy measures primarily for retraining and for eliminating
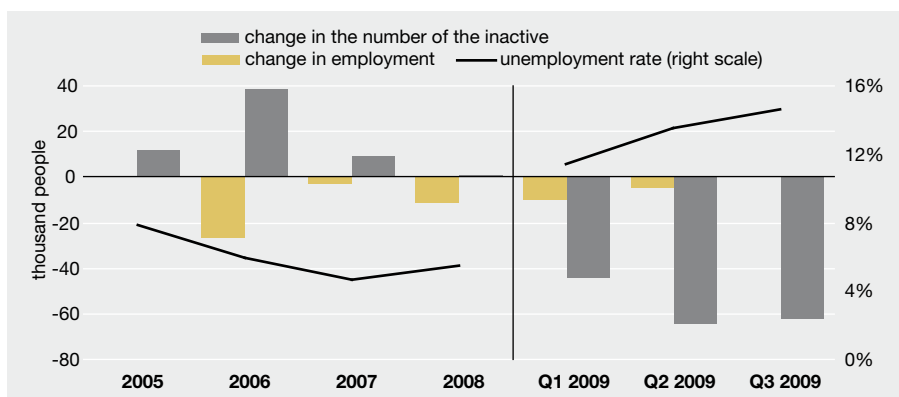

Figure 1. Main labour market indicators

structural gaps is much more effective than maintaining the current employment structure. The European Commission has announced ambitious goals: the economic recession should be viewed as a possibility for the creation of jobs, which are more productive, more innovative and require higher qualification. When global economy recovers, these factors will create a possibility for EU Member States to improve the outlook for achieving the pre-crisis potential growth.

LABOUR SUPPLY AND DEMAND

Labour force participation and economic inactivity

Sharper corrections in the number of employees were seen in the first half of 2009: in the first quarter, the number of the employed decreased by 40,000 and in the second quarter by 20,000 more. In the second half of the year, this indicator already stabilised: in the third quarter, the number of employees even increased by 5,500 compared to the previous quarter (mainly because of seasonal factors). Compared to earlier periods, employment dropped most in the second quarter (9.7% or by 64,000). In the third quarter, the decline was somewhat slower (9.4% or by 62,400). However, the decrease in employment did not reduce the activity rate, which was standing close to the historical high. By the end of the third quarter, the number of the employed decreased to the level prior to the boom (2004–2005) but the number of the unemployed was so far the highest (see Figure 2).

Labour supply remaining at high level affects other economic indicators in several ways. First of all, it puts downward pressure on the price of labour force; secondly, unemployment benefits and retraining/in-service training expenses affect the budget; thirdly, high activity of labour force supports the outlook of potential long-term economic growth. In the third quarter of 2009, the number of the unemployed increased by 10,100 to 102,300 compared

Figure 2. Number of the employed, the unemployed and the labour participation rate

to the previous quarter. Active labour market policy measures play an important role in preserving the will to work of those unemployed. When the demand recovers, the existence of resource with will to work will provide a good chance for rapid growth. Increasing the quality or educational level of labour force in the forced period of underutilisation would already support long-term economic growth.

According to the labour force survey, labour supply of people aged 15 to 74 decreased by 4,000 in the third quarter of 2009 year-on-year. The decrease in the total number of people aged 15 to 74 was exactly the same. Yet the number of the inactive[1] did not change year-on-year (compared to the previous quarter, it decreased by 15,600).

Although the total number of the inactive in the third quarter remained the same (y-o-y), the structure of this group still underwent changes. Inactivity kept declining due to the decrease in the number of students (in the third quarter by 7,900 year-on-year). At the same time, the number of those inactive because of pregnancy, maternity or parental leave increased by 8,800. The decrease in the number of people in retirement age by 6,900 and those inactive due to illness by 3,400 was balanced by an increase in the number of the discouraged by 5,500 (see Figure 3).

The number of those who did not wish to participate in the labour market due to their studies decreased to 96,500 in the third quarter of 2009. Such a low level was last noted eight years ago. While in previous periods, the main reason for the decrease in the number of those inactive because of their studies was employment, in the third quarter, the influence of demographic changes dominated. According to population statistics, on 1 January 2009, there were 89,623 people in Estonia aged 15 to 19, which was 7,670 people less than a year ago. This change, primarily in the number of younger schoolchildren in this age group, explains a bigger decrease in the number of those inactive because of their studies. The generation following the large generation who has already entered the labour market (the so-called Singing Revolution generation, i.e. those born at the end of 1980s) is already much smaller. The increase in the number of those inactive because of attending to children was also influenced by demographic peculiarities, but to a lesser degree: total number of people aged 20 to 34 increased by 3,149 in a year (incl. the number of women by 1,587).

The number of the discouraged, i.e. those who have lost hope of finding a job, continued to increase in the third quarter and their total number increased to 10,800. Increased discouragement is considered for labour market to be one of the most serious consequences of economic crisis since bringing back these people among those economically active is much more complicated even with the recovered demand.

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[1] A person is inactive when he/she does not work and is not looking for work either (students, the retired, homemakers and the discouraged).
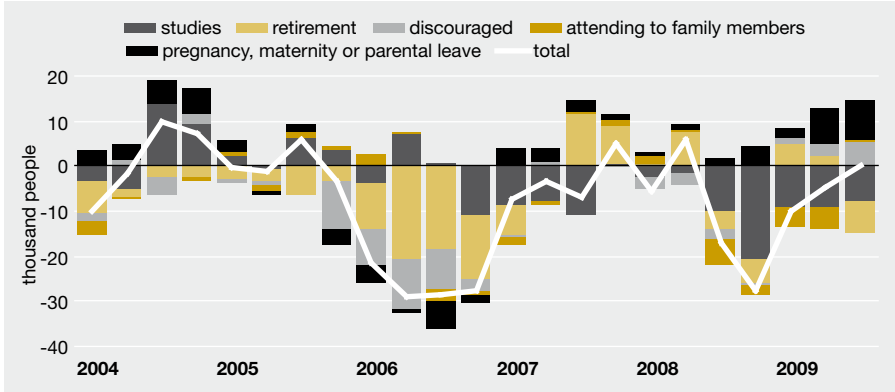
Figure 3. Change in the number of inactive and reasons for inactivity

Since the size of working age population (aged 15 to 74) decreased by 4,000 and the number of the inactive remained the same, the labour participation rate[2] of the working age population decreased a little as well – in the third quarter of 2009 to 67.4%, remaining by 0.2% percentage points lower year-on-year. The labour participation rate in 2008 and 2009 was still extraordinarily high compared to previous years.

In the third quarter, age composition of the labour force grew a bit "older": the number of the young (aged 15 to 24) and the middle-aged (aged 25 to 49) decreased in a year by 4,100 and 8,400, respectively, and the number of the elderly (aged 50 to 74) increased by 8,500.

Employment

In 2009, the rapid decline in economy and labour demand resulted in a sharp decrease in the number of the employed. In the first quarter, employment decreased by 40,500 people compared to the previous quarter; in the second quarter, the number of the employed decreased by 19,500 more people. The third quarter witnessed some stabilisation in year-on-year terms and the total number of the employed even increased by 5,500 compared to the previous quarter. Employment decline decreased relatively little year-on-year – from 64,000 in the second quarter to 62,400 in the third quarter, i.e. from 9.7% to 9.4%). There were 598,100 of people employed in the third quarter. In the third quarter, as many jobs had disappeared in Estonia as created during the previous four boom years, and the total number of the employed dropped again to the level of 2004–2005.

Painful corrections did not affect all fields of activity evenly, which is why changes in general labour market indicators seem to reflect important structural changes. Based on employment

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[2] The labour participation rate equals the weight of employees and the unemployed in the working age population.

status, the economic decline primarily affected non-salaried employees (entrepreneurs and the self-employed) and in the first quarter, their number decreased relatively more compared to salaried employees (11.6% compared to 6.3%). Yet in the third quarter, the number of entrepreneurs increased again to the level of the previous year while the number of salaried employees remained at the level of the second quarter, which was by 62,000 less than a year ago. As a result, the share of non-salaried employees in total employment increased to 8.6%, i.e. by 0.9 percentage points. In the conditions of crisis, the employment of entrepreneurs was more flexible, quickly responding to the deepening of the decline with the loss of jobs and to the deceleration of the decline with the creation of new jobs.

Concerning the number of salaried employees, there are several alternative estimates, which have been compiled somewhat differently. The largest of these is the number of salaried employees based on the labour force survey (546,700 in the third quarter), which may include also part-time employees, working abroad and those salaried employees who did not get paid during that period but who still see themselves as salaried employees. A smaller number is based on the data of the Tax and Customs Board (484,568 in the third quarter), which includes only those employees who have actually been paid during that period and the payment has been declared in the Tax and Customs Board. This does not matter whether the salaried employee has worked full-time or part-time. The third indicator is the average number of full-time employees according to average wage statistics (see Figure 4).

Figure 4. Salaried employees

It is remarkable that the difference between the largest and the smallest indicator increased remarkably in the third quarter. While in 2008 the number of salaried employees declared in the Estonian Tax and Customs Board and the number of salaried employees based on the labour force survey differed by 40,000 on average and in the first half of 2009 by approximately 38,000, in the third quarter, this difference increased to 62,132, i.e. 1.6 times, which may indicate disruptions in payments, increase in shadow wage rate or the fact that people more frequently worked abroad.

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As for fields of activity, changes in the structure of the employed were even more extensive. The earlier economic boom did not affect the employment in different fields of activity evenly, which is why a certain part of current corrections can be classified under the recovery of the pre-boom structure. In comparison to the average employment figures of 2005, it must be admitted that employment increased during the boom years and decreased during the period of decline the most in the construction sector (see Figure 5). In 2007–2008, approximately 40,000 people more than in 2005 were employed in construction. Compared to this, the loss of approximately 30,000 jobs in the construction sector in 2009 was even less extensive. Employment changed relatively much also in manufacturing and trade, but these changes rather reflected, characteristic of the current economic downturn, a decreased demand for various manufactured goods, especially in domestic trade. In manufacturing, the number of employees decreased by more than 20,000 compared to 2005; in trade, however, the creation of jobs characteristic of recent years slowed down and the number of employees dropped again to the level of 2005.
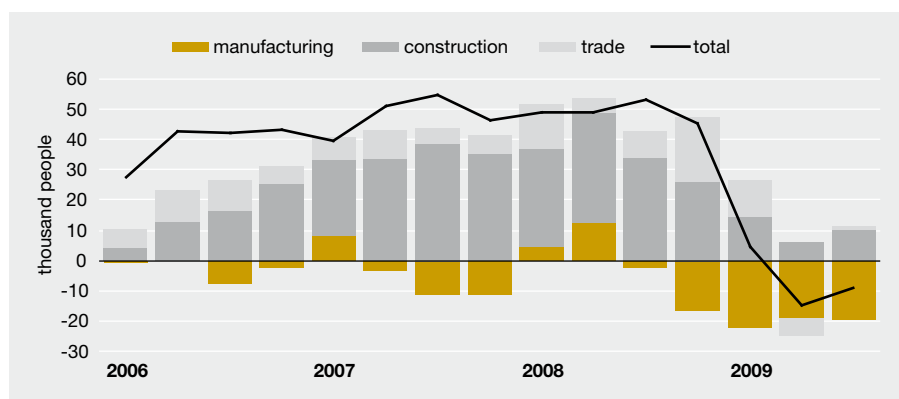

Figure 5. Change in the number of the employed compared to 2005's average

As a result of the uneven development, relatively big changes have occurred in the structure of the employed over years, which should be taken into account in the analysis of both average productivity and average wages. While in 2005, employment in construction constituted 8.0% of total employment, in 2008, this figure increased to 12.3% and decreased to 9.9% in 2009 (data of three quarters). Considering the fact that in 2008, productivity per employee in construction reached only 47.7% of the average level but wages were 8.7% higher, merely the change in the share of people employed in construction in 2008 affected the average decline in productivity of the total economy by 2.7 percentage points and the average wage increase by 0.4 percentage points.

