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EDITORIAL

Growth potential and public finances need further strengthening

The current news on the Finnish economy is positive, and the outlook has improved. Economic growth has continued and is now more broadly based than before. Exports and corporate investment are both growing, in addition to household demand. The employment rate has gradually risen and the general government deficit shrunk. Cost-competitiveness has taken a turn for the better.

The economy is nevertheless still struggling to rise from a level weakened by many years of sluggish developments. Therefore, the objective should be ambitious, building the foundations for growth and improving the outlook for the public finances.

The state of Finland's public finances has improved. The general government deficit and general government debt relative to GDP have both shrunk. The public finances have been strengthened by both the recent improvement in the condition of the economy in general and decisions taken on revenues and expenditures.

General government finances do, however, remain in deficit and are not forecast to achieve balance in the immediate years ahead. General government debt is forecast to remain at a full 60% of GDP.

The longer-term outlook for the public finances remains challenging. According to the Bank of Finland's assessment, the long-term fiscal sustainability gap is still equal to around 3% of GDP. If the outlook for the public finances cannot be successfully strengthened through structural reforms, permanent expenditure savings or tax increases of this magnitude will be required to cover the funding of future public expenditure.

The longer-term outlook for the public finances is muted by both demographic trends and the trend of productivity development. Demographic developments indicate that most of the baby boom generation have now reached retirement age. It is expected that in the 2020s these cohorts will necessitate an increase in publicly funded care services. Moreover, the lengthening of average life expectancy will increase expenditure on pensions.

Labour productivity growth has for several decades been slowing in the advanced economies, and Finland is no exception. The recent acceleration in the pace of productivity growth in Finland is welcome, but it does not significantly change the long-term outlook for the public finances.

With regard to the public finances, the long-term outlook can be improved through structural reforms. The pension reform decided in 2015 made a substantial contribution in this area. Of decisions still awaited, the reform of social and healthcare services has a key role to play. If it fails to subdue rising expenditure, the increasing care needs of the baby boomers will substantially deepen the general government deficit in the 2020s.

Also important are reforms that can affect the employment rate, as this has a sizeable impact on the outlook for the public finances. One concerning trend of recent years relates to young people. In particular, labour market participation among young men born since the early 1980s seems to be lagging behind the participation rate of previous generations.

The poor performance of exports and export income weighed on the Finnish economy for almost 10 years. Exports were hit by the subdued economic trend internationally, the setbacks experienced by particularly the electronics industry and in part also the forest industries as well as the problems in the Russian economy. Exports were also depressed by an increase in domestic costs. This was rapid relative to the other advanced economies.

Finland's exports have now begun to grow. Recovery has been assisted by the strengthening performance of the international economy. Exports and the export outlook also benefit from more moderate developments than previously in terms of costs in the domestic economy. Recent years have seen moderate pay agreements, and the beginning of 2017 marked the entry into force of the Competitiveness Pact to reduce labour costs.

From the angle of economic growth and employment it is vital that Finland's cost-competitiveness continue to improve in the immediate years ahead. The collective agreements concluded so far in the second half of 2017 would suggest the trend in labour costs could be slightly more moderate than the average among Finland's advanced

trading partners. This is partly due to the reductions in employer contributions in 2018 and 2019 included in the Competitiveness Pact.

With regard to cost-competitiveness, the agreements concluded in different sectors of the economy over the next few months will be very important. Most Finnish wage-earners work in industries that have not yet concluded collective agreements for the immediate years ahead.

These are largely industries other than the open sector of the economy. Even so, their labour costs significantly affect the international competitiveness of Finnish output. This is because the open sector industries buy a lot of intermediate goods produced in the domestic economy, particularly a variety of services.

The key factor in the coming round of collective agreements is that the position of the open sector of the economy should define the general trend in labour costs in Finland. In relation to cost developments, the agreements in the open sector should provide the frame of reference for agreements in other sectors. This applies both to the immediate months ahead and to the agreements concluded in coming years.

