



# Wage Formation in Sweden 2018

A summary of  
Lönebildningsrapporten 2018

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*Wage Formation in Sweden* is a summary of the Institute's annual report *Lönebildningsrapporten* (in Swedish), analysing the economic conditions for wage formation in Sweden.

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## Summary

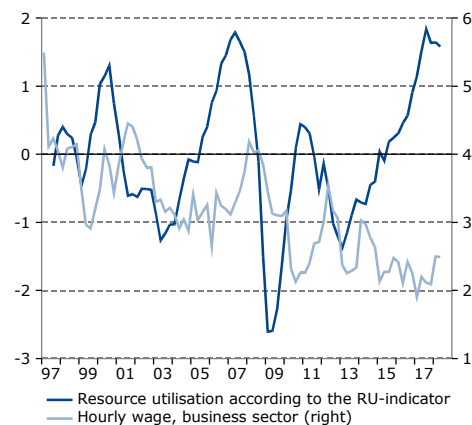
**The purpose of the Wage Formation Report is to present the economic background to wage formation. Since the next major round of collective bargaining does not commence until the autumn of 2019, this year's report is devoted to exploring various explanations for why wage growth has not taken off in recent years despite the strong economy. Subdued wage growth is not a uniquely Swedish phenomenon, as wage growth has been unexpectedly weak in other countries, too. Both in Sweden and in many other countries, the past decade's weak wage growth can be explained to a great extent by low productivity growth, low inflation expectations and persistently low resource utilisation. However, these standard explanations are not enough to account for the downward trend in wage growth in Sweden over the past 20 years. The downward trend that remains once standard explanatory factors have been taken into account can be interpreted in various ways, such as increased flexibility in the labour market. Even when account is taken of this downward trend, recent years' wage growth is lower than would be expected. Collectively agreed wage increases in 2016 and 2017 were, given the historical context, surprisingly low. To some extent, changes in age composition and an increase in foreign-born workers have impacted the dampened wage growth during recent years. Another explanation that is harder to substantiate is that expectations of low wage growth in key competitor countries have weighed on wage formation. Previous overestimations of domestic inflation and hence unexpectedly high real wage growth may also have had an inhibiting effect. A further explanation may be a hidden supply of labour, which has meant that the labour supply has been larger than indicated by standard measures of resource utilisation.**

Wage growth has been surprisingly low in recent years given increasing resource utilisation in the labour market. Both falling unemployment and growing labour shortages reported by firms themselves show that resource utilisation has risen in recent years and is now at higher levels than normal (see Diagram 1). Compared with previous booms, however, the rate of wage growth has remained modest. In the most recent economic boom, in the years before the financial crisis, wage growth in the private sector accelerated gradually to peak at an annual rate of just over 4 per cent. In the current boom, it held below 2.5 per cent until the end of last year.

The purpose of the Wage Formation Report is to present the economic background to wage formation and so assist the social partners and the National Mediation Office in the collective bargaining process. The last major round of collective bargaining, in 2017, resulted mainly in three-year settlements, and so the next major round will not commence until the autumn of 2019.

**Diagram 1 Resource utilisation and hourly wages**

Normalised seasonally adjusted quarterly values and annual percentage change, quarterly values



Sources: National Mediation Office and NIER.

This year's report is therefore devoted to taking a look back and exploring various explanations for why wage growth has been subdued in recent years despite the strong economic development. Analysis of why historical relationships between wages and other variables do not appear to have held in recent years is important for increasing understanding of various phenomena in the labour market and in the economy as a whole. It is also essential for the accuracy of wage forecasting.

### **THE RELATIONSHIP BETWEEN WAGE GROWTH AND EMPLOYMENT**

Whether recent years' low nominal wage growth is positive or negative is not clear-cut. It depends on why wage growth has been low. All else equal, lower wage growth can be assumed to lead to higher employment than would otherwise be the case. The positive effect on employment comes partly through a direct channel from firms' labour costs to their recruitment decisions, and partly through an indirect channel via monetary policy. If low wage growth reins in inflation during an economic boom, monetary policy can be less restrictive than would otherwise be the case. In this report, we find that recent years' wage growth has been lower than can be explained by macroeconomic variables such as productivity growth and inflation expectations, which would suggest that it has made a positive contribution to employment.

