LABOUR MARKET REVIEW

APRIL 2017

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The labour market review by experts from Eesti Pank covers developments in the supply, demand and prices of labour in Estonia. The central bank observes the labour market for two reasons. Firstly, labour is an important production input, as a change in the supply or activity of labour can directly affect potential growth. Secondly, events in the labour market can have a major impact on inflation. Given the orientation of the euro area monetary policy towards price stability, and the openness of the Estonian economy, the economy can adjust to changes principally through the prices and volumes of production inputs. For this reason it is important for the labour market to be flexible and for wage rises to correspond to productivity growth, as otherwise the increase in production costs could lead to excessive inflation.

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KEY DEVELOPMENTS IN THE SECOND HALF OF 2016

Growth in the economy picked up in the second half of 2016 while the increase in labour costs slowed at the same time. The growth in unit labour costs was slower over the year and in the fourth quarter it was at the same level as a year earlier. This indicates that there was more slack in labour supply and demand in the labour market. Growth in productivity shows that companies have managed to serve the growth in external demand without labour inputs increasing at the same rate. This gives hope that companies can succeed in future in recovering their profit margins and overcoming the problem of inflated labour costs. The forward looking indicators for labour demand and wage pressures are worrying though, having risen in the second half of 2016.

Like in the first half of the year, there were notable differences between sectors of the economy in how wages and employment changed. Employment fell in industry because of the oil shale industry and construction, as wages there rose more slowly than they did in the economy on average. Meanwhile, both employment and wages increased in the labour-intensive services sector faster than the average, though less fast than in the first half of the year. The expectations looking forward have improved for both construction and manufacturing. In manufacturing this is probably because of a recovery in external demand, and in construction it is because of an increase in investment in infrastructure.

Unemployment was 7.1% in the second half of 2016, which was higher than in the first half of the year, when it was 6.5%. The rise in unemployment came roughly equally from Harjumaa and Ida-Virumaa. The labour force survey shows employment was down over the year in Ida-Virumaa. In Harjumaa the additional unemployed came equally from increased labour force participation and lower employment. It is probable that the labour force survey overstates the increase in unemployment in Ida-Virumaa, because the data from Töötukassa, the unemployment insurance fund, show much more moderate growth, and put it mainly at the beginning of 2016.

At the same time that unemployment crept up a little, the vacancy rate climbed substantially. The vacancy survey found there were 30% more unfilled positions than in the second half of 2015. The biggest increase in the number of vacancies was in Harjumaa, but the number was also up in Ida-Virumaa. At the same time, labour flows increased, and there were 13% more separations initiated by the employee in the first three quarters of 2016 than a year earlier. This partly indicates increased movement between jobs, but it also shows that it is harder than before to fill vacancies. In companies that employees have left it may be harder than it used to be to offer a high enough wage to attract a replacement.

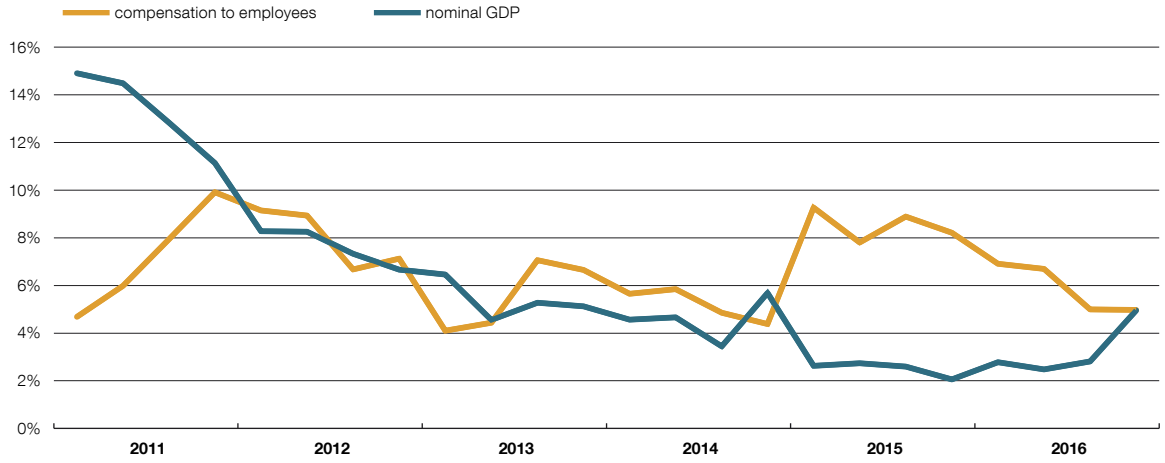
Over the long term the labour supply is determined by the number of people of working age and the probability of them participating actively in the labour market. The labour participation rate in Estonia is already one of the highest in Europe, especially for the over-50s. Some further rise in the labour participation rate may be expected as younger generations stay in the labour market longer than older generations do. Participation will also be lifted by the work ability reform and a rise in the retirement age. The decline in the number of people of working age has slowed much more in recent years than had been forecast. This review discusses the new population forecast by Eurostat in more detail, as it is the first to assume that the migration balance will remain positive in the future. It finds the population will fall by 2040 at half the rate that was used in the optimistic scenario of the earlier forecasts by Statistics Estonia.

THE COST OF LABOUR AND PRODUCTIVITY

Unit labour costs

The rise in labour costs slowed in the second half of 2016, while GDP growth sped up (see Figure 1). Compensation to employees increased by 5% during the second half of 2016, this being 1.8 percentage points less than in the first half of the year. This put a stop to the decline in the competitiveness of companies that had been caused by two years of rapidly rising labour costs at a time when labour productivity was stalled.

Figure 1. Compensation to employees and nominal GDP growth

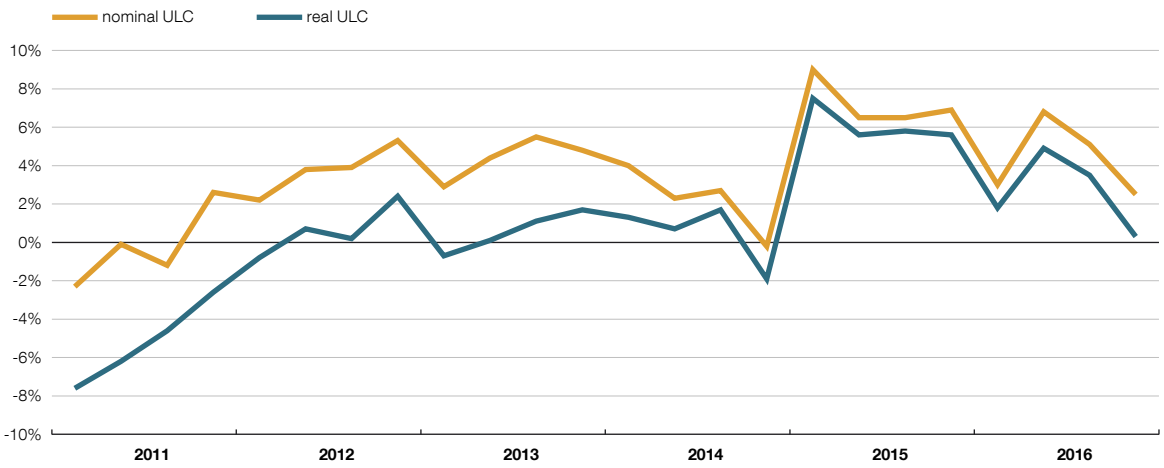


Source: Statistics Estonia

In 2012–2014 companies were able to pass the increased labour costs on into product prices as the non-price competitiveness of companies improved. This was probably no longer possible in 2015–2016, and so companies had to cover their increased costs from profit margins. This is illustrated by the difference shown in Figure 2 between the growth in nominal and real unit labour costs, which measures the price growth in one unit of real value added. The unit price of GDP increased until 2014, but at the same time real unit labour costs, which are a close approximation of the labour share in GDP, were largely unchanged. The growth in real unit labour costs picked up in 2015–2016. This is always accompanied by a reduction in corporate profit margins, which could mean a fall in the number of jobs and a drop in the attractiveness of Estonia as a location for production.

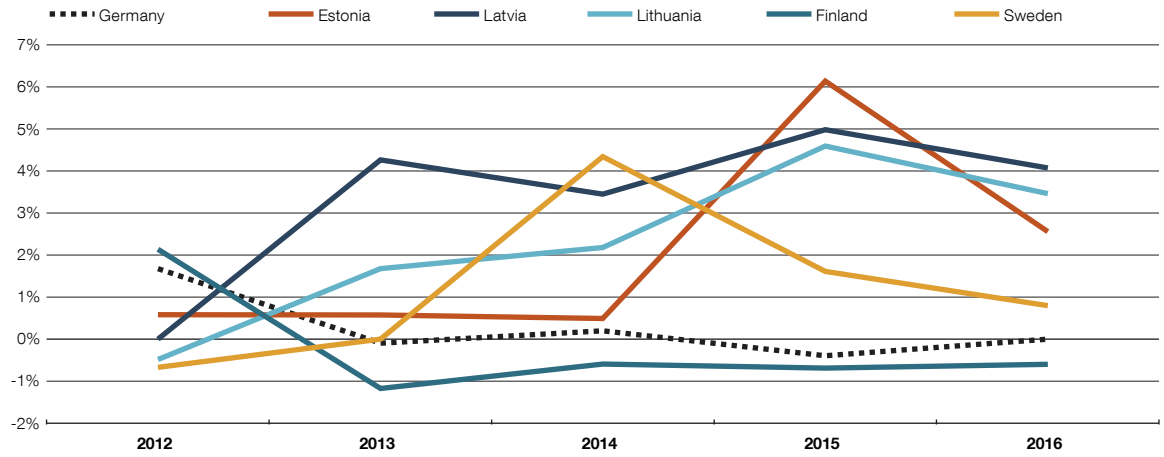
From 2015 real unit labour costs started to increase faster in Estonia than in other European countries (see Figure 3). By the end of 2016 they had reached 49%, which is one percentage point more than the average for the 19 countries in the euro area. The relative change in unit labour costs against those of other countries is an even more important indicator of competitiveness than the domestic figure alone. Reduced profitability at companies is a much greater threat to competitiveness when there is no fall in profitability in alternative countries where production could be based. Similar development to that in Estonia has been particularly notable in recent years in Latvia and Lithuania, and the Baltic states were the top three in the euro area for this indicator. Growth in real unit labour costs slowed in Estonia, Latvia and Lithuania in 2016, while it accelerated in many other countries in the European Union.

Figure 2. Unit labour cost growth



Source: Statistics Estonia

Figure 3. Real unit labour cost growth

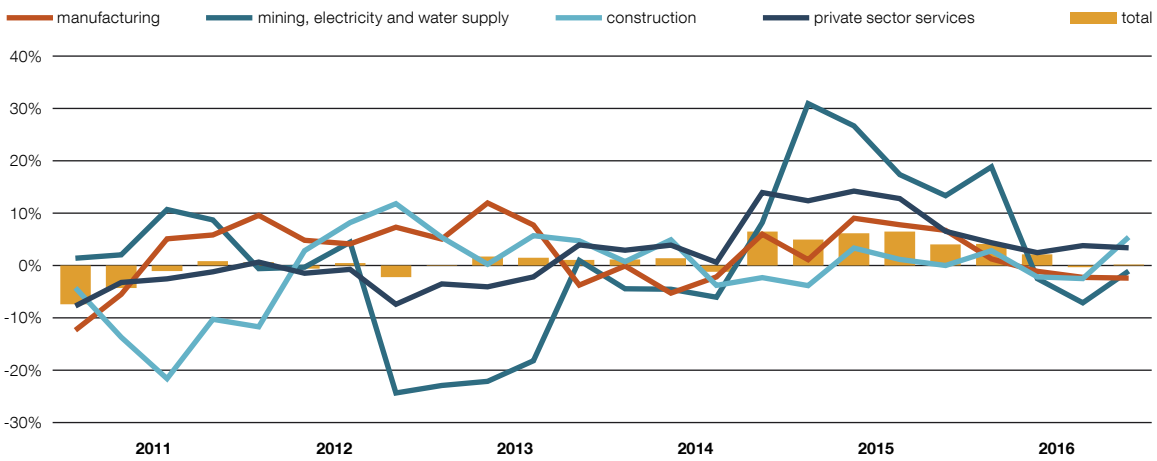


Source: Eurostat

Growth in real unit labour costs slowed in most sectors in the second half of 2016. The small size of the sample for the labour force survey means there can be large fluctuations in the share of waged workers in total employment across sectors and across quarters, so Figure 4 has assumed that the share of waged workers does not change over time[1]. This assumption makes a change in unit labour costs equal to the change in the payroll as a share of GDP. The change was more noticeable in the mining, energy and water supply sector, a large part of which is accounted for by the oil shale industry. Value added started to grow there after the crisis years, and at the same time the payroll for the sector shrank due to a reduction in the number of employees and to pay cuts.

1 In fact it is useful to adjust the measure of unit labour cost by the share of waged workers, as the payroll only includes the income of waged workers, but not the income of the self-employed. However, GDP is produced by both waged employees and the self-employed. This means the change in the labour share can be affected by an increase or reduction over time in the share of waged workers.

