

# The future isn't what it used to be – perspectives on changes in the Swedish economy

Erik Frohm and Stefan Ingves\*

Erik Frohm works in the Monetary Policy Department of the Riksbank and Stefan Ingves is Governor of the Riksbank.

*This article, which was written prior to the outbreak of the corona pandemic, can be regarded as a summary of the discussions conducted in recent years, both internally at the Riksbank and in various international contexts, on how structural changes affect the functioning of the economy.*

*The article does not address the corona pandemic, but its main conclusion – that it is important to be able to adapt to overall changes in the economy – has become even more topical now. It is too early to say exactly how the economy will change in the wake of the pandemic, but what is clear is that we must once again adapt our society to new conditions.*

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Today's rapid technological advances change the conditions for individuals, companies and decision-makers. The fact that society changes is nothing new, however, and in a historical perspective we in Sweden have adapted our skills, companies and institutions to the new reality, which has made us into a well-functioning and wealthy nation. There are, of course, new challenges resulting from globalisation, digitalisation and the general shift towards services, where production of services accounts for an increasingly large share of the economy. What is important is that we adapt in line with these trends and that we do not try to counteract them. Monetary policy may also need to be adapted to these changes, although it is not yet clear in what way. What we can note is that the inflation-targeting regime has been successful over the past 25 years: Inflation has been low and stable and growth has been solid. The monetary policy framework of the future should continue to put considerable emphasis on rules-based thinking and the long-term game rules that have characterised the inflation-targeting policy.

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## 1 Adaptability is essential for a well-functioning society

The world appears to be changing at an increasingly rapid pace. Many inventions, such as artificial intelligence, smart homes, driverless vehicles and 3D-printers, seemed like science fiction just a few years ago. Similarly, it was difficult to predict that the strong globalisation tendencies would lead to companies organising their production in global value chains.<sup>1</sup> This development raises questions that worry many people. Will my job still exist in the future, or will it be done by a robot or an algorithm? How can my company compete in this global

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1 A global value chain means that companies divide different stages of their production or operations between different countries.

world in times of rapid technological advances? How can economic policy take these changes into account?

When things appear to change, it may be a good idea to look beyond the developments of recent years to gain perspective. Major shifts in technology and changes in society are not new phenomena; they have been taking place ever since the industrial revolution, at least. From having been a country marked by poverty and starvation, Sweden has developed into a well-functioning, free and wealthy nation. A decisive factor is that we have embraced innovations, taken part in globalisation and accepted social changes, even when they have sometimes come as the result of major crises.

When one considers the current technological advances and their consequences, however, it is important to accept that the future rarely, if ever, turns out the way one expected. New inventions can drastically change the world, even if this is not evident when they are first put to use. For instance, the Nobel prizewinner Paul Krugman wrote in the late 1990s: ‘By 2005, it will become clear that the Internet’s impact on the economy has been no greater than the fax machine’s.’<sup>2</sup> Developments can also be much slower than one expected when new inventions begin to appear: ‘Machines will be capable, within twenty years, of doing any work a man can do’ said Nobel prizewinner Herbert Simon in 1965.<sup>3</sup>

Today’s economy is heavily dependent on the internet and has a high level of employment despite widespread use of machines, so it would be easy to look back and make fun of this type of statement. But they show us a few important things: it is difficult to make economic forecasts and it is almost impossible to understand where technology will take us and what consequences this will have for the economy as a whole. Over time, there have been major shifts in the Swedish economy, which have led to a rapid increase in welfare in Sweden. One decisive factor is that the Swedish economy has adapted to international developments and to technological advances. The best thing that individuals, companies and societal institutions can do to meet the current changes is to remain willing and prepared to adapt.

The purpose of this article is to describe how the Swedish economy has changed over time and to draw parallels to the current upheavals. We will begin by describing the conditions for shift in Sweden and how various structural transformations have changed the Swedish economy from the 19th century until the early 1990s. After that, we focus on developments over the past thirty years. In the following section, we describe how three now well-known trends have affected the Swedish economy in the current day: i) globalisation, ii) digitalisation and iii) the shift towards services accounting for an increasing share of the economy. We end with a summary and draw conclusions for the future.

## 2 Good conditions for change in the Swedish economy

Despite the fact that economic conditions have at times been uneven since the financial crisis, Sweden remains at the top of several international comparisons.<sup>4</sup> Sweden’s generally high position in various rankings gives a little perspective on where we are now in relation to other countries and our good conditions for benefiting from current technological advances. This does not mean there are no challenges. The growing mountain of debt in the Swedish household sector, the poor functioning of the housing market and the poor integration of

2 The complete quotation in English was: ‘The growth of the Internet will slow drastically, as the flaw in “Metcalfe’s law” becomes apparent: most people have nothing to say to each other! By 2005, it will become clear that the Internet’s impact on the economy has been no greater than the fax machine’s’, see Krugman (1998).

3 ‘Machines will be capable, within twenty years, of doing any work a man can do’, see Simon (1965).

4 Sweden holds first place on the European Commission’s ‘innovation scoreboard’, third place with regard to research and development as a percentage of value-added, fourth place on the Economist’s ‘Where-to-be-born-index’ and seventh place on the World Economic Forum’s ‘Global Competitiveness Index’.

those born abroad are issues that need to be addressed by decision-makers in Sweden. In addition, we in Sweden, like those in other countries, need to relate to new conditions – earlier achievements are no guarantee of future results.

History is fraught with episodes of turbulence, with major changes in Swedish society and the global economy. The changes have not been painless and there are human fates behind every statistical figure. Those who worked in professions that disappeared had to retrain and in many cases move from the countryside to the towns. Similarly, there can be difficult changes if software and algorithms take over more work tasks. The changes may happen faster now than before, which can mean that those with skills that are no longer in demand need to adapt more quickly than before. What is clear is that globalisation, the widespread digitalisation and the increase in services have had a fundamental effect on our economy, and will probably continue to do so for some time to come.

Another important factor significant to long-term economic developments is demographical developments, although we will not be discussing them in this article. Among others, Ingves (2019) has discussed the issue of how demographic developments can affect the labour market and monetary policy. See also Olli Segendorf and Theobald (2019) for a more in-depth discussion of the economic effects of immigration.