However, the current boom has also been different in that interest rates have been exceptionally low or even negative. To the extent that the scope for more expansionary monetary policy has been limited by a lower bound for interest rates, it is possible that the impact on employment from lower wage growth has been smaller than normal.<sup>1</sup>

### **WHAT DETERMINES WAGES?**

In the long term, wages in a small, open economy with a floating exchange rate can be assumed to be determined by the central bank's inflation target and productivity growth in the business sector.<sup>2</sup> The outside world impacts on long-term wage growth through the spread of new technology and the required rate of return on capital. Wages are also affected by the social partners' ambitions for equilibrium unemployment.

In the short term, wages are also shaped by firms' profitability, expected inflation and the state of the labour market. When resource utilisation in the labour market increases, it is normal for wages to rise more quickly, albeit with a slight delay. This is

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<sup>1</sup> See NIER (2015) for a more detailed discussion of the short-term relationship between wages and employment.

<sup>2</sup> The relevant price for wage growth is the value-added deflator in the business sector rather than consumer prices. The inflation target for consumer prices does, however, serve as an anchor for how quickly the value-added deflator can rise. For a more detailed review of the NIER's approach to the drivers behind wage formation, see NIER (2012).

because it becomes harder for firms to recruit workers with the desired skills, and workers' bargaining power increases. The outside world also impacts on wage formation in the short term, primarily through demand for exports and the effect of this on employment. The outside world can also play a role if the social partners take account of resource utilisation and wages in competitor countries.

In addition, wages can be influenced by various structural changes in the economy, such as more flexible forms of employment and increased labour mobility across national borders. Changes in the composition of the employed population as a result of demographic developments can also affect aggregate wages.

In practice, wages are thus shaped by numerous factors whose significance is difficult to quantify, and the behaviour of the actors in the economy is also difficult to predict.

The report is divided into five chapters which shed different light on what might explain wage formation in Sweden, with a focus on recent years' unexpectedly weak wage growth.

It should be stressed that the NIER expresses no opinion on how wages, corporate earnings and employment should develop in either the short or the long term. It is up to the social partners to draw conclusions based on their preferences and analysis of the economy.

## Wages from an international perspective

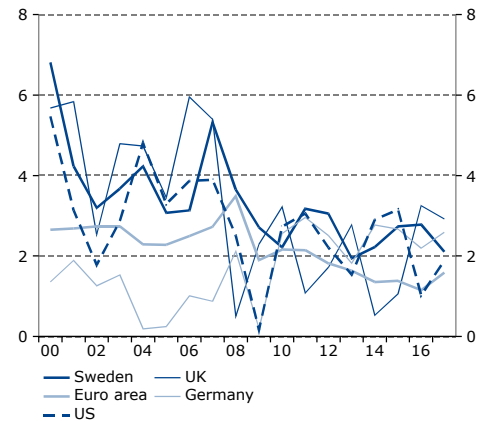
Recent years' subdued wage growth is not a uniquely Swedish phenomenon, as wages have been unexpectedly weak in other countries too (see Diagram 2). The first chapter of the report aims to present the most important explanatory factors for the dampened wage growth internationally.

The analysis shows that all of the countries included have had low productivity growth in recent years, which partially explains the weak wage growth (see Diagram 3). After the financial crisis erupted in 2008, productivity fell in all of the countries analysed except the US. This drop in productivity was followed by a recovery in most countries, but productivity growth has been lower on average since 2011 than in 2001–2007 in all of the countries analysed.

Lower inflation expectations in general also seem to have put a damper on nominal wage demands. In 2001–2007, average inflation expectations for the coming year were between 1.5 and 2.5 per cent in all of the countries analysed. Since 2011, inflation expectations have fallen in almost all of these countries (see Diagram 4).