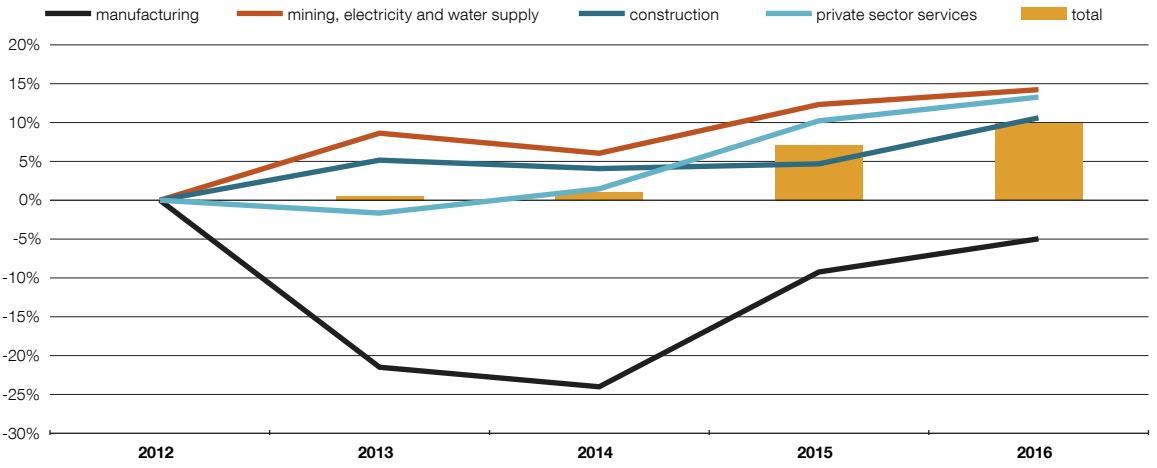
Figure 4. Real unit labour cost growth (not corrected for the share of waged employees)



Sources: Statistics Estonia, Eesti Pank calculations

Growth also slowed at the start of 2016 in real unit labour costs in manufacturing, which is Estonia's main exporting sector, and it was down 2.4% in the second half of the year. This was driven by both faster growth in value added and slower growth in the payroll. The level of real unit labour costs in manufacturing was 6.5 percentage points higher in 2016 than its average for 2004–2007, the years before the financial crisis. It has risen by 14.2% since 2012 (see Figure 5), with account taken of the change in the share of waged employees because of the length of the period under observation. Growth in unit labour costs in manufacturing in 2015 and early 2016 may have been strongly affected by sub-sectors that are closely connected to the oil shale sector, such as the manufacture of coke and refined petroleum products. In that period the deflator for value added in manufacturing was negative, indicating falling prices in the sector.

Figure 5. Real unit labour cost growth from 2012



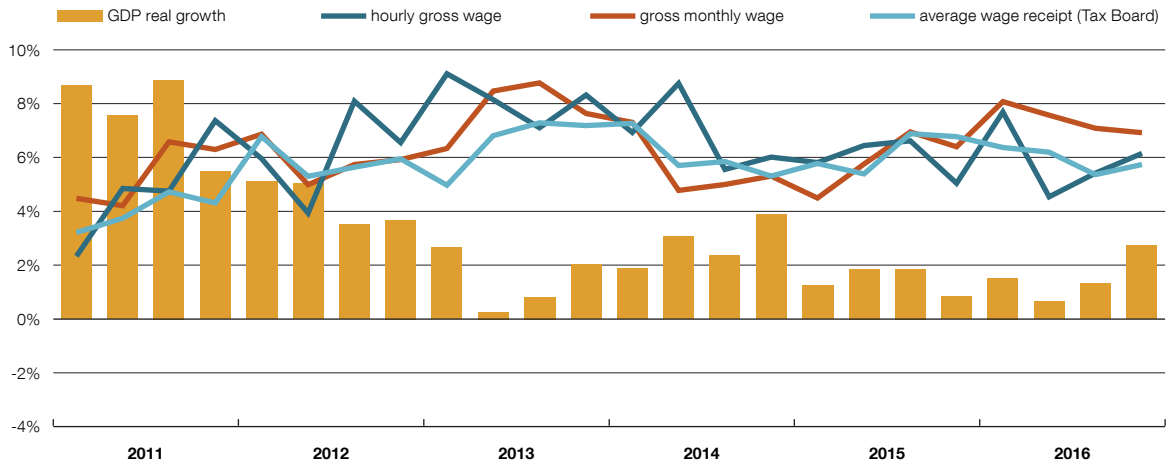
Sources: Statistics Estonia, Eesti Pank calculations

Slower growth in unit labour costs in the second half of 2016 was due to both increased growth in productivity and reduced growth in the payroll. The growth in the payroll was in turn slower because employment was less than it was a year earlier, and wage growth was more modest. Both of these indicate that there was more slack in the labour market than before.

Average wages

The average gross monthly wage rose more slowly in the second half of the year than at the start of the year, and the same was true of most other indicators for pay. The slowdown was not very large though, and the average wage still rose faster in the second half of 2016 than it did in 2015. Like in the first half of the year, the pay indicator that saw the largest rise was the full time equivalent gross monthly wage, which was up 7.8% in the first half of the year and 7% in the second half. The rise in the average gross hourly wage was also smaller in the second half of the year than in the first, though it picked up again in the fourth quarter. Data from the Tax and Customs Board show that growth in the average wage declared was less than that in the full time equivalent gross monthly wage, indicating that the average number of hours worked per employee may have fallen (see Figure 6).

Figure 6. Wage growth and GDP growth

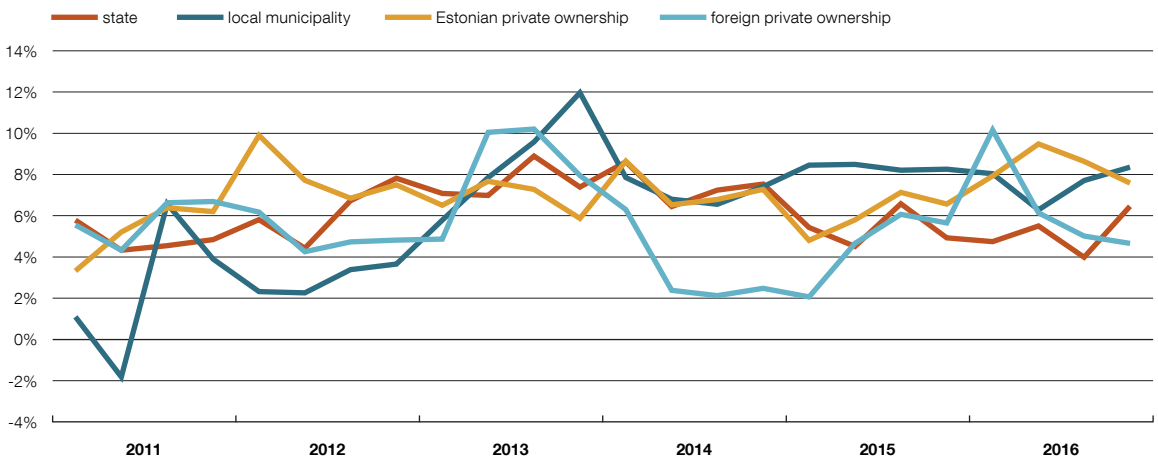


Sources: Statistics Estonia, Tax and Customs Board, Eesti Pank calculations

Faster growth in wages in the first half of 2016 and slower growth in the second half was mainly due to Estonian-owned and foreign-owned companies in the private sector. At the same time, wages in the public sector developed in the opposite way, with growth accelerating in the second half of the year, especially the fourth quarter, after a moderate first half (see Figure 7). There was an exceptional jump in wages in the first quarter of 2016 in foreign-owned companies, to which irregular bonuses contributed. There was a jump in wage growth in the financial sector at the same time. The growth in the full time equivalent average monthly wage increased particularly in 2016 in Estonian-owned companies, while the growth rate for hourly wages remained relatively stable. This may be because of changes in working time, and also because of changes in pay for hours not worked, which is included in monthly wages but not in hourly wages.

In contrast to those in the private sector, wages in state and local government employment grew at a faster rate in the last quarter of 2016, especially hourly wages. Rapid wage growth in local government has been due to collective wage agreements in the healthcare sector, and additional rises in wages for teachers. In state employment there has been

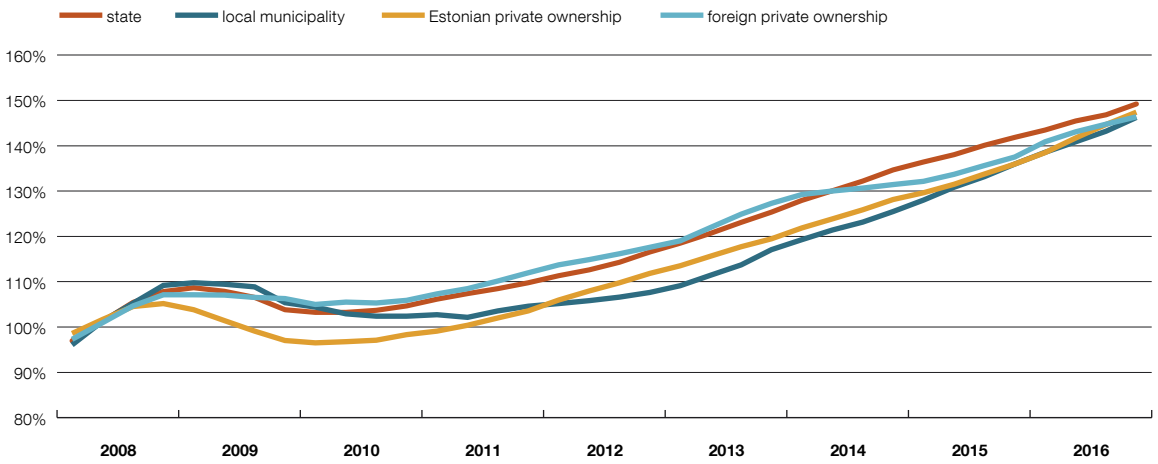
Figure 7. Wage growth by type of ownership



Source: Statistics Estonia

some slowing since 2015, which has contributed to a narrowing of the gap between the cumulative wage increases in the public and private sectors since before the crisis. In 2014 the wage level in government employment taken in comparison to that of 2007–2008 was almost seven percentage points more than in the Estonian-owned private sector (see Figure 8). By the end of 2016 this gap had narrowed to less than two percentage points.

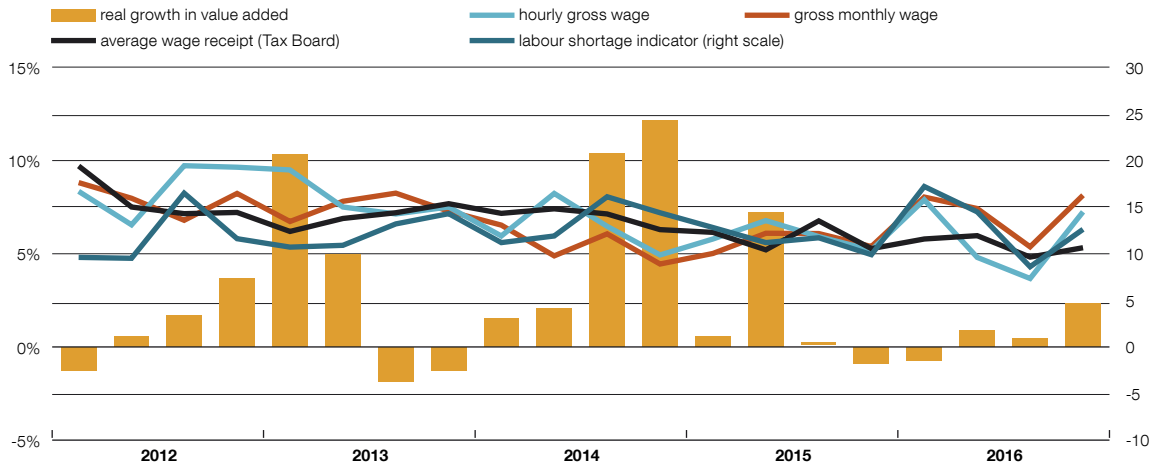
Figure 8. Wage growth by type of ownership, four-quarter moving average; comparison to 2007-2008 average



Sources: Statistics Estonia, Eesti Pank calculations

Wage growth in the secondary, industrial, sector was clearly below the average in 2016 because of the mining and energy sector, where the value added of companies fell in 2015 and 2016 as energy prices were low. The situation improved in the second half of 2016 though, and this was reflected in a recovery in wage growth. The average gross monthly wage in manufacturing was up 6.7% in the half year, which was a little less than in the first half, but the rate of growth picked up in the fourth quarter (see Figure 9). The pressure of

Figure 9. Growth in wages and value added in manufacturing



Sources: Statistics Estonia, Tax and Customs Board, Estonian Institute of Economic Research, Eesti Pank calculations

demand for labour increased in manufacturing throughout 2016 though, and at the end of the year both employment and productivity were growing and corporate expectations for employment had increased. Data from the Tax and Customs Board show the growth in the average wage paid out in manufacturing in the second half of 2016 was 5-6%, or around one percentage point less than in the first half of the year. There were major differences between sub sectors however, as the average declared wage in branches of industry connected to the oil shale sector, such as production of coke or refined petroleum products, fell, while wages in wood processing and textiles rose faster than the average.