When seeking to reinforce economic growth, employment and fiscal sustainability, it is useful to exploit the results of economic research. Broadly based participation by economists in the debates around economic policy is to be welcomed. It is nevertheless worth pointing out that objectives regarding the general trend of developments in society cannot be derived from the results of economic research. Such goals and objectives are based on values. A mandate for defining the objectives is sought at democratic elections.

Economic research can, however, help in resolving how to reach the determined objectives and what would follow from the various economic policy options that are available. Research results can also be drawn upon for understanding historical economic developments and observing current problems. Economic research has a lot to offer in policy preparation with regard to both structural reforms and cyclical policy.

A new economics institute is currently being established in Finland. The Bank of Finland has decided to support the project. High-quality economics research and education are key requirements if decision-makers are to be able to rely on the support of cogent economic analysis. From the central bank perspective, quality teaching and research are needed particularly in the areas of macroeconomics and the financial sector. For decision-making more broadly there are of course also other important areas of economic research.

Helsinki, 15 December 2017

Erkki Liikanen
Governor of the Bank of Finland

Tags

Finnish economy, forecast, gross domestic product, public finances

BANK OF FINLAND FORECAST

Upswing more broadly based – Improved chances for balanced growth in Finland

Finland's economic growth is broadly based, exports are fuelling growth and at the same time domestic demand continues to be strong. According to the Bank of Finland forecast, Finland's GDP will grow 3.1% in 2017 and 2.5% in 2018. Over the years 2019–2020 the economy will grow approximately 1.5% per annum. Inflation will gather pace but throughout the forecast period will be slower than elsewhere in the euro area.

The key factors behind the upswing have been external factors such as the buoyant growth in Finland's trading partners and the accommodative monetary policy in the euro area. Although the upswing now seems much stronger and more broadly based than before, the current year's growth will be the most rapid in the forecast period 2017–2020. The pull from the international economy and the growth impact of monetary policy will ease somewhat and Finland's subdued long-term potential growth will slow actual growth towards the end of the forecast period. In the immediate years ahead, the forecast risks are, however, on the upside.

Finland's exports in the years 2017–2020 will gain from continued strong growth in the export markets and improvements in Finnish cost-competitiveness. The Finnish export sector stands to gain particularly from investment growth in the euro area. Excluding 2017, however, net exports' contribution to growth will be fairly marginal, as the Finnish export sector imports a lot of intermediate goods and strong domestic demand will also

boost imports. Export growth will nevertheless bolster the current account, which will be almost in balance throughout the forecast period. This will help lay a foundation for sustainable growth.

Private consumption will grow on the back of the improved employment situation and consumers' enhanced purchasing power. Moreover, continued negative real interest rates and strong consumer confidence will encourage households to consume. The exceptionally accommodative monetary policy will hold interest rates low on corporate loans and hence support investment. Investment will grow strongly in the immediate years ahead, but this growth will slow as we approach 2020.

Finland's more export-driven growth will over the short term change the structure of growth. Productivity growth has clearly accelerated in 2016–2017 and will be supported in the immediate years ahead by growth in capital investment, which will improve output capacity and hence potential growth. Finland's economic growth in the forecast years will rely largely on productivity growth.

For its part, employment growth has so far been rather sluggish relative to the acceleration in economic activity. In 2017 and 2018 employment growth will accelerate as demand for labour increases, but mismatch problems, the change in population structure and other constraints on labour supply will slow employment growth towards the end of the forecast period.

The improved economic conditions have also brought an improvement in the public finances. The general government deficit will shrink to 1.1% of GDP in 2017 and 0.7% by 2020. The economy's overall tax burden will be reduced by 2.4 percentage points during the forecast period. The better economic situation will not, however, resolve the longer-term problems with the public finances. The fiscal policy stance during the forecast period is light relative to the economic situation. The sustainability gap in public finances will remain around 3%.