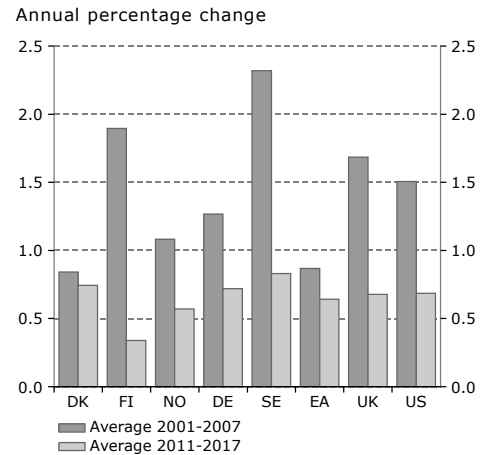
In some countries, including Finland and Norway, persistently low resource utilisation in the labour market seems to be a further explanation for the slow growth in wages. This also applies to some extent to the euro area as a whole, although differ-

**Diagram 2 Wages in selected countries**  
Annual percentage change



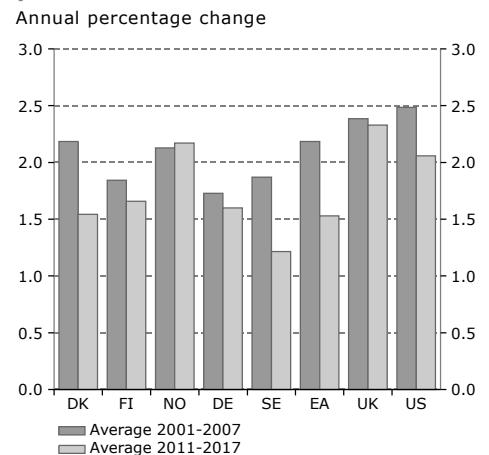
Sources: European Commission and Macrobond.

**Diagram 3 Productivity in selected countries**  
Annual percentage change



Sources: OECD and Macrobond.

**Diagram 4 Inflation expectations one year ahead in selected countries**  
Annual percentage change



Sources: IFO and Macrobond.

ent indicators of resource utilisation in the labour market in the euro area paint different pictures. It seems unlikely, however, that this has been the case in the US or the UK, or in Sweden since 2016.

Even after taking account of these standard explanatory factors, wage growth has been surprisingly subdued in recent years in many of the countries analysed. Some of the other, more hypothetical, factors that tend to be put forward as explanations for the weak wage growth include greater flexibility in the labour market, behavioural effects from the preceding deep and protracted economic slump, and globalisation.

Greater flexibility in the labour market might be reflected in a growing share of fixed-term employment contracts and a growing share of various forms of self-employment. However, both fixed-term contracts as a share of all jobs and self-employment as a share of employment were relatively stable in the countries analysed in 2001–2017 (see Diagram 5).

It cannot, however, be ruled out that the long, deep and synchronised recession in many countries after the financial crisis may have resulted in more restrained behaviour from the social partners when negotiating wages. This behaviour can be explained by a long period of low resource utilisation having created greater uncertainty about the future.

Increased globalisation in the form of greater mobility of labour, capital and production across national borders may also have impacted more generally on wage formation. It is not clear, however, why this should have affected wages more in recent years than before, given that globalisation according to some measures, such as growth in world trade, has slowed over the past decade. Furthermore, increased labour mobility between countries can exert upward as well as downward pressure on wages. For a number of reasons, therefore, it is difficult to gauge what role globalisation has played in wage formation in recent years.

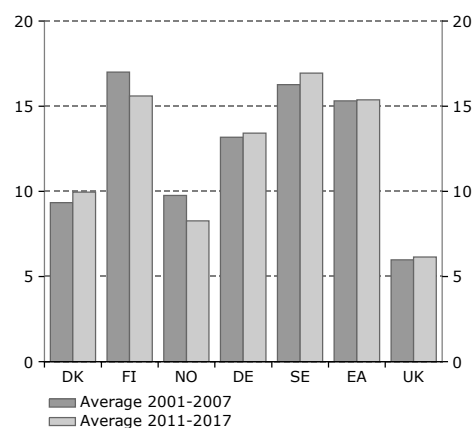
## Wages and the economic climate in Sweden

The second chapter of the report focuses on wages in Sweden. The chapter looks at the statistical relationship between wage formation and various economic variables since the end of the 1990s, and whether this relationship has changed in recent years.

Viewed over a long period, wage growth can be explained largely by fundamental variables such as resource utilisation, inflation expectations and productivity growth. However, these variables cannot sufficiently explain all of the downward trend in wage growth in Sweden over the past 20 years. In estimated models of wage formation, a deterministic trend explains almost half of the downshift in wage growth since the late 1990s. This deterministic trend has no obvious interpretation in economic terms, but may, for example, be an expression of some of the

**Diagram 5 Fixed-term employment contracts in European countries**

Share of employment, 15–74 years



Source: Eurostat.

structural changes in the labour market discussed in the first chapter, such as a more flexible labour market.