Wage growth in the secondary sector slowed in the second half of 2016 in construction too, where the average wage was up by only 1.3%. The recovery in growth in value added at the end of 2016 and the significantly improved outlook for growth as projects funded by Structural Funds were started have not yet had any impact on wage growth. The share of companies in construction that gave labour shortages as a factor hindering output increased during 2016, indicating that wage pressure is building (see Figure 10).

Figure 10. Growth in wages and value added in construction

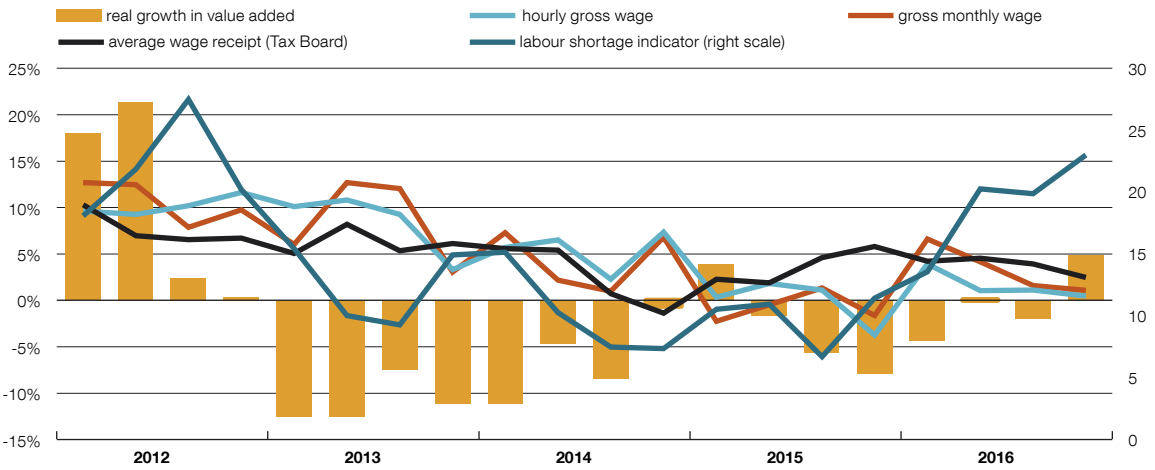
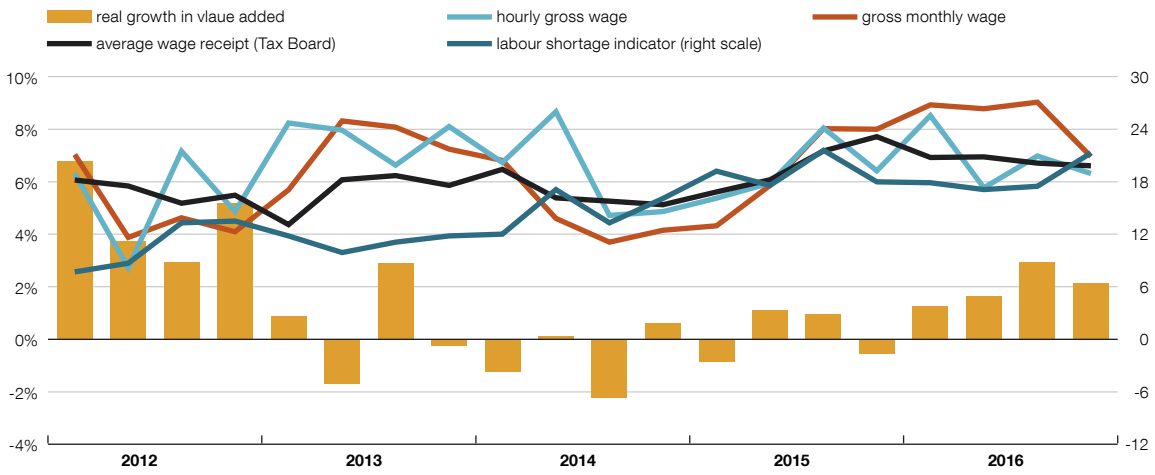


Figure 10. Growth in wages and value added in construction

The rise of the average monthly wage in services in the private sector in the second half of 2016 slowed by around one percentage point, but at 8% it was still faster than average growth in the economy (see Figure 11). Although the share of companies in the service sector citing labour shortages as a factor hindering output has remained stable for the past two years, it has increased a lot since the crisis and reached the level it was at just before the economic boom years.

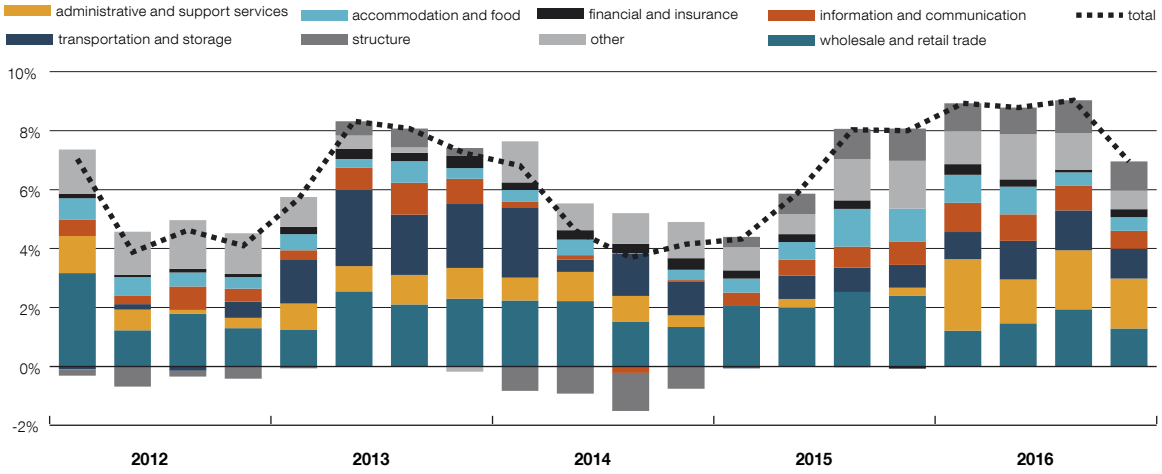
Figure 11. Growth in wages and value added in private sector services



Sources: Statistics Estonia, Tax and Customs Board, Estonian Institute of Economic Research, Eesti Pank calculations

Wage growth slowed in the last quarter of 2016 in most parts of the service sector other than retail and transport and storage. The part of the service sector with the fastest wage growth in the second half of the year was administrative and support activities, where it was 16.9%, followed by real estate activities at 12.3% and information and communications at 8.8%. There was a sharp fall in full time equivalent employment in the first two of those, though it increased in information and communications. Not only did wages rise, but the wage growth in the service sector was boosted by a positive structural effect, as wages rose faster in branches of services with higher wage levels than they did in branches with low wages.

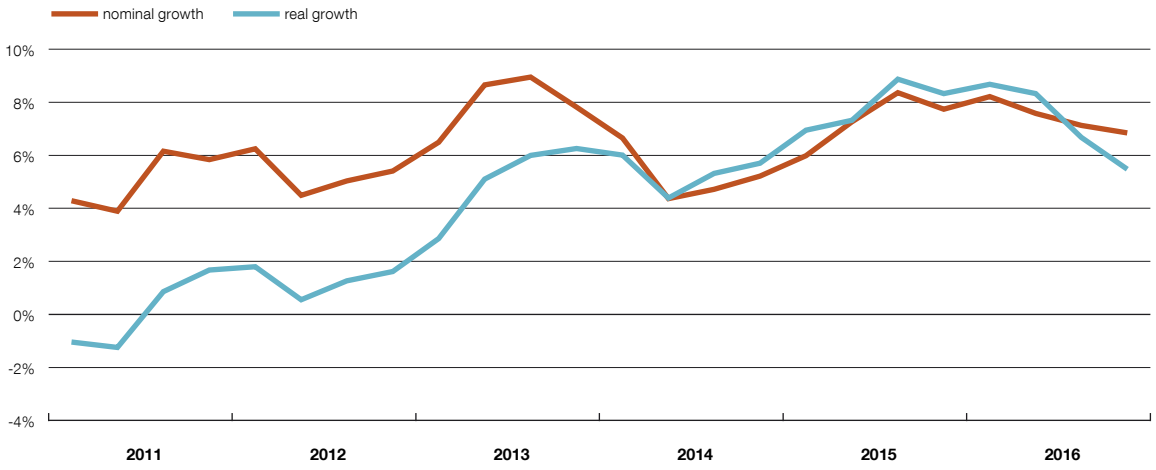
Figure 12. Contributions to the average wage growth in the services sector



Sources: Statistics Estonia, Eesti Pank calculations

The improvement in the purchasing power of waged employees is shown best by the rise in real net wages, which was brought down noticeably by faster inflation in the fourth quarter of 2016 from 8.5% in the first half of the year to 5.5% (see Figure 13). Unlike in 2015, labour taxes did not contribute significantly to the growth in the purchasing power of waged employees in 2016. The tax free income threshold was raised from 154 euros to 170 euros, which affected the purchasing power of the average wage by only 0.4 percentage point. When it is not possible to cut wages and employees have certain expectations about the rate that nominal wages will rise at, the return of inflation offers support to companies in growing out of the increase in labour costs.

Figure 13. Nominal and real growth in net wages



Sources: Statistics Estonia, Eesti Pank calculations

Tax rebates for the low paid, which will be distributed in the third quarter of 2017, will have a bigger effect on net wages. The Tax and Customs Board says that 78,000 applications for tax rebates had been submitted by the end of March. The average rebate will be for 369 euros according to the data in the middle of March. The conditions for receiving the rebate were that the applicant had to have worked full time for at least six months in 2016, unless on work incapacity benefits, in which case the full time work requirement did not apply, and must have earned less than 7817 euros in income from wages, pensions, dividends and other sources. People qualified for this support if they had worked all year and received a wage of no more than 651 euros a month. A smaller tax wedge in the lower part of the wage distribution should increase motivation to participate in the labour force, but the long wait between doing the work and receiving the tax rebate may reduce that effect. The tax cuts soften the opinion of households about slowing wage rises and can help employers to put a brake on the growth in labour costs.

Box 1: Factors affecting wages

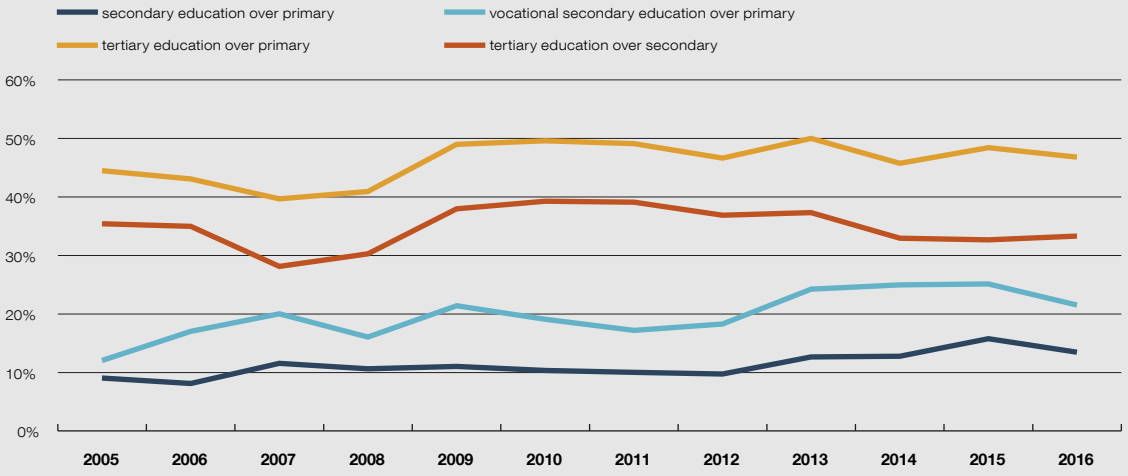
An important factor in wage-setting is the productivity of employees, which in itself depends on human capital. This is the set of knowledge and skills that a person has, which can be extended through education and at work from experience and additional training. How returns to education have evolved over the past decade in Estonia can be estimated with a Mincer[2] earnings

2 This type of wage equation was first proposed by Jacob Mincer in an article "Investment in Human Capital and Personal Income Distribution" published in 1958 in the Journal of Political Economy.

function using micro-data from the Estonian labour force survey. The earnings from secondary and secondary professional education have increased more than those from basic education, while those from higher education have remained steady since the crisis. The wage gaps between people with secondary and higher education narrow at times of high demand for labour and widen when the economy turns down. This is because the fluctuation in the demand for qualified specialists is smaller across the economic cycle than that for jobs that require secondary education, though it is probably also because of an increase in the share of employees with higher education.

The dependent variable in the wage equation used in this box is the monthly net wage, and the explanatory variables of interest are the education level and experience. To observe how the coefficients for education and experience change over time, the same equation is estimated separately for each of the years 2005-2016. As the survey does not give the number of hours worked to earn the most recent wage, only full-time employees are included in the sample. Equally, people working outside Estonia are excluded as their wages are set by conditions in the country where they are working. As expected, human capital is an important explanatory variable in setting wages, as the wage premium for a higher level of education is always positive. The wage premium for higher education over basic education was 47% in 2016, with 95% confidence bounds at 43.4% and 50.1%, while that over secondary education, including vocational education that does not give a secondary vocational certificate, was 33%, with 95% confidence bounds of 30.9% and 35.7% in 2016 (see Figure B1.1). If occupation is included in the model alongside the level of education, the estimated wage premium from education is reduced. A part of the earnings from education comes from increased opportunities to work in more complex jobs.