In the following, we will describe in brief economic developments in Sweden since the beginning of the 19th century. We are not historians, and our aim is not to cover all the details, but to highlight important events and the changes ensuing from them. The description that follows is largely based on the thorough work done by Edvinsson (2005), Edvinsson et al. (2010, 2014), Schön (2014) and Larsson et al. (2014).

## 2.1 Innovations and reforms – a breeding ground for economic growth

During large parts of the 19th and early 20th centuries, Sweden was still an agricultural economy and a significant percentage of the population lived in the countryside. Families produced most of what they needed themselves, with regard to food, clothing and tools. Despite relatively weak economic development, a couple of important changes occurred during this period. Agriculture, steel and forestry began to be commercialised because of new types of crops, more efficient ways of working and the expansion of the infrastructure in the form of railways. Separation of political power, stronger protection for ownership rights and the abolition of the guild system were important institutional reforms.<sup>5</sup> From the middle of the 19th century, these advances had created a stable breeding ground for economic growth in Sweden.<sup>6</sup>

### **Pioneering innovations and new technology driving growth**

Falling transport and communication costs as a result of new technology enabled foreign trade to increase steadily during the 19th century. As industrialisation picked up, demand for transport also increased, which led to pioneering innovations in boat construction, inland waterways and road transports. During the first half of the 19th century, steam engines were installed on boats and the electric telegraph was invented, which changed communication capacity by reducing the time it took to send messages around the world from weeks and months to just a few minutes.

Despite periods of poor growth and several crises, the increased international demand, combined with lower transport costs, meant that Swedish exports of steel, forestry and grain

5 In 1809 the principle of power sharing between the King and the Riksdag (the Swedish parliament) was adopted, during the 1840s the Riksdag decided on schooling for all, and in 1860 the obligation to carry domestic passports was abolished and freedom to conduct a business was introduced.

6 During large parts of the 19th century, Swedish GDP per capita was only around half of GDP in the United Kingdom and the United States. During the 21st century, GDP per capita in Sweden was higher than in the United Kingdom and 4/5 of that in the United States. At the same time, GDP per capita has grown rapidly in all three economies.

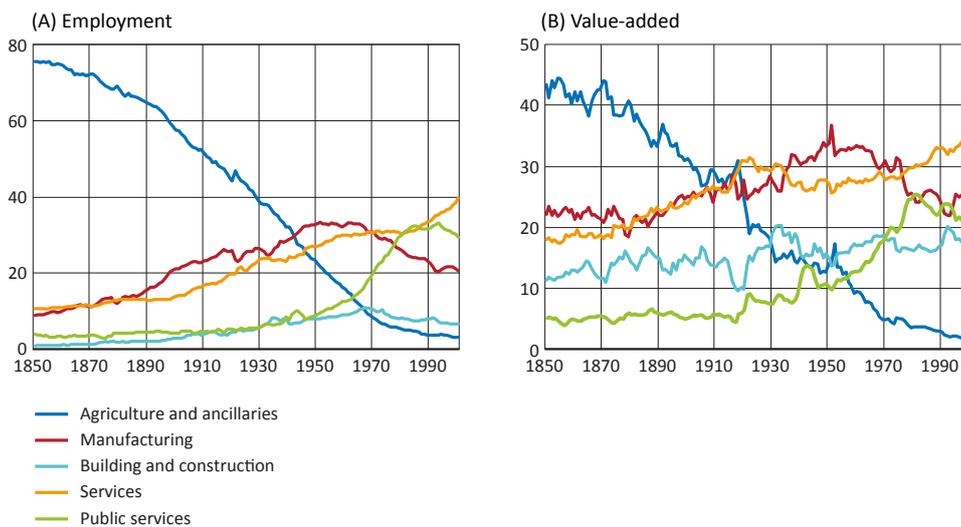
in particular increased rapidly. Imports of capital good increased, and the prominent role held by agriculture in the Swedish economy began to decline. At the same time, both the number of employees in the manufacturing sector and services became more important for the Swedish economy, both in terms of employment and value-added, see Figure 1.

Sweden's first act regarding public limited companies came into force in 1849 and was replaced in 1895 by a uniform act for all public limited companies. The new company forms made it easier to allocate both domestic capital and capital imports through new issues. New large corporations with a focus on engineering began to emerge and to drive technological advances in the manufacturing industry. These included AGA, ASEA (later known as ABB), Atlas Copco, Ericsson, Separator (later known as Alfa Laval) and SKF. Economic growth in Sweden rose steadily during this industrialisation process, see Figure 2.

But there were setbacks. From the middle of the 19th century, Sweden experienced several periods of low growth and falling production, crises and recessions. The years 1867–1869 were particularly notable, as they were unusually cold with poor harvests and led to mass starvation in Sweden. During this period, many people decided to leave the country and seek their fortune in other countries in Europe and in the United States.

**Figure 1. Employment and value-added, 1850–2000**

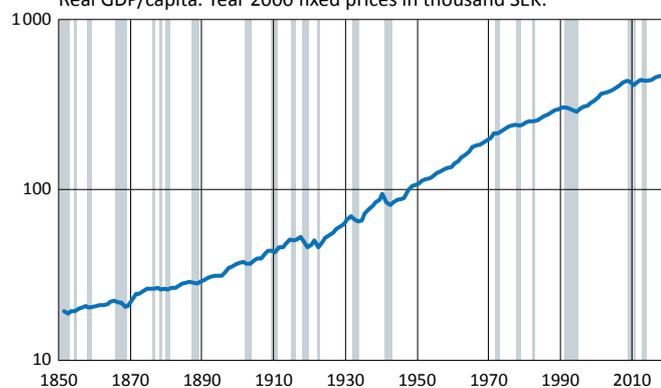
A: Percentage of employed. B: Percentage of value-added.



Sources: Edvinsson (2005) and Edvinsson et al. (2014)

**Figure 2. GDP per capita, 1850–2018**

Real GDP/capita. Year 2000 fixed prices in thousand SEK.



Note. The grey fields mark periods with negative growth in GDP/capita and the y axis is on a logarithmic scale.