Manufacturing has the highest employment, and a decrease in employment in that field of activity was directly related to the output decline. According to the labour force survey,

employment developments in manufacturing followed the output decline with a relatively small lag. More extensive loss of jobs took place in the first half of 2009. The corrections decreased considerably in the second half of the year. While in the second quarter, the number of those employed in manufacturing declined by more than a fifth (21%), i.e. by 31,500 people year-on-year, the decline rate in the third quarter was 13%, which means that there were 17,300 less employees than in the same period last year. Compared to the previous quarter, the number of those employed in manufacturing practically did not decline in the third quarter (only by 200 people). The financial statistics of enterprises suggests that branches of manufacturing where the employment declined the most in a year were the production of timber products, metal products, apparel and equipment, which was also in line with the decreasing demand. In several branches, the number of employees has increased a little (producing electrical equipment, processing meat, printing), but these changes are not yet very extensive.

Higher competition on the local labour market increases the interest of Estonians towards working abroad. Considering the global extent of the economic crisis, finding a job has become difficult also abroad. The labour force survey considers Estonian residents employed regardless of whether the place of employment is in Estonia or abroad. Eurostat's data differentiates between the concepts of domestic and total employment[3]. Their difference indicates the net migration, i.e. the number of Estonian residents working abroad less the number of the residents of other countries working in Estonia (see Figure 6).
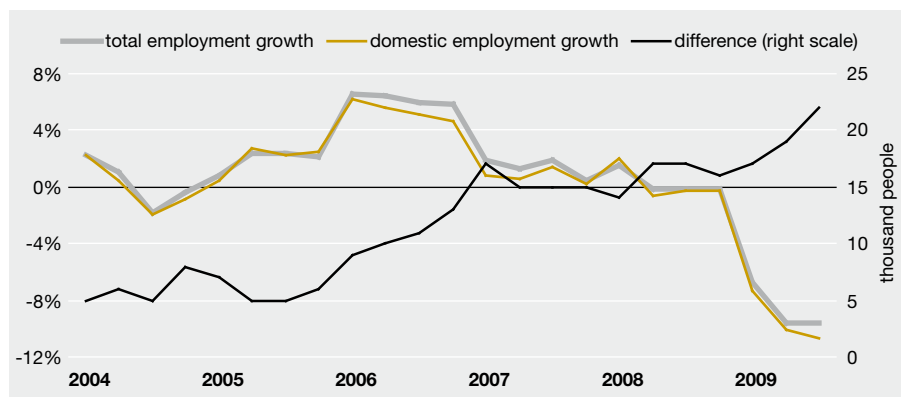

Figure 6. Total and domestic employment

In the third quarter of 2009, the number of Estonian residents working abroad increased faster than before. The inflow of the residents of other countries into Estonia and the return of Estonian residents earlier employed abroad has not been able to offset that. Net migra-

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[3] Total employment includes domestic employment and also Estonian residents working abroad; it does not include non-resident foreigners working in Estonia.

tion climbed further and the difference between domestic and total employment increased 29.4% (y-o-y) to 22,000.

While total employment decreased in the third quarter 9.4% year-on-year, the decline in domestic employment was 10.7%. Hence the rates of productivity decline per employee differ as well: in the case of total employment 6.6% and domestic employment 5.5% (y-o-y).

Along with the aggravation of the economic decline, the share of full-time employees decreased rapidly in the first and the second quarter of 2009: in the first quarter, the number of full-time employees decreased by 56,600 and in the second quarter, by 92,500 year-on-year. At the same time, the number of part-time employees increased (by 12,200 and 28,500 respectively). Since in many cases, this was not a voluntary reduction of working time, the number of the so-called underemployed rapidly increased. In the first quarter, the number of the underemployed was 11,500 and in the second quarter 14,700, which is four times more than in the second quarter of 2008. Changes in the third quarter were not as big. Compared to the previous quarter, the number of full-time employees increased by 12,900 and the number of part-time employees decreased by 7,500 (incl. the decline in the number of the underemployed by 1,400). In annual terms, old tendencies still prevailed: while in the third quarter, the total number of the employed decreased 9.4% (y-o-y), the number of full-time employees decreased more substantially, i.e. 13.0% (by 79,700) and the number of part-time employees increased 37.3% (by 17,100). Underemployment increased 2.2 times to 13,300 in a year.

In the conditions of economic decline, lower utilisation of labour force and reduction of working hours (incl. non-voluntary) per employee enabled to reduce wage costs, keeping labour force employed at the same time. The more specific skills and training the job requires, the more expedient it is to keep employees in the conditions of cyclical economic decline.

Late labour market recovery (hysteresis)

Hysteresis is one of the system qualities, which manifests itself in conditions where the transition from one mode to the other is not necessarily smooth but can occur as a sudden mode drift. So hysteresis can be viewed as a situation in which returning to the initial state does not happen at the same external effects (or when their influence ceases) along the same phase path with initial transition, but the recovery of the initial situation requires stronger external effect with an opposite sign. If the frustration is strong, initial system state may not recover at all and the mode drift will turn out to be irreversible.

When analysing labour market developments, the theory of hysteresis has been used after economic decline for explaining persistent unemployment. The first to bring

the concept of hysteresis into labour market analysis were Blanchard and Summers in late 1980s[4], describing that relationship between the rate of unemployment and the rate of inflation known as the Phillips curve can be asymmetrical. In the case of disinflation, unemployment increases and the relation works, but when the inflation accelerates, unemployment does not necessarily decrease. For instance, the insider-outsider theory[5] specifies this process as follows: in the case of negative demand shock, enterprises reduce employment. The number of the insiders of the next period is smaller and when the shock retreats, pressure on wages coming from insiders becomes stronger. The strength of insiders' influence is explained by hiring outsiders, high training costs and losses from the strike of the insiders. Wages rise but employment does not return to the level prior to the shock.

Hysteresis is encouraged also by diminishing skills of unemployed people during the period of idleness, the unemployed giving up participating in labour force, extensive unemployment allowances that reduce people's wish to find a job, strong power of trade unions, etc. If labour market can be characterised by hysteresis, wages are affected much more by the pressure coming from employees, not the number of the unemployed. Moreover, the influence of the long-term unemployed on wages is considerably smaller than that of the short-term unemployed.

During the last twenty years, the concept of hysteresis is often used also for describing unemployment in Europe. Empirical studies for 1954–1989 confirm that after the negative demand shock retreated, persistent unemployment (hysteresis) manifested itself much more in Europe than in the United States, i.e. in the case of a rigid labour market more than in the case of a more flexible one. If labour market hysteresis is extensive, unemployment can remain high for a long time when the negative demand shock retreats and employment will not recover per se for several years after the output volume has reached its potential level. Therefore, the role of active labour market policies is considered very important in the European Union. Helping the long-term unemployed and the discouraged to find a job will be especially difficult.

In the Estonian labour market, the existence of hysteresis cannot yet be statistically estimated. At the time of the first known strong negative demand shock (1998–1999), wage growth slowed down and the rate of unemployment increased; when the shock retreated, wage growth started to accelerate already at the end of 1999, but the

[4] See Blanchard, O., Summers, L. (1986). Hysteresis in unemployment. NBER Working Paper, 2035; Summers, L. (1986). Hysteresis and the European Unemployment Problem. NBER Macroeconomic Annual, p. 15–78; Summers, L. (1987). Hysteresis in Unemployment. European Economic Review, 31, p. 288–295.
[5] Lindbeck, A., Snower, D. (1987). The Insider-Outsider Theory of employment and Unemployment, Massachusetts Institute of Technology Press.

unemployment rate did not respond with a decline, continuing to increase instead (see Figure 7). The unemployment rate characteristic of 1998 recovered only three years later, which implies that the development of unemployment showed features distinctive to hysteresis. One episode is still not enough to conclude that hysteresis in the Estonian labour market can play an important role in future as well. Recovery from the current economic decline will definitely provide necessary information in this regard. So far it has to be admitted that lower demand in one period may affect employment and unemployment in the long run. It cannot be automatically assumed that the initial employment structure and level will recover when the negative shock retreats.
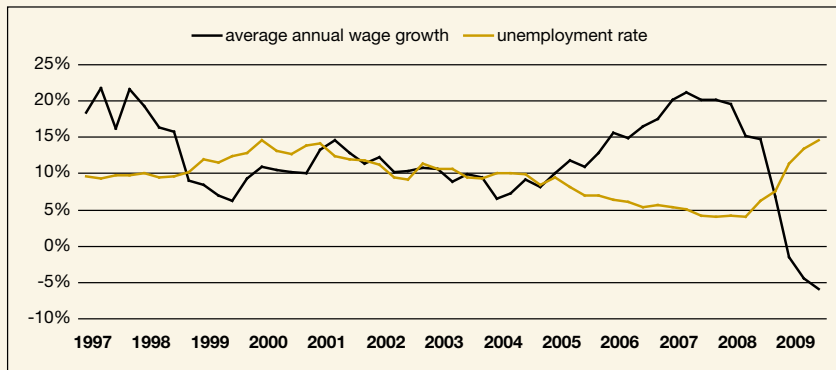

Figure 7. Average wage growth and the unemployment rate

Labour productivity

Both employment and wage developments always react with a lag to the dynamics of the economy. So in periods when economic growth slowed down, turned downwards or when the decline became faster, labour productivity indicators continuously decreased. In the first quarter of 2009, productivity growth was still negative since the decrease in the number of employees did not precede the economic downturn but was its result. In the second quarter, however, when the economic decline started to subside on a quarterly basis, labour productivity indicators began to show first positive signs. Productivity decline per domestic employee continued, slowing down from 8.5% in the first quarter to 6.5% in the second quarter year-on-year. Per working hour, productivity increased 0.8% in the second quarter. Since many enterprises reduced the number of working hours, used part-time work and sent employees to the partly paid vacation instead of lay-off, productivity per hour declined less and the reaction to the economic downturn was faster and more adequate.