Figure B1.1. The effect of education on net wages

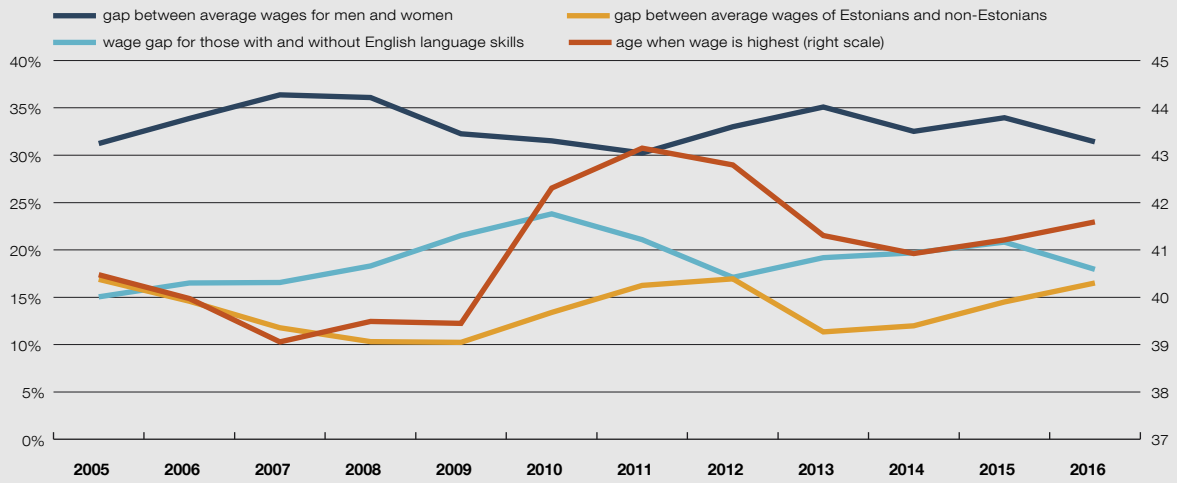


Sources: Labour Force Survey, Eesti Pank calculations

Increasing experience at work also raises the wages of employees. Labour economists, including Jacob Mincer, explain this by the investment each employee makes in their own human capital. The motivation to invest in human capital is greater at the start of a career as training can be profitably exploited for a long time, though at the same time, human capital depreciates as knowledge and skills date and decline over time. As the labour survey does not give more detailed data on years of work, the present research used age and the square of age as an approximation of work experience. Like in earlier research, the parameter for age had a positive sign and that for age squared had a negative sign, meaning that wages rise at first as age increases, but then they start to decline. All else being equal, the estimated highest wage in Estonia is earned at around the age of 41, and that age has risen in the past decade (see Figure B1.2).

Other variables that affect wages need to be included in the model for it to estimate the effect of education and experience correctly. The control variables in the equation alongside education and experience are gender, nationality (Estonian and non-

Figure B1.2. Effect of demographic characteristics and English language skills on net wages



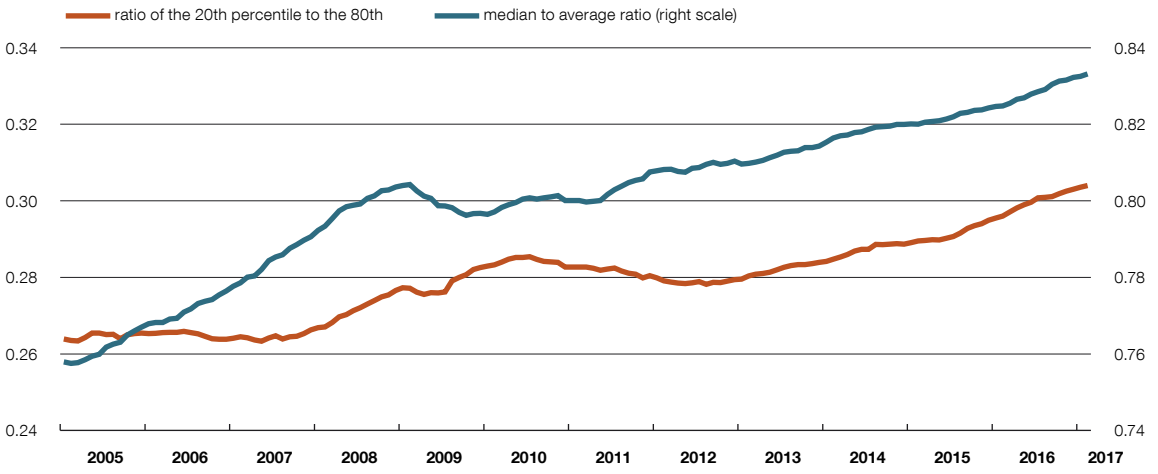
Sources: Labour Force Survey, Eesti Pank calculations

Estonian), job location (five regions), and knowledge of English at any level. Like the wage survey, the labour force survey reveals a gender pay gap. If age, gender and job location are the same, Estonians receive a wage that is around 20% higher (with 95% confidence bounds of 15.7% to 20.2%) than that received by employees of other nationalities.

Wage distribution

Statistics from the Tax and Customs Board on the distribution of wages paid out show that wages in the lowest part of the wage distribution rose fastest in 2016, as they did in previous years, reducing wage inequality. The spread of the wage distribution is also shown by the ratio of the median wage to the average wage, which rose from 80.3% to 81.1% in the second half of 2016 in the Tax and Customs Board figures for the monthly wage paid out (see Figure 14).

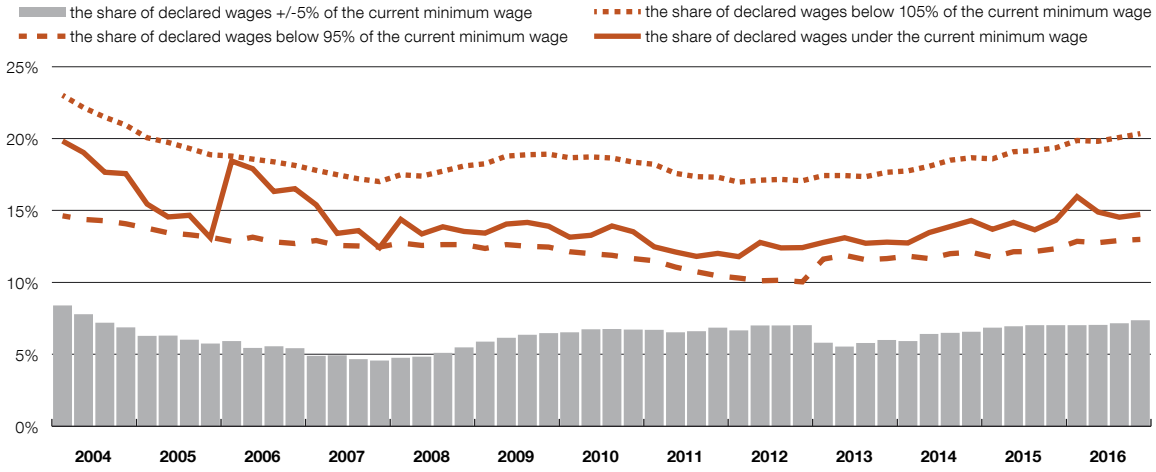
Figure 14. Distribution of declared wages



Sources: Tax and Customs Board, Eesti Pank calculations

Faster growth in the lower end of the wage distribution is built on rises of around 10% each year in the minimum wage in 2014–2017. The minimum wage reached 430 euros in 2016, and it was raised by 9.3% to 470 euros in 2017. Around 15% of all the wages paid out in 2016 were below the minimum wage. A large share of these are wages for part-time work, but these cannot be distinguished in the data from the Tax and Customs Board. The share of wages paid that are around the level of the minimum wage has gradually increased in recent years. In 2016, 7.2% of wages paid were within 5% more or less than the minimum wage, which is 1.3 percentage points more than in 2013 (see Figure 15).

Figure 15. Wages below the minimum wage as a share of all wages paid



Sources: Tax and Customs Board, Eesti Pank calculations

DEMAND AND SUPPLY FOR LABOUR

Employment

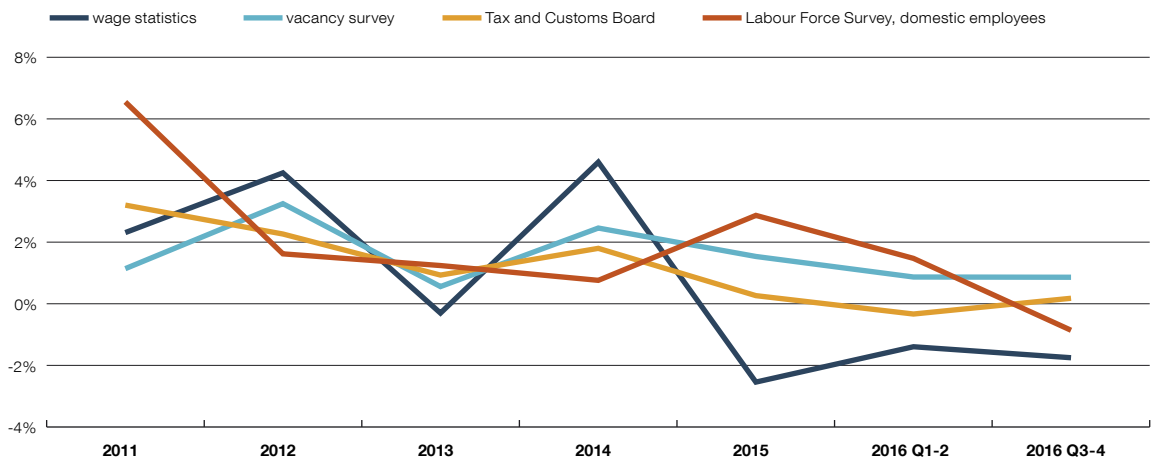
The rise in unit labour costs was slowed in the second half of 2016 partly by some easing in pressures from demand for labour and partly by an increase in the supply of labour. Most employment indicators suggest that the growth in employment slowed in 2016. The labour force survey showed a reduction of 0.9% in the second half of 2016 in the number employed in companies and institutions in Estonia, the number having previously risen for two years. The decline in total employment, which is employment of Estonian residents, was slightly smaller at 0.7%, as the number of Estonian residents working abroad has been rising since the second half of 2015. Like it was in the first half of last year, the demand for labour was larger in the service sector.

The employment rate, which is the share of the working age population, aged 15-74, who are in employment, was a little lower in the second half of the year than previously, but the labour force survey estimates that in the year as a whole it rose to 65.6%, which is its highest level for 20 years. The only countries in the European Union where the employment rate is higher than in Estonia are Germany and Sweden.

The labour force survey is a voluntary survey and the figure it gives for employment in each quarter is based on a sample of around 4500 individuals, so the confidence bounds for the employment growth rates in it are quite wide. For this reason it is important to look at other data sources giving information on numbers of employees too. These include the enterprise statistics that draw on corporate quarterly accounts, the wage survey, the vacancy survey, and data from the Tax and Customs Board on wage recipients (see Figure 16). These surveys cover various parts of employment, so there can be discrepancies in the indicators they give for employment.

Like the labour force survey, the wage survey, which converts employee numbers into full-time equivalents, shows the number of employed falling. The results of the wage survey

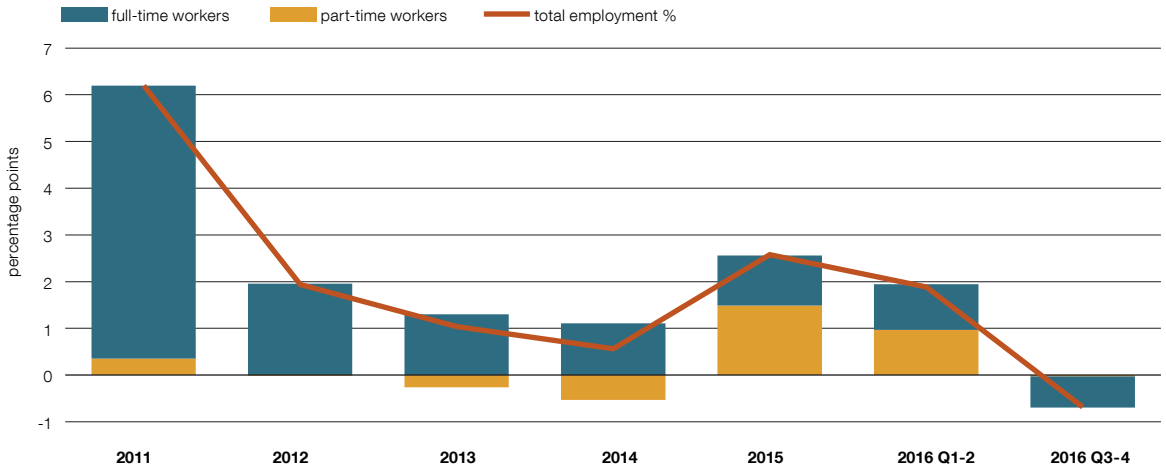
Figure 16. Yearly growth in employment from various sources



Sources: Statistics Estonia, Tax and Customs Board

together with the data from the labour force survey on full and part-time work (see Figure 17) indicate a fall in the number of full-time employees. Despite this, both surveys find the average number of hours worked per waged employee rose, by 0.2% in the labour force survey and by 1.2% in the wage survey. The Tax and Customs Board data provide the only source that contains just registry data, and they find no notable change from a year earlier in the number of recipients of declared wages in the second half of the year. The difference between these data and the number from the labour force survey was smaller than in the first half of 2016.

