

# Labour Market Review



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The labour market review by experts from Eesti Pank covers developments in the supply and demand of labour in Estonia, and the cost of it in wages. 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. As the euro area monetary policy targets price stability and the Estonian economy is very open, the economy adjusts to changes principally through the prices and volumes of production inputs. The labour market consequently needs to be flexible, and wage rises need to correspond to increases in productivity. Rising wages should not push production costs up so that they cause excessively high inflation.

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## SUMMARY

The challenges caused by the energy crisis and the war in Ukraine saw employment fall in the second half of 2023 and in early 2024, but the fall was moderate given the extent of the recession. It is not only in Estonia that the labour market has reacted little to the weakness in the economic environment, as this has equally been observed in many other countries in Europe. There is no single explanation for this, and it is probable that there are several factors behind it. These factors that preserved jobs included the delay in wage growth accelerating at the start of the crisis, which made labour cheaper relative to other production inputs; corporate profits being maintained at the start of the recession as the fall in production was offset by high inflation; and the fear of companies of labour shortages emerging once the economy recovered. Inflation eased in 2023, production volumes fell, and fast growth in wages ate into profits. It is now apparent that the external environment will take a long time to improve and there will be some delay before the recovery in economic growth passes through to the labour market, and so employment may be expected to fall further in the first part of this year.

The current downturn started with a sharp rise in prices of energy and food and a collapse in trade with Russia and Belarus under the impact of sanctions. Those shocks hit the industrial sector above all, and employment has fallen most in manufacturing and other branches of the economy that are closely connected to it. Central banks tightened their monetary policy to tackle extraordinarily high inflation, and the higher interest rates put the brakes on activity in real estate and construction, reducing employment in construction. Employment in the services sector remained stable until the middle of 2023, but the impact of the recession hit there too in the second half of the year. Employment increased in the second half of the year mainly in parts of the public sector, in the financial sector as higher interest rates boosted profits, and in segments that were still recovering from the pandemic.

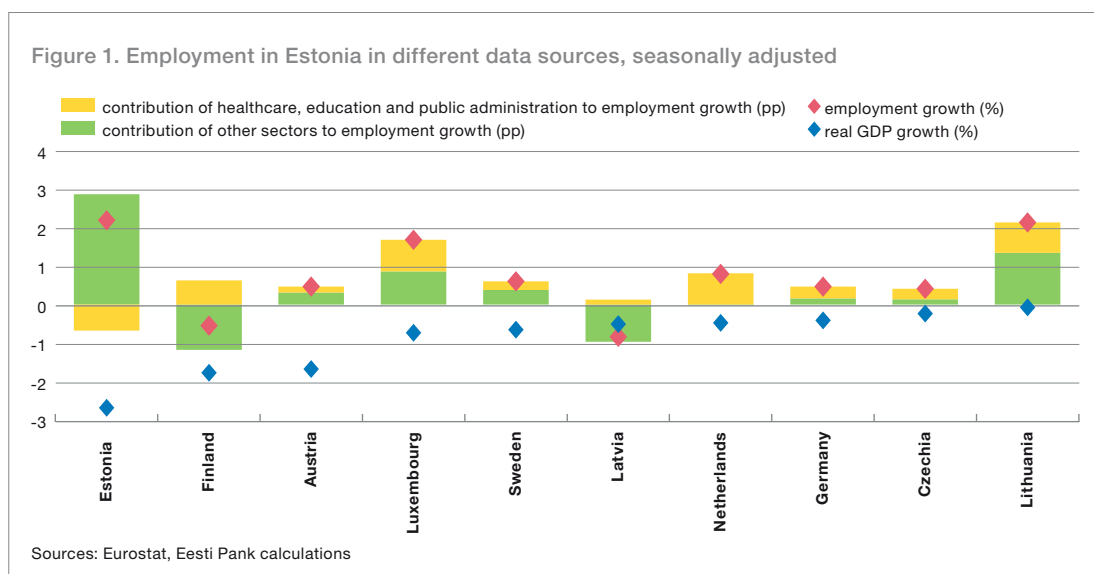
The unemployment rate was higher in the second half of 2023 than in the first half. The estimate of the unemployment rate in the labour force survey fell in the final quarter of 2023, but monthly data show that it rose again at the start of 2024. Seasonally adjusted registered employment has risen steadily since the middle of 2023, and there are increasing numbers of people registered as unemployed per vacant job. This means that there is more competition for jobs, and consequently less pressure on wages. Unemployment rose by more in Ida-Virumaa than it did elsewhere in Estonia, which can be explained by the predominance of the industrial sector in employment there. The registered unemployment rate rose quite evenly across all the other regions of Estonia.

The growth in the average gross monthly wage slowed throughout 2023 because of the private sector. Wage growth in the public sector was accelerated at the start of the year by a jump in the minimum pay for teachers and by the collective agreement that came into force in healthcare. Growth in public sector wages is expected to slow sharply in early 2024, as the increase in the payroll is notably smaller in the state budget for this year than it was last year. Wage growth slowed in the private sector, but remains fast given the low rate of inflation and the persisting recession. Labour income is now a larger share of GDP than it was before the pandemic, while nominal labour costs are also increasing strongly.

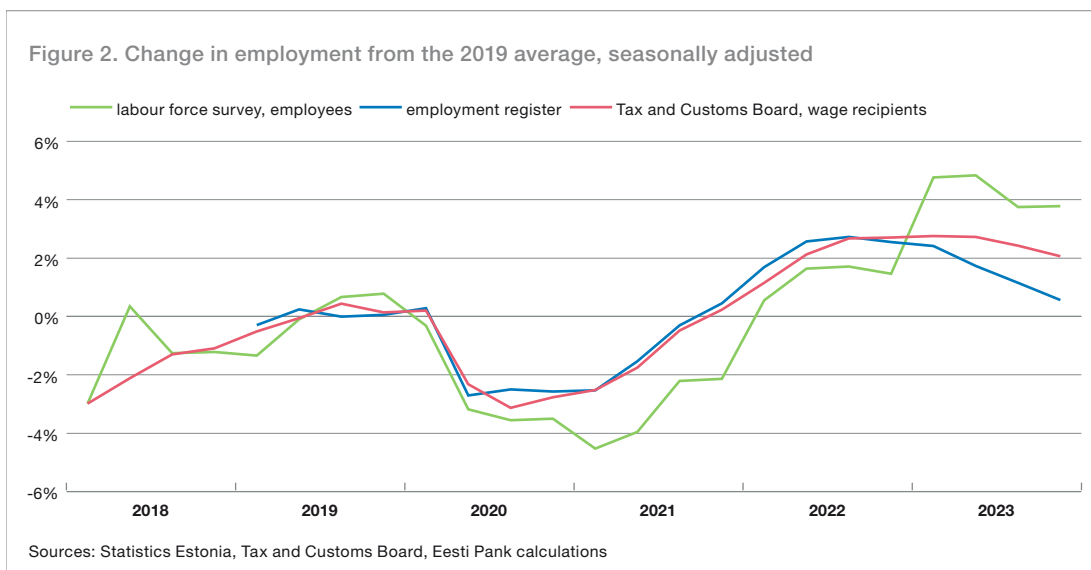
# DEMAND FOR LABOUR

## EMPLOYMENT

The recession having dragged on for two years meant that the total output of the economy in the fourth quarter of last year was 6.7% less than it was in the same quarter of 2021. Even so, the fall in employment in the second half of 2023 was quite mild. Estonia is not the only country where employment and unemployment have reacted little to the weakness in the economic circumstances during the crisis caused by high prices for energy and commodities. Real GDP was lower in the fourth quarter of 2023 than a year earlier in 11 of the 27 member states of the European Union, but only in two of those countries apart from Estonia did employment fall as well as (see Figure 1). It has been suggested that one cause of the relative strength in the labour market is that employers fear long-term labour shortages and have not wanted to reduce their staff numbers. The recent experience of Covid-19 showed that companies that kept staff on the payroll were better able to recover their production quickly after the pandemic, which gave them a competitive advantage. Furthermore, labour became relatively less expensive than other production inputs at the start of the current episode. This crisis, unlike previous ones, did not see a contraction in corporate profits during the first year, which is usually a cause of pressure to cut jobs. The decline in the number of hours worked per person employed has helped keep employment high in Estonia and is one way the labour contribution has adapted, while jobs are being created in sectors that have not suffered so much from the recession, including the public sector. Growth in public sector employment is also evident in most other countries.

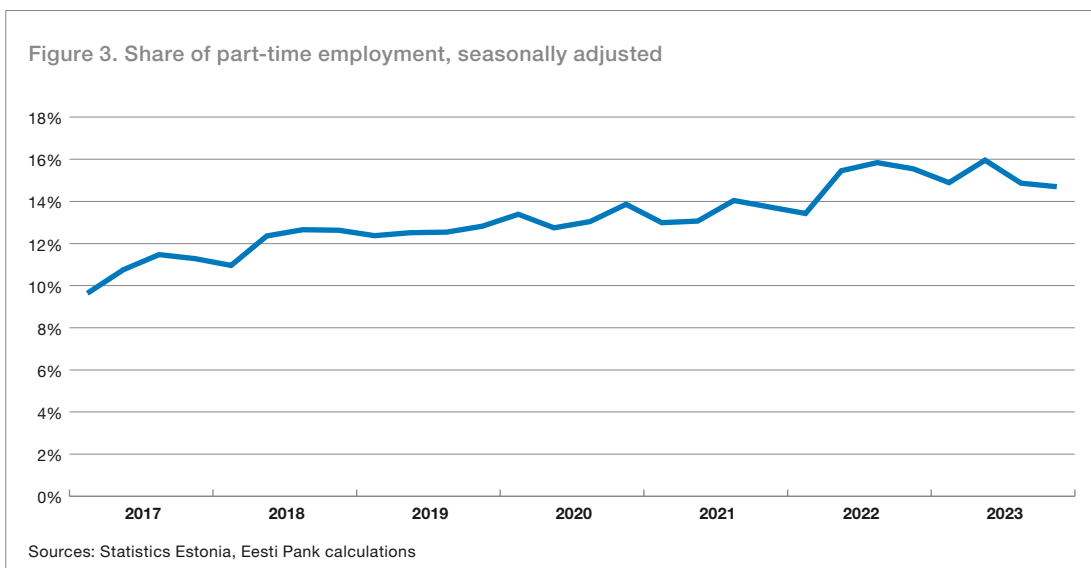


The labour force survey shows that employment was around 1% lower in the second half of 2023 than in the first half (see Figure 2), but the yearly growth in it was 2.2% in the fourth quarter of the year. The employment register shows the number of employment relationships falling by 1.8% in the same period, and that there were 0.4% fewer declared recipients of wage income. Survey data and registry data have earlier also pointed in different directions, which is because they use different definitions and different methodologies. The data from the Tax and Customs Board record only those employees declared as having income from work, while the employment register is based on employment relationships, not employees. One reason why the estimate of growth in employment in 2023 from the labour force survey exceeds that from the register data is that its methodology means that changes in the population are reflected after a delay. A large number of refugees from the war in Ukraine entered the Estonian labour market in 2022, but the estimate of employment in the labour force survey only reflected that increase in the population from 2023. Taking the simplified assumption that the number of people of working age increased at the same rate across 2022 and 2023 and that the same percentage of people of working age were in employment as is shown consistently by the survey would make the estimate of growth in employment larger for 2022, but the rate of growth in the second half of 2023 smaller at 0.9% instead of 2.2%.



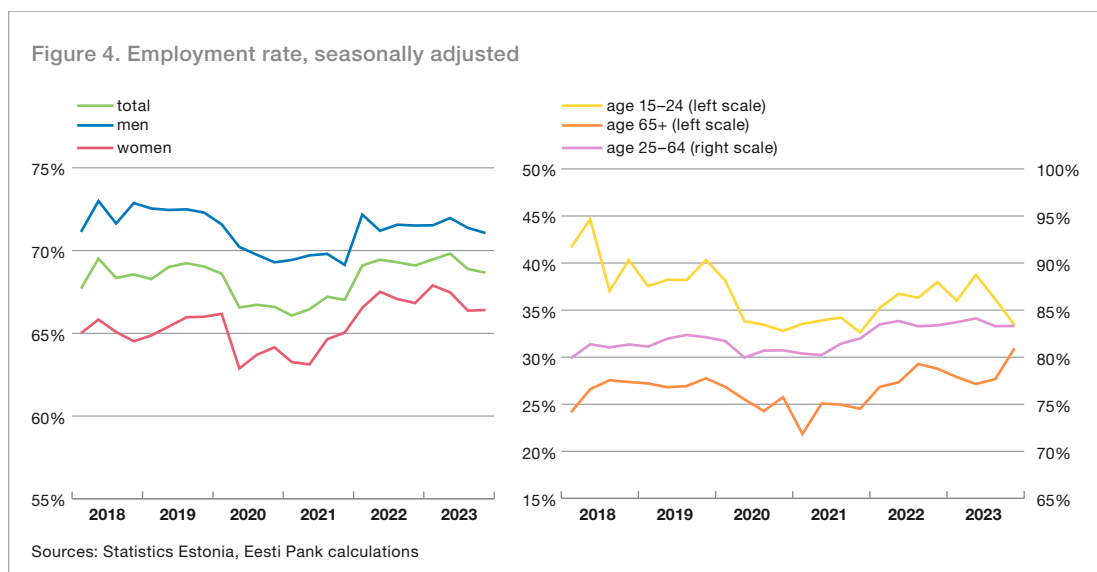
It is helpful to look at the drop in employment from its peak to the most recent data in order to describe more accurately how the recession has affected it so far. This is because the recession may have impacted the labour market after a delay, in which case the annual change would not show the full effect. The number declared as receiving a wage was down by 1.1% in January 2024 from its peak in June 2023. The number of employment relationships had fallen by 2.6% from June 2022. The labour force survey shows though that employment was 1% lower in the fourth quarter of 2023 than in the second quarter. Even the largest of these three estimates may be considered mild given the extent of the recession. The fall in unemployment during the financial crisis of 2008 for comparison was about the same size as the fall in GDP, while GDP lost 5.6% during the crisis of the pandemic but employment fell by 3.4% in the data from the Tax and Customs Board and 5.3% in the labour force survey.