GDP: Exports boost Finnish economic growth

According to the Bank of Finland forecast, Finland's GDP will grow 3.1% in 2017. Exports are fuelling growth, while domestic demand also continues to be high, particularly investment demand. Growth will continue to be broadly based during the forecast period 2017–2020, but will gradually slow. The economy will grow 2.5% in 2018 and will continue to grow at a rate of about 1.5% in 2019 and 2020. GDP will not exceed the level of 2008 until 2018. GDP growth in the forecast period as a whole will total 8.6% in Finland, against 8.3% for the euro area.

Table 1.

Forecast summary

Percentage change on the previous year

	2017[f]	2018[f]	2019[f]	2020[f]
GDP	3.1	2.5	1.6	1.4
Private consumption	1.9	1.8	1.3	1.2
Public consumption	0.5	0.7	0.1	0.4
Private fixed investment	11.2	5.8	3.2	2.5
Public fixed investment	−1.1	3.3	−0.5	1.2
Exports	8.4	3.8	3.5	3.0
Imports	2.2	3.4	2.9	2.7
Effect of demand components on growth				
Domestic demand	3.1	2.4	1.3	1.3
Net exports	2.2	0.2	0.2	0.1
Changes in inventories and statistical error	−2.2	0.0	0.0	0.0
Savings rate. households, %	−1.5	−1.6	−1.7	−1.7
Current account, % of GDP	0.0	0.0	0.0	0.2
Labour market				
Number of hours worked	0.5	1.1	0.7	0.5
Number of employed	0.8	0.8	0.5	0.4
Unemployment rate, %	8.6	8.2	7.9	7.6
Unit labour costs	−2.8	−0.4	1.0	1.7
Labour compensation per employee	−0.6	1.3	2.0	2.8
Productivity	2.3	1.8	1.1	1.1
GDP, price index	1.3	1.8	1.4	1.9
Private consumption, price index	0.8	1.2	1.5	1.5

f = forecast

Sources: Statistics Finland and Bank of Finland.

Forecast summary

Harmonised index of consumer prices	0.8	1.1	1.4	1.5
Excl. energy	0.5	0.9	1.4	1.6
Energy	5.9	3.0	1.0	0.2
f = forecast				
Sources: Statistics Finland and Bank of Finland.				

Exports will speed up growth especially in 2017. The better-than-expected outlook for the global economy will boost Finnish exports, especially as a result of brisker investment in the euro area. The Competitiveness Pact will improve Finnish competitiveness, and higher capital investment will improve the growth outlook for exports even further. As imports are also increasing, however, the growth contribution of net exports will be relatively moderate after 2017.

At the same time, domestic demand will remain high (Chart 2). Private investment will grow steeply in 2017, but at a slower rate towards the end of the forecast period. Private consumption growth will also be brisk in 2017, but slower in 2018.
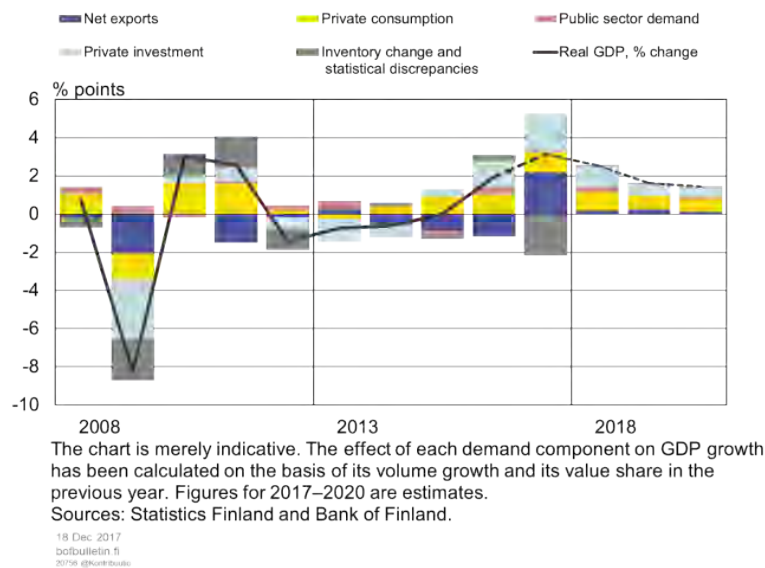
Chart 1.