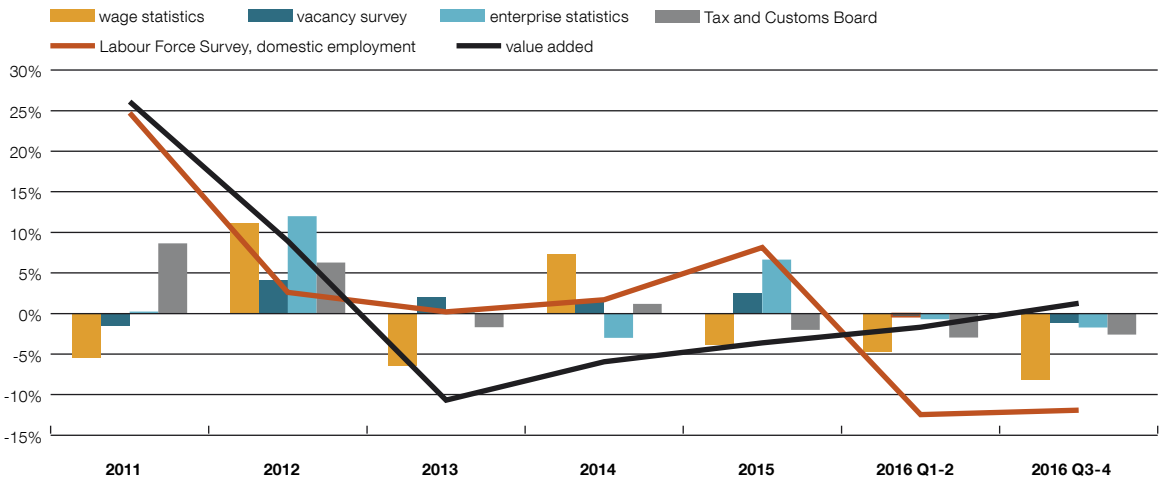
Figure 17. Yearly change in the number in employment by working time



Sources: Statistics Estonia, Eesti Pank calculations

Data from the labour force survey show the number employed in the secondary sector fell in the second half of 2016, especially because of construction and non-manufacturing industry, which is mining, energy and water supply. The labour force survey estimated that an average of 48,000 people worked in construction in the second half of 2016, which is around 6500 or 12% fewer than a year earlier (see Figure 18). Other data sources also

Figure 18. Growth in employment in construction from different sources and growth in value added

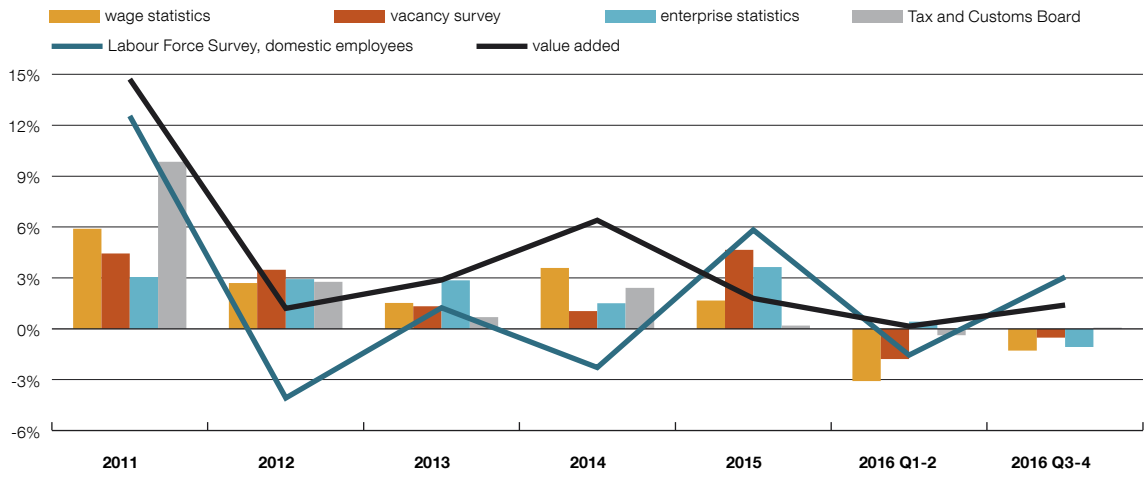


Sources: Statistics Estonia, Tax and Customs Board

show employment in construction was down, but by slightly less. Development in the construction sector has been restrained by low levels of investment in plant and facilities, which has not been balanced out by increased construction of buildings. Employment expectations for construction companies became more optimistic in 2016, probably because of plans for the general government to increase investment.

The labour force survey found the number employed in manufacturing, the largest part of the secondary sector, to be increasing in the second half of 2016, especially in the fourth quarter. Manufacturing is the largest exporting sector, and around one fifth of all the employed worked there in the second half of the year. The labour force survey data show that in the second half of the year there were on average 120,150 people employed by manufacturing companies, which is around 3550 more than a year earlier. At the same time, enterprise statistics, the vacancy survey and the wage survey find the number employed in manufacturing to be declining in the second half of the year (see Figure 19). Data from the Tax and Customs Board show that the number receiving wages in manufacturing was the same as a year before. The sentiment indicators for manufacturing from the Estonian Institute of Economic Research find employment expectations increasing sharply in the second half of 2016.

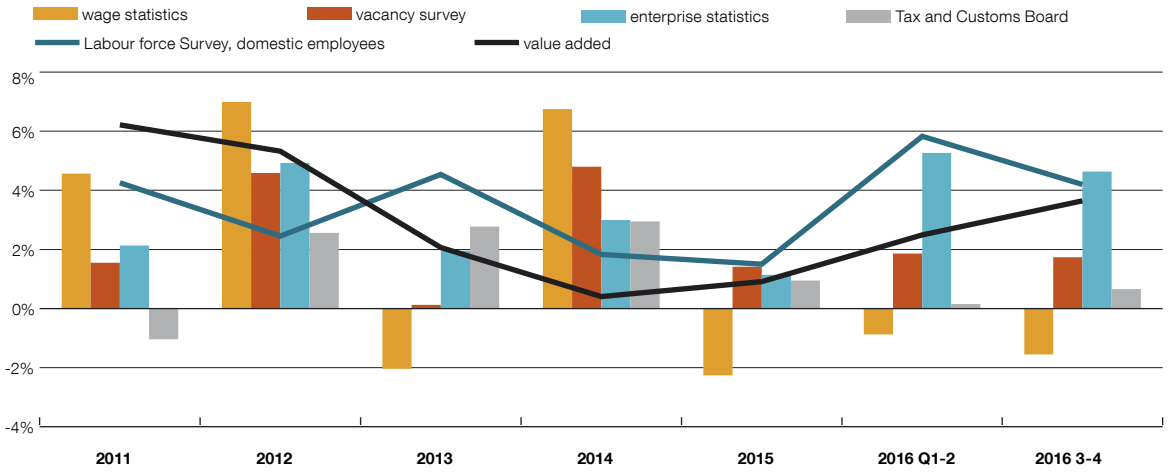
Figure 19. Growth in employment in manufacturing from different sources and growth in value added



Sources: Statistics Estonia, Tax and Customs Board

Employment in services, which is mostly in the private sector, increased in the second half of 2016. Services employed 286,000 people, or around 46% of all the employed, most of them in retail, transport and storage, information and communications, and accommodation and catering. Employment in these areas increased by 4.2% over the year in the second half of 2016, adding around 11,500 employees (see Figure 20). Enterprise statistics show a similar rise in employment to that in the labour force survey, while the Tax and Customs Board data on the number of waged employees show much less change in those areas. The wage survey finds that employment fell in those areas, but that survey uses full-time equivalent employment, so it may indicate an increase in part-time work in the sector. The employment expectations of retail companies were a little lower in 2016, which may be because of the roll-out of self-service checkouts, but also because there is a lot of retail space per resident in Estonia by international standards.

Figure 20. Growth in employment in private sector services from different sources and growth in value added



Sources: Statistics Estonia, Tax and Customs Board

Box 2: The reduction in general government employment[3]

The employment and wage policy decisions of the general government can affect the labour market and economic growth through several channels. The staffing policies of government institutions can affect the labour supply in the private sector, because they are often competing for the same labour. As a consequence, labour might move into areas where productivity is lower. This efficiency channel effect is larger when the general government is able to provide better conditions than the private sector, where wage growth is limited by market competition. If wage pressures increase in the economy, the competitiveness of the private sector can be reduced[4]. The effects of both channels are amplified in Estonia because the general government has quite a large share of employment at one fifth of total employment, and a shrinking and ageing population means that labour shortages and wage pressures have already started to restrict the private sector.

The efficient use of labour has also become important for the government itself, as public services still have to be provided even as the labour force shrinks. Furthermore, more efficient organisation of work allows the general government to limit growth in its budget expenses, as spending on labour accounts for around one third of total spending by the general government in Estonia.

Accepting the importance of this problem, the coalition government of the time agreed in 2015 to reform the state government. One aim of the reform is to improve the effectiveness of the general government, which includes making the central government institutions more efficient, reducing redundant repetition of work, and consolidating the execution of tasks[5]. The principle is followed in this that the number of general government employees should be cut in line with the general decline of the working age population. Working from population forecasts, the explanatory note to the 2016 state budget declared that the number of general government employees should be reduced by around 700 people, or 0.7%, a year.

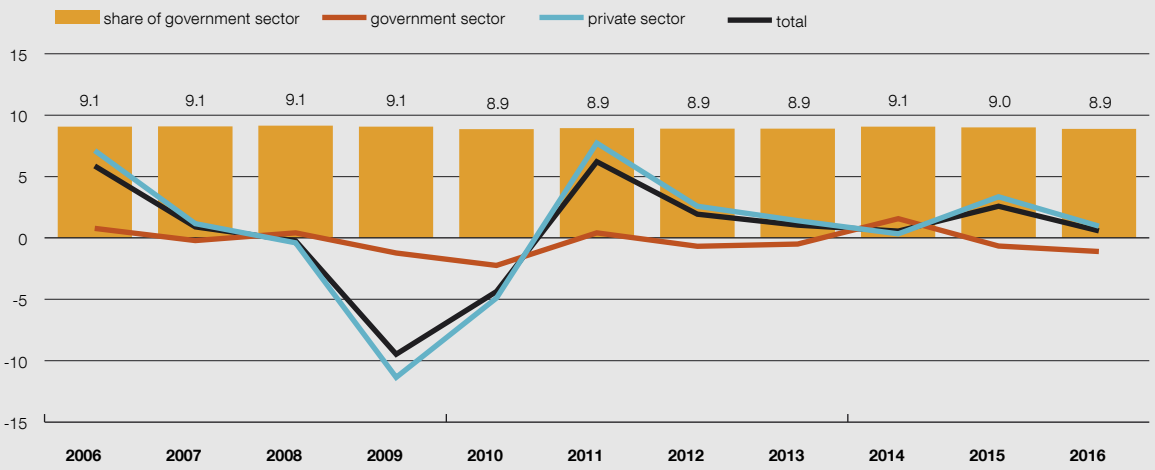
The number of general government employees in Estonia has been falling since the economic crisis, though the effect of the economic cycle was much more modest in the boom and crisis years than it was in the private sector (see Figure B2.1). The sharp rise in 2014 in the number employed was caused by a reclassification of institutions as part of the general government,

3 The data come from a database of balances where 1) employment is full-time equivalent, and 2) the general government is defined by the rules of the system of national accounts, which is in line with the financial accounting of the general government (for more on the distribution of institutions, see http://www.fin.ee/public/UUSPUU.png).

4 See for example Perez et al "The fiscal and macroeconomic effects of government wages and employment reform" (2016). Working paper of the European Central Bank.

5 See http://www.fin.ee/riigivalitsemise-reform/.

Figure B2.1. Growth in general government employment and as a share of the population



Sources: Statistics Estonia, Ministry of Finance, Eesti Pank calculations

rather than by a change in state employment policy. The general government employs 5500 fewer people than in 2008 but without the reclassification that number would have been 7500. As the population fell more slowly in that period, government employees shrank as a share of the population. The biggest drops were in 2010, when the goal was to cut general government spending, and last year because of the state reform.

The decline in the number of general government employees steepened in 2016 and was almost double the target set by the government. Preliminary data show the number of employees down by 1500, or 1.2%, which is double the fall in 2015. The decrease in employment was broadly based and occurred mainly in institutions financed from the state budget, but was also seen in local government and in public-law institutions and foundations. The reduction affected the number of employees in jobs of various levels and in most areas of activity.

Around half of the reduction in 2016 was in education, as reorganisation of work led to a reduction in the number of jobs in the Ministry of Education and Research and in local government. As the number of teachers rose, the reduction was in the number of officials and other staff, and in the staff of state universities. The largest reduction in numbers besides that in education was in law and order and security, primarily at the Ministry of the Interior. As planned, the number employed in social insurance funds rose in connection with the work ability reform, and in national defence in accordance with state security policy.