The share of people in employment working part-time was a little lower in the second half of 2023 than in the first half of the year and than in 2022 (see Figure 3). In the longer perspective the share of people working part-time in Estonia has increased, which can be explained by the increase in labour force participation among the older and younger ends of the spectrum, and by changes that have made conditions for social insurance benefits more flexible for employees. Those registered as unemployed have for example been able to work temporarily and without restrictions since September 2020 without losing the right to benefits. The parental benefit system was reformed in April 2022, and this allowed the shared part of benefits to be stopped temporarily more flexibly than before, by days at a time instead of months. Those working part-time are most commonly women, young people and older workers, and few of them



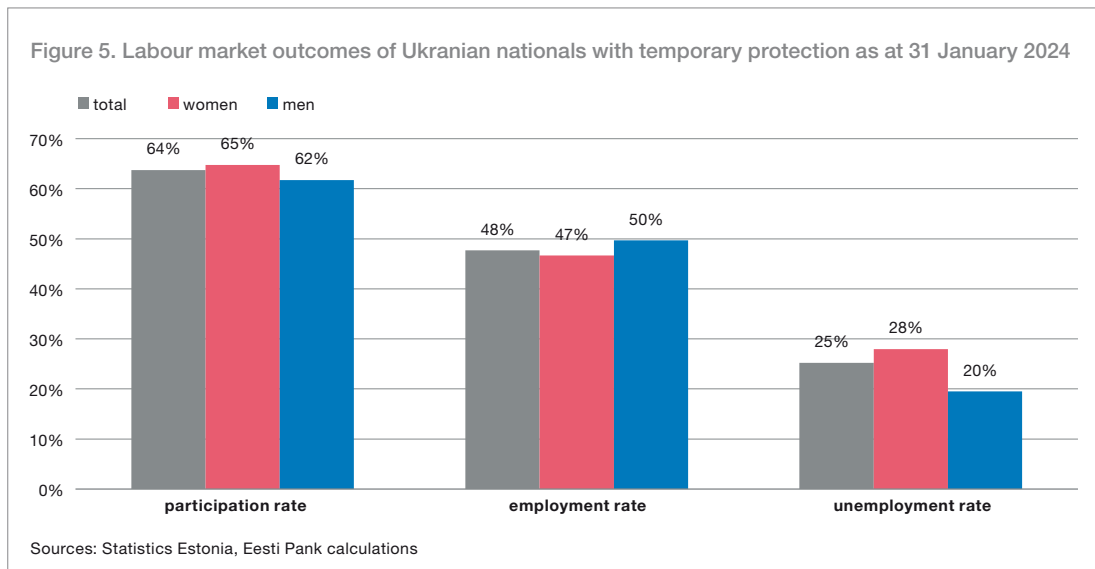
say they would like to work more hours. The share of people underemployed has remained small, and was around 8% of those employed part-time in 2023.

The labour force survey shows that the employment rate among those aged 15-74, like total employment, was lower in the second half of 2023 at 68.8% than it was in the first half of the year (see Figure 4). The decline was largest for women and while the employment rate for those aged over 65 rose, the rate for younger people fell. The employment rate for women was still higher than it was before the crisis, while that for men was a little lower. The employment rate for young people is affected very much by the age structure within that age group, as labour market activity among school students is very low, but it is notably higher among those who have completed secondary education. The employment rate for residents of Estonia is high in international comparison, as is the labour force participation rate. How well the level of education of people in employment matches with their jobs is discussed in Box 1.



Data from Statistics Estonia show the population register contained a little under 26,000 Ukrainian citizens aged 15-74 living under temporary protection in Estonia as at 31 January 2024. Around half of them were in an employment relationship and their registered unemployment rate was 25% (see Figure 5). The unemployment rate for the refugees from the war was higher than that for permanent residents and that for Ukrainian citizens living in Estonia on a different basis. Refugees were working as managers and senior specialists much less frequently than the population in general, and more frequently in unskilled positions. This indicates they face obstacles to finding work in the jobs they have trained for, especially given that the share of people with secondary education is higher among refugees than among the total population, and that the share with higher education is about the same as in the rest of the population. Around a quarter of those with a job were working in manufacturing, and a larger proportion than for the total population was working in hotels and restaurants and in administrative and auxiliary activities, which includes temporary work. The average wage of refugees in various sectors is below the average for the total population. This is partly because they are employed less in jobs that require higher qualifications, and much more in jobs that require fewer qualifications.

Data from the Tax and Customs Board show that the number receiving a declared wage from the general government in the second half of the year was practically unchanged, while employment fell in the private sector (see Figure 6). People who lost a job in the private sector were earlier able to find one in the public sector, which was hiring additional staff, but this buffer has now diminished. The register of government institutions covers institutions under both central and local governments, including schools and hospitals. The majority of these institutions are in education, healthcare or public administration. An average of 99,934 people were receiving a declared wage in the second half of the year from institutions in the government register of institutions, and that number was 2.1% or 2055 higher than a year previously. The number earning a wage again increased a little faster in the first months of 2024 than in the previous half



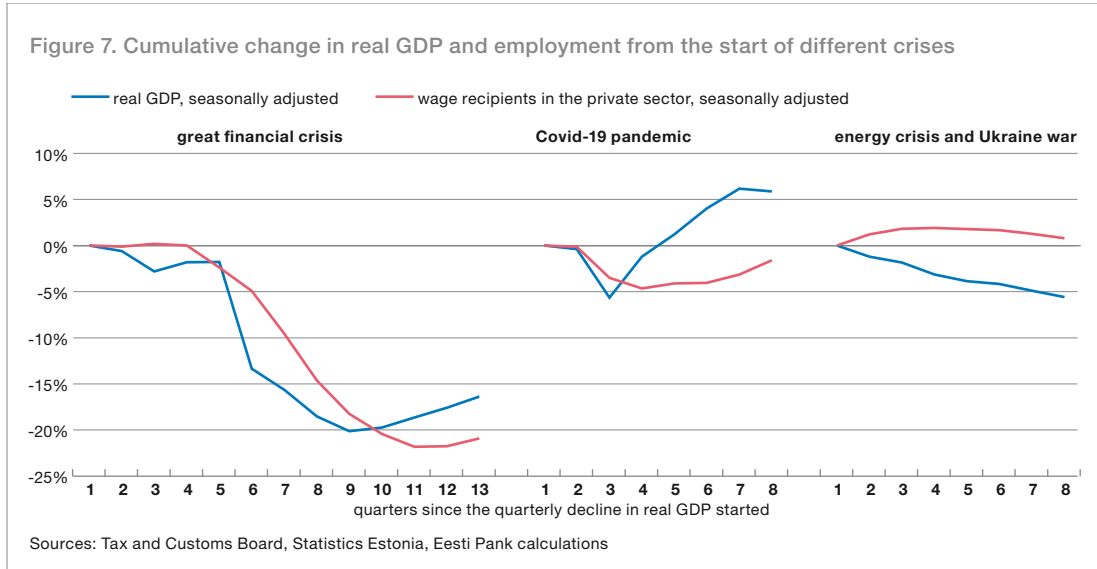
year, but this is also affected by winter holidays, which are a little different each year. The Riigiraha website presenting financial data on the government sector shows the number of employees in the public sector rose by the same amount of 2.2%, or by 1.7% without the reclassification of the railway company Eesti Raudtee. The growth came mainly in education and healthcare, while the number of central government employees fell. This is in line with the data from the employment register, which show that there were 18,679 people with a contract as a civil servant or higher state official in the second half of 2023. This was 0.5% more than in the previous year, meaning the growth was substantially less than that in the number of contracts in healthcare and education.

It is not possible to distinguish in the data between employees earning a wage in the private sector or the public sector by area of employment, but the number receiving a wage in education and public administration increased by an average of 2.3% in the second half of the year, while the number in healthcare increased by 2.6%. The flash estimate from Statistics Estonia shows the total number of employment contracts in public administration and education rose by 1%, while the number in healthcare rose by 1.2%. The difference may arise because employment contracts also include contracts under the law of obligations, and the number of those has fallen.

The number declared as receiving a wage from businesses registered in the commercial register fell in the second half of 2023 and in early 2024 because of the recession. The impact of the recession reached employment in the private sector relatively late in this recession, as GDP started to shrink in early 2022, but the number receiving a wage remained quite stable until the first half of 2023. The fall in employment

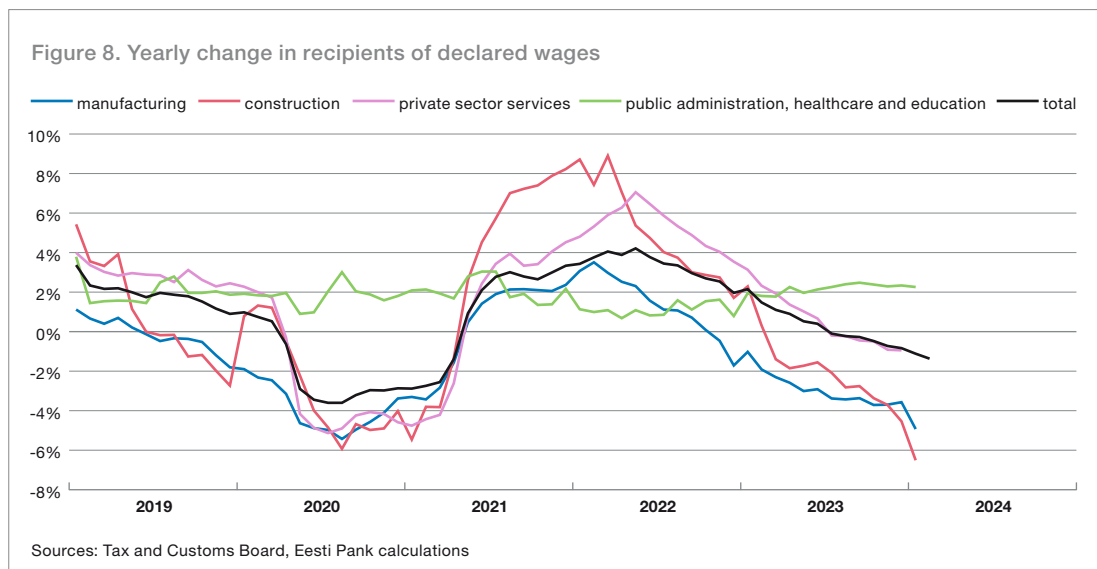


has also been much milder this time around than in the financial crisis of 2008 or the pandemic crisis of 2020 (see Figure 7).

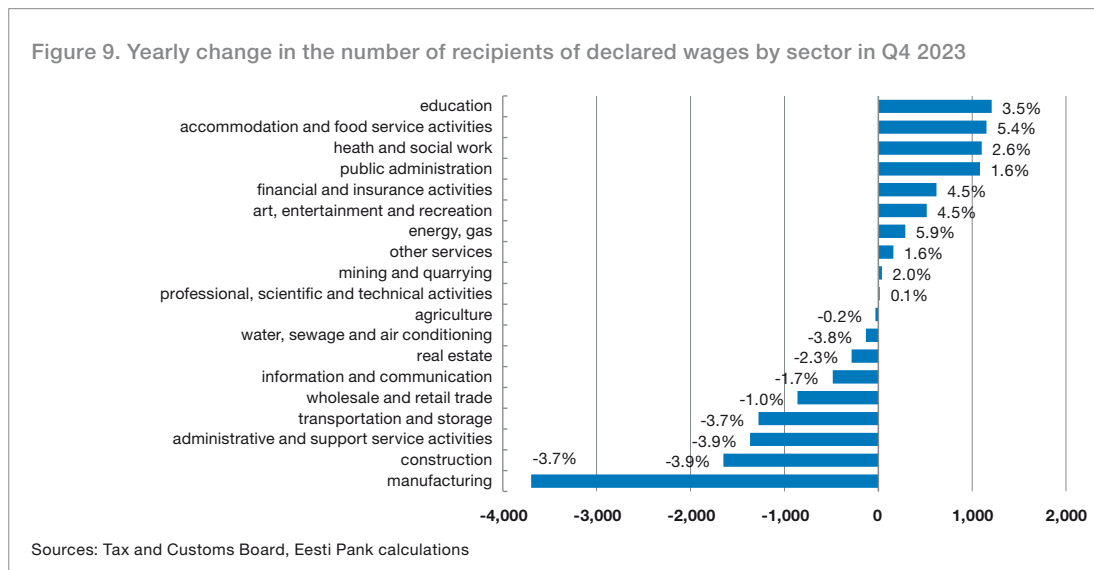


Data from the Tax and Customs Board show that the number receiving a wage in manufacturing was lower by about 4900, or 4.9%, in January 2024 than a year earlier (see Figure 8). The number employed in this sector started to fall much earlier in month on month terms, in May 2022, and there are about 6300, or 6.1%, fewer wage recipients than there were at the peak. The wood sector is showing particular weakness among the branches of manufacturing as the total number receiving a wage in wood processing and production of wood and cork products, and in furniture production is around a tenth or about 3200 people lower than a year earlier, and down 17.7% from its peak. The enterprise statistics show though that the wood sector had lost 37% of its value added at current prices in the second half of 2023, and there were a tenth fewer employees in the sector than two years earlier. The success of this branch of manufacturing depends on the performance of the real estate sector in Estonia and in export markets, and so its losses of value added and employment were also substantial during the financial crisis of 2008. Value added at current prices then fell by 48% from its peak in the fourth quarter of 2006 and the first quarter 2007 to its lowest point two years later, while the number of people employed fell by 26% at the same time.

Other sectors alongside manufacturing where employment has fallen include real estate and construction, which are affected by high interest rates and activity in the market; transportation and storage, which are directly dependent on the performance of manufacturing and on activity in foreign trade; and administrative



and auxiliary activities, which covers temporary labour. Demand for temporary employees may have been lower because of the fall in demand for employment in manufacturing (see Figure 9).



Retail was a branch of the services sector where the number receiving a wage fell, as there were 1% fewer in the fourth quarter of 2023 than a year earlier, which is in line with the decline in sales volumes in retail. Employment in retail is still notably higher than before the recession despite this fall, as there were still almost 6000 more people employed in retail than there were in the final quarter of 2019. The high cost of capital and weaker demand because of the recession restrained the activities of businesses in information and communications, and employment started to fall in that sector. Like in retail though, the number employed in the sector was higher than it was at the end of 2019, by almost 4000. As well as growing in branches of services that are largely in the public sector, employment grew in accommodation and catering as it continued to recover from the pandemic, and in the financial sector.

The current recession started with a blow to manufacturing. It was sparked by the extraordinary rise in prices of energy and commodities, the loss of foreign trade in the direction of Russia, and blockages in supply chains. The decline in manufacturing passed on into transportation and storage, and administrative and auxiliary activities. Central banks started to tighten their monetary policy by raising monetary policy interest rates to combat high inflation, and this put the brakes on activity in real estate and construction in Estonia and abroad. This then affected those branches of manufacturing that supply the real estate sector. It was evident in the second half of last year that the impact of the recession had also spread to those branches of services where the number of jobs had previously been rising. The recession has overall affected employment only mildly so far, and the future development of demand for labour will depend very much on how the economy recovers.