Source: Edvinsson et al. (2014)

## 2.2 World war and global depression

Even though Sweden faced large-scale emigration in the late 19th century and early 20th century, economic growth was good in relation to other countries. A favourable demographic development with a rising employment rate and higher incomes led to good economic development. Large areas of Europe were drawn into the First and Second World Wars, while Sweden was able to remain outside.

After the First World War, Sweden once again suffered an economic crisis. Production in countries competing with Swedish companies increased substantially in the post-war period, which put pressure on profitability in Swedish export companies, many of which went bankrupt. The Swedish economy recovered somewhat during the 1920s, but this came to an abrupt halt when the global Depression, which began in the United States in 1929, also reached Sweden. Clemens and Williamson (2004) show how tariffs increased globally, which sharply reduced world trade. Heightened trade barriers affected Swedish exports and led to a high level of unemployment. After the Depression, governments around the world decided to aim their economic policy to a greater degree towards stabilising economic cycles. Keynesian economic theory and the 'Swedish model' with a privately owned manufacturing sector, large public sector and a high level of trade union membership took hold in Sweden.

### High employment rate despite structural changes

As we saw in the first section, economists and decision-makers have long been concerned that major technological advances can create mass unemployment. The most well-known movement were the Luddites in the United Kingdom, who became famous during the early 19th century for destroying textile machinery out of fear of losing their jobs. However, the major changes to the Swedish economy in the 19th and 20th centuries were not followed by mass unemployment. On the contrary, the number of employed as a percentage of the population rose, see Figure 3.

**Figure 3. Employment rate, 1850–2018**  
Percentage of employed in entire population



Note. The employment rate is defined here as the number of employed as a percentage of the population to obtain the longest time series possible. Normally, the employment rate is defined as the number of employed as a percentage of the labour force rather than the entire population. For the whole year 2018, this number was 68.5 per cent in Sweden.  
Sources: Edvinsson (2005) and Statistics Sweden

From the middle of the 19th century until the 20th century, the employment rate did not show a trend fall as a result of technological advances. From the beginning of the 1920s until 1940, on the other hand, the employment rate rose rapidly, only to fall again during the Second World War. From the middle of the 1950s, it showed a rising trend again until the

Swedish financial crisis in 1991. After that, the employment rate has been lower, but has increased steadily.<sup>7</sup>

#### The Riksbank changes along with the rest of society

Since it was established in 1668, both the Riksbank's activities and the number of its employees have varied, see Barvell et al. (2019). Especially since the 1990s crisis, the number of employees has declined, as a process of streamlining began with the motto: 'The Riksbank shall not carry out tasks using public funds that other could do as well or better'. Banknote manufacturing was outsourced in 2002, in 2003 Statistics Sweden was given the task of producing financial market statistics and in 2007 it was also given the task of producing the balance of payments statistics. The streamlining during the 1990s and 2000s led to a large reduction in the number of employees and at present just over 350 people work at the Riksbank, compared with around 1,000 in 1980. It is also clear in our operations how the demand for different types of competence has changed along with developments in society and technology. During the early 1990s, only a small percentage of the staff at the Riksbank had a PhD or Master's degree, while in 2020 around one in five have these qualifications. The technological developments also require that operations have increasing skills in IT architecture, IT security, data science and data management.

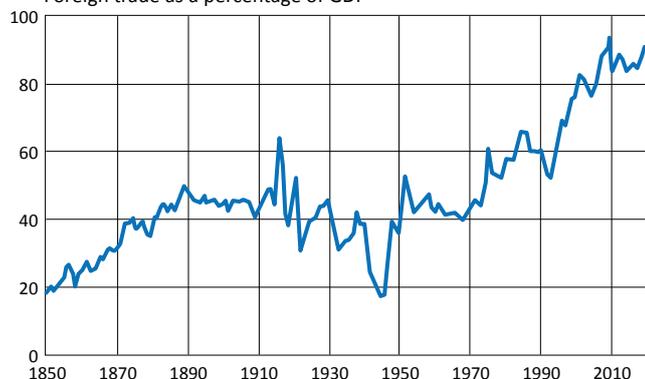
## 2.3 The strong society, crisis and structural change

The Second World War was followed by rapid economic growth. With the labour force intact and without any significant loss of capital, Swedish companies could benefit from the high demand that arose from the rebuilding of Europe. Trade liberalisation and economic growth went hand in hand, at the same time as international institutions gained a more prominent role in the global scene. The Swedish model and the 'strong society' appeared unthreatened during this period, and Sweden became one of the world's wealthiest nations. During the 1960s, industrialisation peaked in terms of employment and value-added, see Figure 1.

#### International dependence, devaluations and the path to the 1990s crisis

At the same time, the economy continued to change. The textile and clothing industries became less important for total employment. Services and the public sector expanded rapidly, but at the same time, the Swedish economy became increasingly dependent on demand from other countries. Swedish foreign trade rose from around 40 per cent of GDP during the first half of the 20th century to just over 90 per cent in 2018, see Figure 4.

**Figure 4. Swedish foreign trade in goods and services, 1850–2018**  
Foreign trade as a percentage of GDP



Note. Foreign trade refers to exports and imports of goods and services.  
Sources: Edvinsson et al. (2014) and the Riksbank

<sup>7</sup> The debate has not disappeared in modern times. Fölster (2014) replicated a study by Frey and Osborne (2017) using Swedish data and found that more than 50 per cent of all jobs could be replaced by digital and automated technology in the coming 20 years. A study by Nedelkoska and Quintini (2018) instead shows that around 35 per cent of Swedish professions have either a high or a significant risk of automation, which is much lower than most OECD countries.

However, this change was not without challenges. The large fall in international demand resulting from the oil crisis 1973–1974 affected several export-dependent companies in Sweden that were struggling with poorer international competitiveness. In an attempt to strengthen the export companies' competitiveness, the krona was devalued a total of five times between 1976 and 1982. This had a temporarily positive effect for the export companies, but at the cost of increasingly strong inflationary impulses. Wage earners negotiated higher wage increases to compensate for the rising inflation and the higher wage increases led to even greater inflationary pressures, which were followed by even higher wage increases and more inflation. It became clear that the model of that time, where the fixed exchange rate was to be the anchor for price-setting and wage formation, was not working.