According to the estimated wage models, low resource utilisation, low productivity growth and low inflation expectations, together with this negative trend, explain why wage growth has been subdued over the past decade (see Diagram 6). Wage growth in more recent years, on the other hand, is surprisingly low even when a deterministic trend is included as an explanatory variable in the models. Our analysis shows that collectively agreed wage increases in 2016 and 2017 were, given the historical context, unexpectedly low. Wage drift has also been surprisingly limited in recent years.

One reason for the low collectively agreed wage increases of recent years may be expectations of subdued wage growth in key competitor countries. Although only a slight effect on Swedish wages from resource utilisation in the euro area and collectively agreed wage increases in Germany can be demonstrated statistically, it is still possible that a general assessment that the euro area is lagging behind Sweden in the current upturn may have had a restraining effect on Swedish wages.

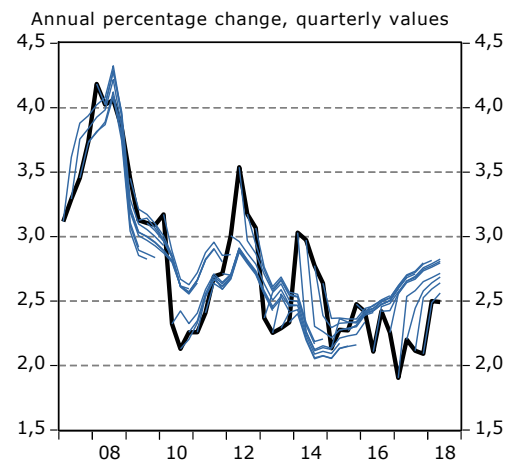
Another conceivable explanation may be that collectively agreed wage increases in 2016 and 2017 were held back by the social partners having overestimated inflation in previous years, and real wages therefore having been higher than expected (see Diagram 7).

A further possible interpretation of the unexpectedly low collectively agreed wage deals is that the social partners have taken greater responsibility in wage formation and agreed to more modest wage increases in order to boost employment and reduce equilibrium unemployment. The most recent wage settlements coincided with a major influx of asylum seekers. It cannot, for example, be ruled out that this, and the subsequent debate about the need for low initial wages to facilitate the integration of the new arrivals, may have influenced the deals struck. However, no such change of ambition has been reflected in minimum wages at least, which have risen over time in relation to median wages.

Another possible explanation for the surprisingly low wage growth is that the labour supply has been larger than indicated by standard measures of resource utilisation in the labour market. Since 2007, when a number of new countries in Eastern Europe joined the Schengen area, there has been a marked increase in the number of non-Nordic European citizens in Sweden (see Diagram 8). In this chapter, we discuss why there may also be substantial unrecorded labour immigration from these countries.<sup>3</sup> On the other hand, it should be noted that firms themselves are reporting considerable shortages of labour, which would indicate that any such hidden labour supply is limited to certain industries or just not that big at all.

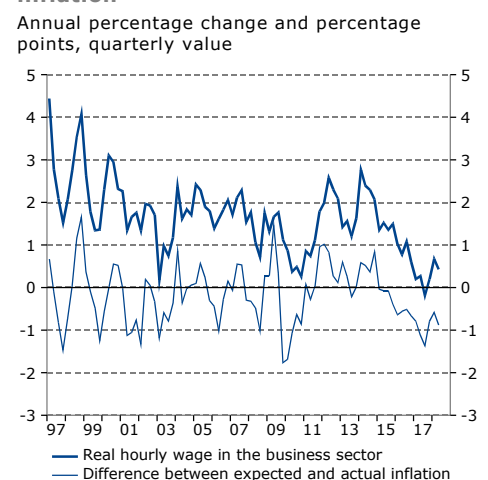
<sup>3</sup> See also NIER (2017).

**Diagram 6 Recursive out-of-sample forecasts**



Note. The diagram shows hourly wages in the business sector (black line) and the forecast hourly wage given a recursive estimation. The equation is specified on the basis of model 5 in Table 4 in the second chapter of the report. Sources: National Mediation Office and NIER.