### Box 1: The qualification mismatch in the labour force survey

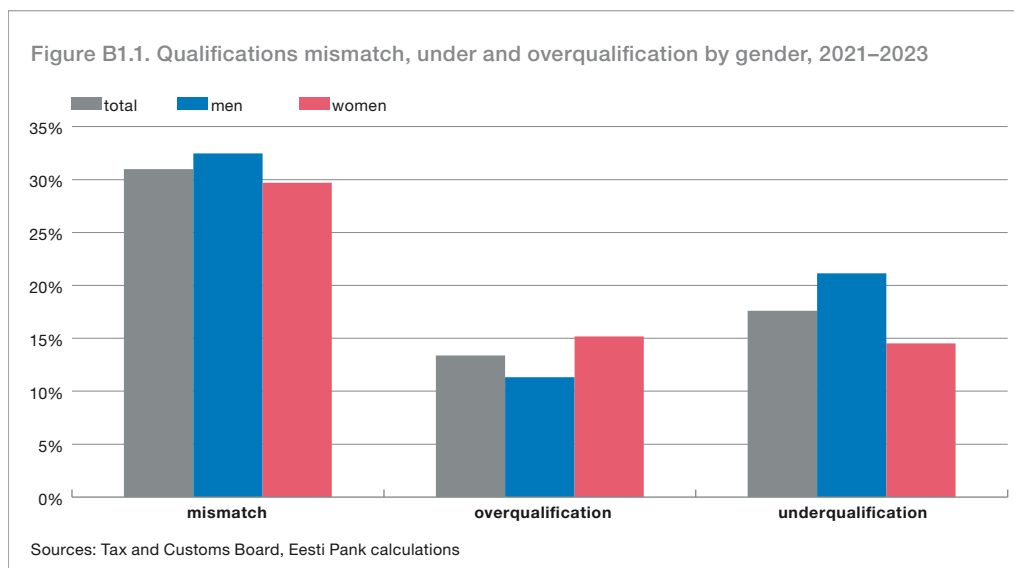
It is important for the good functioning of the economy that employers are able to find well-trained employees and that people can make the best possible use of what they have earlier studied. A lack of skills makes it harder for people to find a job, while employees who are overeducated may not be able to make full use of their capacities. The mismatch between skills and the demands of work reduces efficiency in the labour market and in society more generally. The OECD has estimated that 39% of the people in employment in Estonia are working in an occupation that does not match the highest level of education that they have achieved. The figure is similar to the 39.9% recorded in Germany, but higher than the EU average of 32.2% in 2019<sup>1</sup>. This is an estimate that identifies a mismatch between an occupation and qualifications when there is a

1 Estimate of the OECD from 2019: [https://stats.oecd.org/Index.aspx?DataSetCode=S4.J2022\\_MISMATCH#](https://stats.oecd.org/Index.aspx?DataSetCode=S4.J2022_MISMATCH#).

difference from the modal average level of education for that occupation. This analysis uses a similar methodology<sup>2</sup>.

There are several ways to estimate the match between occupations and employees. The OECD presents the mismatch between education and occupations by level of education, and also by subjects studied in schools and colleges. The subject studied most commonly by people working within a narrowly defined occupation is found first, and the mismatch rate is then the share of people in that occupation who have a different educational background. This indicator shows the mismatch in Estonia to be 34.5%, which is higher than the EU average of 32.2%. There are some subjects that give broad training and so offer students a varied selection of possible occupations, and that variety does not necessarily mean that such an education is not suitable for a given occupation. The match between occupations and employees can also be estimated using the results of the PIAAC (Programme for the International Assessment of Adult Competencies). This is an OECD test of the literacy, numeracy and problem-solving skills of adults. The results from this test, in contrast to those based on the labour force survey, give Estonia one of the lowest mismatch rates among the countries studied at 10.8%, which is substantially below the result of 25.4% for the entire sample<sup>3</sup>. Alongside these indirect methods are direct methods for identifying the match between demand for labour and level of education, such as the questions asked by Statistics Estonia of the respondents themselves in the labour force survey. The mismatch identified by employees themselves was around 12% Estonia in 2021-2023.

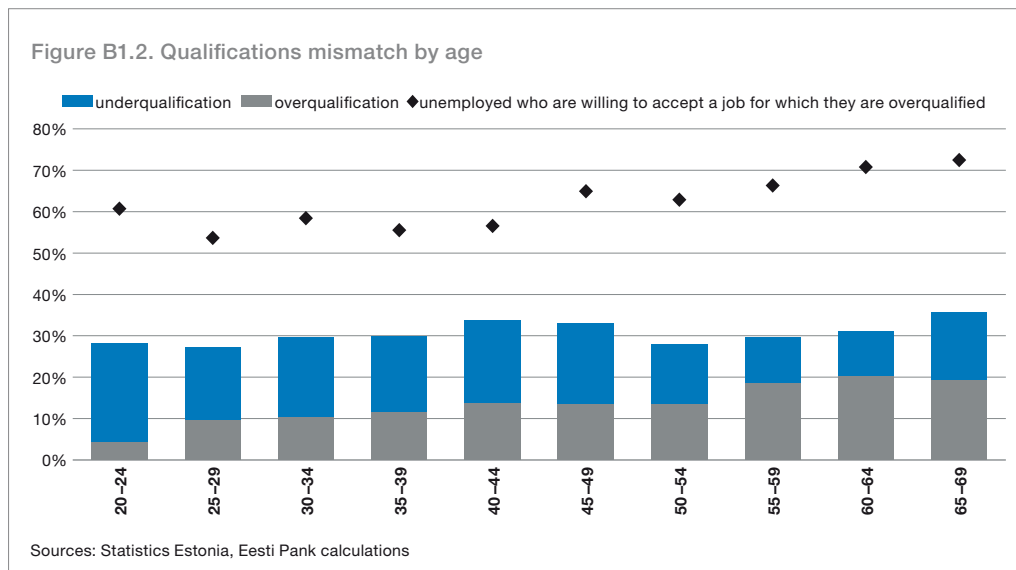
The OECD method using the four levels of education of basic, secondary, secondary vocational and higher, and the three-digit codes for occupations finds that around 30% of employees in Estonia in 2021-2023 had a qualification mismatch. The mismatch was a little less for women, though there are more women than men who have a higher level of education than the modal average for their occupation. There are more men who are less educated than the modal average for their occupation, which indicates that women are less gainfully employed than men in terms of their capacities (see Figure B1.1).



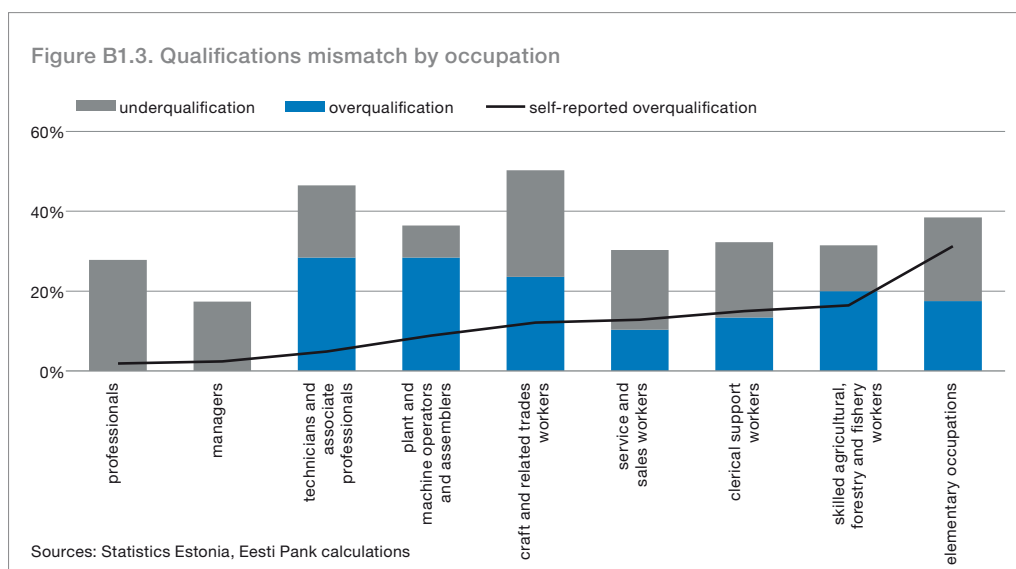
<sup>2</sup> This estimate of the match between level of education and job starts from the mode for the level of education in each three digit ISCO occupation, which is the level of education that is most commonly encountered on the four-level scale for education of basic, secondary, secondary vocational, and higher education. If the level of employment of the employee does not fit with this, then it is assumed that there is a mismatch. The OECD has used a similar methodology.

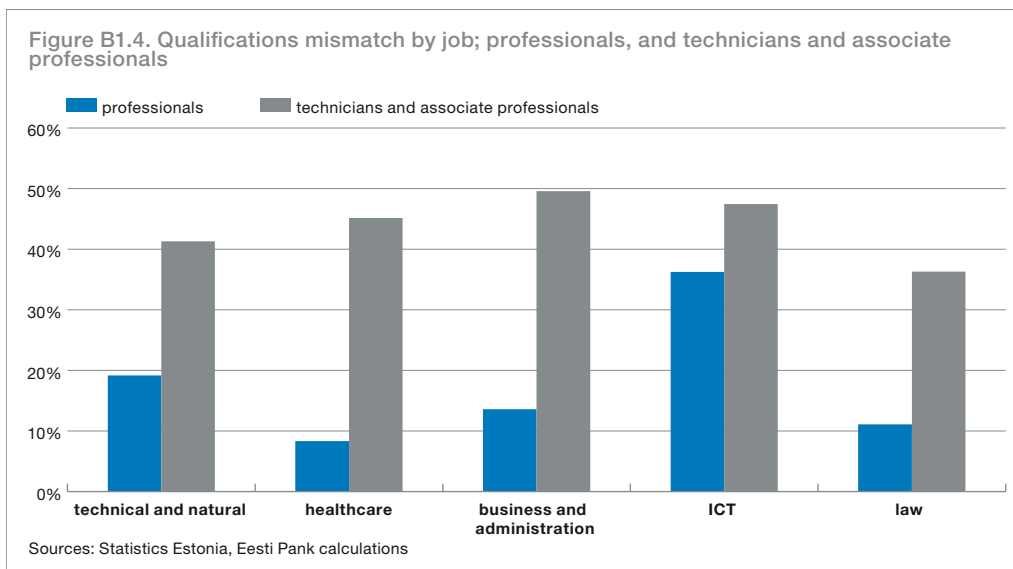
<sup>3</sup> Pellizzari, M., Fichen, A. *A new measure of skill mismatch: theory and evidence from PIAAC*. IZA J Labor Econ 6, 1 (2017). <https://doi.org/10.1186/s40172-016-0051-y>.

The mismatch between qualifications and occupations changes with age, as there is a greater mismatch than the average among those aged over 65. It should be noted that from the age of 55 onwards there is a notable increase in the share of those whose level of education differs from the modal average for their occupation (see Figure B1.2). This fits with the greater readiness of older people to accept a job that requires a lower level of education than the one that they have achieved. The aggregate indicators for the mismatch between qualifications and occupations may consequently be affected by the structure of the labour market. The employment rate for older people in Estonia is relatively high in international comparison, and this widens the overall mismatch between qualifications and occupations.



The next observation is how the mismatch of the educational level differs across occupations. There is a greater educational concentration in occupations that require specific studies and level of education. The share of workers with higher education is large among managers and senior professionals such as doctors, and the mismatch between qualifications and occupations is smaller than that in other professions (see Figure B1.3). The minimum level of education for mid-level specialists is lower though, and there is more educational diversity, and so there are more mismatches (see Figures B1.3 and B1.4). An exception to this is information and communications





technology, where there are more employees with secondary or vocational education among the senior professionals than there are in other sectors. As employees with higher education are represented most among senior professionals in ICT however, there is a higher mismatch rate. This may partly be because of the rapid development of the information technology sector in Estonia, and because labour shortages mean that a lot of students are employed, which may be why there is a larger share than average of employees who have not completed higher education. The level of mismatch is also relatively high among service staff working in serving positions or client service, and unskilled workers.

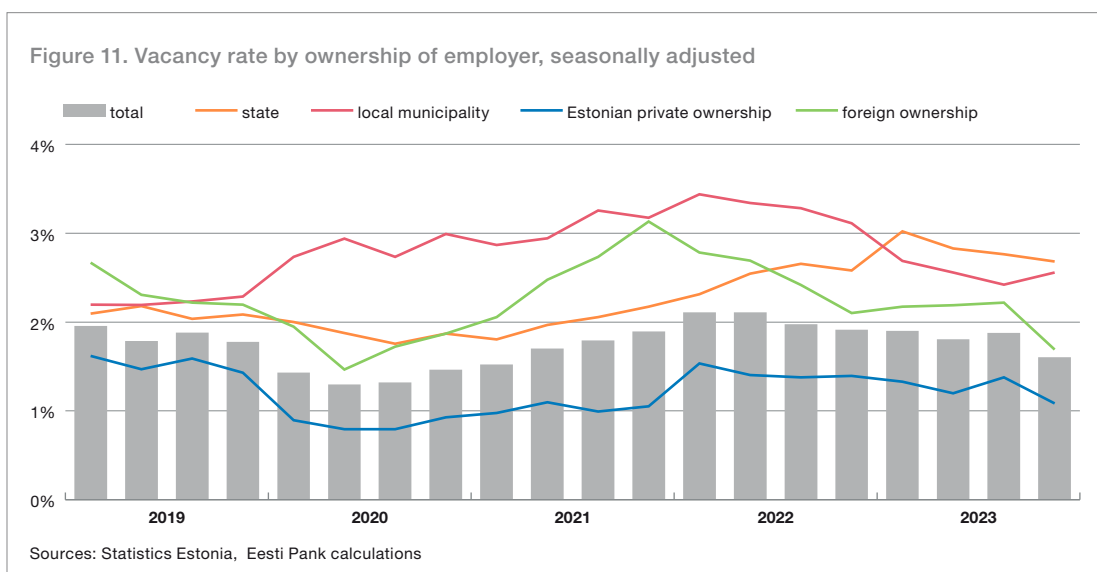
Measuring the mismatch between qualifications and occupations by the average or most frequently presented level of education within the occupation assumes that all the people in that occupation should have a similar level of education. This is not necessarily the case for every occupation. Skills and suitability do not always depend on the level of education, as they can also be affected by further education and lifelong learning, and by other characteristics and abilities of the employee. The wide variety in the level of education of employees in some occupations is particularly eye-catching. This may indicate that there is a mismatch between the education completed and the demands of the labour market, or there may be other explanations for it. Occupations such as doctor, teacher and lawyer are very tightly bound to the requirements for education and level of education, so people working in those positions tend to have similar levels of education and the mismatch rate is low. There are other occupations such as mid-level specialists and service staff that allow more room for people with different levels of education, and within which there are positions that have different requirements.

## THE OUTLOOK FOR EMPLOYMENT

Employers were more pessimistic than the historical average about the future developments of employment in the second half of 2023 and first quarter of 2024. This pessimism was no worse in the first quarter than it was at the end of last year, except in retail (see Figure 10).