According to Eurostat, productivity per hour reached a positive level in the second quarter in only four EU Member States: besides Estonia also Slovakia, Cyprus and Ireland

(see Figure 8). In most EU Member States, productivity decline per working hour was still smaller than productivity decline per employee, which means that labour costs were reduced (in different countries with different intensity) by means of reducing the number of working hours per employee on average.
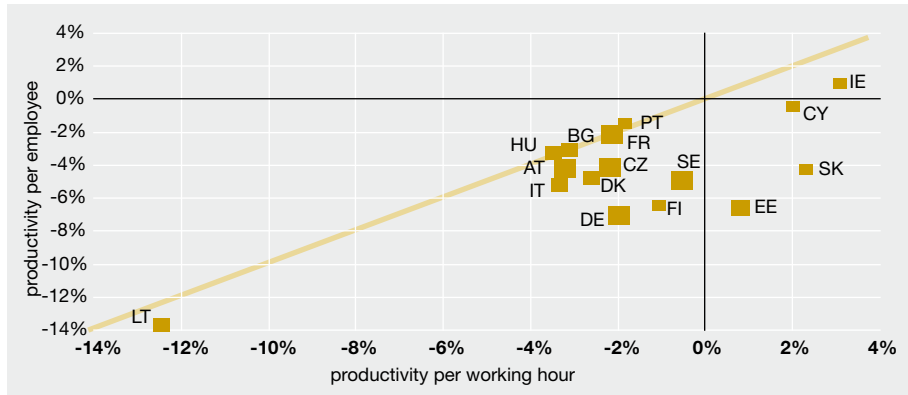

Figure 8. Labour productivity growth in the EU in Q2 2009 (y-o-y)

The comparison of Eurostat's data with Estonia's data on labour productivity per employee and per working hour also provides information about how the working hours of one employee have changed on average. Estonia's enterprises started to reduce the number of working hours faster than the number of employees. When during the first deeper decline of exports in November 2008 it was not yet clear how long the recession would last and how extensive it would be, enterprises did not instantly start reducing the number of employees. Nevertheless, the number of working hours per employee decreased already in the fourth quarter (3.5%). In the first quarter of 2009, when the magnitude of global economic problems became more evident but the forecast for a fast solution was deeply pessimistic, enterprises of Estonia reduced the number of employees 7.3% (domestically) compared to a year ago and the number of working hours per employee 6.1%, decreasing the utilisation of labour force 12.9% in total. Since the extent of the economic decline (15.0%) exceeded the cuts, the productivity indicator continued to decline also per working hour (2.5% y-o-y). In the second quarter, the corrections continued in the case of both the number of employees and working hours per employee, and the productivity indicator per working hour even turned positive, i.e. reached 0.8% year-on-year (see Figure 9).

In the third quarter of 2009, when the economic decline started to slow down (from 16.1% in the second quarter to 15.6% y-o-y), productivity indicators improved even more. Domestic employment was 10.7% smaller than a year ago and the number of working hours per employee decreased 9.4% (y-o-y). While the productivity decline calculated per domestic employee decreased to 5.5% in the third quarter, productivity per working hour increased 4.3% year-on-year. Therefore, in Estonia, necessary corrections in the utilisation of labour

force in the conditions of economic decline were relatively quick and extensive. Enterprises have found different ways for optimising costs in a changed economic environment. It is also taken into account that should the situation improve, they would be immediately ready to respond to the demand, which is why they avoid the lay-off of employees with suitable qualification at the expense of higher-than-average labour force underutilisation.
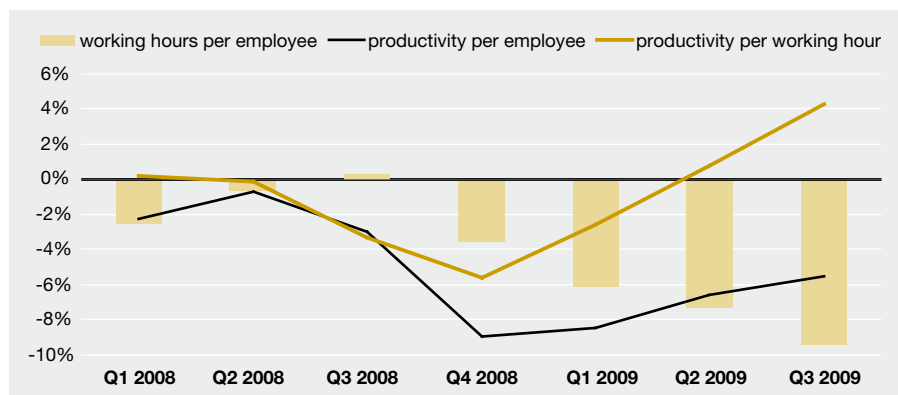

Figure 9. Productivity growth in Estonia (y-o-y)

Vacancies

Labour demand, declining as a result of the economic downturn, is clearly visible in the slowdown of the creation of new jobs and a decrease in the number of vacancies.

According to the Labour Market Board's statistics on vacancies, labour demand, considerably declined in the first half of 2009, has recently shown signs of stabilisation. The number of valid vacancy announcements submitted to the Labour Market Board started to decline at an increasing pace already in 2008, and in December, for instance, the number of vacancies decreased 62% year-on-year. In 2009, the rapid decrease in the number of vacancies registered in the Labour Market Board continued, but the decline rate did not accelerate so much any more. In October and November 2009, the number of offered vacancies was approximately 65% smaller compared to the same period last year and 6.2 times smaller than in the same months of 2007 (see Figure 10).

The number of vacancies registered in the Labour Market Board, reflecting the creation of jobs, showed clearer signs of stabilisation already in the second and the third quarter: while in the first quarter, the decrease was 42% (y-o-y), in the second quarter, it was already 10% and from June to November 6%. In October and November, the average number of job announcements added in a month exceeded the figure of December 2008 (which is so far the smallest known) to the extent of 68%. Although the creation of new jobs still remains at a low level, there is no reason to expect this indicator to decline further.
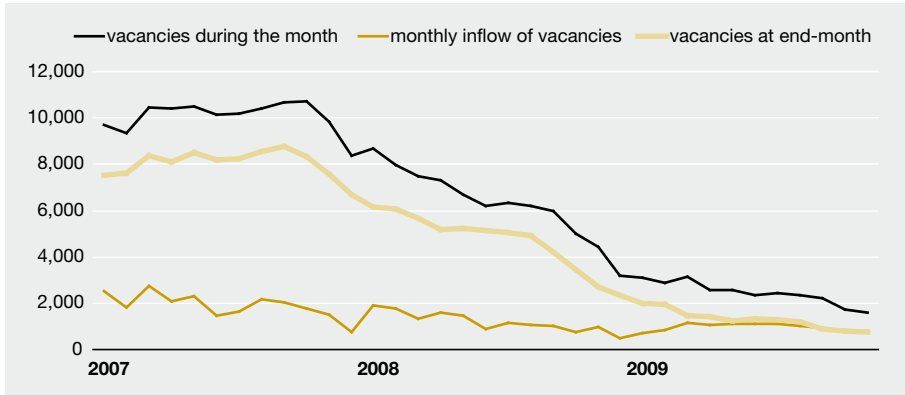
Figure 10. Job announcements in the Labour Market Board

The data of Statistics Estonia on vacancies shows all the vacancies declared on the 15th day of a quarter's second month, including vacancies resulting from freeing existing positions and new but unfilled positions awaiting a suitable candidate from outside the company or institution. Vacancies also include part-time jobs, whereas the number of jobs is not adjusted to the work load.

According to Statistics Estonia, the number of vacancies sharply decreased in the first quarter of 2009: 67% compared to the previous year and 45% compared to the previous quarter. In the second quarter, the decrease slowed down on a quarterly basis (to 29%) but reached the lowest level year-on-year (–75%). In the third quarter, the yearly decrease of vacancies slowed down to 70%, but compared to the previous quarter, this figure increased by more than a fifth (see Figure 11). Even though the decline in the number of jobs occupied continued in the third quarter to the same extent as in second quarter, the development of vacancies showed first signs of the recovery of labour demand.
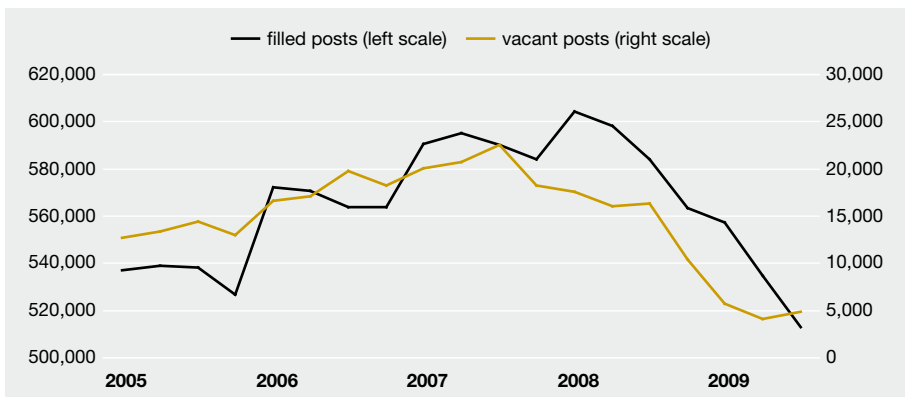

Figure 11. Filled and vacant posts according to Statistics Estonia

According to the Labour Market Board, the third quarter of 2009 still faced an increase in the number of the unemployed and a decrease in the number of vacancies. At the same time, the occupation of the registered unemployed and the termination of the registration as unemployed for other reasons increased. In the third quarter, 1.4 times more people were employed than in the second quarter and 2.1 times more than in the first (see Figure 12). Approximately 2% of those known to be employed became business operators, approximately 2/3 of whom did it with the help of enterprise support received from the Unemployment Insurance Fund (nearly 400 people in 11 months).
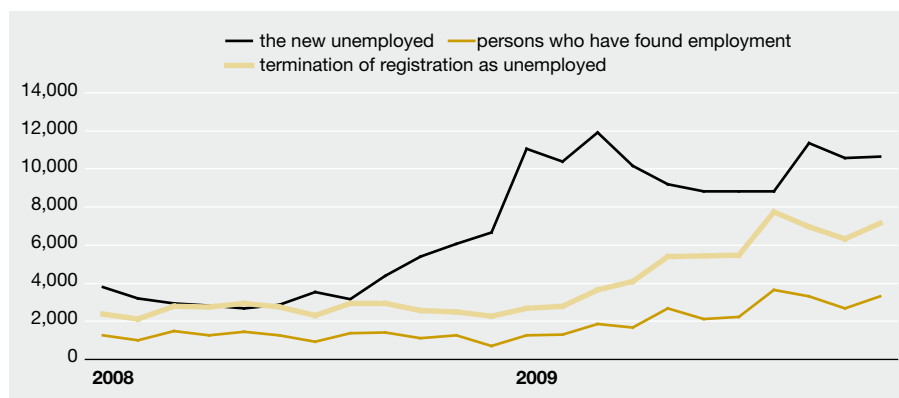
Figure 12. Monthly changes in the number of registered unemployed

The Labour Market Board explains that the number of people actually employed is bigger than recorded because not all of those who find a job announce it and a part of the unemployed, who do not inform the Labour Market Board within the defined time period or wish to terminate their registration as unemployed themselves, have actually found a job. The comparison of the data of the Labour Market Board and the Tax and Customs Board has shown that the actual number of those employed is 10–15% bigger.