On the technology front, new sectors emerged, such as the information and communications technology sector (ICT) and pharmaceuticals industries. At the same time, other branches declined in significance or disappeared entirely because of the tougher international competition, for instance, the textile and clothing industry. A number of deregulations were also implemented, for instance regarding the railway and electricity monopolies, and the credit markets. An important step for the latter was the abolition of the loan cap in 1985. This led to rapid growth in lending to households and companies. During this period, fiscal policy was overly expansionary and the objective for monetary policy was a fixed exchange rate. The combination of these two factors and irresponsible lending by the banks lay the foundations for the crisis at the beginning of the 1990s.

### 3 A domestic financial crisis and the Great Moderation

The reunification of Germany following the fall of the Berlin Wall in 1989 led to large public investments that resulted in high growth figures, which pushed up interest rates in Europe. At the time, the krona was pegged to the 'currency basket' and later to the euro's predecessor, the ecu. To maintain the fixed exchange rate, the Riksbank raised its policy rate in line with the higher interest rates in Germany. But with the Swedish history of devaluations to maintain international competitiveness, there were expectations of a new Swedish devaluation. In an attempt to convince the financial markets that Sweden had firmly decided to maintain the fixed exchange rate, the Riksbank raised its policy rate substantially; for a couple of days it was at 500 per cent. Finally, the situation became untenable and the fixed exchange rate was abandoned in November 1992.

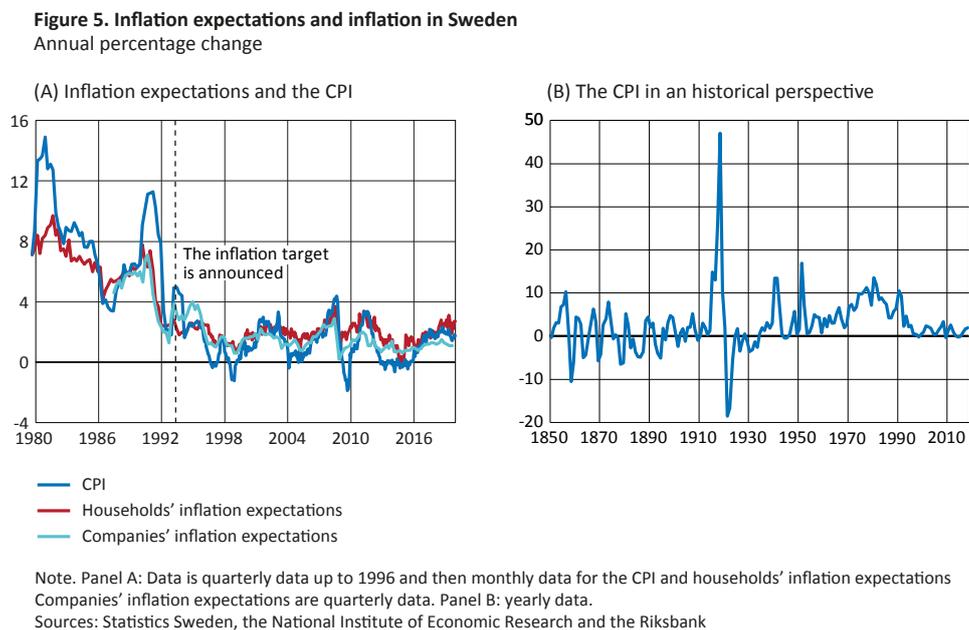
When the fixed exchange rate was abandoned, the krona depreciated substantially. However, international demand was not sufficient to counteract the weak domestic activity. Unemployment rose rapidly 1991–1993 and GDP fell, at the same time as public finances weakened because of high public expenditure and lower tax revenue. The 'tax reform of the century' in 1991 involved, among other measures, reducing the tax deductibility on interest expenditure, which was a well-needed reform but the higher policy rates and lower tax relief meant that households' real interest rates increased substantially. Property prices fell heavily and the banks began to experience large credit losses, particularly on loans to commercial property companies. The crisis that ensued became a financial meltdown. The Swedish Bank Support Authority (popularly known as the banking 'ER') was given the task of cleaning up in the banking system and finally the crisis was under control. It was certainly a wake-up call for many people in Sweden.

#### **Important reforms and inflation target to dampen inflation and keep it stable**

The 1990s became a period of many important structural reforms to attain long-run sustainable public finances, and initiatives that lay the foundations for a period of stable

economic growth. A consensus was reached with regard to the importance of rules-based thinking and to long-term game rules being decisive for stable economic conditions. The traditional Keynesian stabilisation policy was abandoned and the Riksbank's task was redefined from maintaining a fixed exchange rate to stabilising inflation and otherwise supporting economic developments in general.<sup>8</sup> From the mid-1990s, the fiscal policy framework was also reformed: caps on public expenditure were introduced, the surplus target was formulated and measures were taken to begin consolidation of Sweden's national debt to improve public finances.

The new inflation-targeting regimes in New Zealand, Canada and the United Kingdom also became the model used by Sweden. An inflation target was introduced in 1993 (to begin applying from 1995). The purpose was to curb the general public's expectations of high inflation that had become entrenched in the 1970s and 1980s, see Figure 5A.



Several factors probably played a role in changing the general public's expectations of high inflation, but one can note that the inflation target and the credible overall economic policy led to low and stable inflation in an historical perspective, see Figure 5B. The period prior to the global financial crisis was overall characterised by a stable and positive development in the economy, not only in Sweden, but also internationally. This period is often referred to as the Great Moderation.