**Diagram 7 Real hourly wages in the business sector and misjudgements of inflation**



Note. The real hourly wage is the hourly wage deflated by the CPIF (consumer price index with a fixed interest rate). Over/underestimation of inflation is the difference between what inflation in a particular quarter was expected to be a year earlier, and actual inflation in that quarter. Inflation expectations are those expressed by firms in the NIER's Economic Tendency Survey. Sources: National Mediation Office, Statistics Sweden and NIER.

Nor can it be ruled out that the reforms of the past decade – in particular the earned-income tax credit – may have had a greater effect on the potential labour supply and a more lasting impact on equilibrium unemployment and wage growth than assumed.

## The composition of the employed population and wage growth

Another possible explanation for recent years' weak wage growth is that aggregate wages have been affected by changes in the composition of the employed population. This varies with the business cycle, but also changes for structural reasons, such as changes in the composition of the overall population.

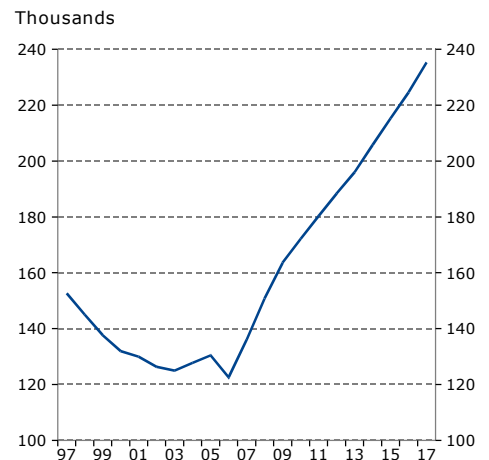
The third chapter of the report analyses how the composition of the employed population has altered over time, and how much of the change in the average wage can be explained by changes in observable characteristics of this population. The results show that changes in age composition and an increase in foreign-born employees have put a damper on the average wage in recent years. At the same time, there have been changes in the composition of the employed population that have pulled in the other direction. Higher standards of education among workers in both the private and public sectors have long helped push up the average wage.

These composition effects exerting downward and upward pressure on the average wage counteract, but the net effect in recent years has held back the average wage. The increase in the average wage in 2016 was approximately 0.2 percentage points lower in the private sector and 0.3 percentage points lower in the public sector than would have been the case if the employed population had had the same composition as in 2015 (see Diagram 9 and Diagram 10). This is a relatively small effect relative to the change in the average wage, but as an explanation for the unexpectedly weak wage growth of recent years, changes in the composition of the employed population would seem to have some significance.

## The Industrial Cooperation and Negotiation Agreement and wage growth

The Industrial Cooperation and Negotiation Agreement between the social partners has guided wage formation in the Swedish labour market for two decades now. The low collectively agreed pay increases in manufacturing given the strength of the economy and the general unexpectedly weak wage growth of recent years have raised the issue of whether the agreement's role in wage formation across the labour market has increased

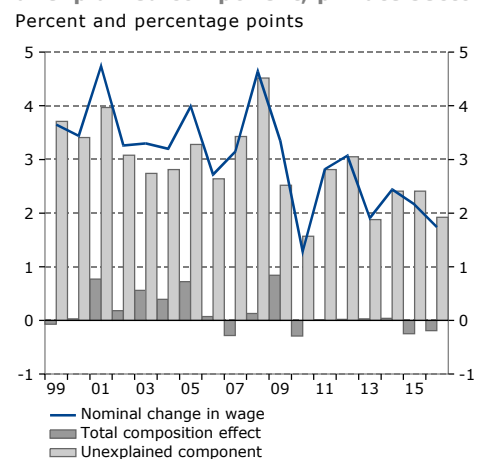
**Diagram 8 The European population in Sweden**



Note. The European population in Sweden is defined here as those with a European citizenship (excluding the Nordic countries) who are Swedish residents.

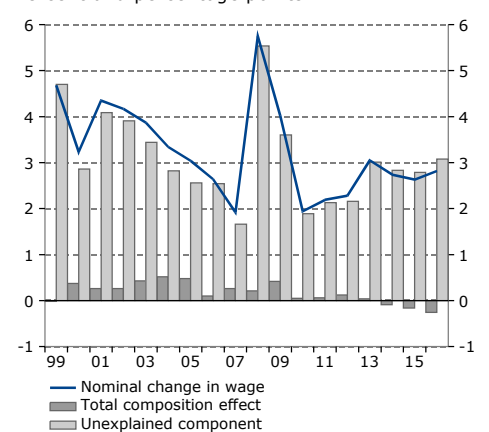
Sources: Statistics Sweden and NIER.