Real GDP

■ Percentage change on previous year (right-hand scale)
— At reference year (2010) prices (left-hand scale)

Sources: Statistics Finland and Bank of Finland.
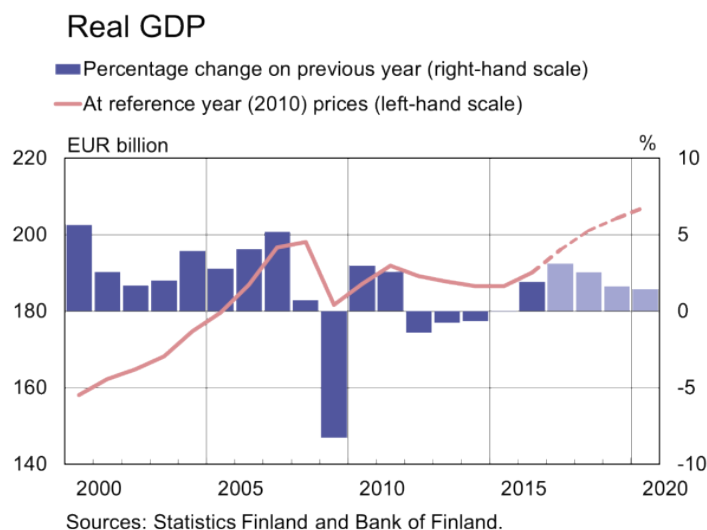
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Chart 2.

Economic growth becomes more broadly based

Legend:
- Net exports
- Private investment
- Private consumption
- Inventory change and statistical discrepancies
- Public sector demand
- Real GDP, % change

% points

The chart is merely indicative. The effect of each demand component on GDP growth has been calculated on the basis of its volume growth and its value share in the previous year. Figures for 2017–2020 are estimates.
Sources: Statistics Finland and Bank of Finland.

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The current account will be close to balance in the forecast period, which means that at the national level income covers expenses. The balance on goods and services is positive in the forecast period, and the current account will also benefit from the growth of capital income on Finnish companies' foreign investments as well as lower interest expenses.

Economic growth will arise in the forecast period more through growth in labour productivity than in labour input, reflected in relatively moderate growth in labour input. The improved economic situation has been reflected in a steep rise in investment. Along with investment, an increase in the capital base will improve the output potential of the economy in the long run.

The current forecast is based on Statistics Finland's quarterly national accounts (third quarter) published on 1 December 2017 and other available information.

Households: Growing indebtedness despite economic upswing

Private consumption will continue to contribute to economic growth, although the pace of growth in consumption is showing signs of abating. Positive developments in earnings growth and employment will boost households' purchasing power and sustain consumer confidence. Yet, despite improvements in purchasing power, household expenditure will continue to exceed disposable income. Therefore, the savings rate will remain negative and household indebtedness will continue to deepen.

The cyclical upswing in the economy will particularly strengthen households' purchasing power in 2018. Wage drift accounted for most of the pay increases seen in 2016 and 2017, but accelerating productivity and profitability growth have begun to increase

corporate margins and room for wage growth. To this end, earnings growth will increase by 2.3% in 2018 and should remain at a similar level over the course of 2019 and 2020.