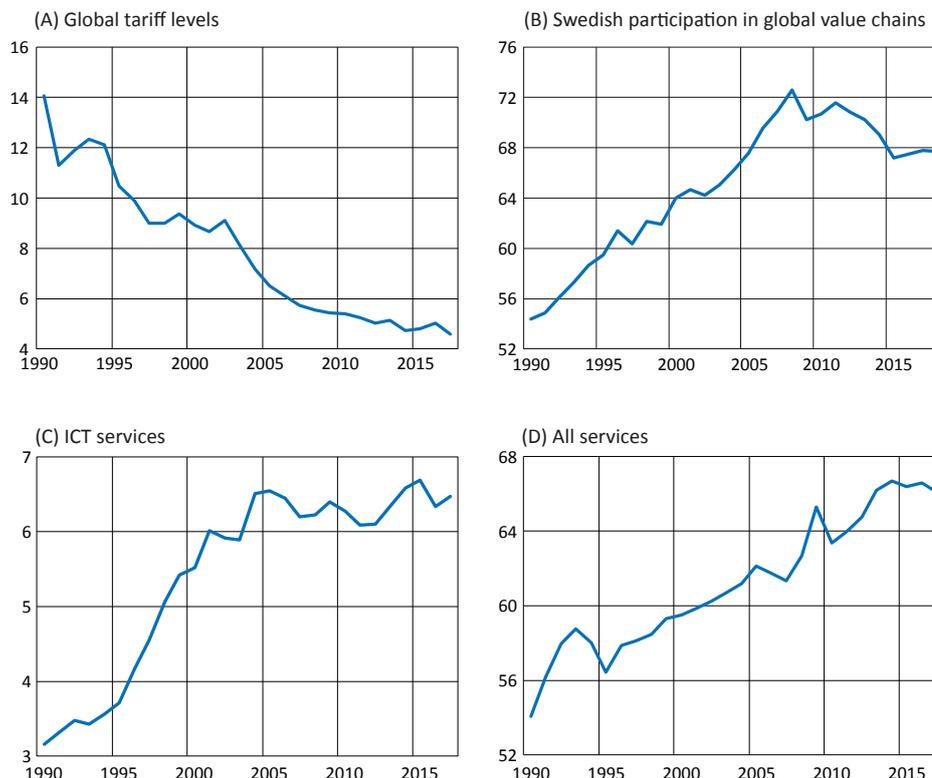
### An increasingly globalised and services-oriented world

In Europe, the European Community (EC) developed into the European Union (EU) during the 1990s, which was a continuation of decades of deepening economic and political cooperation between the European countries. The EU created the largest free trade area in the world, and Sweden joined the union in 1995, but refrained from joining the Economic and Monetary Union (EMU), which now consists of 19 EU member states. On a global level, in 1995 the General Agreement on Trade and Tariffs (GATT) became the World Trade Organisation (WTO). The newly started organisation was an expression of the international community's support for multilateral trade agreements, reduced trade barriers and a global open economy. Since then, the average tariff levels have shown a trend fall at global level, see Figure 6A.

<sup>8</sup> See Ingves (2015) for a more detailed discussion of the central bank's means and objectives in a longer term perspective.

**Figure 6. Globalisation, information and communications technology and services – a Swedish perspective**

A: Average tariff, per cent. B: Import content in exports, per cent. C and D: Percentage of Swedish value-added



Note. (A) are global tariff levels that are import-weighted averages of the tariffs applied. (B) is measured as the total of foreign value-added in Sweden's exports and exports of intermediate goods used for onward export. (C) ICT services are the branches J61 telecommunications and J62-J63 computer programming, computer consultants and information services. (D) all services are sectors G45-T98.

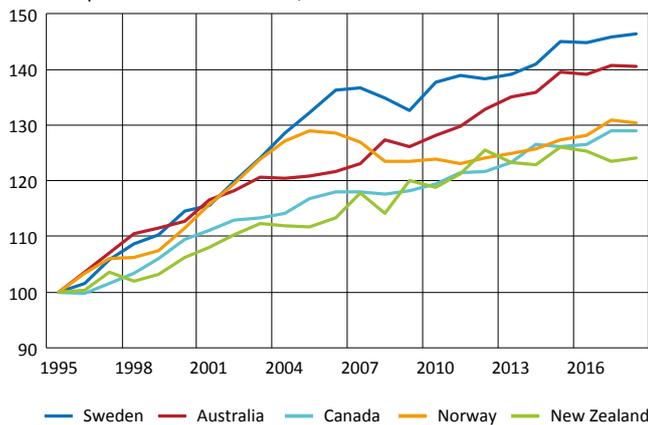
Sources: Statistics Sweden, UNCTAD Eora and WITS

Trade liberalisation made it possible for Swedish companies to expand their production abroad in global value chains, an expansion that progressed quickly from the early 1990s to 2008, see Figure 6B. A global value chain involves companies dividing different stages of their production or operations between different countries. An important factor in this development was the rapid spread of new technology, such as information and communications technology (ICT), for instance, personal computers and the internet, see Figure 6C. At the same time as globalisation took off, the trend for the services sector to take on greater importance was strengthened in the 1990s and 2000s, see Figure 6D. The services content increased in exports, consumption and intermediate goods in production.

Some jobs moved from Sweden during this period. But additional jobs have been created in companies in Sweden. On the other hand, jobs in Sweden have changed in nature and make greater demands on experience and competence. Globalisation appears to have led in general to higher wages for most professional groups, but may have led to an increased wage spread between professions and types of work task (Heyman and Sjöholm, 2018). The fact that companies have invested in Sweden, what is known as foreign direct investment, also appears to have had positive effects on wages and employment in the Swedish companies that were bought up (Swedish Agency for Growth Policy Analysis, 2017). Digitalisation appears to have had similar effects to globalisation on the demand for labour. Primarily it would seem that routine-based and simple tasks are replaced to a higher degree by digitalisation and automation, rather than complicated tasks that are not routine. This can reinforce the wage spread between different types of competence and skills (Heyman et al., 2016).

In the mid-1990s, the aggregate effect of the structural reforms, globalisation and technological advances began to affect the Swedish economy, resulting in a rapid growth period with productivity growth faster than in other small open economies with floating exchange rates and inflation targets, see Figure 7. Calmfors et al. (2019) shows that the ICT sector in particular contributed to rapid growth in productivity from the mid-1990s to the mid-2000s.