Staff cuts have left extra space in the budgets of government institutions for pay rises. Wages have risen faster in recent years in those institutions where employment has fallen more (see Figure B2.2). This has contributed to rapid growth in general government wages, which has been notably faster than that in the private sector in recent years (see the section on the average wage). As a result, the employment policies of the general government have impacted the supply of labour in the private sector in different directions. In one direction, general government employment has declined, easing labour shortages and the wage pressures in the private sector. In the other direction is the danger that rapid wage growth in the state sector, partly from collective agreements, will raise expectations for wages in the rest of the economy too.

Figure B2.2. Growth in wages and employment in consolidated units

Sources: Ministry of Finance, Eesti Pank calculations

Vacancies

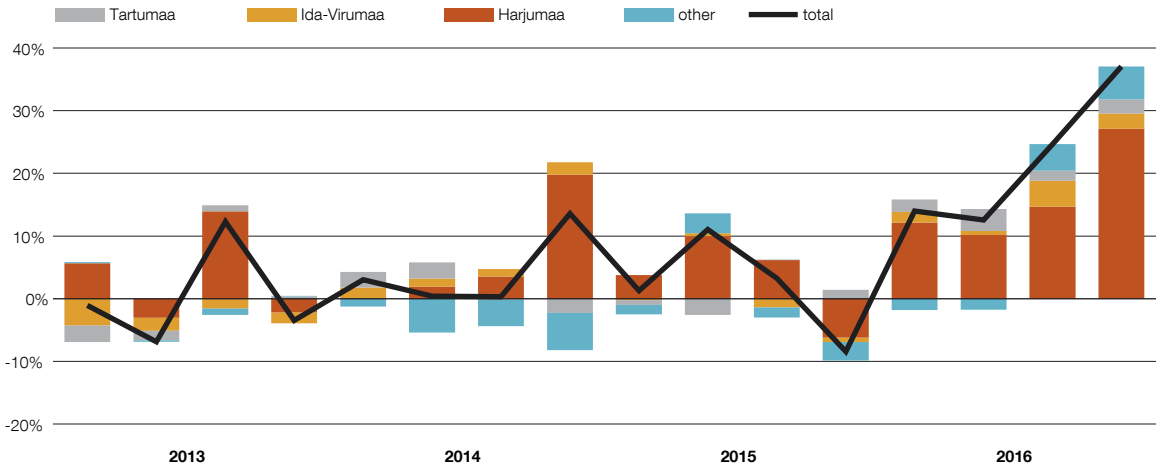
The number of vacant jobs increased by 30% in the second half of 2016 to reach a little over 10,000, according to the survey of vacant positions and labour mobility. A rise in the number of vacancies indicates that it was not possible to recruit new employees as quickly as before. The vacancy rate, which is the number of vacancies as a ratio to the total number of filled and unfilled jobs, was 1.8% in the second half of 2016, which is 0.4 percentage point higher than a year earlier. The rise in the vacancy rate is partly caused by employees changing job more frequently than before. The number of employment relations terminated at the initiative of the employee increased by around one fifth in the first half of 2016.

Over the year the number of vacancies increased most in administrative and support activities and in accommodation and catering. The vacancy rate is also highest in those areas. High labour intensity means that the largest number of vacancies is still in retail and wholesale. The vacancy rate rose by the same amount in central government administered employment and in the private sector, while it remained at about the same level as last year in local government. The region that contributed most to the rise in the vacancy rate was Harjumaa, but the number of job offers recovered strongly in Ida-Virumaa as well (see Figure 21).

The Beveridge curve illustrates the relationship between available labour and vacant jobs (see Figure 22). As the unemployment rate rose from the previous year at the same time that the number of vacancies did, it appears that matching between the people looking for work and the jobs that were available deteriorated.

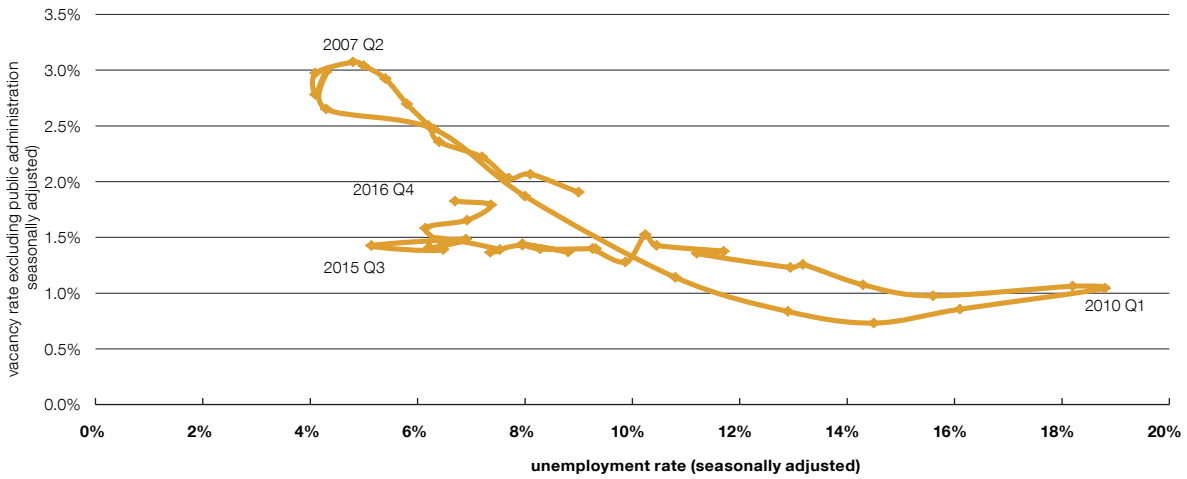
The match between job seekers and vacant jobs has become worse partly because the vacant jobs are mainly in Harjumaa and Tallinn, but the amount of available labour has increased largely in north-east Estonia. The Beveridge curve for Harjumaa alone shows that Harjumaa is in general moving along the curve in the direction of tightening (see Figure 23). The rise in the number of job offers in north-east Estonia and the downwards trend that is already visible in the number of unemployed there indicate that the labour market will improve soon in that region.

Figure 21. Increase in the number of vacancies and contributions of selected counties



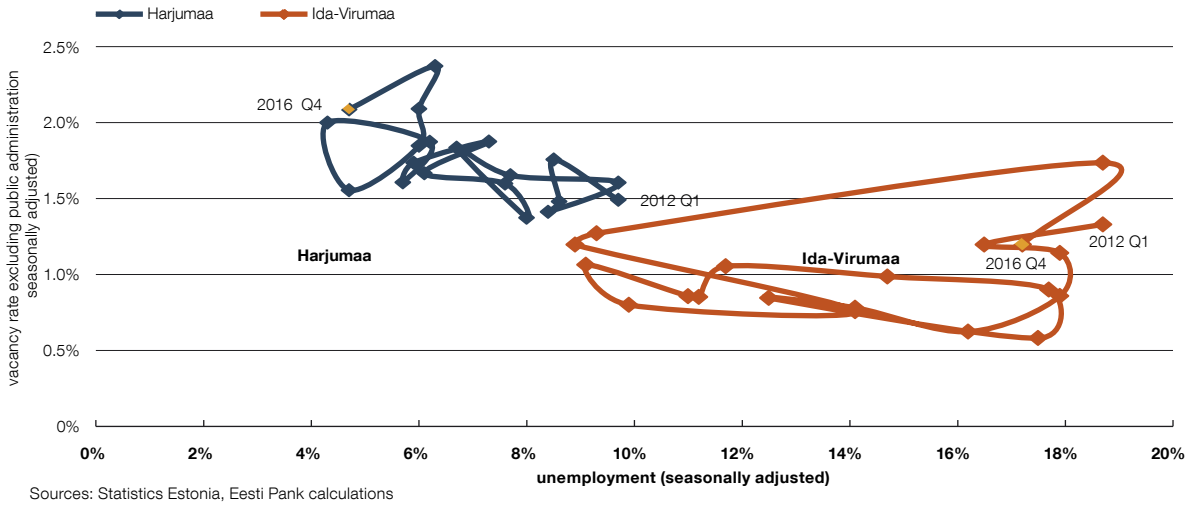
Sources: Statistics Estonia, Eesti Pank calculations

Figure 22. The Beveridge curve



Sources: Statistics Estonia, Eesti Pank calculations

Figure 23. The Beveridge curves of Harjumaa and Ida-Virumaa

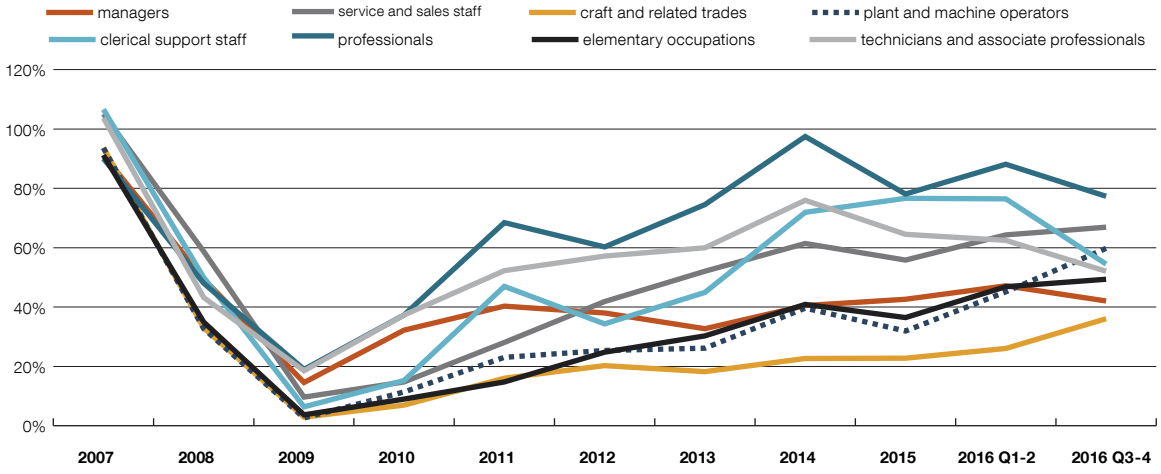


Sources: Statistics Estonia, Eesti Pank calculations

It is not compulsory in Estonia to inform Töötukassa of job offers, but at the end of each month in the second half of 2016 Töötukassa had an average of 4823 jobs on offer, or 48% of the number of vacancies. The rise of 26.5% in the number of vacancies was very close to the growth rate found by the vacancy survey. Töötukassa publishes statistics on vacancies by sectors of the economy and by jobs. In general the number of vacancies rose in jobs requiring fewer qualifications, with rises over the year of 24% in openings for service and sales staff, 41% for skilled manual workers, 67% for machine operators and assemblers, and 47% for unskilled workers. In contrast the number of vacancies for skilled professionals was down 4% in Estonia overall, though Harjumaa and Ida-Virumaa were exceptions to this as there was more demand for professional specialists there than a year earlier.

The number of vacancies in a given occupation as a ratio to the number of former employees in that occupation registered as unemployed was highest for machine operators and service staff. At the same time employees for jobs requiring high qualifications are less likely to be sought through Töötukassa than mid-level specialists or unskilled workers are. There are now more vacancies per unemployed person in top professional and managerial positions than there were during the boom (see Figure 24).

Figure 24. Vacancies per unemployed person by occupation, 2007-2008 average=100%

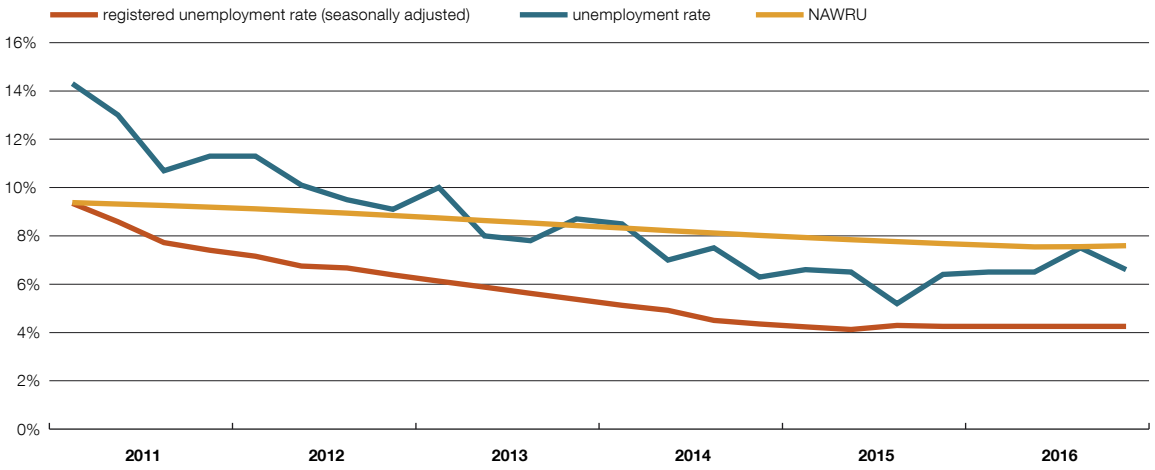


Sources: Töötukassa, Eesti Pank calculations

Unemployment

When the labour supply increases without demand increasing in the same region for people with the appropriate qualifications and skills, then unemployment rises. As there were more residents active in the labour market in the second half of 2016 than a year earlier and the number in employment fell at the same time, the number of unemployed rose by an average of 8800 in the second half of 2016 to 49,000 people. The unemployment rate, which is the ratio of the unemployed to the total number of people in employment or looking for work, rose according to the labour force survey from 5.8% in the second half of 2015 to 7.1% in the second half of 2016. Unemployment rose particularly in the third quarter (see Figure 25). Half of the rise in the unemployment rate in the second half of the year came from a rise in unemployment among men aged 25-49, while the other half was

Figure 25. Unemployment



Sources: Statistics Estonia, Töötukassa, Eesti Pank

due to equal rises in the rates for men and women aged 50-74. A positive point to note is that although the participation rate rose strongly during the year for women aged 50–74, the unemployment rate for that age group remains lower than the overall rate.