In addition to earnings growth, households' purchasing power will be bolstered by improvements in employment. In 2018, the number of employed persons will increase by approximately 1%, but the pace of increase will slow to around 0.5% in 2019 and 2020. Overall, real disposable income is set to grow by a full 2% in 2018 and a full 1% in both 2019 and 2020.
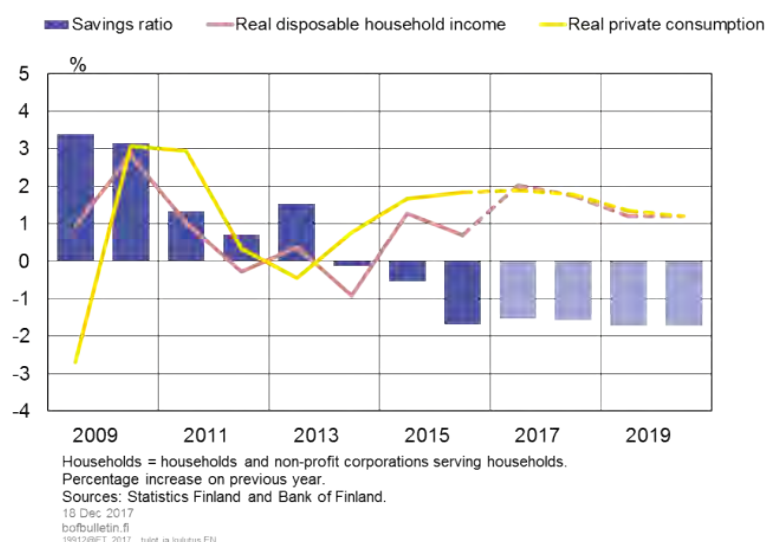
Consumption will not only be supported by increased purchasing power but also by strong consumer confidence. As economic growth picked up in early 2017 consumer sentiment reached its highest level since 2010.

Taxation of earned income will be eased by approximately EUR 300 million in 2018 to compensate for the Competitiveness Pact's changes to social security contributions. In addition, income taxation will be subject to normal adjustments for inflation in 2018 and 2019. The proposed tax cuts will only be enough to offset the effects of rising social security contributions and increased indirect taxation, as earnings-related pension contributions are set to grow by 0.2 percentage points and unemployment insurance contributions by 0.4 percentage points in 2018. Excise duties on tobacco and alcohol will also be increased.

Private consumption will grow by almost 1.9 % in 2017, but the pace will slow to around 1.5% over the course of the forecast period as economic growth gradually fades. Despite improvements in real household incomes, the savings ratio will remain negative and households will continue to accumulate new debt (Chart 1). In mid-2017, household debt stood at almost 128% of income, and this is forecast to reach 129% in 2020.

Chart 3.

Household expenditure surpasses income

Households = households and non-profit corporations serving households.
Percentage increase on previous year.
Sources: Statistics Finland and Bank of Finland.
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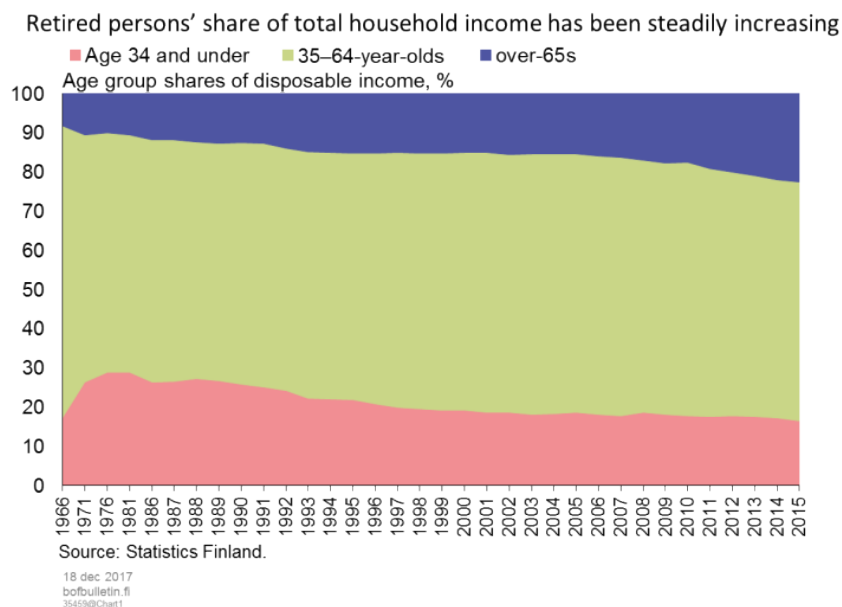
Population ageing offers a partial explanation for the low savings ratio. The share of retirement-age persons' income out of all disposable household income and households'

financial assets has long been on the rise (Chart 4). Consequently, an increasingly large share of household income consists of pensions and other social benefits. Because pension payments are not directly impacted by cyclical changes to the economy, older people have less of an incentive for precautionary savings than younger people. At the same time, younger people face an increasingly large debt burden, and therefore their only really effective means of saving is through mortgage amortisation.