**Figure 7. Productivity growth, 1995–2018**  
GDP per hours worked. Index, 1995=100



Source: OECD

### 3.1 The storm after the calm

In September 2008, the Lehman Brothers investment bank went bankrupt and the global financial crisis broke out, marking the end of the Great Moderation. GDP in Sweden fell between 2008 and 2009 by 4.2 per cent and exports and imports by just over 14 per cent.<sup>9</sup> This global storm followed almost two decades of calm. Unlike the crisis at the beginning of the 1990s, however, it was largely an international crisis. The Swedish economy nevertheless managed relatively well, thanks to several of the lessons learnt from the 1990s crisis. For instance, Sweden's public finances were in good shape before the crisis broke out. The Swedish banks were as a rule solvent, but needed liquidity, as the uncertainty on the global financial markets was so great that it had a drastic effect on their functioning. The 2008–2009 crisis was thus mainly a liquidity crisis for the Swedish banks, which could be resolved with support from the Riksbank in the form of short-term loans and other liquidity support.

But an obvious problem was that Sweden lacked an adequate financial regulatory framework, for example when it came to the management of financial institutions. The regulations protecting creditors and enabling the reconstruction of banks during the 1990s were temporary and had disappeared in the middle of the decade. There was thus little to lean on to manage the problems. The crisis work was therefore extensive.<sup>10</sup>

The Swedish economy has developed relatively well since the financial crisis, but in many other areas, particularly in the euro area, developments have been markedly weak. One reason was the debt crisis in Europe, which occurred a year or so after the financial crisis, and meant that the international recovery that had begun came to a halt. Another thing that characterised the period following the financial crisis was that inflation had been subdued and many countries had difficulty attaining their inflation targets, despite an expansionary monetary policy.

<sup>9</sup> See Baldwin (2009) for a discussion of the causes of the major collapse in trading.

<sup>10</sup> Since the crisis, the Riksbank's and other authorities' emergency preparedness has been reinforced. See Sveriges Riksbank (2020).

## 4 Globalisation, digitalisation and the shift towards services

### 4.1 Subdued globalisation and increased protectionism since 2009

Sweden experienced a rapid economic globalisation in the 1990s and 2000s supported by reduced trade barriers and the rapid spread of ICT technology and services. However, since the financial crisis 2008–2009, various measures of economic globalisation are showing a different trend. Foreign trade as a percentage of GDP has been more or less unchanged since 2009, foreign direct investment is lower than before the crisis as a percentage of GDP, and the use of global value chains appears to have slowed down. There are several explanations of why the globalisation trend is no longer pointing clearly upwards. One is that emerging market economies gradually became an increasingly important part of the global economy in the 2000s and 2010s. When demand in emerging markets rises, their imports do not increase as much as those in advanced economies, and when they become an increasingly important part of the global economy, world trade therefore grows more slowly in relation to the development in demand. The composition of demand has also changed within other countries. For example, large countries such as China have started to switch from an investment-driven economy to a more consumption-based model.<sup>11</sup>

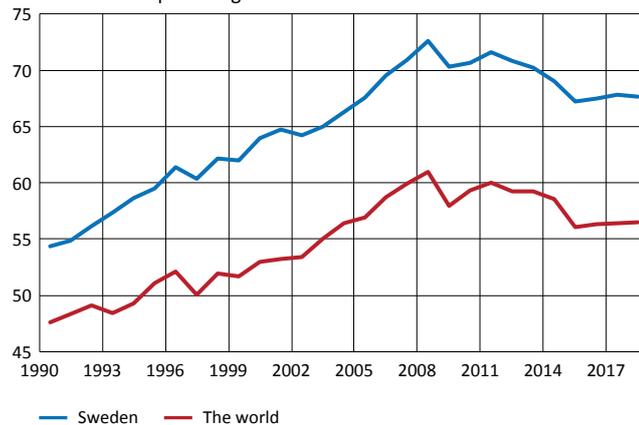
#### **Lower participation in global value chains**

Figure 8 shows the percentage of exports that can stem from global value chains for Sweden and the world. From 1990 to 2008, developments in Sweden moved faster than abroad and the level was much higher. But since 2008, trade in input goods and services in Sweden and our neighbouring countries has fallen. As a result of the regulations in the WTO, customs and tariffs are at historically low levels right now, but Evenett and Fritz (2019) show that other, non-tariff measures appear to have become increasingly common since 2009. Export subsidies, demands for a local content in production, delayed customs processing and other trade-limiting measures are not visible in the tariff statistics but can subdue trade in global value chains in particular. In addition, there is the more explicit protectionist rhetoric that has blossomed up in recent years. The escalated trade conflict in 2018–2019 between the United States and China is one such example.

However, there are those who say that the decline in global trade is a consequence of the changed digital economy and the greater role played by intellectual property rights. According to this reasoning, the weaker development in various globalisation indicators is a natural consequence of, for instance, digitalisation (Donnan and Leatherby, 2019).

<sup>11</sup> The ECB's IRC Trade Task Force (2016) and the IMF (2016) show that the import content is on the whole higher for investment goods than for consumption goods, which can mean that imports increase less when GDP rises.

**Figure 8. Participation in global value chains**  
Per cent of exports of goods and services



Note. Global value chains are foreign value-added in Swedish exports and Swedish value-added used by other countries to produce exports.  
Source: UNCTAD-EORA database on global value chains

### Less foreign trade negative for Sweden

Studies have shown that imports of intermediate inputs and services are in general linked to increased productivity, rising wages and higher GDP per capita. A subdued economic globalisation is therefore probably negative for the Swedish economy.<sup>12</sup> Swedish households have benefited from increased access to globally produced goods and services of high quality and at low prices. Companies have been able to expand their operations thanks to increased demand from abroad and they have benefited from the specialisation of work tasks in the global value chains.

However, trade in global value chains does not only benefit the export industry. Exporting companies often buy intermediate inputs and services from domestic small and medium-sized enterprises to produce export goods and services. For instance, the OECD (2019) estimates that around one fifth of multinational export companies' production consists of intermediate goods and services from small and medium-sized domestic enterprises. Individuals have also benefited from globalisation. Goods produced for global markets have become cheaper, led to a greater selection of high quality products, and given us access to a broader supply of culture and entertainment. According to the OECD's database 'Trade in Value Added', the import content in Swedish consumption has increased from 19 per cent in 1996 to 21 per cent in 2015, at the same time as goods prices in Sweden have fallen since the mid-1990s. Increased protectionism around the world indicates that the subdued development will continue for some time to come. This will affect developments in Sweden, as an important condition for growth in a small open economy like Sweden's is precisely global markets.