**Diagram 9 Change in average monthly wage, total composition effect and unexplained component, private sector**



Sources: Statistics Sweden and NIER.

**Diagram 10 Change in average monthly wage, total composition effect and unexplained component, public sector**



Sources: Statistics Sweden and NIER.



over time. The fourth chapter of the report looks at how the distribution of pay increases among employees in the private sector changed in the period 1999–2017. The results show that the distribution has become more concentrated, and that a larger share of pay increases for those who have not changed employer has been close to the manufacturing sector’s normative marker in recent years. It is, above all, the share of especially large wage increases that has declined. In industries where employers have encountered particular shortages of labour,<sup>4</sup> however, wage increases are less concentrated around manufacturing’s marker. When it comes to those who have changed job within these industries, there is no concentration at all. This suggests that demand for labour is having an impact on wage formation.

Based on the analysis in this chapter, it is difficult to draw any firm conclusions about whether the more concentrated distribution of pay increases is due to the Industrial Cooperation and Negotiation Agreement having gained a more pronounced normative role over time. There may also be other explanations as discussed above, such as low productivity growth and low inflation expectations.

## The share of labour costs in the Swedish business sector

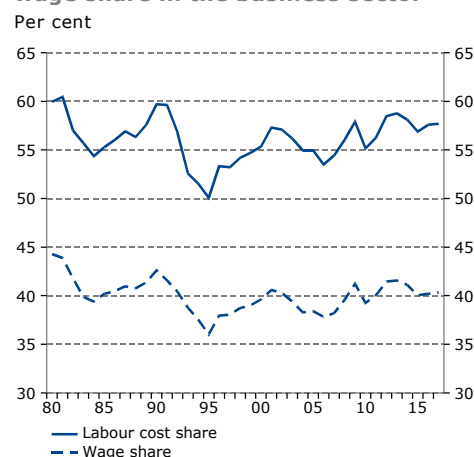
The share of labour costs is an important component of wage formation that is not only affected by, but also affects, how wages move. It reflects the allocation of total income in the economy between the production factors of labour and capital, and can also be used as one of a number of measures of firms’ profitability.

The labour cost share has varied with the business cycle, but the relationship is not clear-cut. The share of labour costs has increased since the mid-1990s and is now higher than it was for most of the 1990s and 2000s (see Diagram 11). The trend in Sweden differs from that in most other countries: in the US, for example, the wage share has decreased appreciably since the turn of the millennium.

This chapter shows, however, that once allowance is made for the structural changes that have taken place in the economy, and for changes in the ratio of employed to self-employed, there is no clear trend in the labour cost share since the mid-1990s. Shifts away from capital-intensive industries such as property management and manufacturing towards more labour-intensive industries such as health care, education and various business services have contributed to an increase in the share of labour costs since the mid-1990s.

<sup>4</sup> These industries include “Computer programming, consultancy and related activities”, “Activities of head offices; management consultancy activities”, and “Architectural and engineering activities”.

**Diagram 11 Labour cost share and wage share in the business sector**



Note. The whole business sector, not adjusted for those self-employed.

Sources: Statistics Sweden and NIER.

Over the past four to five years, the share of labour costs has fallen marginally, which is partly due to the economy being stronger with improved demand, while wage growth has been subdued. Although the share of labour costs has fallen less far than in the previous economic boom, firms generally seem to be satisfied with their profitability based on responses to the NIER's Economic Tendency Survey, especially in manufacturing. This is probably a result, in part, of the low level of interest rates. Lower interest rates mean lower borrowing costs, which likely reduce firms' required rate of return to some extent.

How the labour cost share moves over time can also depend on movements in the capital-to-output ratio (capital stock in relation to value added). This is studied in a special analysis.

## Immigration and integration into the Swedish labour market

Since 2005, the Swedish population has grown by an average of almost 1 per cent annually. In recent years, since 2015, the increase has been driven primarily by immigration, and those born outside Sweden now make up around 20 per cent of the working-age population. Another special analysis in the report looks at developments in the Swedish labour market from an integration perspective. The foreign-born population currently has a favourable age composition in terms of the labour market. It provides a potential that has not been fully tapped, as the employment rate is much lower than in the Swedish-born population. This applies particularly to women.