Kuvio 4.

Retired persons' share of total household income has been steadily increasing

■ Age 34 and under   ■ 35–64-year-olds   ■ over-65s
Age group shares of disposable income, %

Source: Statistics Finland.

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The accommodative financing conditions have contributed to household indebtedness. The imputed margin on housing loans has narrowed and the most commonly used reference rate has continued to fall during 2017. In new housing loan agreements, the average interest rate currently stands at approximately 1.1%. Interest rates on household credit will remain low over the forecast period. This will be compounded by a gradual pickup in inflation, resulting in even lower real interest rates.

However; despite low interest rates and the economic recovery, the increase in demand for new housing loans will be relatively modest compared with the period leading up to the recession. Moreover, the growth rate of Finland's housing loan stock is quite restrained compared with the rest of the euro area. In early 2017, the housing loan stock increased by approximately 2% in Finland, whereas Sweden and Germany saw figures of well over 7% and just below 4%, respectively. An increase in demand for non-mortgage-related loans also helps explain the mounting household debt. Consumer credit has increased, while the stock of student loans has risen in response to the higher ceiling on government guaranteed loans. Nevertheless, these forms of credit still account for a relatively small share of household debt.

Despite their growing debt burden, households still hold considerable wealth. The most recent data on household wealth were collected in 2013, when the median household in Finland enjoyed a net worth of EUR 110,000 – a 5% increase from 2009. It is important to remember, however, that approximately 70% of household wealth is owned in the property market, and most of this wealth is owned by households who are relatively debt-
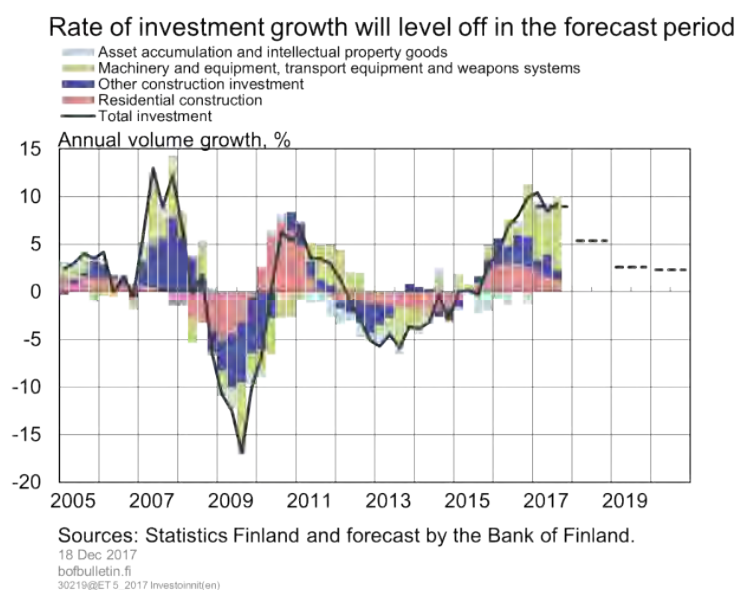
free and advanced in age. As a result, financial assets only provide households with a limited buffer against economic shocks.

Non-financial corporations: Business confidence remains strong

Favourable cyclical conditions have boosted industrial capacity utilisation rates and spurred corporations to invest. The profitability of non-financial corporations has improved. Among the sectors, industrial production, in particular, has enjoyed rapid growth during the course of 2017. The effects of the cyclical upswing have already for some time been evident in the services and construction sectors.

Investment across the economy as a whole increased by 7% in 2016 and maintained robust growth well into 2017 (Chart 5). In 2017, the average quarterly growth rate for investment has been almost 2%, and annual growth is projected to reach 9%. Corporate sector fixed investment has increased strongly. By sector, services saw the greatest increase in 2016, at 8%. Investment growth in industry was comparatively modest at 5%, but the sector's internal investment questionnaire suggests that the figure for 2017 should reach 12%.