## 4.2 Widespread digitalisation

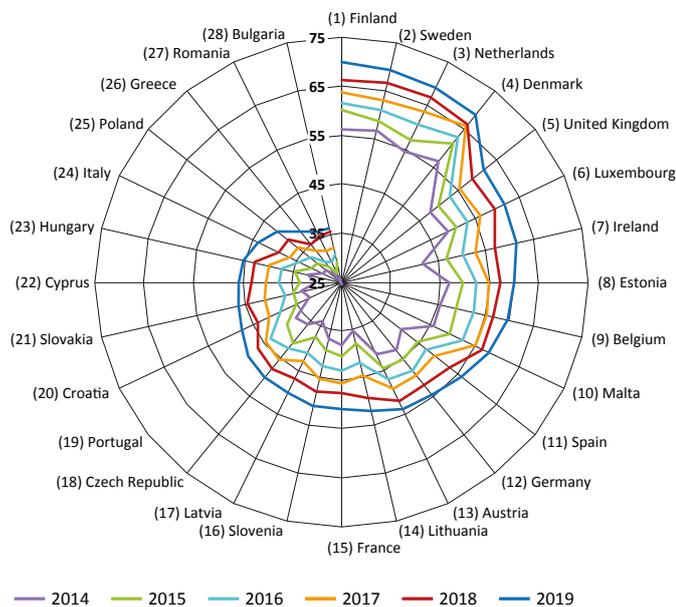
Digitalisation has gone hand in hand with globalisation and has increased rapidly.<sup>13</sup> Since 2007, for instance, e-commerce has become increasingly important in Sweden, and has increased from around 3 per cent of retail trade sales to 10 per cent in 2018 (Swedish Trade Federation 2018). Another way of looking at the spread of digitalisation is to compare Sweden with other EU countries. As of 2014, Eurostat publishes a 'Digital Economy and Society Index', DESI. This index summarises developments in around 30 indicators of the spread of digitalisation, which can be broadly summarised into five categories: connectivity,

<sup>12</sup> See, for instance, the ECB Working Group on global value chains (2019) and the World Bank (2020) for the positive effects of trade in global value chains.

<sup>13</sup> See the OECD's 'Key ICT-indicators' <https://www.oecd.org/sti/ieconomy/oecdkeyictindicators.htm>

human capital, use of internet services, integration of digital technology and digital public services (European Commission, 2019). Figure 9 shows developments in each EU member state during the years 2014–2019 and the ranking for 2019. All EU member states have come further in their digitalisation in 2019 in relation to 2014. Finland, Sweden, the Netherlands and Denmark have taken turns topping the list (which cannot directly be seen in the figure) and in 2019 Finland tops the list with Sweden in second place. Sweden's relatively widespread digitalisation can partly explain why the Swedish companies taking part in the Riksbank's Business Survey to a large extent regard digitalisation as a possibility rather than a threat and why they have to a large degree begun to adapt their operations to new digital techniques (Sveriges Riksbank 2018).

**Figure 9. Digital Economy and Society Index**  
Index



Note. The index is based on around 30 indicators, which together describe the spread of digitalisation in various parts of society.  
Source: Eurostat

### Productivity gains not yet visible in the statistics

Digitalisation could lead to major productivity gains, but despite the apparently broad spread, productivity growth has been weak since just before the crisis in 2008–2009, see Figure 7. Productivity growth has also been weaker in other developed countries since the financial crisis, which indicates that it is the result of a joint trend. However, economists disagree on the reasons for the decline and what this means for future developments. Some say that this development is due to inadequacies in the statistics and that the production value of a digitalised economy cannot currently be measured in a good way.<sup>14</sup> This applies in particular to the services that do not have any direct price, but which we nevertheless benefit from, such as watching videos on YouTube or looking things up on Google.

Others such as Gordon (2012) say that we are in a period of very low productivity growth that will continue. According to this point of view, a large share of the fruits of digitalisation have already been reaped. As early as 2005, for instance, several companies had adapted their business methods and models to the internet. Brynjolfsson and McAfee (2011) argue instead that the effects of digitalisation pass under the radar and that productivity growth will pick up when the new technologies are in broad use in the business sector. The impact of

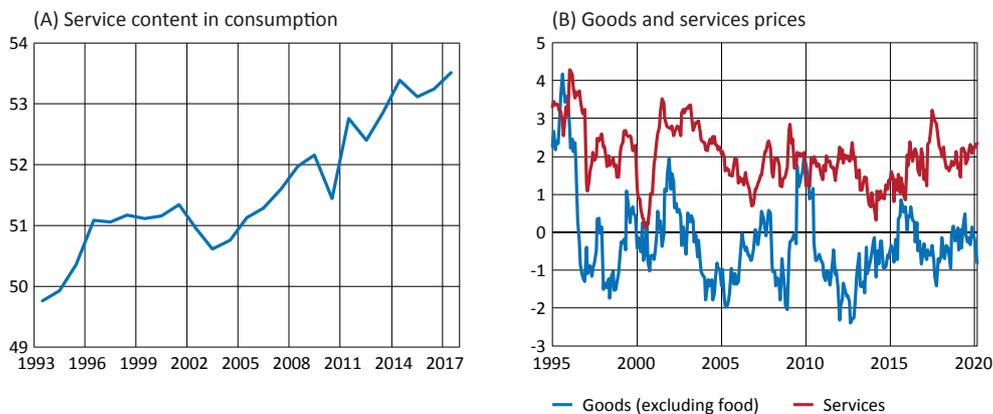
<sup>14</sup> Among others Brynjolfsson and Collis (2019) provide suggestions as to how one can measure the contribution of digital services to our material welfare.

digitalisation in productivity figures may also depend on where we are in the technological shift.

### 4.3 Intensification of ‘servification’

In addition to globalisation and digitalisation, services have become increasingly important in the Swedish economy, as in several other countries in recent decades. For instance, the services share of Swedish consumption has shown a rising trend since the beginning of the 1990s, see Figure 10A.<sup>15</sup> Similarly, services have become increasingly important as intermediate goods in manufacturing and the production of services, as well as Swedish foreign trade. In general, the rate of price increase is higher for services than for goods, and since the middle of the 1990s, service prices have increased by on average 2 per cent a year, while goods prices have fallen by 0.3 per cent a year, see Figure 10B.