Unemployment

According to Statistics Estonia, in the third quarter, the unemployment rate increased to 14.6% and the number of the unemployed to 102,300. Unemployment growth has slowed down in the last two quarters. While in the first quarter, the unemployment rate was 11.4% and the number of the unemployed increased by 26,000 compared to the previous quarter, the number of the newly unemployed increased by 13,000 in the second quarter and by 10,000 in the third quarter.

According to the data of the second half of the year, labour market keeps weakening in the whole European Union, where unemployment continues to increase, the number of job an-

nouncements remains much smaller than a year ago and enterprises lay-off more than hire. Recently, there are increasing signs that such developments are withdrawing, considering the slowdown in recession in the second and the third quarter. Production still remains considerably below the last year's level. Since all factors of production are still strongly underutilised, the next 12 months do not foresee new large investments or creation of jobs. This is why unemployment will remain high at least this and next year.

For instance, after the economic decline that ended in early 1990s, it took four years before employment started increasing again. Morgan Stanley believes that when the current economic decline is over, the active creation of new jobs in Europe may shift even further in the future since during the period of decline, the reduction of working hours for adjusting labour force contribution has been used a lot more. Therefore, companies would first increase the number of working hours and only then hire new people.

Functioning of the European labour market is generally considered relatively rigid compared to, for example, that of the United States. Yet in recent years, some flexibility increasing changes have been introduced into local legislation – primarily changes related to working time (part-time, overtime, temporary closing of institutions) – which have enabled to reduce working hours more actively instead of reducing the number of jobs. Also several governments support maintaining jobs. For instance, German enterprises can reduce their employees' working hours and the government may partly compensate the salaries paid. The German government now helps to finance the income of over two million people. On the one hand, such measures enable to keep the growth of the unemployment rate under control; on the other hand, it is believed that more aggressive reduction of jobs would help people in the future to return to the labour market faster. Moreover, the artificial maintenance of the old division of labour may hinder necessary structural changes.

Those who most suffer from unemployment are the young, male, immigrants and unskilled workers. Such developments are characteristic of the whole European Union as well as Estonia. In the third quarter, for example, the unemployment growth in Estonia continued in every age group. The unemployment rate still continued to be the highest in age group 15 to 24. In the third quarter, it had increased already to 29.2%, i.e. by 2.2 percentage points in a quarter and by 14.5 percentage points in a year. The unemployment rate of people in their prime working age (25 to 49) amounted to 12.8% and that of the elderly (50 to 74) to 12.1% in the third quarter.

The large number of the unemployed young is a serious risk factor in other EU Member States as well. According to Eurostat, the average unemployment rate of people aged 15 to 24 in EU Member States in September was 20.2%. Unemployment of the young was the lowest in the Netherlands (6.8%) and the highest in Spain (41.7%) and in Latvia (33.6%). Dropping out from the labour force or lower recruitment of the young can be often explained

by a relatively short work experience or no work experience at all. Long-term unemploy-ment of the young can at the same time cause the rejection of this age group on the labour market where they will be unable to occupy themselves even if the demand recovers. Since during economic decline, youth unemployment may stagnate more than average, the role of active labour market policies is considered very important in the case of the young. If it is impossible to create working habits of the young by employing them, in-service training programmes, which increase their qualification and improve their skills, may prove effective.

In 2009, both the short-term and the long-term (persons who have been seeking employ-ment for a year or longer) unemployment increased fast. At the beginning of the year, the number of the short-term unemployed increased considerably faster and the share of the long-term unemployed in the total unemployment rate decreased – to 26% in the first quarter (see Figure 13). In the third quarter, however, these trends somewhat changed: the growth in the number of the short-term unemployed clearly started to slow down (in the second quarter, the number increased by 12,100 and in the third quarter by 3,100), but the number of the long-term unemployed started to increase faster (from 1,100 in the second quarter to 7,000 in the third).

The long-term unemployed, who have been inactive for a longer period of time, have relati-vely bigger difficulties with returning to the labour market. Some of them become discour-aged, which means that they give up searching for a job. Although the growth in the total number of the unemployed starts to slow, the structural changes of unemployment move towards deeper stagnation.
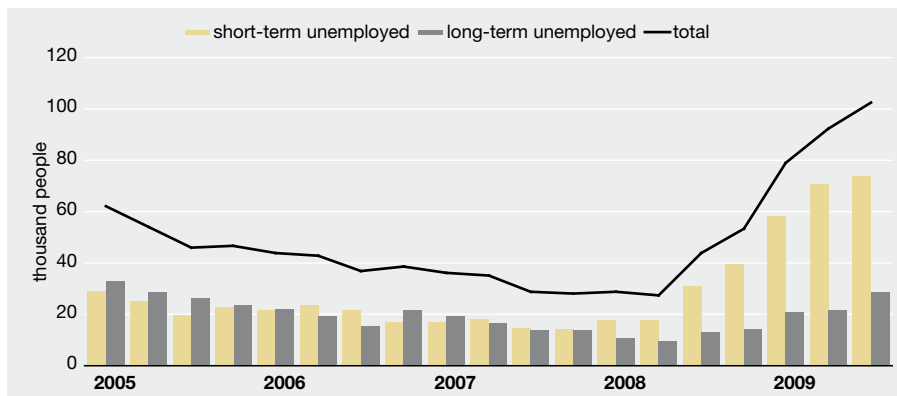

Figure 13. Short- and long-term unemployed

In addition to cyclical factors, a part of unemployment is becoming structural. Nearly a fourth (over 20,000 people) of the registered unemployed come from the construction sector and they are mostly unskilled workers. Even if the volume of economy recovers, it cannot

be predicted that the structure prior to the decline will recover as well, which means that employment development in the construction sector will remain modest compared to other sectors, which is why a majority of these unemployed people requires retraining.

The development of registered unemployment and Eurostat's estimate concerning the number of the unemployed compiled on its basis[6] do not recently coincide with the unemployment estimate provided by the labour force survey (see Figure 14). Besides general development of unemployment, the activity of the registration as unemployed is affected by the related compensations (health insurance, unemployment benefit), which appear more or less attractive to the unemployed in different stages of the economic cycle. In the third quarter, the discrepancy between these indicators increased again because the share of the registered unemployed in the total number of the unemployed continued to increase.

While in the fourth quarter of 2008, 53% of all unemployed people had been registered, in the first quarter of 2009, their share increased to 59% and in the second quarter to 69%. In the third quarter, the number of the registered unemployed amounted to 71.6% of the total number of the unemployed, i.e. 73,200 people on average while 29,100 unemployed people did not find registering necessary. Out of those registered, the average of 29,300 people (40% of the registered) received unemployment insurance payments and 20,200 (28%) received unemployment allowance. Altogether slightly below 50% of all unemployed people received different benefits and more or less the same number of people did not receive any benefits at all (did not consider registering necessary or were not eligible).
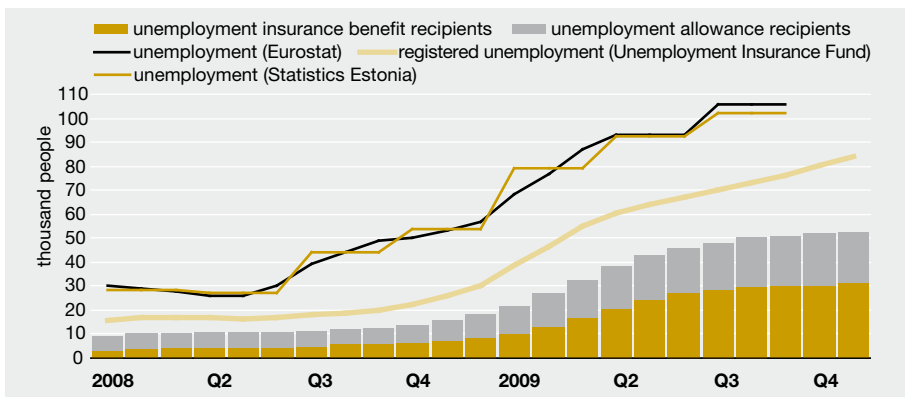

Figure 14. Registered and total unemployment according to Eurostat and Statistics Estonia

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[6] Adjusted according to the actual unemployment indicator based on the data of the second quarter of every year.

According to the explanations of the Labour Market Board, several conditions must be met in order to receive benefits. First of all, it is necessary to be registered. Unemployment insurance is paid to insured persons if they have paid the insurance premiums for at least 12 months during the 36 months prior to registration as unemployed. Nearly 30% of the new unemployed do not have a right to receive unemployment insurance benefit because they did not work before the registration (for example, due to studies, raising children or military service). Some of the unemployed have not worked long enough in order to receive benefit or have not paid the insurance premiums. Nearly 20% of the new unemployed have left employment on their own initiative or by mutual agreement. They are not eligible for unemployment insurance benefit either. Since the benefit is paid only 180 to 360 days, some of the unemployed do not receive the insurance benefit because they have already received it in full. Unemployment allowance is paid to a person who for 12 months prior to the registration was self-employed, studied, raised a child of certain age, took care of a person who needed the help of others, was in military service, in jail or under arrest, underwent hospital treatment or was away from the labour market due to incapacity for work. Unemployment allowance is paid only for 270 days and, once again, a part of the unemployed has already received the whole allowance but has not still found a job.

Although the number of people who received unemployment insurance benefit continued to increase in the third quarter as well as in October and November, the amount paid out started to decrease from August. While in August unemployment insurance benefit was paid in the amount of 142 million kroons, in September this figure amounted to 140 million, in October to 135 million and in November to 139 million. The decreasing sum of payments and the tax rates, which were increased on 1 June, enabled the Unemployment Insurance Fund even to achieve a small surplus. In 2010, there should be no problems with payments either.

Beveridge curve

Changes in the number of vacancies and the unemployed occur in opposite direction during the economic cycle. In the growth phase, there are usually plenty of vacancies while the number of the unemployed is relatively small. The downward phase, however, is quite the opposite – at the time the unemployment rate increases, the number of vacancies becomes smaller. This inverse relation is called the Beveridge curve. The Beveridge curve is a graphical representation of the relationship between unemployment and job vacancy rate. The position of the curve indicates the current state of the economy in the business cycle. Traditionally, the 45-degree line is taken as a psychological limit of economic situation: high level of unemployment and low level of vacancies indicate economic downturn (below the 45-degree line); low level of unemployment and high level of vacancies show growth (above the 45-degree line).