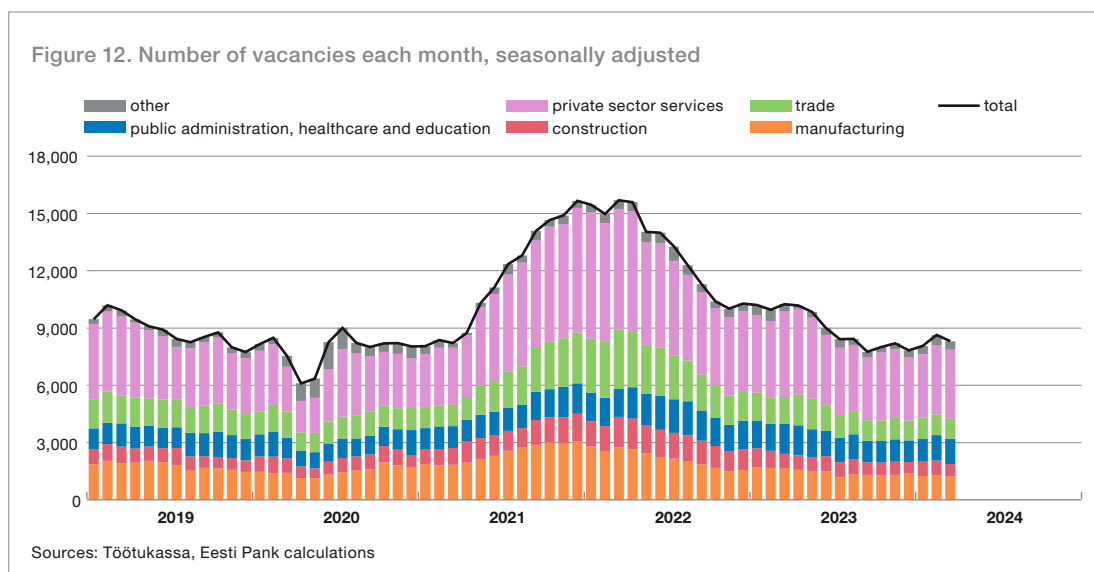


The survey of vacancies and labour mobility by Statistics Estonia found that the vacancy rate, which is vacant positions as a share of all vacant and filled positions, has fallen since the first half of 2022. The decline accelerated in the fourth quarter of 2023, and the vacancy rate approached the level it had hit in the middle of the pandemic crisis. The survey found that there were 10,620 vacancies in the second half of 2023. Sectors where the number of vacancies fell were manufacturing, retail, and administrative and auxiliary activities, and also education. The vacancy rate fell in the second half of last year at businesses and institutions with all types of ownership, with the smallest fall in Estonian private companies, where the level is in any case the lowest (see Figure 11).



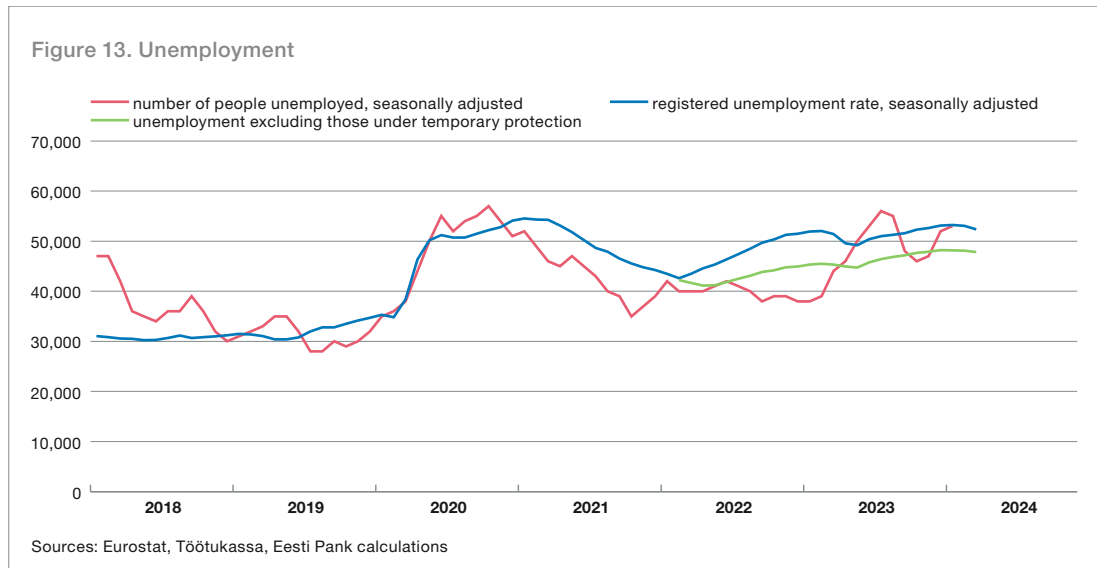
The number of jobs advertised in the Töötukassa database has remained relatively unchanged since the middle of last year, and is at around the same level as in the second half of 2019. There are barely half as many active job advertisements each month as there were when the labour market was showing signs

of overheating before the energy crisis and the war in Ukraine. Sectors with a relatively large fall in the vacancy rate are finance and insurance activities, and retail, where the fall has been around 60% since the start of 2024 (see Figure 12).



## UNEMPLOYMENT

The unemployment rate, which is the ratio of people unemployed to the population active in the labour market, was higher in the second half of 2023 than the first half. The labour force survey shows the seasonally adjusted unemployment rate starting to rise at the start of the second quarter of last year and peaking at 7.4% in the third quarter. The number of people unemployed rose equally fast and reached 55,000 in the third quarter (see Figure 13).



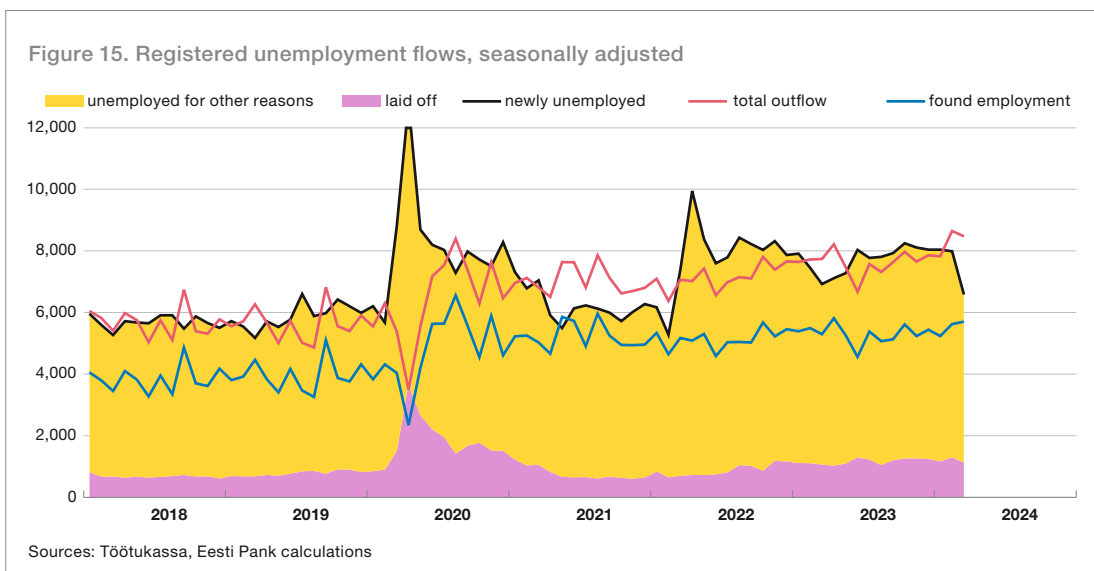
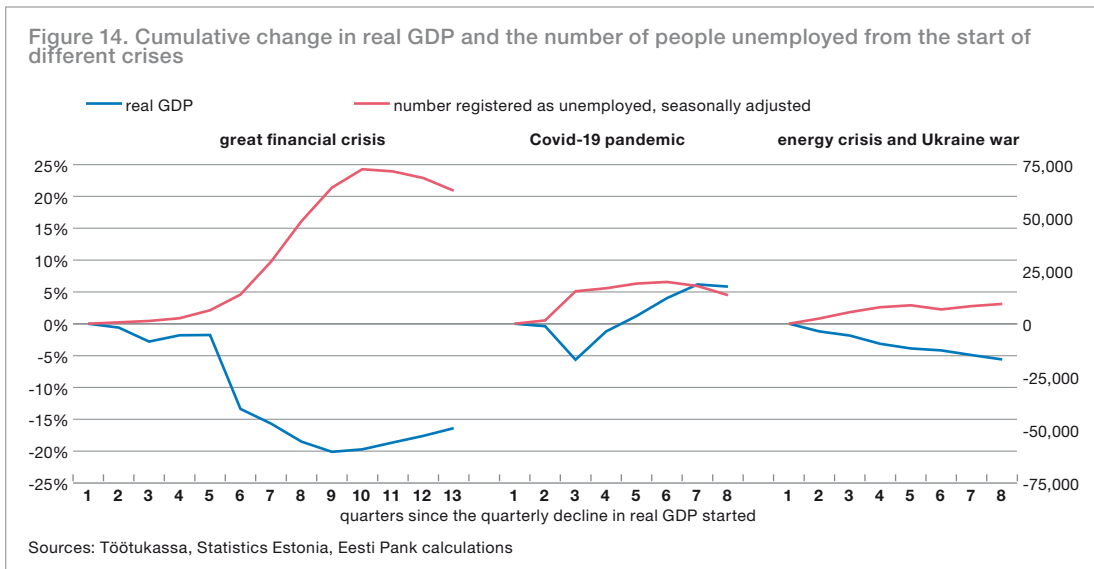
The labour force survey records the unemployment rate and the number of people unemployed as fluctuating very much at the end of 2023, as the Eurostat survey shows the number of people unemployed in Estonia fell to 46,000 in October and then rose back to 57,000 in January this year. This volatility is caused more by the nature of the labour force survey, especially as other data sources do not show any improvement in the state of the labour market. The data from the labour force survey equally indicate that the number of people unemployed did not fall in the final quarter of 2023 because employment increased, but because fewer people were participating actively in the labour market. The number of people unemployed and the number active in the labour market both fell by around 8000 in the fourth quarter.

The Töötukassa data on the registered unemployed indicate that after the number registered as short-term unemployed fell in the first half of last year, unemployment started to climb slowly again in the second half of the year. If the registered unemployed who arrived from Ukraine and are under international protection are excluded, the number registered as unemployed rose back to more or less the same level as where it was in the early months of the pandemic in the second quarter of 2020. If people under international protection are included though, the number registered as unemployed rises by almost 5000.

There were about 56,000 people registered as unemployed at the end of February, of whom 4700 or 8.4% were from Ukraine and under international protection. The number of people unemployed was about 1100 higher than in February 2023 because there were about 2800 more local people unemployed while there were 1660 fewer people from Ukraine under international protection registered as unemployed than a year earlier. The number of unemployed people under international protection peaked early last year. Overall the number of people registered as unemployed, even including those under international protection, has risen by less during the current recession than it did during earlier crises (see Figure 14).

An average of about 8100 people a month were added to those registered as unemployed in the second half of 2023 and the first months of this year (see Figure 15). The number becoming unemployed because of redundancies has remained higher than it was before the pandemic and in 2021, but the majority of

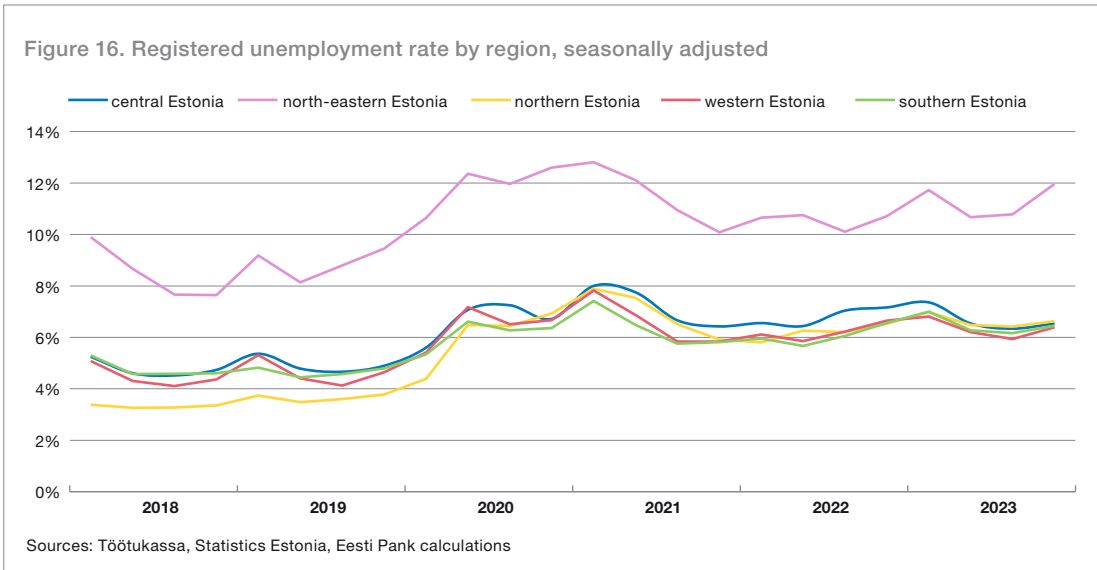




people have still become unemployed for other reasons. People becoming unemployed because of redundancy have been around 15% of the newly registered unemployed since the beginning of 2023. Around 16% became unemployed because their previous employment relationship ended at their own initiative, and a little under a quarter became unemployed because an earlier fixed-term contract or employment relationship under the law of obligations ended.

The number of people de-registering themselves as unemployed rose in the second half of 2023 and first months of 2024, but remained lower than the number newly registering as unemployed. However, the difference between the number newly registered as unemployed and the number de-registering within a month has narrowed a little at the start of this year, and this has slowed the growth in the number unemployed. The general weakness of the labour market is shown though by fewer people de-registering as unemployed because they have found a job.