Chart 5.

Rate of investment growth will level off in the forecast period
- Asset accumulation and intellectual property goods
- Machinery and equipment, transport equipment and weapons systems
- Other construction investment
- Residential construction
- Total investment

Annual volume growth, %

Sources: Statistics Finland and forecast by the Bank of Finland.
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The number of building permits issued and construction projects commenced have increased strongly since 2015. This trend continued into early 2017 and will be reflected in the amount of new-build construction completed during the year. Annual average growth in completed construction, measured in metric cubes, trended at 13% over January –September. The growth in issued building permits is, however, beginning to flatten out, suggesting that the cyclical tailwinds driving construction are slowing. This is despite the fact that construction activity has not returned to the heights seen on average in 2000–2008.

Corporate confidence in the economy remains strong. In services and trade, confidence has continued to rise since early 2016 and has in 2017 reached the height not seen since before the recession. Industrial confidence and output expectations have substantially improved in 2017.

Corporate sector profitability, measured in operating surplus, has also increased (Chart 6). In the national accounts, operating surplus is equivalent to the operating profits reported in a firm's financial statements. Operating surpluses have grown by 5% per annum on average in 2013–2016. When viewed against other areas of the economy, the corporate sector has remained a net creditor ever since the turn of the millennium and has continued to strengthen this position in 2017. Over 2017–2020, corporate sector profitability will remain good on the back of rapid productivity growth.

Corporate sector financing conditions have remained favourable and have helped spur investment. The average rate of interest on the corporate loan stock currently stands at 1.4%, below the euro area average. Lending margins are contracting slightly. In 2017, the corporate sector loan stock has grown at an annual average rate of 3.5%.

Chart 6.

Income formation and distribution in the corporate sector

Retained profits | Dividends and other capital distribution
Interest rates | Other taxes and public transfers
Employers' social security contributions | Wages and other remuneration
Net value added | Operating surplus*

*Net operating surplus excl. production taxes and subsidies.
Source: Statistics Finland.
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Foreign trade: Finland's current account to enter balance

Finland has been able to partake in the strong growth of global export markets with a marked turnaround in the performance of exports. In 2017, the volume of exports will increase by up to 8.4%, on the back of global economic growth and improved cost-competitiveness. Growth will peak towards the beginning of the forecast period, but is projected to slow to 3.0% in 2020. (Chart 7)
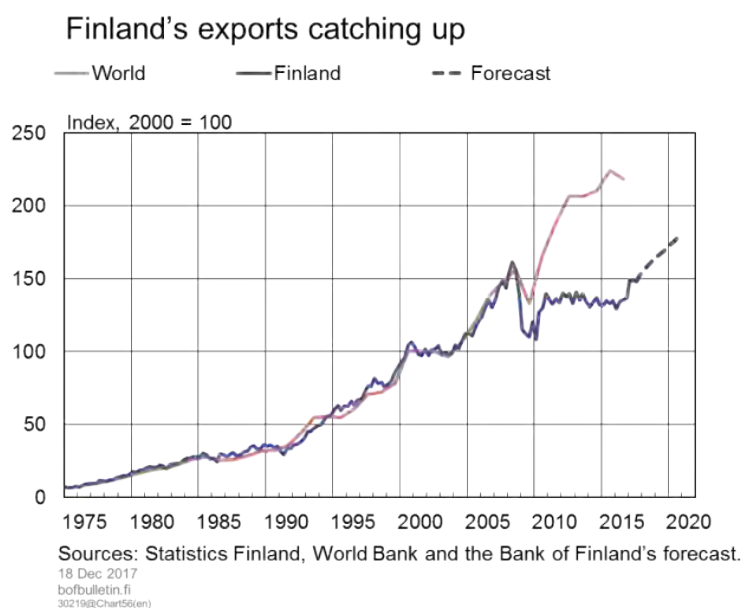
Chart 7.