The non-accelerating wage rate of unemployment (NAWRU) is the estimated level of unemployment where there is no additional wage pressure in the economy and wage rises do not accelerate. It is high if a lot of the unemployed are structurally unemployed, meaning they do not compete for the employment positions available in the economy because they do not have the skills required or they are not, for example, prepared to change their place of residence in order to find a job. In the estimate of Eesti Pank, the NAWRU stopped falling in 2016 and the gap between the unemployment rate and the NAWRU was smaller than in the preceding couple of years.

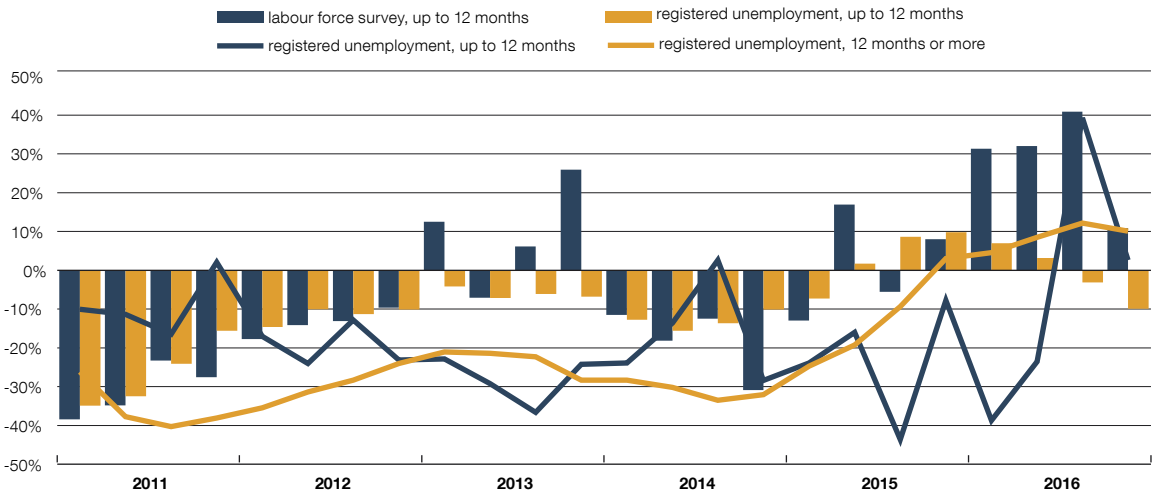
Although the labour force survey shows unemployment rising in the second half of 2016, the number registered as unemployed with Töötukassa rose by only 100 people in the second half of last year to 31,066. The county where the registered unemployed made up the largest share of the labour force in the second half of the year was Ida-Virumaa, where an average of 9.9% of the labour force was registered as unemployed. The number of registered unemployed fell fastest in Jõgevamaa and Läänemaa, where there were one fifth fewer people registered than a year earlier. The biggest rises in registered unemployment were of 8.3% in Järvamaa and 4.5% in Ida-Virumaa.

The labour force survey shows that unemployment rose because of falling employment most in north-east Estonia, which contributed around half of the fall. It should be noted though that the sample for the labour force survey is small and so the labour market figures estimated in the survey are very volatile. The unemployment rate also climbed in Harjumaa, though that was driven equally by lower employment and increased participation in the labour force. The labour force survey estimates that the number of unemployed is the same in Harjumaa as in Ida-Virumaa, but as Harjumaa has a notably larger active labour force the unemployment rate there is lower. Unemployment rose in north-east Estonia because of a fall in employment.

The rise in the number of registered unemployed has been slower because of a fall in the number of short-term unemployed (see Figure 26). The number registered as unemp-

loyed who were last in employment less than six months ago is lower because of a fall in the number of the newly registered. In the second half of 2016, 6.7%, or 529, fewer people registered as unemployed than a year earlier. The biggest falls in the number of newly registered unemployed were in Hiiumaa, Ida-Virumaa and Viljandimaa. The number of newly registered unemployed fell in Ida-Virumaa partly because of large-scale redundancies there a year earlier, which had created large numbers of newly unemployed. Although the labour force survey estimates that the number becoming unemployed has risen recently, that rise was notably slower in the fourth quarter. As unemployment insurance gives particular motivation to register as unemployed to those who have just lost their job, it may be assumed that the data from Töötukassa give a slightly more accurate picture of changes in the number of newly unemployed.

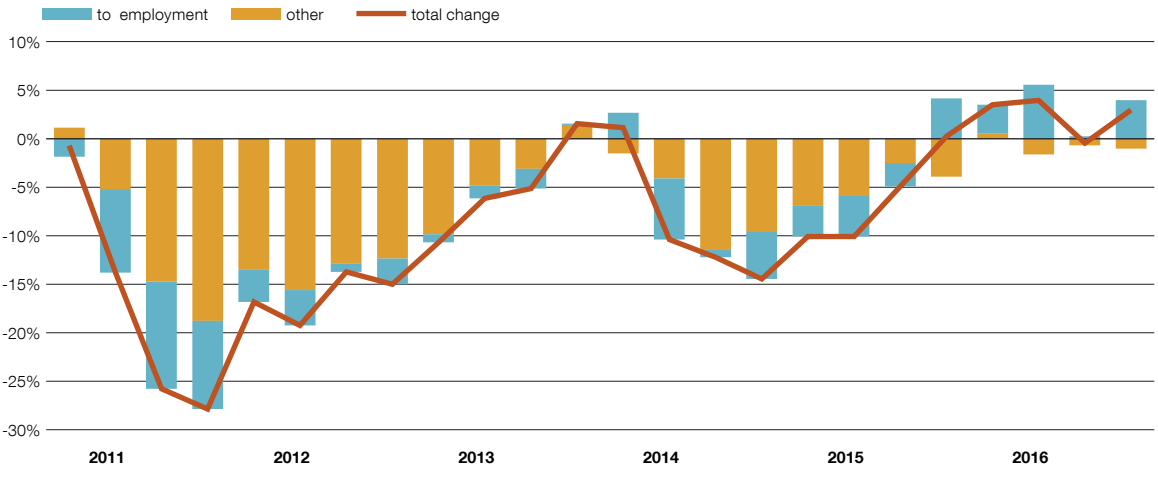
Figure 26. Yearly change in the number unemployed by duration



Sources: Statistics Estonia, Töötukassa

There were 29,840 people who exited registered unemployment in the second half of 2016, or some 320 more than a year previously. The primary growth was in exits from registered unemployment because of finding a new job (see Figure 27).

Figure 27. Outflow from registered unemployment, yearly change

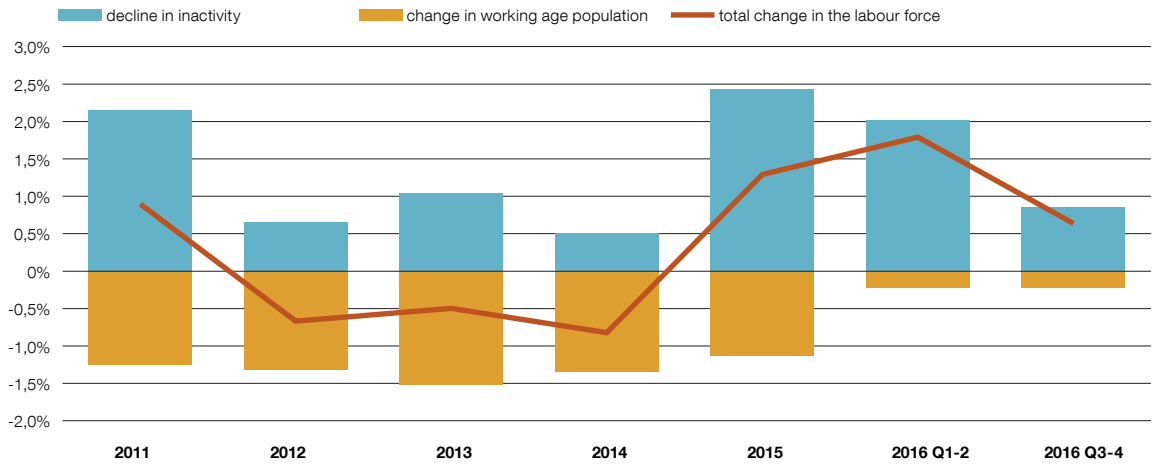


Sources: Töötukassa, Eesti Pank

Participation in the labour force and the working age population

The increased supply of labour increased the slack in the labour market in the second half of 2016. The labour force, which is residents aged 15–74 who are either working or looking for work, was 0.6%, or 4400 people, larger in the second half of 2016 than a year earlier according to the labour force survey (see Figure 28). Although the working age population shrank by around 1500 people, the amount of labour in Estonia increased because the labour force participation rate was high.

Figure 28. Change in the labour force



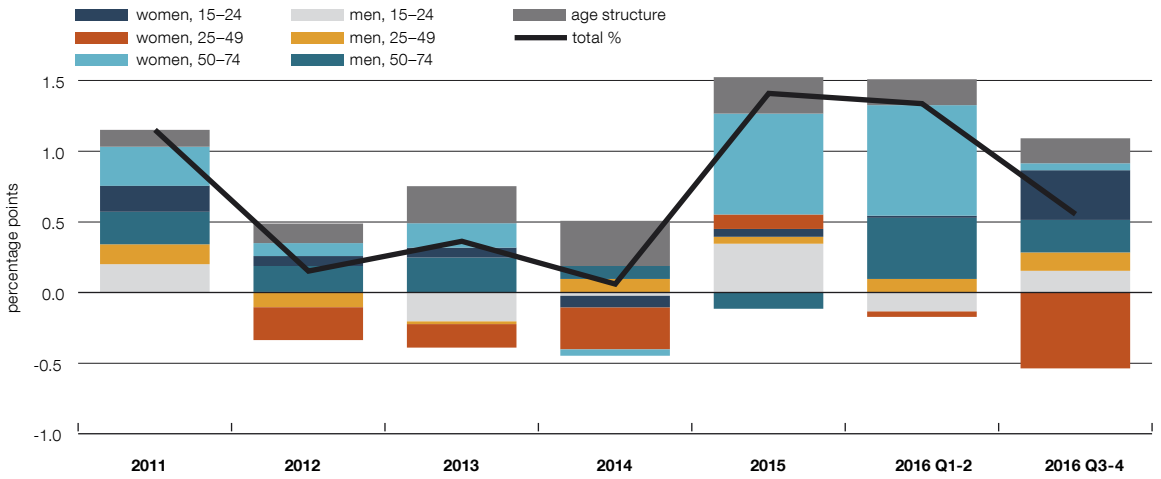
Sources: Statistics Estonia, Eesti Pank calculations

There were 5900 fewer people inactive in the labour market in the second half of 2016 than a year before, and the labour force participation rate[6] climbed to average 71% in the second half of the year. The reduction in the number of people inactive and the growth in the labour force occurred in the third quarter of 2016, and in the fourth quarter there was no great change from a year before. The activity rate of Estonian residents is very high next to those of other European countries, and the Estonian figure is only exceeded in Sweden. This means that the capacity to increase the labour supply by raising the activity rate of the population is becoming exhausted.

The activity rate of the working age population was found by the labour force survey to have risen in the second half of 2016 as men and young women participated more in the labour market (see Figure 29). The participation of women aged 25–49 in the labour market dropped quite sharply by 4800 people. The non-participation of women in this age group is largely due to childcare and caring for other family members (see Figure 30). Throughout 2016 the number of residents who were inactive in the labour market because they were approaching retirement or because of ill health fell, and so there was a rise in the participation rates for men and women aged 50-74, and they have become the highest in Europe (see Figure 31).

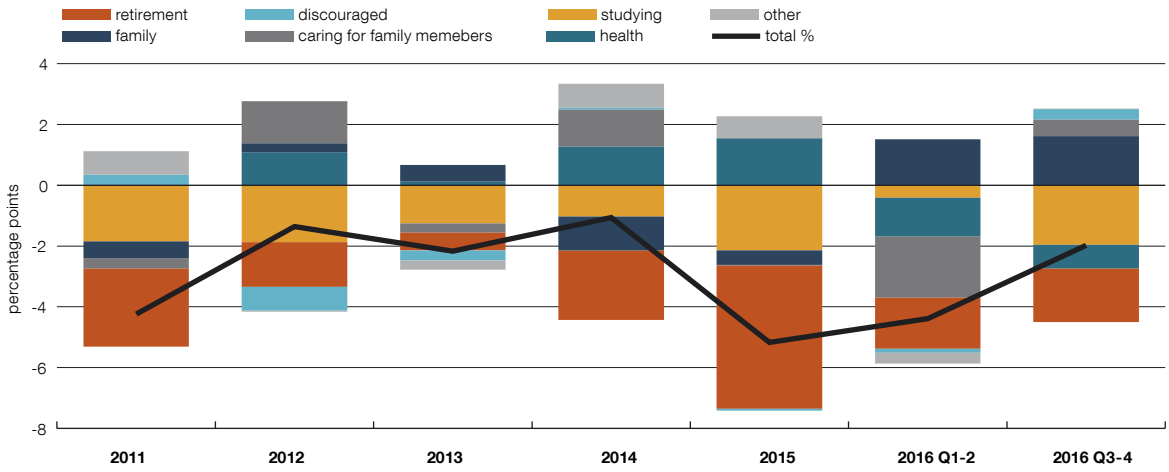
6 The labour force participation rate, or the level of activity of the working age population, is the weight of the employed and the unemployed in the working age population.