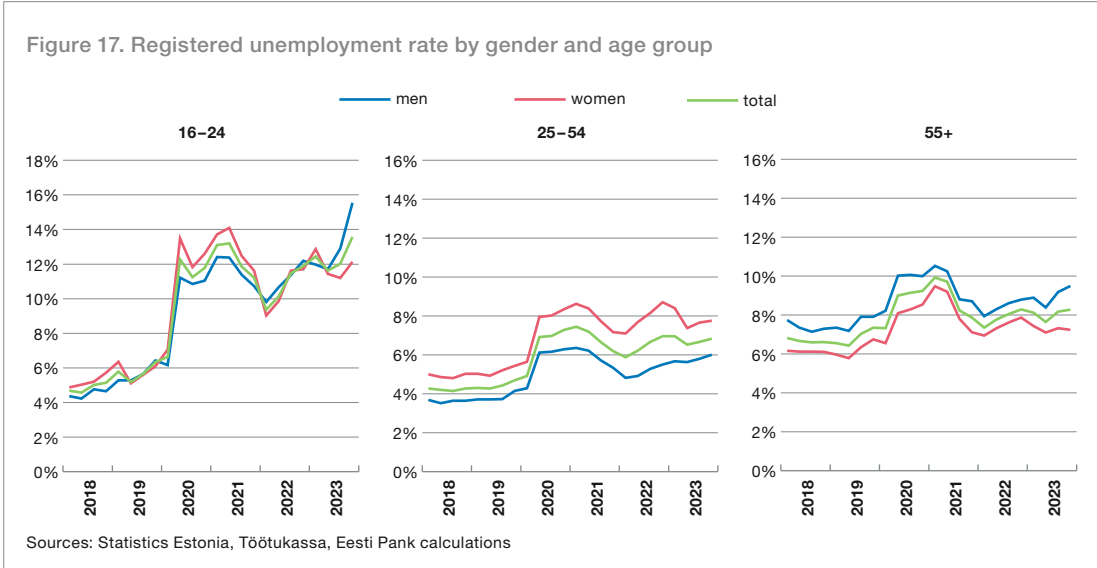
The region where the registered unemployment rate rose most in the second half of last year was Ida-Virumaa, where it was already notably higher than elsewhere in Estonia (see Figure 16). The employment rate in the rest of Estonia apart from Ida-Virumaa was extraordinarily equal. Northern Estonia stood out from the other regions of the country for having a notably lower unemployment rate until 2020, but the differences to other regions disappeared during 2023. The registered unemployment rate in Northern Estonia has been lifted partly because a large part of the people from Ukraine under international



protection have moved to live in that region. People under international protection and registered as unemployed are 10% of all of the registered unemployed in Harjumaa. They are 8% or less of the registered unemployed in other regions of Estonia.

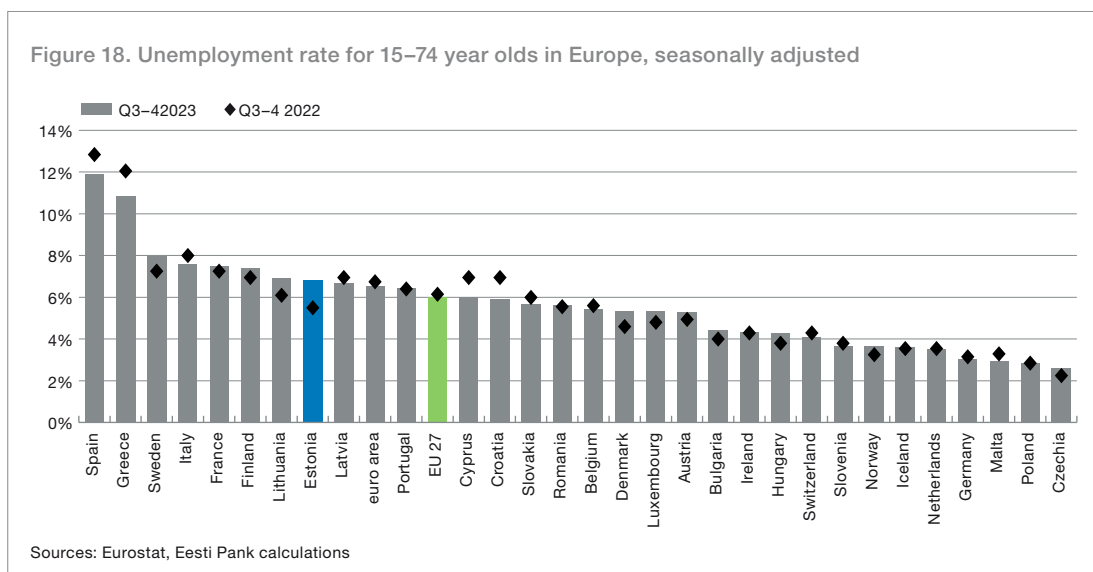
Leaving aside the quarters during the pandemic when restrictions particularly affected sectors where female employees predominated, the labour force survey reports that unemployment is generally higher for men than for women. This trend turned in the second quarter of 2023 though, and the unemployment rate for women averaged 7.2% in the second half of the year. A year earlier the average was 5.1%. The unemployment rate for men was also higher than in the second half of 2022, but the increase was smaller as it was from 6.0% to 6.4%. The labour force survey reports that the unemployment rate for women rose in all the main age groups. The number of women aged 15-74 who were active in the labour market was over 15,000 higher than in the second half of 2022. Labour market participation did not increase because of a decline in inactivity, as that changed little. Employment of women aged 15-74 increased together with participation in the labour force, adding around 8000 people, while 7000 were added to unemployment.

The number registered as unemployed, especially among women, was first raised by the addition of refugees from the war in Ukraine in 2022 (see Figure 17). The registered unemployment rates for women and men aged 25-54 rose at more or less the same rate in the second half of 2023. The registered unemployment rate has generally been higher for women, as women are more inclined and more



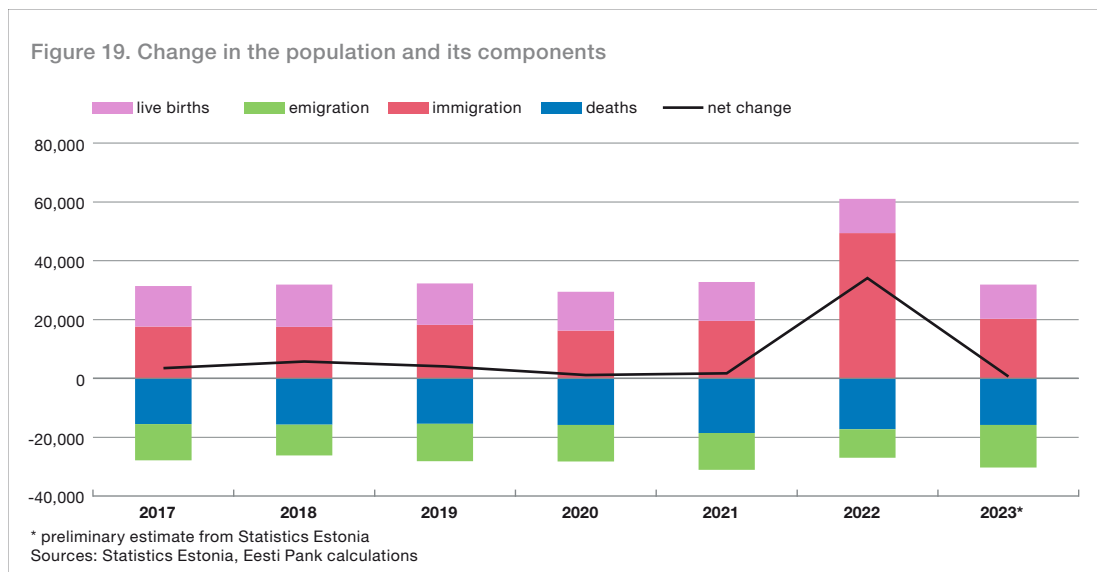
motivated to register as unemployed. It also stands out in the data on registered unemployment that the unemployment rate for older women has remained more or less the same throughout the current recession, while the rate for older men has risen fast over two years. The registered unemployment rate for young people also jumped sharply in the past half year.

Such a large rise in the unemployment rate as that seen in Estonia from the end of 2022 to the second half of last year was not encountered in other European countries (see Figure 18). Unemployment rose in the neighbouring countries of Lithuania, Sweden, Finland and Denmark, but not as much as it did in Estonia. GDP in Sweden and Finland was also shrinking at the same time. The unemployment rate in the euro area and in the European Union was more or less unchanged over the year. It fell however in countries where the tourism sector plays a large part in the economy, such as Spain, Greece, Cyprus and Croatia.

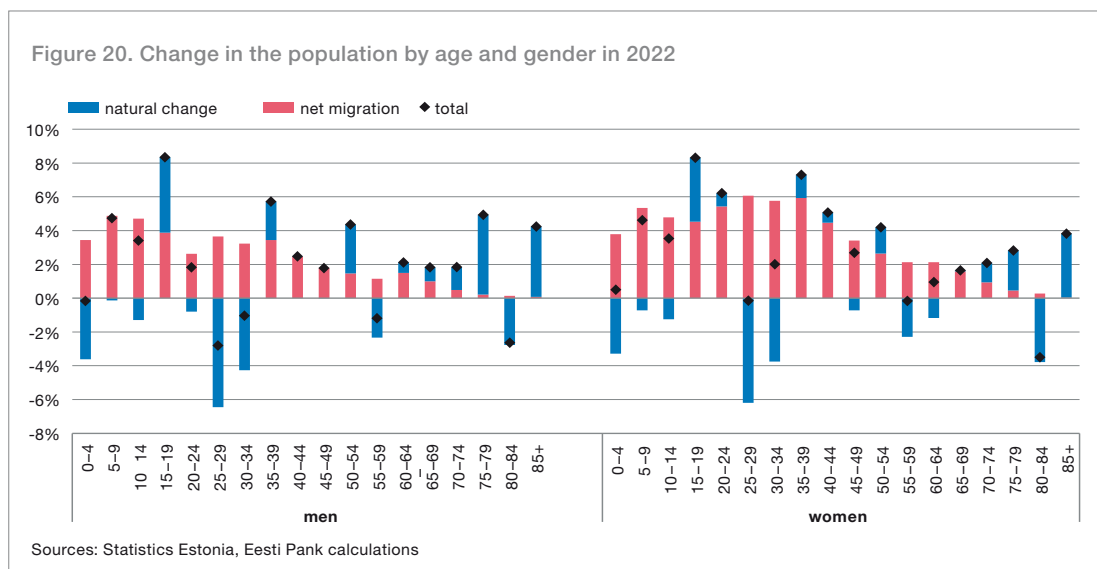


## THE LABOUR SUPPLY

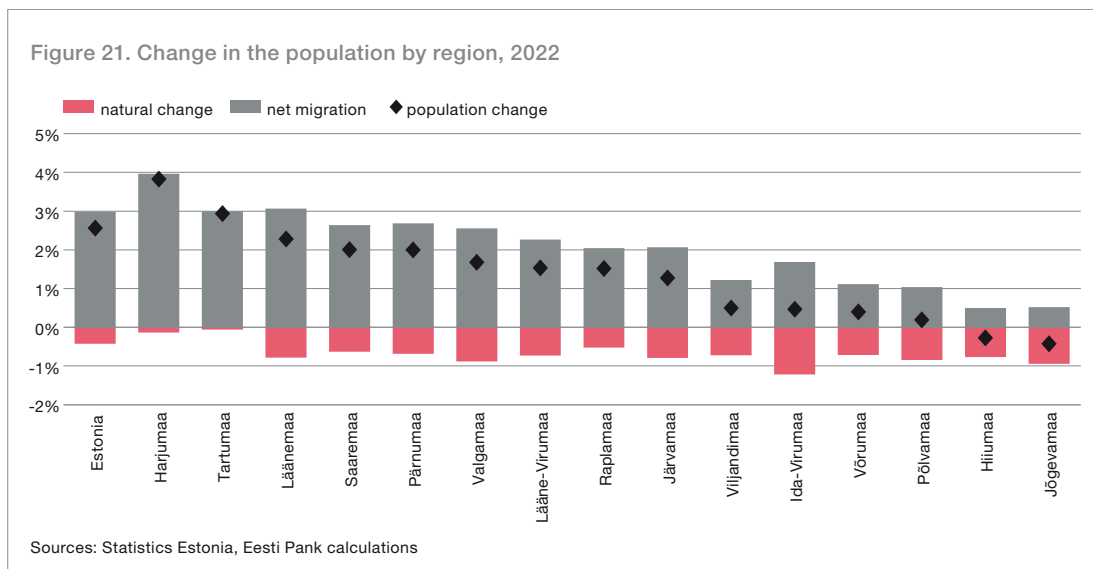
Participants in the labour market, or the labour force, are all residents of working age who are either in work or unemployed but actively looking for work. The number of participants in the labour market depends partly on the number of people of working age, and partly on how actively they participate in the labour force. The number of residents of Estonia has risen a little each year since 2017 because immigration from abroad has exceeded emigration, and this has compensated for the natural decline in the population. A major exception to this was 2022, when Estonia received refugees from the war in Ukraine, who boosted immigration by around 50,000 people, and increased the total population by 2.6%. The initial estimate from Statistics Estonia is that net migration normalised in 2023 and started to resemble what it was before the war, while the population was also around the same in size as in the previous year (see Figure 19).



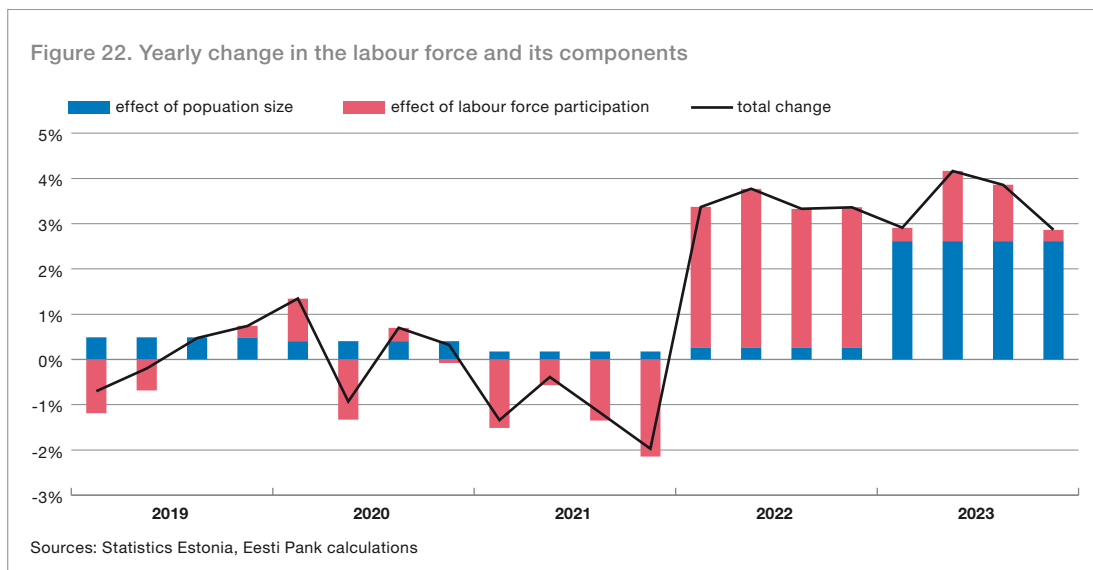
The working age population aged 15-74 increased by 26,377 people or 2.7% in 2022. Adjusted data show that almost 38,600 people of working age immigrated to Estonia while 8600 left, and so the impact of migration was to increase the working age population by about 30,000. Of those 30,000 arrivals, 23,000 came from Ukraine, some 800 from other countries of the European Union, and 6200 from other countries around the world. The migration increased the number of women relatively more, and young people predominated within it. Migration of those aged 25-39 gave a buffer against the natural decline in population, while the number of people aged 15-19 and born in the baby boom years of 2007-2010 increased by as much as 8% (see Figure 20).