In reality, such a "clean" line cannot always be seen. For instance, the Beveridge curve of Estonia did not exceed the 45-degree line even in the years of economic boom (see Figure 15). This may be caused by poor statistics (statistics on vacancies, for example) as well as the historical divergence of average levels. If the natural unemployment (frictional plus structural unemployment) rate is relatively high, an increase or decrease in the number of vacancies does not necessarily have a considerable effect on it.

From 2005 until the third quarter of 2007, in Estonia, the number of vacancies increased while the unemployment rate decreased. The Estonian labour market was in the growth phase. The turn in the trend in the fourth quarter of 2007 lasted until the second quarter of 2008. During that period, the number of vacancies started to decrease but the unemployment rate remained at a low level. From the third quarter of 2008, which was the beginning of the economic decline, the Beveridge curve of Estonia followed a classic path: the number of vacancies decreased, the unemployment rate increased. In the third quarter of 2009, there was an interesting shift – along with the growth in unemployment, the number of vacancies slowly started to increase as well. However, one observation is not sufficient to claim with certainty whether this is related to the higher inertia of unemployment or rather shows the growth in structural unemployment.

Figure 15. Estonia's Beveridge curve from Q1 2005 to Q3 2009

Beveridge curve shifts may occur for several reasons. For instance, when the opportunities of employees to find a new job become better (more efficient matching process), the curve may shift towards the origin (zero point) because finding jobs faster includes filling vacancies and employing the unemployed. Secondly, the

shift may be caused by the labour participation rate – as the number of jobseekers increases relative to total population, the unemployment rate increases, shifting the curve outwards from its origin. Thirdly, the curve may be pushed outwards from the origin due to an increase in long-term unemployment, which could be caused by deterioration of human capital or a negative perception of the long-term unemployed by the employers (there are vacancies but the long-term unemployed are not hired). In addition, it is considered possible that the shift of the curve may be caused by the developments of frictional unemployment. A decrease in frictions reduces the number of companies searching for employees and the number of the unemployed searching for jobs, which altogether shift the curve towards the origin.

LABOUR COSTS AND PRICE PRESSURES

Average wages

Due to the high inertia of wage changes, changes in wage developments appear later than in normal economic growth. At the time of economic decline, besides general inertia, the developments of average wages are influenced also by increased payments that arise from lay-offs, holidays without pay, part-time work, etc. Therefore, the periods of strong decline are characterised by an increase in unit labour costs and a drop in profits as a ratio of GDP. The stabilisation in the share of profit depends directly on the stoppage of the increase in unit labour costs, which occurred in the second half of 2009 as expected earlier.

Tensions related to wage pressures started to wane gradually already in the second half of 2008. In the last quarter of the year, nominal wage growth slowed down so much that remained below the inflation rate and so there was a real decrease in wages. In the first quarter of 2009, the level of average gross monthly wages declined for the first time also in nominal terms (1.5% year-on-year). At the same time, the real wage decline accelerated from 1.3% to 4.5% (see Figure 16). Gross hourly wages continued to increase in the first quarter (2.4%), which means that initially the wage cuts concerned to a greater extent the more flexible parts of income from employment (bonuses, additional remunerations, etc.). In the second and the third quarter, the acceleration of the decline in average nominal wages continued (5.9% in the third quarter), whereas hourly wages started to decline as well; yet the decline rate of real wages stabilised near 5% (due to the deflation, the decline in real wages was smaller).

Estonian enterprises have approached the reduction of base wages in a thoughtful and careful way. As of mid-November, six out of ten large enterprises of Estonia have not reduced base wages at all, yet many of them have cut other benefits.

Figure 16. Average wage growth

According to the Estonian Business Association, besides the reduction of base wages, another efficient measure used was the reduction of performance bonuses. In Swedbank, for instance, performance bonuses accounted for nearly 20% of total wages. Several companies have managed to maintain base wages by reducing the number of employees. At the same time, other options of reducing the spending or cutting the functions of lesser priority were used extensively. Several managers of large companies considered the new structure of costs more effective. It was also considered significant that costs were cut in different ways, taking into account the contribution of the employee, his/her position and the share of such bonuses in his/her income, which depend on financial performance (BLRT, Eesti Telekom). Some wage cuts were established as a temporary measure (at the end of summer, Tallink agreed with shore personnel upon reducing wages for one year by 5 to 20% based on the principle that "the larger the wages, the bigger the cut"). Other costs reduced are, for example, phone and gas compensation of employees; also several other benefits to employees (training costs, business trips, collective events and single benefits) have been cut, frozen or completely lost.

Wage developments in the public sector are generally more inert compared to the private sector. Wages in the public sector still started to decline in the second and the third quarter (see Figure 17). Several decisions concerning the reduction of public sector wages were made in the third quarter, which is why the cuts are not yet reflected in the average indicators of the quarter. In the future, wage decline in the public sector will accelerate. This is confirmed by the fresher data of the Tax and Customs Board concerning wage payments.

In November, the wage costs of enterprises registered in the Central Commercial Register (excl. self-employed persons) decreased 22.8% year-on-year; the reduction of the number of salaried employees (16.9%) helped to cut expenses the most, whereas the role of the reduction of wage payments was more modest (7.1%). In government and state agencies,

wage costs were reduced 15.2% while the number of salaried employees decreased 2.8% and wage payments 12.8% on average (y-o-y). Since demand for services provided by the public sector has not declined to a comparable extent with that of the private sector, big cuts in the number of salaried employees are not possible in this sector. Nonetheless, cutting down on expenses due to smaller tax revenues led to bigger reduction of wages compared to the private sector.
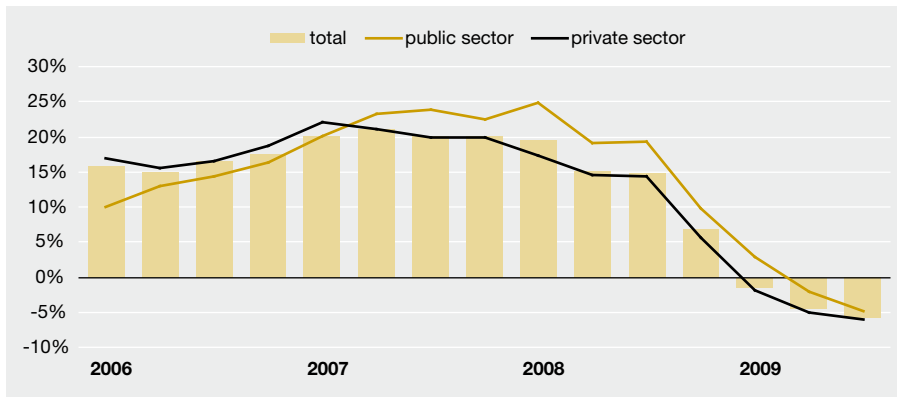
Figure 17. Average wage growth in the public and private sectors

In the third quarter, average gross monthly wages declined most in construction (13.8%), agriculture (13.6%), mining, (10.6%) and public administration (10.3%). Wages increased only in electricity, gas, steam and air conditioning supply (2.7%) and marginally also in finance and insurance (0.1%). In manufacturing, average gross monthly wages decreased 4.3% and in wholesale and retail trade 7.9%.

Wage decrease in construction was well expected because in that sector, both employment and wages grew much faster than the average during the real estate boom. Therefore, lowering the wage level in the construction sector enables to achieve greater compliance with the developments of productivity during the downward phase. Since average wages do not reflect the extent to which the wage decrease was caused by changes in wages and to which by changes in the structure of employees, additional information on the labour costs of the construction sector can be obtained from statistics on the construction price index in which labour costs are measured based on typical posts. According to the statistics on the construction price index, in the third quarter, labour costs decreased 18.2% in a year. Yet it was exactly the third quarter when the stabilisation in the rate of wage decrease began: monthly decline started to slow down (see Figure 18).

The reduction of wages continues due to the need to keep wage costs in compliance with the decreased sales revenue of enterprises. According to national accounts, in the
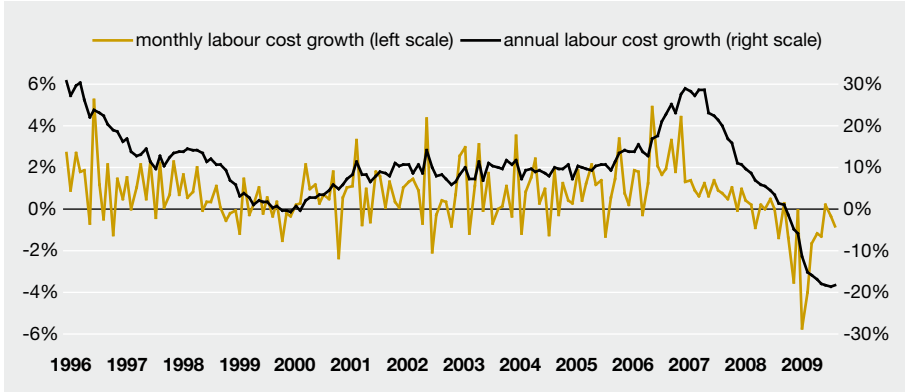
Figure 18. Labour cost growth according to the construction price index

first quarter of 2009, GDP in market prices decreased 11.6% year-on-year; companies' profit sharply dropped during that period due to a slower decrease in wage costs (6.2%) (operating surplus and mixed income decreased 44% y-o-y). In the second quarter, developments improved a little, but by the middle of 2009, it was not completely clear, whether the decrease in the wage fund would eventually be sufficient for the decline in profits to slow down. Developments in the third quarter brought about the long-awaited certainty that the course was towards more balanced developments. The decline rate of wage costs accelerated to 14.9% (incl. wage payments decreased 16.5% and social taxes paid by employers 10% y-o-y) and the decline rate of profit continued to slow (together with the depreciation of fixed assets to 22.3%). The developments were even more impressive compared to the previous quarter: compensations decreased 8.5% while the profit increased 9.2% (see Figure 19).
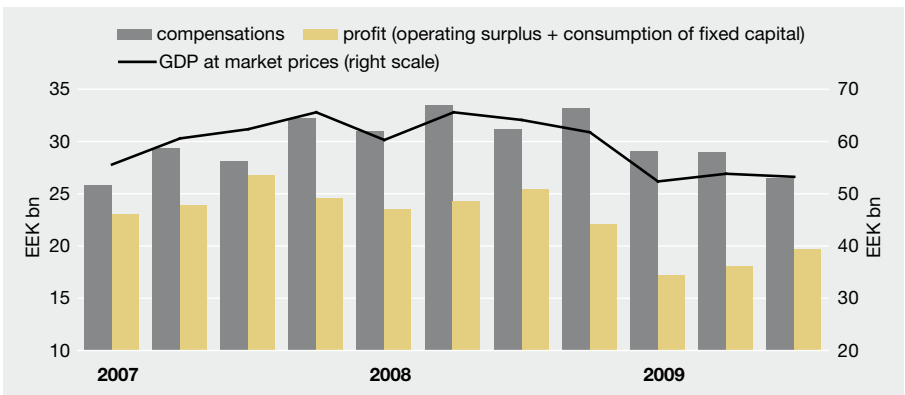
Figure 19. Compensations of employees and profits

Wage costs are expected to continue declining also in the near future. Nominal wages will be reduced further at the expense of additional remunerations and reduced working time as well as by concluding new agreements with lower base wages. According to the data of the third quarter, this process is about to slow down. More extensive corrections have probably been made already, and if the economy does not face an additional unexpected demand-side shock, the future reductions will be considerably smaller.