**Figure 10. Service content in Swedes’ consumption and price developments in goods and services**  
A: Percentage of household consumption. B: Annual percentage change.



Sources: The OECD and Statistics Sweden

One important explanation for this is that productivity growth in the services sector is lower than in the goods sector and the services sector is more protected from global competition than is good production.<sup>16</sup> But there are of course major differences between different types of services. As technology advances progress, an increasing number of service industries are subjected to competition, and new solutions can challenge previously traditionally domestic professions. It is not difficult to imagine some tasks being outsourced via technology to other countries or being done by machines.

As a large share of the production costs in service industries consist of labour costs, unlike, for instance, manufacturing where other input goods play a larger role, service prices are more clearly linked to developments in wages. In terms of composition, a higher content of services in the consumer basket and as input in production means that inflation becomes higher than it would have been if services had the same significance as during the 1990s. And with a larger content of services in household consumption and company production, it is probable that consumer prices will be affected to a greater extent than before by wage developments.

### 4.4 Effects on inflation and implications for monetary policy

These trends can also affect the conditions for monetary policy. Here it should be pointed out, however, that the structural change that probably has the greatest implications for

<sup>15</sup> 45 per cent of the consumer price index currently consists of services, which is an increase of seven percentage points since 1995.

<sup>16</sup> The phenomenon with a situation whereby a particular service becomes more expensive to produce over time as labour productivity stagnates while wages are raised is often referred to as Baumol’s cost disease. See Baumol and Bowen (1966).

monetary policy is the global downturn in the long-term real interest rate over the past decades. If the low long-term real interest rate persists for a long time, which many people are assuming it will, it may become more difficult to counteract future recessions, and it may also lead to asset purchases and negative interest rates becoming more common in the future. This applies in particular if inflation becomes entrenched at very low levels, so that nominal interest rates also become very low. However, in this article we do not focus on the fall in the real interest rate and its implications. This question is instead discussed in detail by Lundvall (2020) and Andersson, Jonsson and Lundvall (2020) in this issue of Sveriges Riksbank Economic Review.

Globalisation and digitalisation can potentially also have effects on inflation. Globalisation and the increased international trade have led to stiffer competition and thereby downward pressure on global price levels and falling import prices in many countries. It is difficult to measure the effects of digitalisation, but even here there is most probably a dampening effect on inflation via other channels – for instance, falling prices on processors and other electronic components, by opening up new markets for companies and increasing options for consumers, and by replacing physical distribution with digital, for example in the music industry.

Although both digitalisation and globalisation are very long-lasting processes, their effects are essentially temporary, in the sense that they will not always have a dampening effect on inflation. As we noted above, there are also some signs that the trend towards increased globalisation has been broken. If services become an increasingly important part of the economy, it is also conceivable that domestic demand conditions will gradually gain greater significance. If the dampening effects on inflation can be estimated reasonably well, which is not an easy task, it should be possible to counteract them with a more expansionary monetary policy. One circumstance that makes it more difficult now, however, is as we noted before, that the low long-term real interest rates have reduced the scope to use the policy rate to stimulate the economy.

There are other ways of making monetary policy expansionary, such as asset purchase, but as it does not seem as though the policy rate can be used as effectively as in earlier periods, many central banks have begun to review their monetary policy frameworks. This applies, for instance, to both the European Central Bank, ECB, and the US Federal Reserve. One main task in this work is to investigate whether the monetary policy framework can be modified in a way that creates sufficient scope to cut the policy rate in future economic downturns. Here it is primarily a question of ensuring that inflation and inflation expectations do not become entrenched at overly low levels. The lower they are, the more difficult it is to make the real interest rate negative, which may sometimes be necessary to counteract a recession.

## 5 Adaptability essential to benefit from change

The current developments in technology and in society as a whole can appear revolutionary, but the fact is that major technology shifts are not something new, which we have endeavoured to point out in this article. Sweden's economy has changed fundamentally over time, and we have embraced new inventions, taken advantage of globalisation trends and adapted society accordingly, which has made us into a well-functioning and wealthy nation. From this perspective, it is important that employees, companies and society in general are prepared to change continuously. Sweden has become a successful nation exactly because of this capacity. In an international comparison, Sweden is well-equipped for today's widespread changes, even if there are always problem areas to deal with. These include the growing debts in the Swedish household sector, the poor functioning of the housing market and the inadequate integration of those born abroad.

It is clear that structural changes affect society, as well as the Riksbank's activities. Many countries have recently begun to review their monetary policy frameworks. One important reason is that the historically low long-term real interest rate has made it more difficult to use only the policy rate to counteract economic downturns. In Sweden, the Riksbank's monetary policy framework and the Sveriges Riksbank Act have recently been investigated by a commission of inquiry appointed by the Riksdag (the Swedish Parliament). The final report presented in November 2019 supports the Riksbank's current formulation of its objectives. But the Riksbank naturally takes part in the discussions taking place in central bank circles, follows the reviews made and continues to make its own analyses.

If history teaches us anything, it is probably that we will also see changes to the Riksbank's activities in the future. This is in the nature of things; when technology and society move forward, new and better ways of conducting operations arise. This also applies to monetary policy. What we can note here is that the inflation-targeting regime has been successful in reaching its objective: to bring inflation down from high to low levels and to prevent large fluctuations in the inflation rate. We do not wish to predict what new frameworks may appear in the future, but it would be naive not to believe that there will be changes in the future. What is important is that potentially new frameworks for economic policy put great emphasis on rules-based thinking and long-term game rules, something that has characterised the past 25 years of inflation targeting.

Far beyond the reasoning on monetary policy and in a broader sense, we show in this article that economic transformation creates and retains welfare in the long run. It is a necessary process, although the changeover contributes to concern among individuals and companies. Taking advantage of the opportunities that arise from globalisation, digitalisation and the shift towards a services society is decisive to ensure the Swedish economy continues to develop and flourish.

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