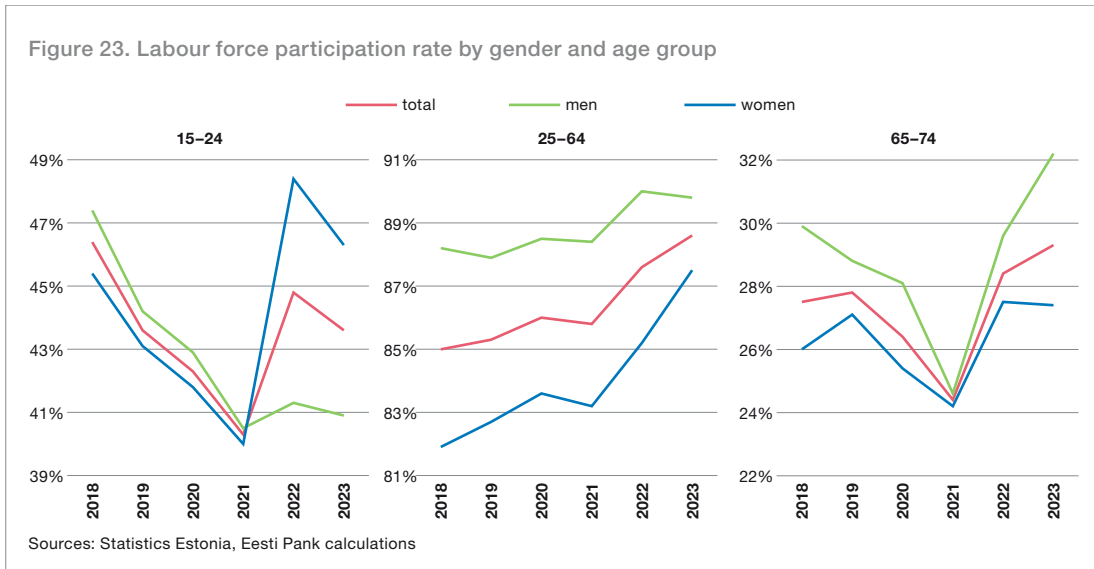
The changes in the population have not occurred evenly across the regions of Estonia. Movement of people has more impact on the populations of the regions within Estonia than it does at the state level. The biggest increases in population as a result of migration within Estonia and foreign migration together were of 4% in Harjumaa, and 3% in Tartumaa and Läänemaa. Natural demographic change is reducing the population in all the regions of Estonia, but births and deaths are almost in balance in Harjumaa and Tartumaa, mainly because of the structure of the population (see Figure 21).



The methodology used by the labour force survey means that it only records the increase in population in 2022 in its data from 2023, as it calculates employment, unemployment and other estimates for the whole year using the number of people of working age as at 1 January. The large increase in the labour force in 2022 was particularly eye-catching, and it resulted from an increase in labour force participation. As it is known that the number of people of working age increased throughout the year, the growth in the labour force is underestimated. The participation rate continued to rise in 2023, but the data from Statistics Estonia show that population growth slowed. The amount of labour in the Estonian economy also increased in 2023, but more slowly than is indicated by the estimate in Figure 22.

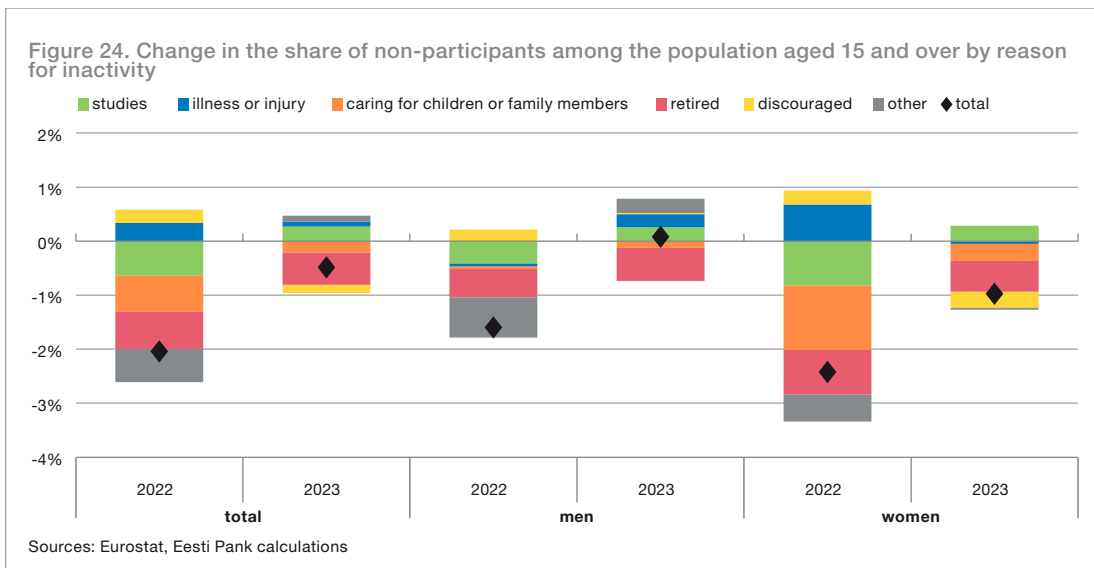


The labour force participation rate in Estonia is high, but it climbed yet higher in 2023 even so (see Figure 23). It reached 74.1% in the second half of the year, up from 73.6% in the previous year. The increase in labour force participation in 2022 was caused by the recovery from the pandemic recession of 2021, but in 2023 labour force participation returned to its pre-crisis level. An exception to this was the fall in the participation



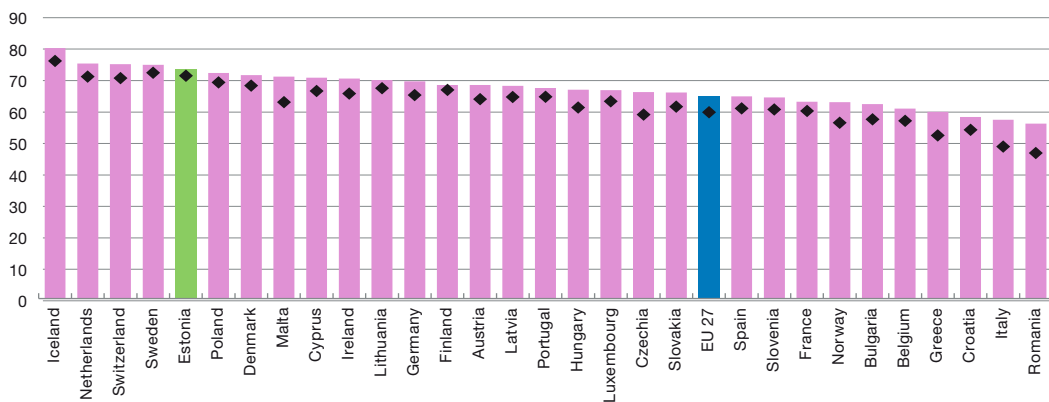
rate for young people in 2023, though this was because of an increase in the share within that age group of those aged 15-19, who have a very low participation rate. This is a narrow age range, and so the confidence bounds for the estimate of the participation rate are quite wide. The biggest impact in 2023 came from the rise in the participation rates of women in their middle working years and of older men. The rise in the labour force participation rate among older people is discussed in Box 2.

The share of the working age population that was inactive shrank most in 2023 for both men and women because retirements declined, while there were also fewer women caring for children or other family members (see Figure 24). A record low birthrate contributed to that as well. There were more people absent from the labour market because of studies than in 2022, which explains the lower participation activity among the young.



Labour force participation in Estonia remains very active in international comparison, and the participation rate is only higher in Sweden and the Netherlands among European Union countries (see Figure 25). Labour force participation overall in the European Union was 0.5 percentage point higher in 2023 than a year earlier, with the participation rate for women rising by more than that for men.

Figure 25. Labour force participation by 15-74 year olds in Europe in 2023, %



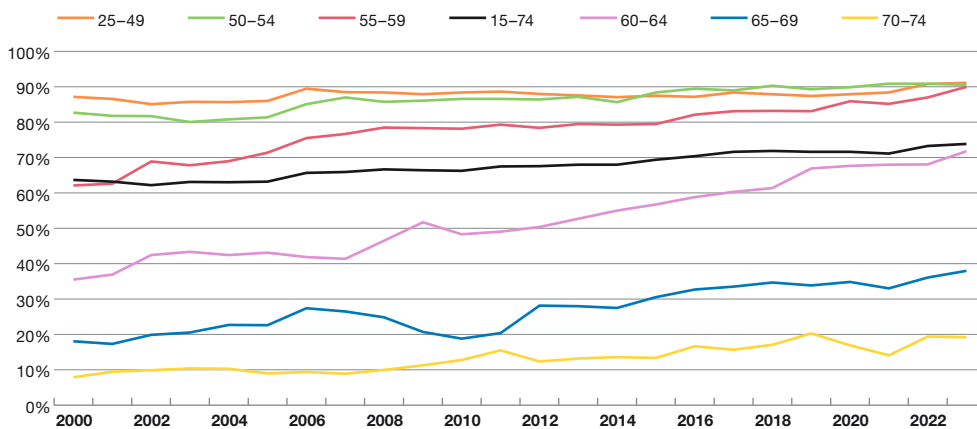
Sources: Eurostat, Eesti Pank calculations

## Box 2: Participation by older people in the labour market

Participation by working age people aged 15-74 in the labour force, either by working or by actively looking for a job, has increased consistently in Estonia. The labour force participation rate is around 10 percentage points higher than it was at the turn of the century, and it has for some time now been among the highest in the European Union. This box discusses the possible reasons why older residents of Estonia participate so actively in the labour market.

One of the main reasons why labour force participation has increased in Estonia and climbed high above the rates in other countries is that participation among older people has increased constantly (see Figure B2.1). The participation rate for Estonian residents aged 55-59 has climbed to the same level as that for people aged 25-54 and now reaches 90%. On top of this, Estonian residents aged 60-64 are twice as active in the labour market as they were at the start of the century, while the labour force participation rate for residents aged 65-74 has also almost doubled.

Figure B2.1. Labour force participation by age

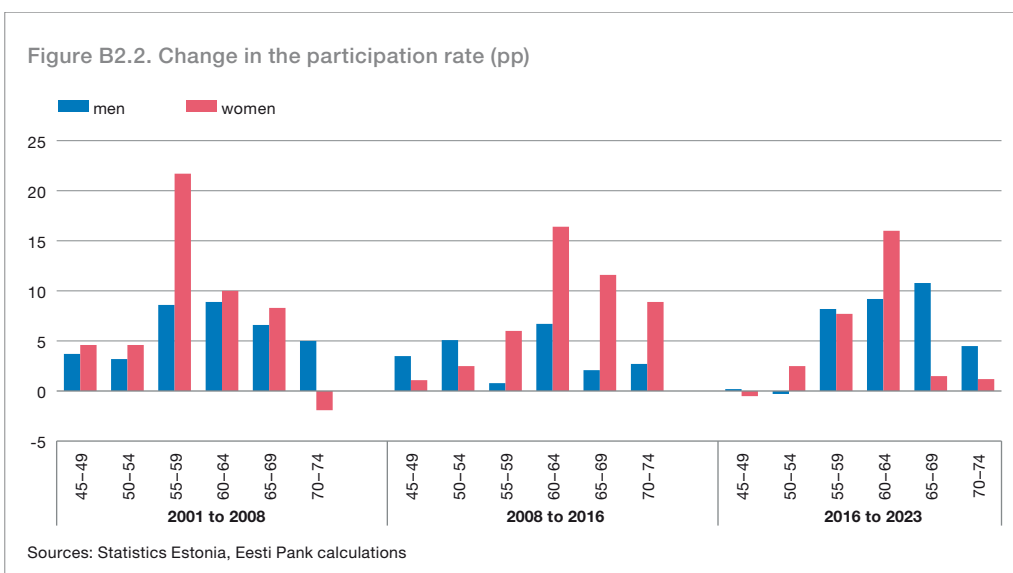


Source: Statistics Estonia

Participation by people aged over 55 has clearly been affected by the rise in the retirement age. The retirement age rose from 2001-2023 in two stages. From 2001 until 2016 the retirement age for women rose from 58 to 63, making it equal with that for men. Since 2017 the retirement age

has been rising gradually for everyone by three months for each year of birth, and it will reach 65 for both men and women by 2026. Those born in the fourth quarter of 1958 and the first quarter of 1959 reached retirement age in 2023, at the age of 64 and three months or 64 and a half.

When the retirement age for women rose from 58 to 60 in 2001-2008, there was a jump in the labour force participation rate for women aged 55-59 (see Figure B2.2). When it rose further from 60 to 63 in 2008-2016, the increase in the labour force participation rate was larger in the 60-64 age group. The participation rate for men also rose during that same period even though their retirement age did not, and so the rise in the retirement age for women cannot explain all of the increase in their participation. It is probable though that the excess growth over that for men was a consequence of the retirement age rising. The retirement age for both men and women rose from 63 to 64 in 2016-2023, and the participation rate again increased most in the 60-64 age group. It also became possible in 2002 to increase the size of the pension received by retiring at a later age than the general retirement age.



Connecting the retirement age and the labour force participation rate among those aged over 65 shows a clear and expectedly positive relationship between those indicators for the countries of Europe. Estonia and the other Baltic states clearly stand out for the participation of women though (see Figure B2.3). Although the retirement age for women in those countries was under 65 in 2022, the participation rate for women aged 65-74 in that year was among the highest in Europe in the three Baltic states, and the highest of all in Estonia. The highest participation rate for men was in Iceland, where the retirement age is 67. The participation rate for older men was high like that in Estonia in several other countries.

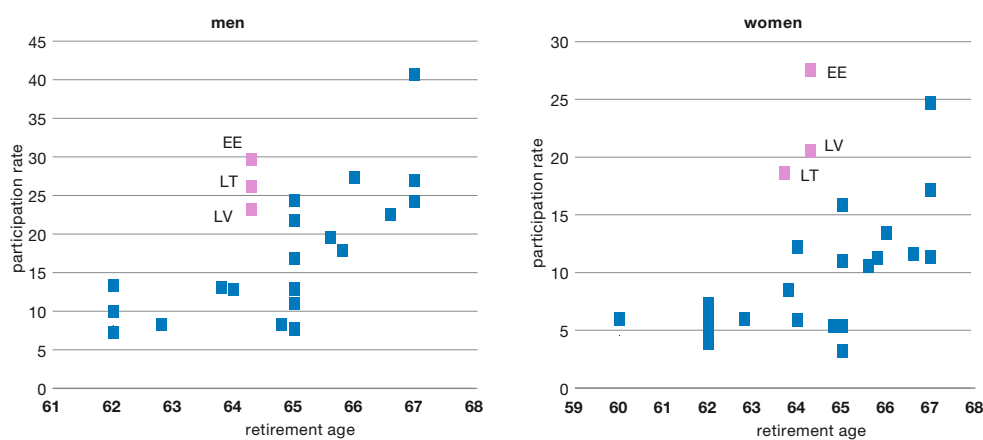
A stronger tendency to work after reaching the retirement age than in other countries is also confirmed by the OECD pensions database<sup>4</sup>. The actual or effective age at which both men and women in Estonia exit the labour market is higher than the retirement age, which is in contrast to most other European Union countries in the OECD. There were some other countries where either men or women remained in work after reaching retirement age in 2022<sup>5</sup>, but none apart from Estonia where both men and women did so.