The flexibility of the labour market should, according to general understanding, show how quickly the labour market responds to different shocks in order to get the optimal or at least better distribution of resources. The key factor of wage flexibility in Estonia is considered to be, in international comparison, the relatively wide usage of performance-related bonuses. According to the 2009 survey by Eesti Pank, besides the correction of the number of employees and base wages, wage payments are actively reduced also with the help of other measures, such as reduction of the number of working hours and cuts in additional remunerations and non-job related costs (see Annex 1).

Unit labour costs

During recession, the flexibility of the Estonian labour market is characterised by the dynamics of real and nominal unit labour costs. Based on the data of the third quarter, it can be said that cuts in labour costs in Estonia were relatively quick and extensive. Real unit labour cost growth slowed down in the third quarter to 1.8%; nominal unit labour costs stopped increasing (see Figure 20).

The real unit labour cost indicator compares the amount of expenditure per employee (mostly wages and taxes on labour) and labour productivity (per employed person) in current prices. Basically, the share of the value added spent on wages is calculated. The
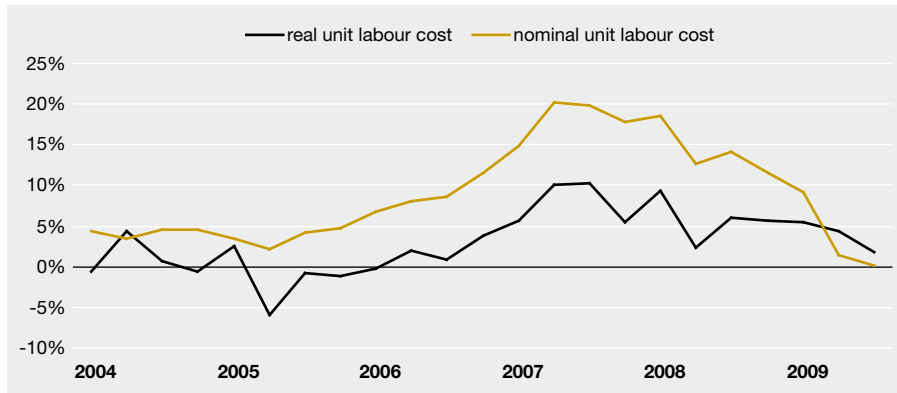
Figure 20. Unit labour cost growth by GDP statistics

growth rate of unit labour costs is positive when labour costs per salaried employee grow faster (or drop slower) than labour productivity in nominal terms. Nominal unit labour costs compare labour costs per employee with real productivity, not with productivity calculated at current prices. The aim is to analyse inflationary pressures arising from wage growth, as enterprises have to increase prices of their products in order to retain profitability when wage growth exceeds productivity.

In the third quarter, real GDP declined 15.6%, nominal GDP 14.4% and benefits to employees 14.9%. A slightly larger decline in the number of salaried employees compared to the total number of the employed (10.2% and 9.5% respectively) raised unit labour cost indicators by 0.7 percentage points.

Unit labour cost indicators, just like productivity indicators, were greatly influenced by the decrease in working hours per one employee. Therefore, unit labour cost indicator started to decline already in the second quarter; in the third quarter, the decline became even faster. According to Eurostat[7], nominal unit labour cost in Estonia decreased 4.3% in the third quarter of 2009; its growth rate had decreased by 17.4 percentage points in a year. Real unit labour costs decreased 2.8% (y-o-y) in the third quarter. Compared to Estonia, the decrease in unit labour costs was faster only in Lithuania (see Figure 21).
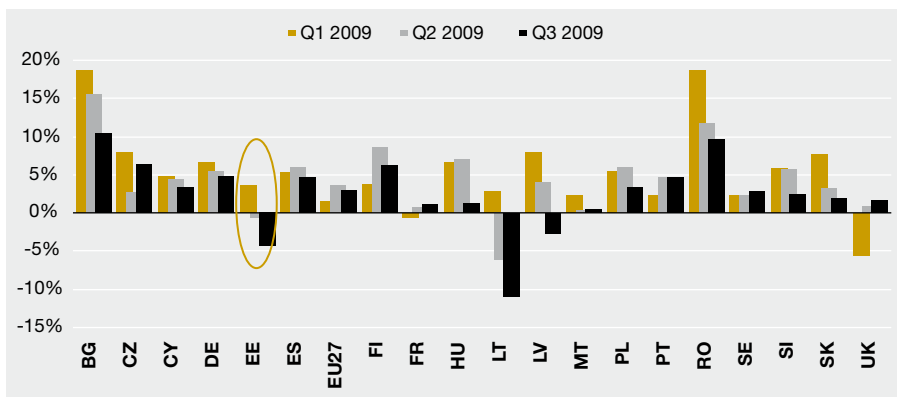
Figure 21. Nominal unit labour cost growth in EU countries

INSTITUTIONAL DEVELOPMENTS OF THE LABOUR MARKET

Tax changes

On 18 November 2009, the government approved the unemployment insurance premiums of 2010 at the current 4.2% level. The tax rate applied to employees is 2.8% and to emplo-

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7 Eurostat's data on unit labour costs is working-day adjusted.

yers 1.4%. In the second half of 2009, during the period from 01.06.09 to 01.08.09, tax rates of 1.0% and 2.0%, respectively, were in effect and before that period 0.3% and 0.6%. In the second half of the year, raising the tax rates enabled to stabilise the Unemployment Insurance Fund's financing gap, which stopped increasing from July.

On 26 November 2009, the Riigikogu approved the amendment, which left the income tax rate to the level of 21% in 2010. The amount of non-taxable income remained at 27,000 kroons per month.

Changes in the procedure for the payment of sickness benefit

On 1 July 2009, the procedure for the payment of sickness benefit was changed, applied for certificates for sick leave according to which leave from work begins on 1 July 2009 or later. Sickness benefit started to be paid to the insured person starting from the 4th day of the illness (before it was paid starting from the 2nd day). According to the Occupational Health and Safety Act, from the 4th to 8th day of the insured person's illness, the sickness benefit shall be paid by the employer in the amount of 70% of the employee's average wages of the last six months. Starting from the 9th day of illness, the sickness benefit shall be paid by the Health Insurance Fund.

Changes in the funded pension

According to the changes made into the Funded Pensions Act, state contributions to the funded pension have been suspended fully from 1 June 2009 until 31 December 2010 and by half in 2011. Those who have joined the 2nd pillar may continue with contributions (2%) from 1 January 2010. In such a case, the state adds 2% in 2011 and compensates for the difference in 2014 to 2017 (contribution of the state 6%). If those who have joined the 2nd pillar do not continue with contributions themselves, no money is added to the pension fund during 2010. State contributions will continue again in 2011 but only to the half amount: personal share 1% and the state's share 2%. The earlier scheme of 2% + 4% will recover in 2012.

There are no changes in the procedure for the payment of funded pensions. Depending on the value of the units of a pension fund, the person has a right to withdraw all money at once, receive regular payments directly from the pension fund or receive payments in the form of annuities, i.e. periodically payable amounts on the basis of the insurance contract.

Increasing retirement age

On 16 December 2009, the government sent to the Riigikogu a draft act that stipulates the increase of retirement age to 65 years as of 2026. There are two main reasons for the

increase in retirement age. First, the future pensioners must be sure that their pension would not be lower than it currently is and that, if possible, it would even increase. The second reason is to alleviate the labour shortage accompanying the decrease in the active population on the labour market.

The increase in retirement age, in the proposed form, will mainly affect those people who are now up to 50 years of age. Those people who are currently 50 to 56 years old, whose retirement age will arrive in 2017–2006, will remain in the transition period. All people who are older than 56 will retire according to the order valid earlier.

At the moment, the retirement age for men is 63 years and for women 60 years and 6 months. By 2016, the retirement age for women will also be increased to 63 years. As of 2017, the retirement age would gradually increase for everyone, that is, by three months a year, and by 2026, it will be 65 years for both women and men.

The Unemployment Insurance Fund launched the pilot project of training vouchers

The purpose of the training voucher is to provide the unemployed and those who have received a lay-off notice, in-service training, which will help them to find a new job. The training voucher can be used by people with professional education or experience, who must improve their current skills and knowledge in order to find a job. The training voucher does not provide training for developing managerial or general social skills or initial level professional training. The prerequisite for the training is a grounded necessity for in-service training. A consultant from the Unemployment Insurance Fund will help to determine the necessity for in-service training and to find a suitable course and a training provider. Currently, the selection is between 110 training providers. The Unemployment Insurance Fund compensates for a training that costs up to 15,000 kroons.

Action plan for reducing unemployment and bringing the unemployed back to the labour market

The priorities of the action plan are maintaining the working capacity and work readiness of people, preventing and reducing unemployment, for the purpose of which several actions are planned to be carried out. These actions are financed by European Social Fund (ESF) co-funded projects and the budget funds of the Unemployment Insurance Fund.

Participation in active labour market measures has been clearly increasing through the whole 2009: in October and November, more than 8,000 people every month took part in labour market programmes, which was twice as much as a year ago and four times more than in the first half of 2008.

The objectives of the programme are the prevention of unemployment and alleviation of the consequences of the loss of jobs as well as the increase in employment, decrease in unemployment and reduction of the time of unemployment. It is also important that the availability of the necessary information and services for jobseekers would improve.

The budget of the programme in 2010 is over 422 million kroons in total, out of which ESF support is more than 353 million kroons. Compared to 2009, the budget has grown. In 2007–2009, the budget amounted to 407 million kroons (from which 319 million kroons in 2009).

Besides programme funds, state agencies, local governments, entrepreneurs and non-profit associations and foundations receive support from an open call for proposals. At the beginning of 2009, it was possible to apply for support from an open call for proposals for 150 million kroons; in 2010, the projects are financed in the amount of 200 million kroons. The third call for proposals for submitting projects is planned to be opened at the end of 2010.

Appendix 1. Enterprises' response to the economic crisis

Tairi Rõõm

In summer 2009, Eesti Pank in cooperation with the central banks of nine other EU Member States conducted a survey of enterprise managers, which was carried out within the Wage Dynamic Network (WDN).[8] That was a follow-up to the extensive survey conducted at the end of 2007. The purpose of conducting a new survey was to analyse the economic behaviour of enterprises in the conditions of crisis and to compare it with the years at the end of the boom. The survey covers four fields of activity: manufacturing, construction, services and trade. In Estonia, 558 enterprises were questioned; the sample of ten countries includes nearly 5,700 companies. The following is the overview of the main results on the survey.