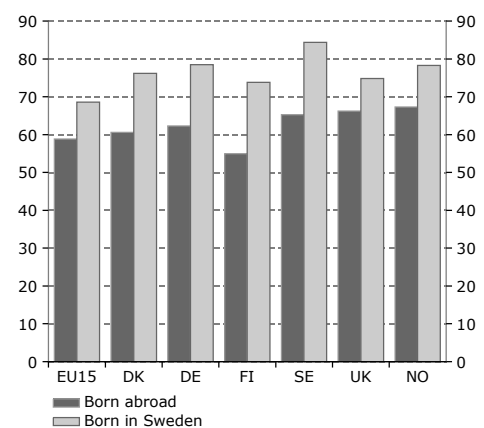
An international comparison shows that there are major differences between those born domestically and abroad in many countries, but Sweden stands out as one of the countries where the gap in the employment rate between the two groups is the greatest. It is particularly large for women, even though foreign-born women in Sweden have a high participation rate and a high employment rate relative to the average for the EU15 (see Diagram 12). The large publicly funded welfare sector in Sweden, including relatively extensive elderly and child care systems, provides a basis for high participation rates among both men and women.

On average, it takes longer for women than for men in the foreign-born population to become established in the labour market, whether measured by employment rate (see Diagram 13) or by income. Those arriving in Sweden since 2011 appear to be establishing themselves in the labour market more quickly than their predecessors. The economic climate is probably a key contributing factor.

At the same time, unemployment in the foreign-born population has been largely unchanged since 2010 despite today's strong demand for labour. This can partly be explained by the

**Diagram 12 Employment, women, 20–64 years, 2017**

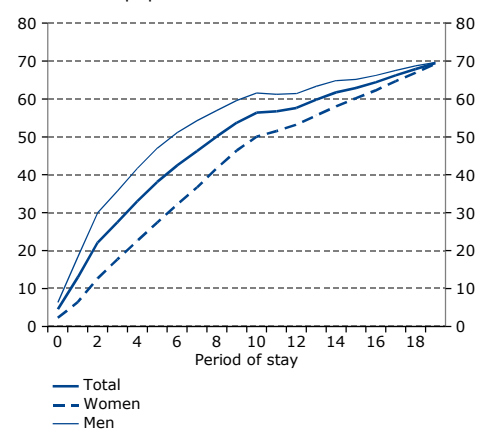
Per cent of population



Source: Eurostat.

**Diagram 13 Employment, municipal reception 20–64 years**

Per cent of population



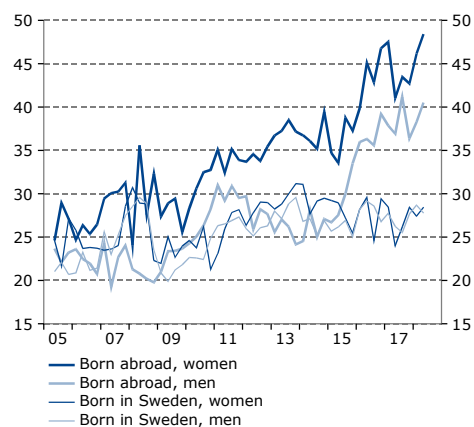
Note. Municipal reception denotes refugees, other asylum seekers and those granted residence permits on account of exceptionally distressing circumstances, plus their family members.

Sources: Statistics Sweden and NIER.

labour supply also having risen sharply as a result of high inflows, but also by increased participation rates. On the other hand, there are also considerable matching problems between the foreign-born unemployed and the skills required by employers. For example, the share of the foreign-born unemployed without secondary school leaving qualifications and previous employment experience has increased (see Diagram 14). Further action to improve the integration process is therefore important so that better use is made of the potential in the foreign-born population.

**Diagram 14 Share of unemployed with no previous employment experience**

Procent av arbetslösa, säsongrensade kvartalsvärden



Sources: Statistics Sweden and NIER.

## References

NIER (2012), *Wage Formation Report*, 2012.

NIER (2015), *Wage Formation Report*, 2015.

NIER (2017), *Wage Formation Report*, 2017