4 OECD dataset *Pensions at a Glance*.

5 The effective age for men exiting the labour market is higher than the retirement age in Czechia, Greece, Ireland, Portugal and Sweden, and the effective labour market exit age for women is higher than the retirement age in Austria, Poland and Lithuania.



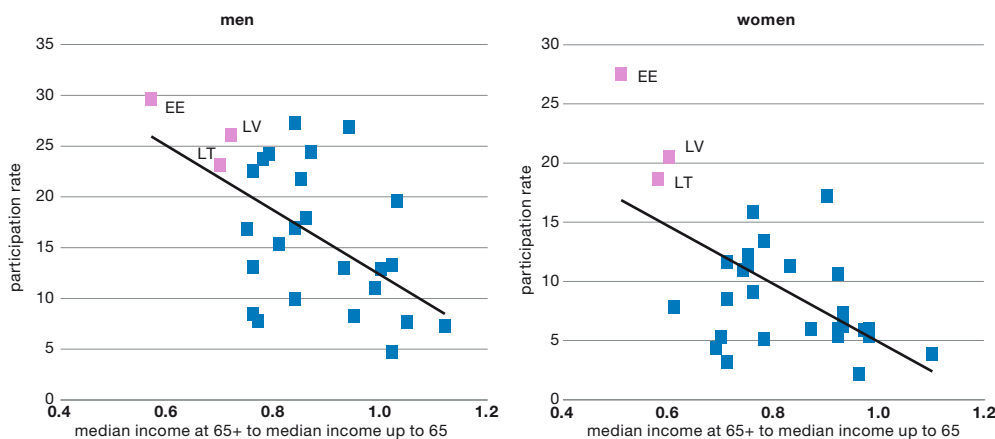
Figure B2.3. Retirement age and the participation rate of 65–74 year olds



Sources: Eurostat, OECD Database

One reason for working beyond the retirement age is the desire to earn more income. The pension replacement rate<sup>6</sup> was shown by Eurostat data to be 50-60% of the earlier average income from work in the majority of European countries in 2022 and 2023. The pension replacement rate in Estonia was 46% in 2023 and so was among the lowest in Europe, even though pensions had risen a lot in previous years because of extraordinary increases in pensions and a rapid rise in the pension index. Alongside the low pension replacement rate, Estonia has the lowest ratio for the median income of those aged over 65 to that of those aged under 65 (see Figure B2.4).

Figure B2.4. Labour force participation and income ratio at age 65 and over



Source: Eurostat

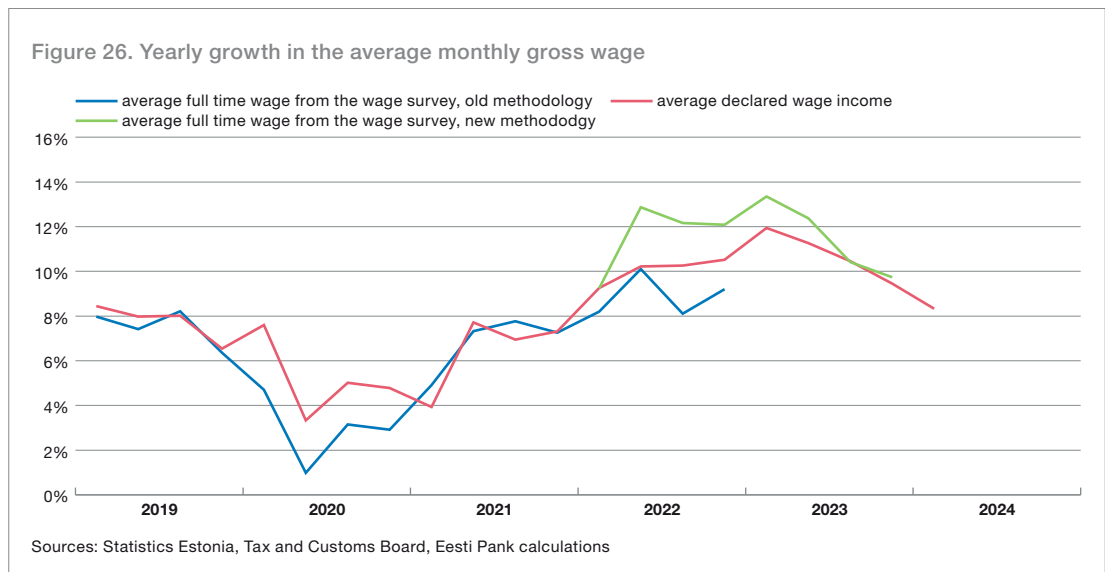
Comparing the labour force participation rate and the relative income level of those aged over 65 reveals a negative relationship. Countries where the incomes of those aged over 65 are relatively small have a higher labour force participation rate among those aged over 65. The Estonian data point lies close to the trendline for men, meaning the actual labour force participation rate is not much different from what would be expected, but Estonian women aged over 65 depart from the trend of other countries. Their participation rate is very high next to those in other European countries even taking their relatively low income into account.

<sup>6</sup> The pension replacement rate here means the median gross income from a pension at age 65-74 as a ratio to the median gross income from work at age 50-59. Income from other social benefits is not calculated.

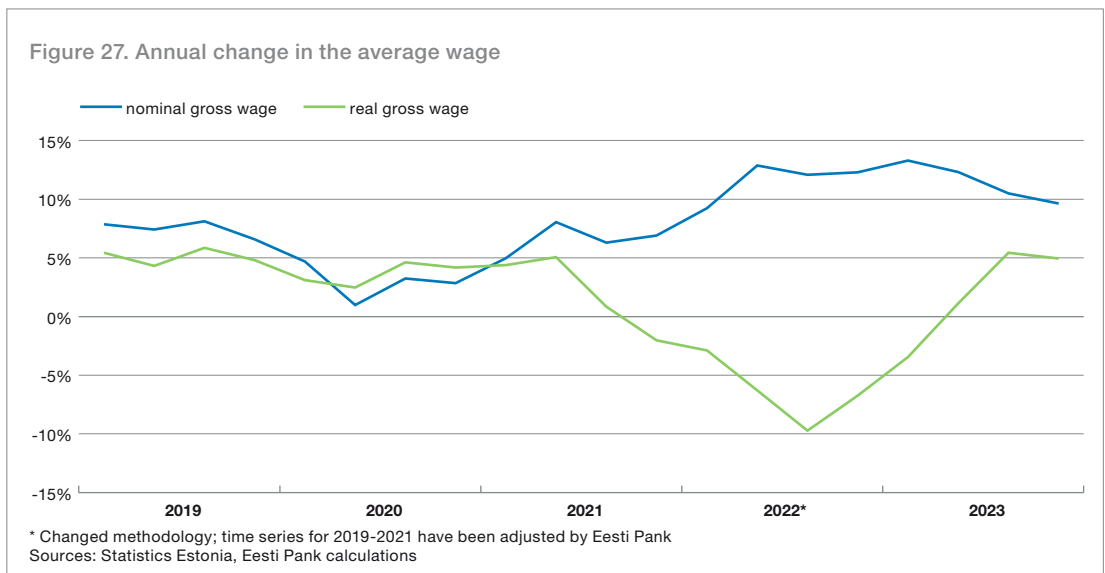
The rising retirement age and the low income in retirement, which pushes people to remain in the labour market after reaching retirement age, help to explain why the labour force participation rate in Estonia has risen in the past two decades to become one of the highest in Europe. Those factors on their own do not however explain all the difference between women in Estonia and those in other countries, and cultural and historical reasons probably also have a role in this. Other factors could be that the labour force participation rate for older women tends to be higher in those countries where the participation rate is also high for younger women; that the participation rate is influenced by how childcare is organised; whether the tax and pension system favours work in retirement; and whether the social insurance system allows early retirement and exit from the labour market.

## AVERAGE WAGES

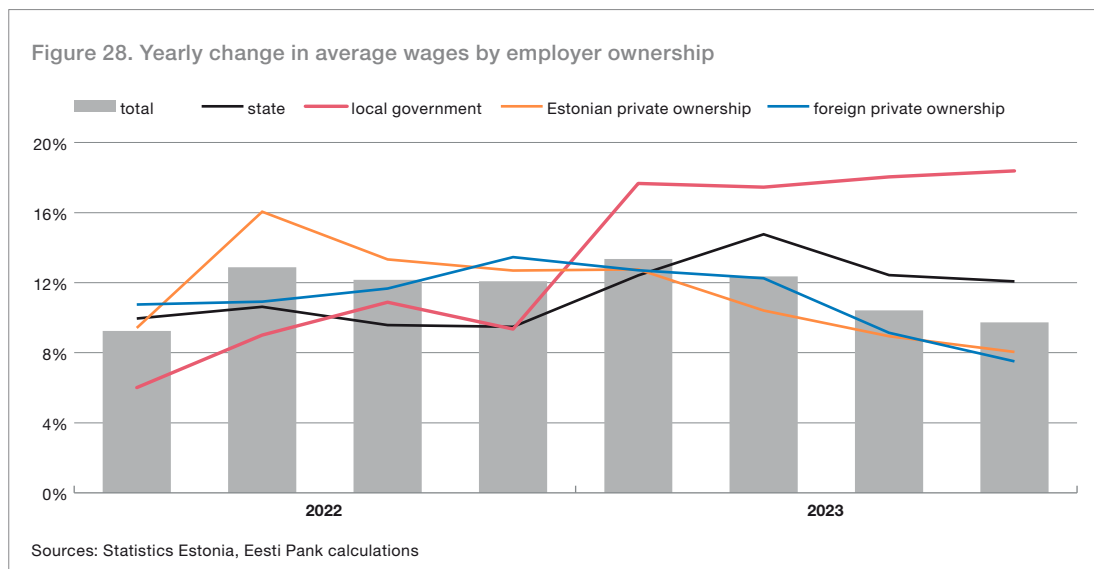
The average full-time equivalent gross monthly wage was 1906 euros in fourth quarter of 2023, and the median was 1578 euros. The growth in wages slowed during 2023 (see Figure 26), and there are several reasons why it did so. Prime among them was a fall in labour productivity, which is the basis for long-term wage growth. Consumer price inflation has slowed and so pressure on wages to compensate for the higher cost of living will probably ease. Wage pressures will be released further by the rising number of people unemployed per vacant job, which will give employers a stronger position in negotiations. There are other factors that are supporting the growth in wages, one of which is the rise in the minimum wage by 10.9% in 2023 and 13.1% in 2024 to 820 euros.



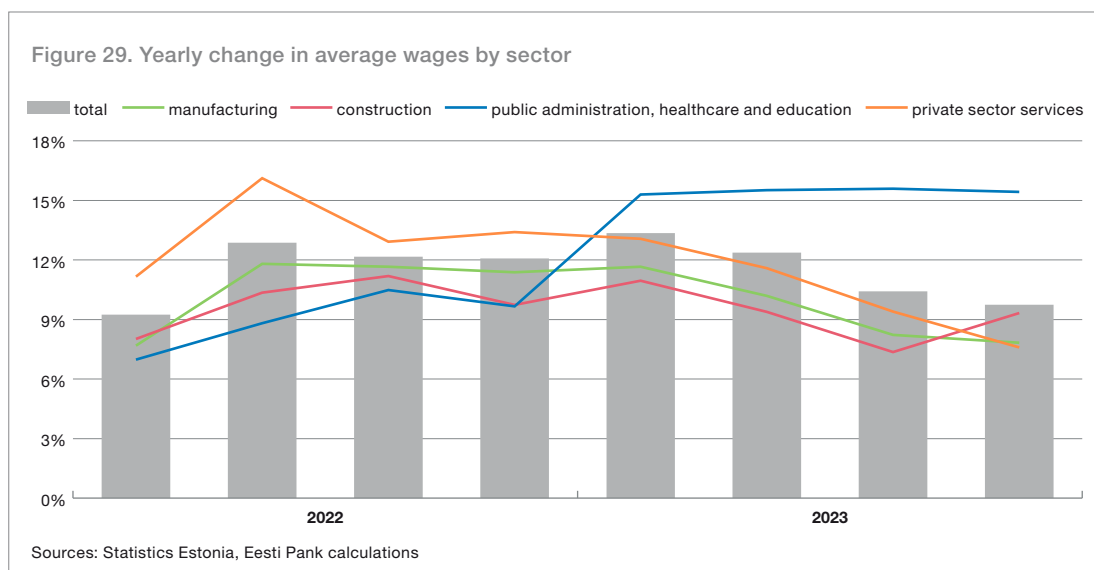
Having lost around 10% between the middle of 2021 and the third quarter of 2022, real wages started to rise from the fourth quarter of 2022. Real wages were a little above 5% higher in the second half of 2023 than they were a year earlier (see Figure 27). Real wages were 7% higher in the fourth quarter of 2023 than at their lowest point, and were around 4% below their peak from before the crisis. Real wages and the changes in them are only one of the factors that define the actual purchasing power of households. As the average wage is given as full-time equivalent, take-home pay can be affected by changes in the average working time. Incomes are also generally affected by the share of the population that earns a wage, and by the growth rates of other important sources of income that households have, such as pensions.



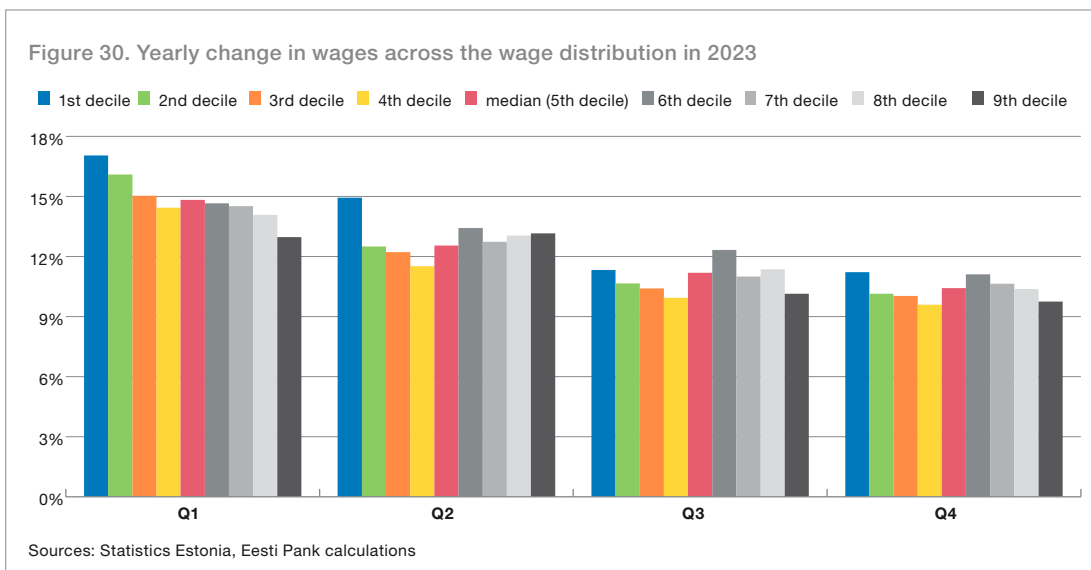
The collective wage agreements that came into force accelerated the growth in wages in the first half of 2023 for positions where the employer was local government administration and state administration. Wage growth at local government institutions accelerated in the first quarter, which reflects the rise of 23.9% in the minimum pay for teachers. In the second quarter there was a rise of 20% in the minimum hourly pay of healthcare workers in state administration. Wages in the private sector, especially at Estonian-owned private companies, rose at a slightly slower rate during 2023 (see Figure 28).