First of all, data on to what extent the economic crisis had affected the enterprises of different countries was gathered. The period covered was from the beginning of the crisis until the summer of 2009. Responses on the extent of the decline in demand are indicated in Table 1. This shows that out of the ten countries participated in the survey, economic downturn has appeared particularly strong in Estonia. Nearly 81% of Estonian enterprises consider the decline in demand strong or exceptionally strong. In terms of all ten countries, the share of the enterprises provided such answer is about half smaller (39%).

Table 1. Consequences of the current economic crisis

	None/ marginal	Moderate	Strong	Exceptionally strong	Strong or exceptionally strong	Don't know
Decline in demand						
Austria	26.2	45.5	18.5	9.7	28.2	0.2
Belgium	21.7	36.2	23.7	18.3	42.0	0.2
Czech Republic	7.8	39.9	40.9	11.5	52.4	0.0
Estonia	**1.9**	**16.8**	**41.5**	**39.4**	**80.9**	**0.4**
Spain	19.0	40.6	28.0	12.4	40.4	0.0
France	19.1	43.9	24.8	11.5	36.3	0.7
Italy	14.8	41.9	35.5	7.3	42.8	0.4
Luxembourg	15.1	48.1	29.5	7.2	36.7	0.1
Netherlands	34.4	29.2	23.1	12.7	35.8	0.6
Poland	16.9	59.6	18.7	4.0	22.7	0.9
Euro area	19.7	40.6	28.9	10.4	39.3	0.4
Non-euro area	14.0	53.0	25.3	7.2	32.5	0.6
Total	**18.4**	**43.5**	**28.0**	**9.7**	**37.7**	**0.4**

Notes. The estimates of the enterprises on how strong the impact of the crisis has been on the demand for their products/services. The table gives the share of the enterprises (%) that have chosen the corresponding answer.

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[8] Besides Estonia, the survey was carried out in Austria, Belgium, the Czech Republic, Spain, France, Italy, Luxembourg, the Netherlands and Poland.

The second step was to find out, which channels the enterprises had been using for coping with the decrease in demand as a consequence of the crisis. This is demonstrated in Table 2. The table compares the answers of entrepreneurs to the related questions with responses to an analogous question gathered in the previous survey. A difference between the two surveys, besides the macroeconomic environment at the time of the survey, is also the fact that in the first survey, the entrepreneurs had to assess the hypothetical situation: if there was a decline in the demand for the output of the given enterprise, what the reaction would be. Besides, it was not specified how big the decline in demand kept in mind was. In the second survey, however, entrepreneurs were asked to describe a particular situation: how they reacted to the decline in demand arising from the economic crisis. Although by countries, the responses to the first and the second survey are rather different, the total sample shows that the estimates of enterprises the demand for whose products/services has declined more sharply in the conditions of crisis are more similar. The responses of Estonian enterprises to the first and the second survey are also relatively similar. The previous and the current survey both show that the most important channel for coping with the negative demand shock is the reduction of costs. In the original survey 85% and in the follow-up survey 73% of the enterprises considered that channel important or very important.

The enterprises were asked, which their main channel for reducing costs had been. Answers to this set of questions are reflected in Table 3. The table shows that, compared to the growth phase of the economic cycle, in the conditions of the current decline, cost cutting strategies the enterprises use more are the reduction of working time (i.e. the reduction of the number of working hours) and the reduction of performance bonuses. The reduction of the number of employees with a non-fixed-term contract has also become somewhat more important. Only approximately 1.7% of enterprises reduce base wages, which is close to the level of the final years of the boom.

Cost-cutting strategies of Estonian enterprises differ from other countries that participated in the survey in several significant aspects. First, the share of enterprises that use the reduction of base wages as the main method for cutting costs has increased here remarkably in the conditions of crisis. While according to the previous survey this was the case with 0.5% of companies, the new survey revealed nearly 16% – clearly more than in any other country in the survey. There has also been a quite remarkable (over the average) increase in the share of enterprises that cut costs mainly by reducing performance bonuses or working hours. In Estonia, the crisis has led to a situation in which the reduction of non-labour costs has become much less important compared to the reduction of labour costs. In the final years of the boom, 45% of companies considered this the most important cost-cutting method; in the conditions of crisis, the share of such enterprises is only 23%.

Table 2. Strategies of enterprises for coping with the negative demand shock

	Reducing prices		Reducing profit margin		Reducing output		Reducing costs	
	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey
All enterprises	56.3	37	63.1	43.2	51.8	39.5	84.7	73.4
Country								
Austria	37.7	30.2	57.3	44.6	54.3	43.8	82.9	84.3
Belgium	42.5	36.1	55.1	52.3	60.1	55.9	80.6	81.7
Czech Republic	51.3	34	54.4	40	52.2	48.5	86.7	88.3
Estonia	**76.4**	**72**	**82.4**	**77.6**	**66.9**	**64.2**	**93.8**	**98.3**
France	41	14.9	56.6	24	54.2	29.4	78.8	42.8
Luxembourg	48.2	26.5	64.1	32.1	43.8	24.5	89.8	88.3
Italy	58.3	41.5	na	na	46	37.3	91	78.8
Netherlands	39.9	23.7	50.7	35.6	40.6	33.9	71.9	63.6
Poland	79.4	60.8	78.3	64.3	60.4	47.6	85.3	87.1
Field of activity								
Manufacturing	56.3	37.8	60.4	43.9	66.5	57.9	86.3	76.5
Construction*	70.7	58.7	80.3	60.6	52.3	45.2	82.5	71.5
Trade	65.2	41.6	71.2	50.2	37.6	25.4	87.9	81.3
Services	48.1	31.6	57.3	36.5	40.2	21	80.8	64.5
Financial intermedia-tion**	64.8	10.6	79.6	32.1	30.6	27.3	88.2	88.5
Number of employees								
5–19	65.4	40.5	71.2	45.1	45.1	32.1	80.2	69.7
20–49	60.7	43.1	63.1	46.5	48.2	41.2	85.5	70.4
50–199	60.8	40.8	67.6	42.4	55	39.6	85.8	73.1
200+	48.8	30.9	56.7	41.5	54.1	40.6	85.1	76.3
Negative impact of the decline in demand								
None/marginal	60.7	27.7	62.6	29.5	47.2	15.7	83.7	55.6
Moderate	58.3	37	68.5	47.9	49.6	31	83.6	75.1
Strong	52.2	45	56	50.2	53.6	60.1	86.7	83.4
Exceptionally strong	47.2	40.6	61.9	49.1	76.6	79.5	86.1	85.9
Negative impact of the decline in demand								
None, marginal or moderate	59.3	33.6	65.7	41	48.5	25.4	83.6	68.1
Strong or exception-ally strong	51.2	44.1	57.5	49.9	58.4	64.1	86.6	83.9

Notes. The table gives the share of enterprises (%) that consider the respective channel important or very important. The table does not include the data of Spain because the corresponding question was structured differently in their questionnaire.

* Construction sector is not covered by France and Italy.

**Estonia, the Czech Republic and France do not cover financial intermediation.

Table 3. Main channel for reducing costs

	Base wages		Performance bonuses		Employees (non-fixed-term contract)		Employees (fixed-term contract)		Number of working hours		Non-labour costs	
	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey	Original survey	Follow-up survey
All enterprises	**1.5**	**1.7**	**8.6**	**11.8**	**17.1**	**19.1**	**27.4**	**25.6**	**7.7**	**14.1**	**38.3**	**36**
Country												
Austria	0	0.4	10.9	15.8	11	11.2	6.5	10.1	20.4	34.2	51.2	28.2
Belgium	0.3	3.4	10.3	16.7	29.3	35.7	29	45.6	5.1	32.5	26	40.6
Czech Republic	0	3.9	18.6	24.3	19	42.7	27	34.2	3.5	10.8	41.5	52.8
Estonia	**0.5**	**15.7**	**17.3**	**23.9**	**17.2**	**24.4**	**15.7**	**3.3**	**4.9**	**9.1**	**44.5**	**23.6**
France	4.8	1.1	5.8	5.9	11.7	25.8	57.5	42.4	5.6	5.7	14.6	19.2
Luxembourg	0	0.1	7.5	9.9	10.9	17.1	28.4	33.9	10	12.4	43.2	26.2
Italy	1	1.3	9.3	8.8	16	17.1	28.9	20.8	9.8	18.2	35	33.8
Netherlands	0.3	1.2	3	4.6	3.2	8.4	37.7	40.1	2.1	5.8	53.7	39.9
Poland	3.5	2.2	8	17	31.4	15.3	8.7	10	5.2	6.4	43.3	47
Field of activity												
Manufacturing	1.8	2.1	6.3	10.4	15.2	20.9	31.3	29.4	8.4	17.2	37.8	29.5
Construction*	0.1	3.5	7.5	17	27.6	14.5	15.7	20.5	10.5	5.7	38.6	44.8
Trade	2	1.8	9.8	10.2	21.2	20	24.7	23.2	6.9	11.1	36.8	42.1
Services	0.9	0.8	11.3	13.1	15.5	16	25.3	22.9	7.3	13.3	39.7	40.3
Financial intermediation**	0	0	9.7	32.6	23.7	27.5	26.4	17.3	0.4	2.6	39.8	34.3
Number of employees												
5–19	1.8	1.3	7.7	11.8	20.1	17.6	21.9	14.2	8.7	8	39.7	48.1
20–49	0.7	2.3	9.3	11.2	15.7	17.4	23.4	17.5	7.8	15.6	43.8	38.7
50–199	1.7	1.1	10.4	14.5	18.3	19.6	25.5	26.2	8.4	14.1	36.2	35.3
200+	1.6	1.7	7.7	10.8	16.3	20.1	32.3	33	6.9	15.1	35.9	31.2
Negative impact of the decline in demand												
None/marginal	0.6	0.5	8.8	12.8	19.9	5.5	24	20	5.7	12	41	49.5
Moderate	2.9	1.9	9.5	11.5	17.5	17.5	24.2	25.6	9.2	10.2	37.9	39.8
Strong	0.7	2.1	8.2	12.3	15.3	25.5	30	27.9	8.4	18.6	38	27.7
Exceptionally strong	1.2	1	5.7	10.6	14.9	37.9	40.7	29.7	5.4	22.8	32.1	13.7
Negative impact of the decline in demand												
None or moderate	1.9	1.5	9.2	11.9	18.6	13.6	24.1	23.8	7.7	10.8	39.3	42.9
Strong or exceptionally strong	0.8	1.8	7.6	11.9	15.2	28.1	32.3	28.3	7.7	19.5	36.8	24.7

Notes. The table gives the share of enterprises (%) that consider the given method of cost reduction (reducing base wages, performance bonuses, the number of employees with a non-fixed-term contract, etc.) the main channel for reducing costs. The table does not include the data of Spain because the corresponding question was structured differently in their questionnaire.
* Construction sector is not covered by France and Italy.
**Estonia, the Czech Republic and France do not cover financial intermediation.