Figure 29. Contributions to the change in the participation rate by age and gender



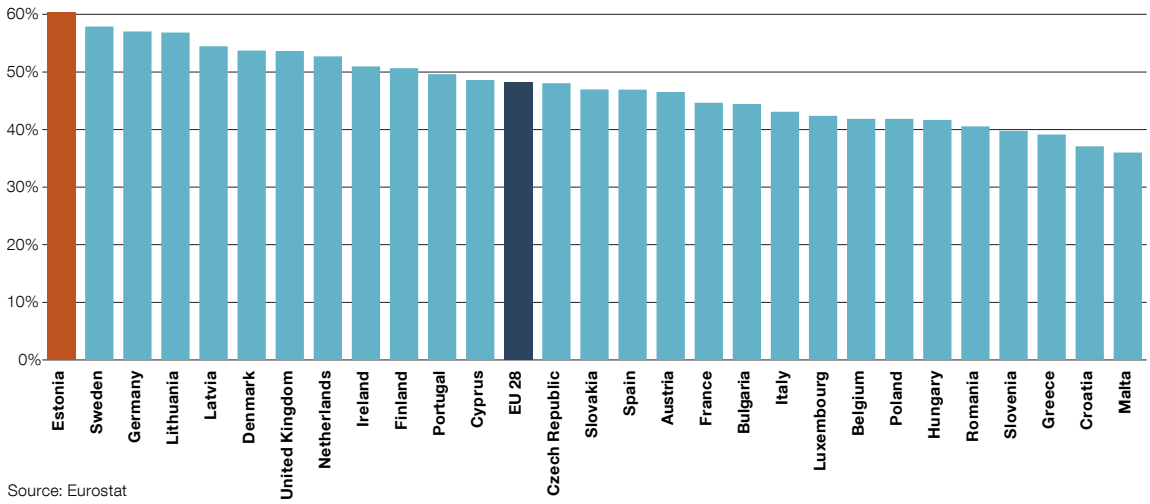
Sources: Statistics Estonia, Eesti Pank calculations

Figure 30. Reasons for change in the number of non-participants



Sources: Statistics Estonia, Eesti Pank calculations

Figure 31. Labour force participation at age 50–74

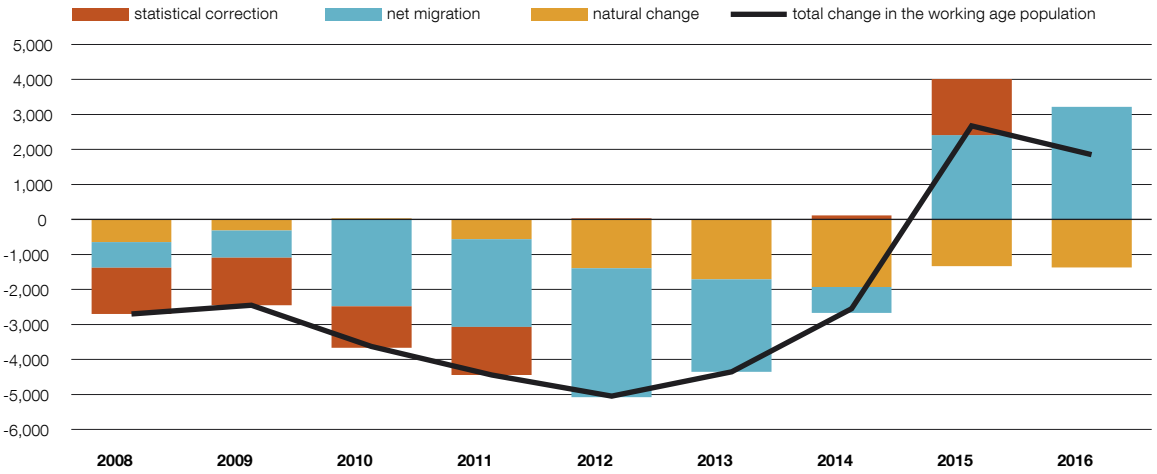


Source: Eurostat

The rising retirement age and the work ability reform should raise the activity rate further in future and increase the labour force. In January 2017 there were 3365 people directly classed under the new system for assessing working ability as having reduced capacity for work, and 1561 were not working. This means that the work ability reform may raise the unemployment rate in the short term by bringing people into the active labour force.

The number of people of working age, which sets a clear limit on the labour supply over the long term, fell further in 2016, but the improvement in the migration balance meant it did so markedly more slowly than earlier population forecasts expected. Preliminary data show the migration balance continued to improve in 2016 as 3220 more people came to live in Estonia than left (see Figure 32). The fall in the working age population was also slowed by lower mortality than before among those aged 15-74. The first long-term population forecast to use the adjusted migration balance was published in February 2016. Box 3 describes that Eurostat forecast in more detail.

Figure 32. Population change



Source: Statistics Estonia

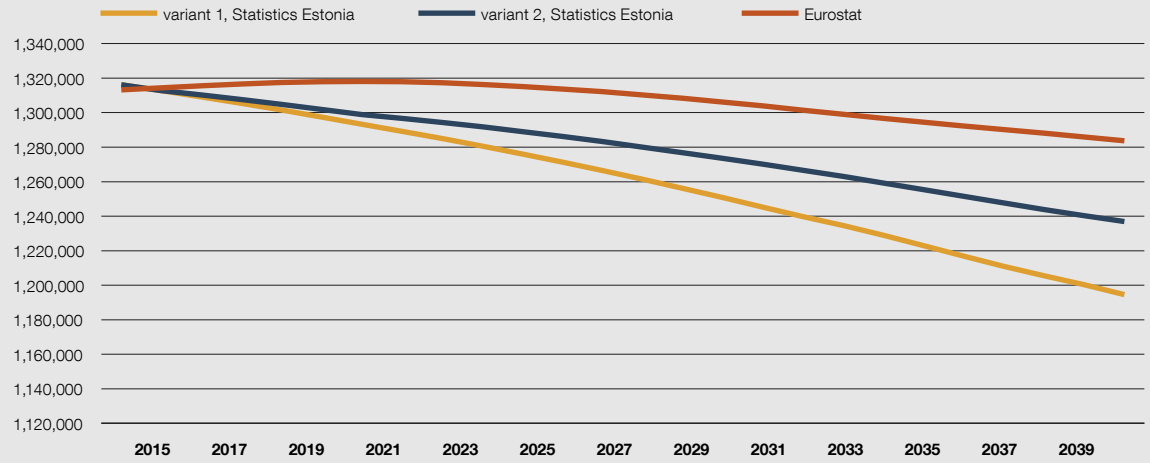
Box 3: The long-term population forecast given the improved migration balance

Three main indicators are needed for a long-term population forecast, and these are the birth rate, the mortality rate and migration. The Estonian migration balance has improved a lot faster in recent years than population forecasts by Statistics Estonia, Eurostat or the OECD had presumed. Statistics Estonia has included unregistered migration in its migration estimate since 2015, and this contributed to the positive migration balance for 2015–2016. In February 2017 Eurostat published new long-term population forecasts for the countries of Europe. Migration forecasting for Estonia uses figures for the past few years, which have been recalculated with the new methodology. The most recent forecast by Statistics Estonia found the Estonian population shrinking by 9% in 2015–2040 in its first version and by 6% in its second version, but the new Eurostat forecast put the decline at only 2.2% (see Figure B3.1)

The optimistic Eurostat forecast is based on the positive migration balance of 1550 people a year at the start of the forecast period, though this figure later declines. The net migration for 2016 was not included in the forecast, and the preliminary estimate of Statistics Estonia put it at 3220 people [7], which is around twice as much. The forecast for the Estonian migration balance is particularly optimistic when put next to those of Latvia and Lithuania (see Figure B3.2).

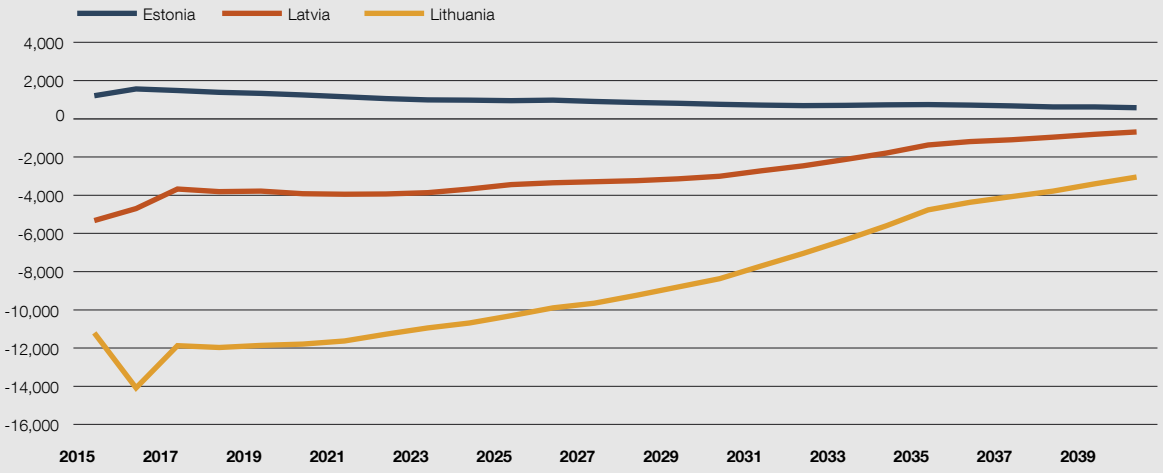
7 For more see the press release from Statistics Estonia http://www.stat.ee/news-release-2017-008.

Figure B3.1. Population forecast



Sources: Statistics Estonia, Eurostat

Figure B3.2. Migration balance forecast

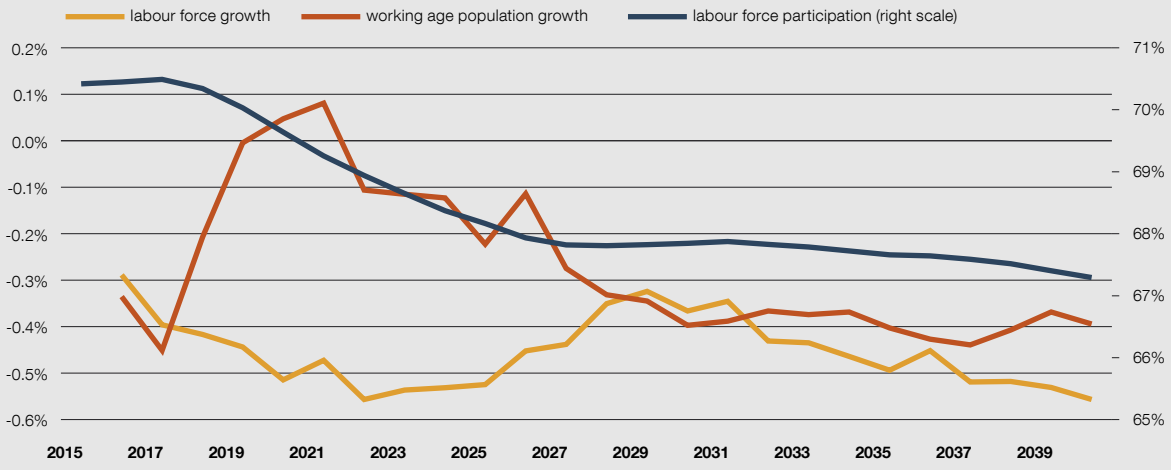


Source: Eurostat

In its other assumptions, Eurostat is more pessimistic than the Statistics Estonia forecast for births, and more optimistic about life expectancy. Statistics Estonia found a total fertility rate of 1.8 by 2040, but Eurostat forecast 1.77. The forecast life expectancies for men in 2040 are similar at 78.2 and 78.3, but the Eurostat figure of 85.6 for women is almost two years higher.

The new forecast has implications for the labour market. The working age population aged 15–74 will shrink somewhat faster than the total population and will be 6.6% smaller in 2040 than in 2015. In contrast, Statistics Estonia finds the number of people of working age down by 10.6% in the optimistic scenario and by 14% in the pessimistic scenario. The number of people participating in the labour market is affected by the age structure of the population and by behavioural changes in labour force participation. The pure population structure effect on the number of labour force participants can be found by assuming that labour force participation will remain the same in terms of age and gender from 2016 on. Figure B3.3 shows that the number of people participating in the labour market would in this case be reduced faster by the ageing of the population than the number of people of working age, and it would be down 10.8% by 2040. In the Eesti Pank forecast the population ageing effect is offset in the years ahead by the rise in the labour force participation rate caused by the work ability reform and the higher retirement age.

Figure B3.3. Population forecast and the labour supply



Sources: Eurostat, Statistics Estonia, Eesti Pank calculations