The growth in wages remained at 15% in the second half of 2023 in healthcare, education and public administration, but this was mainly because of the wage agreements in the first half of the year. Once these pass out of the calculation in early 2024, wage growth in the public sector is expected to slow significantly. Wages rose more slowly over the year in the service sector and in the industrial and construction sector, and the rise was 8-9% in the fourth quarter (see Figure 29). Wage growth in sectors where employment fell may have been boosted by changes in the structure of employment, since companies had good reason to keep staff with specialised skills on the payroll, as such employees are harder to re-engage and expensive to train when demand recovers.

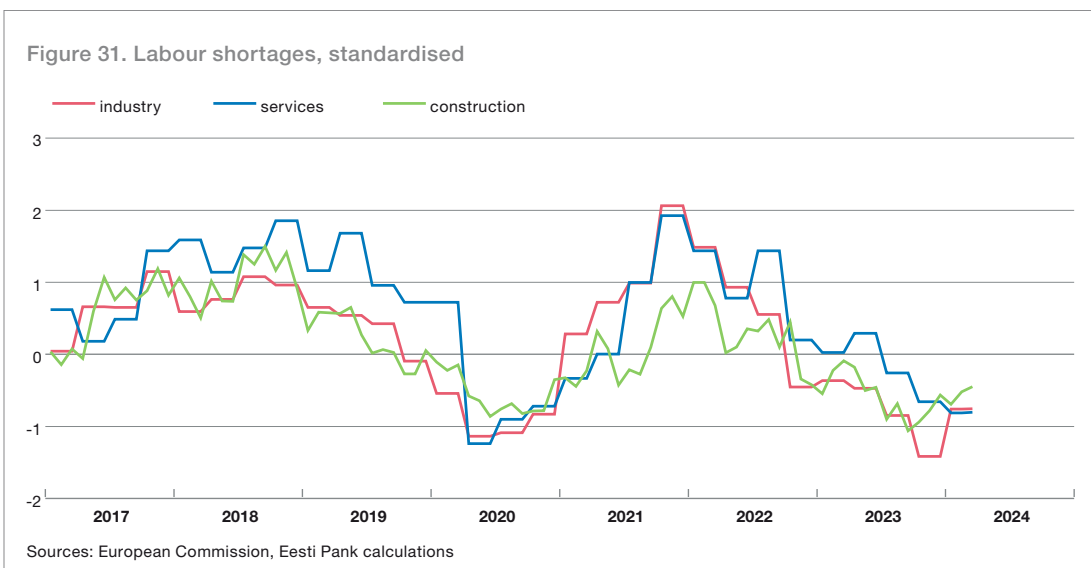


The increase in wages over the year was quite even across the wage distribution in the second half of 2023 (see Figure 30). The rise of around 11% in the minimum wage had more impact in the first half of the year, but not in the second half, as growth was slower than in the first half of the year for both lower and



higher wages. It should be noted though that the data do not reveal how much the wage of an employee in a given decile changed, but only the change across the whole wage distribution.

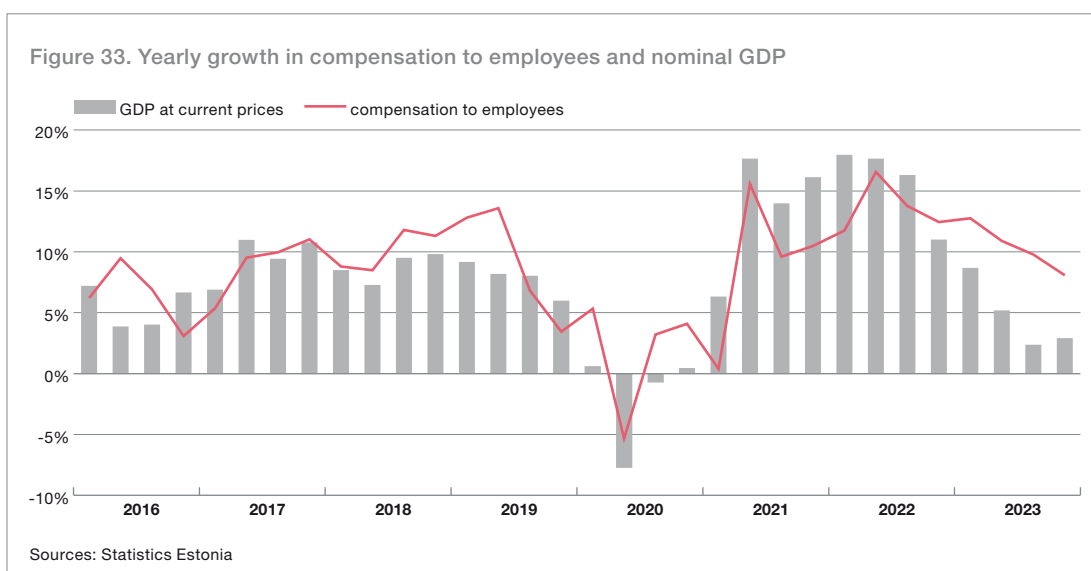
Surveys from the Estonian Institute of Economic Research show that employers in manufacturing and construction felt labour shortages to be decreasing throughout 2023, though they started to diminish later in services, in the middle of the year, as did employment (see Figure 31). There was a slight increase in manufacturing at the start of 2024 and in construction at the end of 2023, which may indicate that the downwards trend has ended. That the perception of labour shortages is below its historical average indicates that wage pressures, which make it harder to find new employees, are below their average. An increased perception of labour shortages may indicate though that employers have started to look for new employees and so is an indicator of the economic cycle.



Labour shortages are indicated not only by the surveys of employers, but also by the ratio of jobseekers to vacancies. The number of people registered as unemployed has risen since the energy crisis and the start of the war in Ukraine, and the vacancy rate has fallen at the same time, so that there are increasing numbers of unemployed people per vacant job (see Figure 32). This makes it easier for employers to hire staff, as there ought to be more applications for each job advertised. This indicator is at a similar level to where it was during the Covid-19 crisis in 2020.

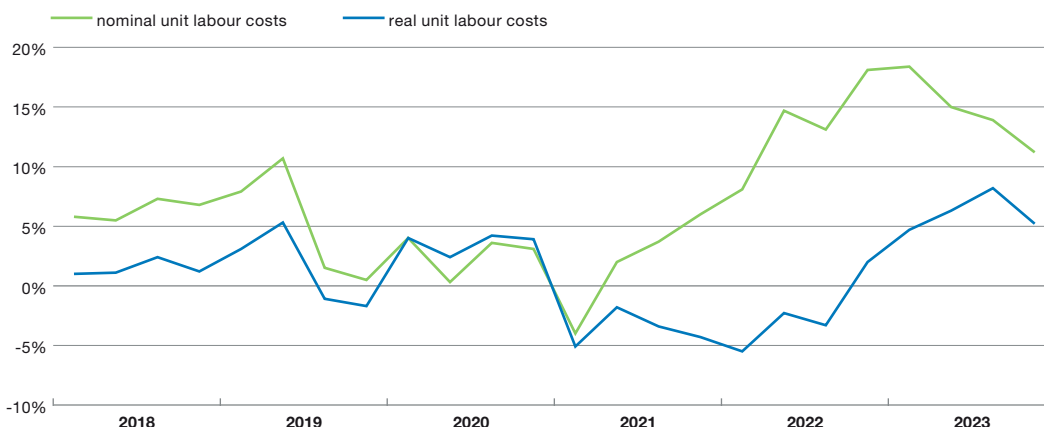


Growth in labour costs, or the payroll, slowed during 2023, but the difference between it and the growth in GDP measured at current prices widened during the second half of the year (see Figure 33). This means that the capital share, which reflects profits and depreciation of fixed assets as a share of GDP, declined. This was because the prices of the value added created in Estonia rose more slowly and volumes shrank. Labour costs as a share of GDP were higher by the end of 2023 than the peak they reached during the crisis of the pandemic. It is actually normal for the share of labour costs to increase during difficult times, as companies reduce their profits to guard against temporary declines because it is expensive to make workers redundant. Those workers are then needed again when the economy later recovers, but it is expensive and takes time to hire and train them.



Labour costs growing faster than the economy can make exporting companies less competitive in foreign markets, and a decline in the return on capital can make Estonia less attractive as a base for production. A very similar indicator to the share of labour costs is real unit labour costs, and growth in those measures the change in the relationship between wages and labour productivity over time. Growth in real unit labour costs accelerated to 6.7% in the second half of 2023 from 5.5% in the first half (see Figure 34). The growth in the labour costs for one unit of value added created in Estonia slowed in the second half of the year though, as the growth in wages slowed.

Figure 34. Growth in unit labour costs



Source: Statistics Estonia

### Box 3. The connection between productivity and structural changes in employment

The dominating feature of the Estonian economy in recent years has been the persistently dragging recession, but employment has remained high despite this. This contradiction raises the question of whether people have taken jobs in sectors with lower productivity because of the recession so that at least they would have a job to do. The data indicate that this is not so, as employment has increased more in those areas where activity and wages are higher. This means the structural change in employment across sectors during the recession has supported the development of the economy.

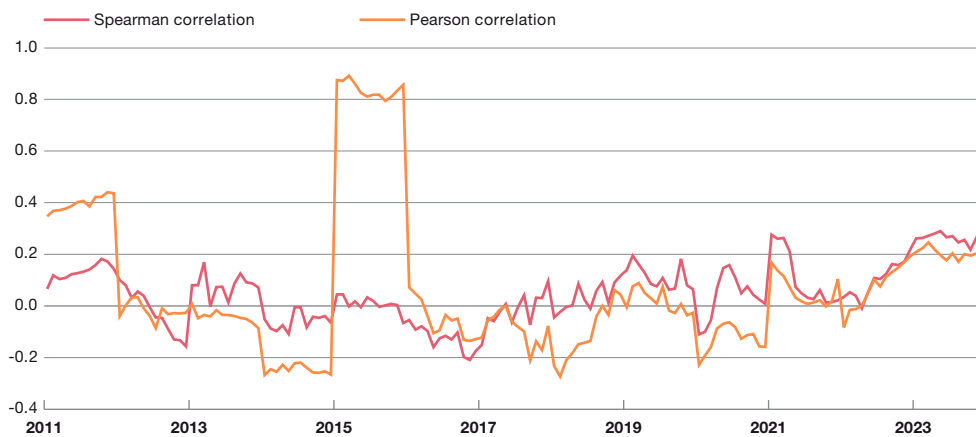
The analysis of this used data from the Tax and Customs Board on the number of employees and wages across 64 sectors, and data from Statistics Estonia on value added in those same 64 sectors.

The relations are observed using the Pearson Correlation Coefficient and the Spearman Rank Correlation Coefficient. The Pearson Correlation Coefficient can be affected by outlying individual observations, and so it is best to observe both indicators. As expected, neither wages nor productivity in sectors explain a very large part of the structural changes in employment, and so the absolute value of the correlation coefficient is not large. Given the number of observations in each period, which is the number of sectors observed, the correlation coefficient can be considered statistically significant when its absolute value is at least 0.25. Register data are observed next, and as sampling does not introduce any randomness into them, the estimates they give apply to the whole population however large or small the resulting correlation coefficient is.

Figure B3.1 shows the relations in each sector between changes over the year in employment and productivity a year earlier. It reveals that the relationship over the past year has been positive between the growth in employment in a sector and labour productivity. In other words, employees have moved to sectors where productivity is above the average, though the absolute value of the correlation coefficient indicates that this structural change has still had a very small impact on growth in the economy. An alternative is to consider how much structural change in employment increases productivity by, as it increased productivity per employee by around 0.3% last year.

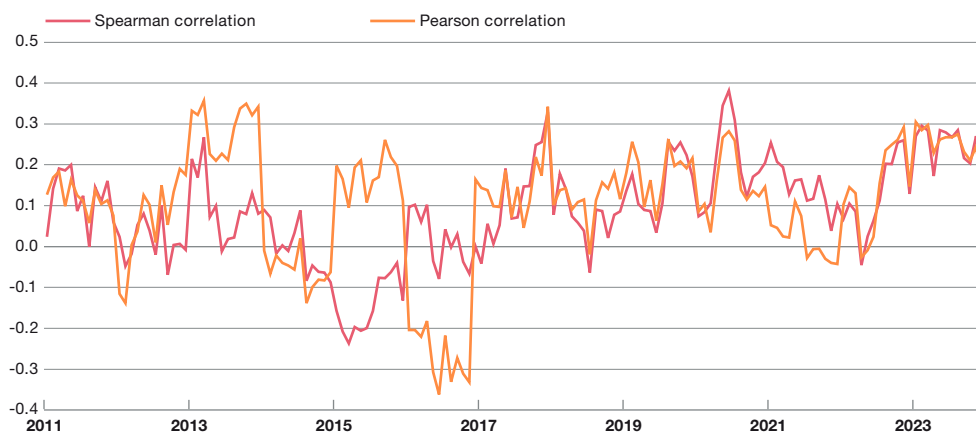
Figure B3.2 shows the relationship in each sector between changes over the year in employment and the wage level a year earlier. The data show that labour has over time moved towards areas with higher wages, and it continued to do so in 2023. The absolute values for the correlation

Figure B3.1. Correlation between productivity and the change in the structure of employment across industries



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

Figure B3.2. Correlation between wages and the change in the structure of employment across industries



Sources: Tax and Customs Board, Eesti Pank

coefficients between growth in employment and wages are larger than those for the correlation between growth in employment and productivity. Structural change in employment added 0.4-0.7% a year to the average wage in 2019-2020. The average effect was smaller last year at around 0.2% a year.

The analysis shows that employment has been stronger during the recession in sectors where labour productivity and wages are higher. The relationship between change in employment and wages or productivity explains only a very small part of the change in the economic indicators though.