Both surveys carried out within the WDN collected data on the enterprises that had frozen or reduced base wages. In the first survey, this question covered the years 2002–2006: entrepreneurs were asked whether they had, during five years prior to the survey, a) frozen base wages and/or b) reduced base wages, and how big the share of employees concerned by this was. The analogous question of the second survey covered the period from the beginning of the crisis until summer 2009. The overview of responses to these questions is presented in Table 4. The table shows that based on both the earlier and the new survey, only a few enterprises have reduced base wages (2.6% and 3.2% respectively). Yet in the conditions of crisis, the number of companies that have frozen wages has remarkably increased. In 2002–2006, nearly 10% of companies froze wages while from the beginning of the crisis, 35% of companies had frozen base wages and the same amount of enterprises planned to do this in connection with the crisis. This data implies that in most EU Member States, there is downward wage rigidity also in the conditions of crisis – a large proportion of enterprises have frozen wages instead of reducing them.

Estonia is different from other countries participated in the survey because of the large share of enterprises that have reduced base wages in the conditions of crisis. While there were 3.2% of such enterprises in the sample on average, 44% of the Estonian companies had done that. Why is there much more downward flexibility in the wages of Estonia than anywhere else? First of all, because the decline in demand has been most extensive in Estonia compared to other countries participated in the survey. Due to the extent of the economic decline, the enterprises are suddenly forced to cut all production-related costs, including the reduction of wages.

The second important reason, which has enabled Estonian enterprises to reduce wages during the crisis, is the flexible institutional framework of the labour market. Several studies in this area have shown that when employment relationships are more rigid and in countries where the majority of employees are covered by collective wage agreements, wages are more rigid as well. In Estonia, the share of collective wage agreements is the smallest compared to all other countries participated in the WDN surveys. From the time the new Employment Contracts Act entered into force in July 2009, also employment relationships in Estonia started to be organised in the most flexible way.

Data on the reduction of wages given in Table 4 shows that in non-euro area countries (Estonia, the Czech Republic and Poland), there has been more downward flexibility in wages during the current crisis as well as in the earlier growth period. While in the euro area 2.1% of enterprises have reduced wages during the crisis, this figure for non-euro area countries is 6.5%. According to the first survey, the shares were 1.3% and 6.4%, respectively. At the same time, euro-area countries had relatively more enterprises that did not reduce wages in summer 2009 but were planning to do that. This indicates that the enterprises of non-euro area countries have responded faster to the economic crisis.

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Table 4. Share of enterprises that have frozen and/or reduced base wages

	Share of enterprises cutting wages			Share of enterprises freezing wages		
	Original survey	Follow-up survey		Original survey	Follow-up survey	
		Did cut	Plan to cut		Did freeze	Plan to freeze
Countries						
Austria	1.5	1.7	1.5	9.3	1.8	8.4
Belgium	2.9	1	1.8	15.9	23.7	4.4
Czech Republic	9.3	9	3.2	31.4	54.6	11.7
Cyprus***	3.4	1.8	2	15.3	20.6	5.9
Estonia	**3.7**	**44.1**	**38.6**	**21.3**	**61.5**	**64.6**
Spain	0.1	2.6	0.5	1.5	26.7	3.7
France	2.5	1.9	4.7	7.7	86	83.8
Luxembourg	0.7	2	4.3	3.8	31.7	62.8
Italy	7.3	0.3	0.3	8	46.8	44.5
Netherlands	1.6	2.6	3.8	25.8	15.2	8.7
Poland	5.7	4.2	1.6	9.7	18	8.1
All countries	**2.6**	**3.2**	**3.1**	**9.5**	**34.5**	**34.5**
Euro area	**1.3**	**2.1**	**3.3**	**7.6**	**37.1**	**43.1**
Non-euro area	**6.4**	**6.5**	**2.7**	**14.8**	**27.4**	**10.3**
Fields of activity						
Manufacturing	3.1	3.9	2.9	8.2	35.5	39
Construction*	4	5.9	3.6	13.6	13.8	9.5
Trade	1.3	2.8	2.3	7	26.4	26.2
Services	2.8	2.4	4.2	12.2	42	39.4
Financial intermediation**	1.6	0.1	0.5	11.9	26	7.2

Notes. The table gives the share of enterprises (%) that have reduced/frozen wages or plan to do this.

* Construction sector is not covered by France and Italy.

** Estonia, the Czech Republic and France do not cover financial intermediation.

*** The consolidated statistics do not include data on Cyprus.

Unlike in Estonia, in the Czech Republic as well as in Poland, the shares of enterprises that have reduced wages are relatively equal in both surveys. In Estonia, more than 40% of enterprises have cut wages in the conditions of crisis while based on the previous survey, this figure is 3.7%. What is the reason for this difference? First of all, economic decline in these two countries has been considerably more moderate than in Estonia. (Poland is the only EU Member State where the year-on-year GDP increased as a whole in 2009.) The second possible reason is the difference between exchange rate systems. Estonia uses the currency board system while both Poland and the Czech Republic have floating currency. The Polish zloty as well as the Czech koruna have depreciated against the euro from the beginning of the crisis. Floating exchange rate system gives these countries an additional channel for coping with the negative demand shock, which is why other cost-cutting channels (incl. the reduction of wages) are less important.

To conclude, the surveys carried out within the WDN show that in Estonian enterprises, there has been considerably more downward flexibility in wages from the beginning of the economic crisis compared to other countries participated in the survey. In the conditions of sharp crisis-driven decline in demand in Estonia, flexible wage setting has helped to prevent the worst – if enterprises did not have a possibility to reduce wages, the employment decline of 2009 would have been even bigger.

APPENDIX

MAIN QUARTELY INDICATORS OF THE ESTONIAN ECONOMY as at 31 January 2010

	Unit	Period	Indicator	Change compared to the previous period (%)	Change compared to the same period last year (%)	Source
Gross domestic product*						SA
Current prices	EEK m	Q3/2009	53 224.5			
Constant prices	EEK m	Q3/2009	33 720.8	-4.5	-15.6	
Industry						SA
Volume index of industrial production (at constant prices (2000 = 100)	%	Q4/2009		4.4	-14.6	
Investments in fixed assets (at current prices)	EEK m	Q3/2009	6 340.4	6.6	-26.1	SA
Construction						SA
Construction activities of construction enterprises (at current prices)	EEK m	Q3/2009	10 096	-0.4	-35	
Usable floor area of completed dwellings	thousand m^2	Q4/2009	81.8	6.4	-20.4	
Usable floor area of non-residential buildings	thousand m^2	Q4/2009	228.9	46.4	-7.1	
Consumption						
Retail sales volume index (at constant prices, 2000 = 100)	%	Q4/2009		-2	-16	SA
New registration of passenger cars	No	Q4/2009	5 178	-4.5	-34.6	ARK
Prices						
Consumer price index	%	Q4/2009		-0.4	-2	SA
Producer price index	%	Q4/2009		0.3	-2	SA
Export price index	%	Q4/2009		0.4	-3.6	SA
Import price index	%	Q4/2009		0.5	-2.5	SA
Construction price index	%	Q4/2009		-0.9	-10	SA
Real effective exchange rate (REER) of the Estonian kroon	%	Q4/2009		-0.7	0.3	EP
Labour market and wages						
Employment rate (based on the Labour Force Survey)**	%	Q3/2009	57.6	57	63.3	SA
Unemployment rate (based on the Labour Force Survey)**	%	Q3/2009	14.6	13.5	6.2	SA
Registered unemployed (according to the Labour Market Board)	persons per month	Q4/2009	83 868	14.5	217.7	TK
% of population between 16 years old and pension age**	%	Q4/2009	12.8	11.1	4	TK
Average monthly gross wages and salaries (health insurance benefits excluded)	EEK	Q3/2009	1 1770	-7.4	-5.9	SA
General government budget (net borrowing not included here)***						RM
Revenue	EEK m	Q4/2007	25 768	1.3	21.6	
Expenditure	EEK m	Q4/2007	26 887	30	17	
Balance (+/-)**	EEK m	Q4/2007	-1 119	4 759.2	-1 804.7	
Period's revenue to the planned annual revenue**	%	Q4/2007	29.1	28.8	29.5	
Transport						SA
Carriage of passengers	thousand	Q3/2009	48 572	8.8	-1.2	
Carriage of goods	thousand tons	Q3/2009	18 790	1.6	-15.7	

	Unit	Period	Indicator	Change compared to the previous period (%)	Change compared to the same period last year (%)	Source
Tourism, accommodation						SA
Visitors from foreign countries received by Estonian travel agencies	thousand	Q3/2009	305.5	16.7	-9.5	
Visitors sent to foreign tours by Estonian travel agencies	thousand	Q3/2009	103.5	-14	-32.7	
Accommodated visitors	thousand	Q3/2009	755.7	33.1	-9.2	
o/w foreign visitors	thousand	Q3/2009	511.7	33.2	-1.8	
Foreign trade (special trade system)						SA EP
Exports	EEK m	Q3/2009	25 809.9	1.4	-25	
Imports	EEK m	Q3/2009	28 885.1	4.5	-33.8	
Balance**	EEK m	Q3/2009	-3 075.2	-2 188.5	-9 250.6	
Foreign trade balance/exports**	%	Q3/2009	-11.9	-8.6	-26.9	
Balance of payments**						EP
Current account balance	EEK m	Q3/2009	3 519.3	3 443.8	-4 402.6	
Current account balance to GDP	%	Q3/2009	6.6	6.4	-6.9	
Foreign direct investment inflow	EEK m	Q3/2009	1 175.3	392	4 775.6	
Foreign direct investment outflow	EEK m	Q3/2009	-3 718.2	-3 706.7	-2 996.6	
International investment position						EP
Net international investment position	EEK m	Q3/2009	-176 818.9	-3.4	-8.3	
Direct investment in Estonia	EEK m	Q3/2009	166 580.2	-1.4	-9.3	
Net external debt	EEK m	Q3/2009	273 537.6	-2.7	-7.2	
o/w government	EEK m	Q3/2009	10 132.1	-3.8	23.5	
EEK/USD average quarterly exchange rate	EEK	Q4/2009	10.6	-3.3	-11.1	EP

* Preliminary estimation of the GDP growth has been calculated according to the new methodology. Whereas, Statistics Estonia previously calculated the GDP growth at the constant prices of fixed year 2000, since 2008 the growth is calculated by chain-linking method in which the year preceding the accounting period is applied as a base year.

** Instead of changes comparing to previous periods, absolute figures for the periods are shown by this indicator.

*** Net borrowing is not included here.

Source:
SA – Statistics Estonia
ARK – Motor Vehicle Registration Centre
EP – Eesti Pank /Bank of Estonia
TTA – Labour Market Board
RM – Ministry of Finance
EKI – Estonian Institute of Economic Research