Finnish exports growing

| ——Exports | ——Imports | - - -Exports, forecast |

EUR million per quarter, 2010 prices

Sources: Statistics Finland and Bank of Finland forecast.
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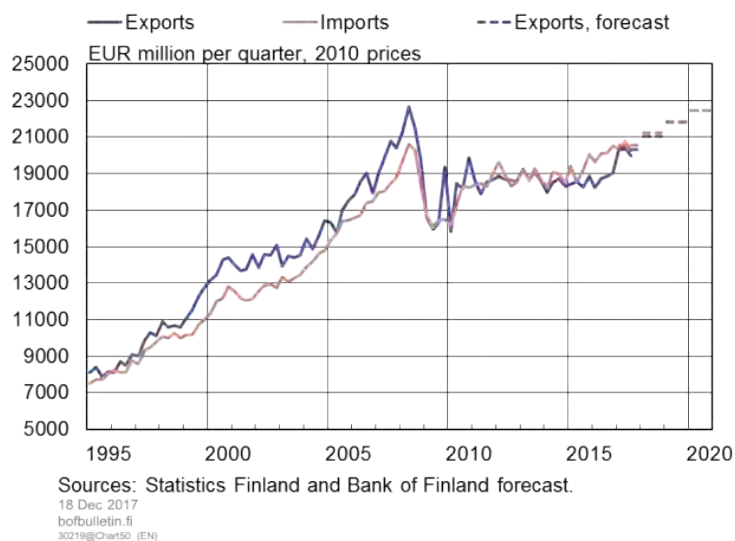
Exports have increased to almost all of Finland's key trading partners, and the volume of goods exported to the fifteen largest of these increased in 2017. The growth of goods exports was fastest within the euro area, but exports to China and Russia have also grown briskly (see article 'Finland's cyclical expansion bolstered by investment and export growth'). Increased capacity utilisation in the euro area has driven demand for capital goods exports. Eastern trade will pick up in response to the recovery in the Russian economy, but will not reach the peak levels of previous years. Of the industrial sectors, export growth has been the most rapid in vehicle manufacturing but has also been strong in the forest and metal industries.

Finland's export values will catch up with developments in the rest of the world during the forecast period. In the decades prior to the financial crisis, Finland's export growth closely followed that of the sum total of other countries. After the financial crisis, Finland began to significantly underperform relative to the overall development of export markets. This trend will reverse during the forecast period. (Chart 8)
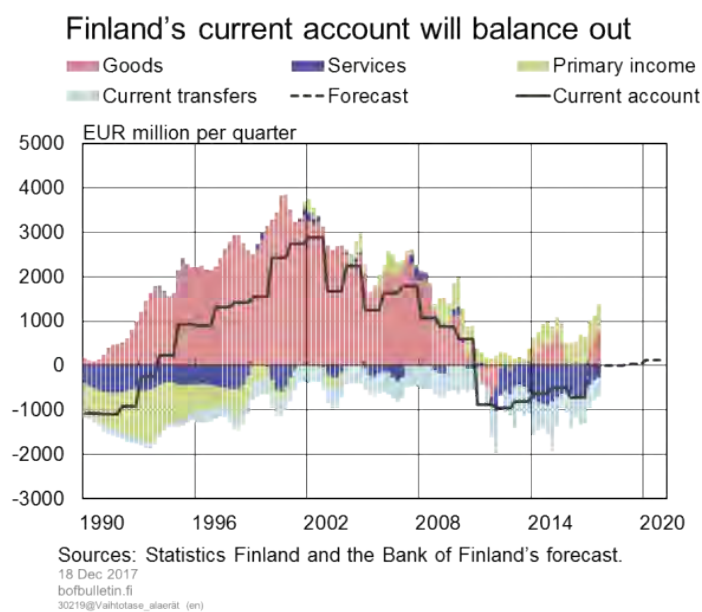
Chart 8.

Finland's exports catching up

——World　　——Finland　　-- Forecast

Index, 2000 = 100

Sources: Statistics Finland, World Bank and the Bank of Finland's forecast.
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Imports will be driven by private consumption as well as increased demand for commodities and capital goods. Export growth will slow down somewhat in the forecast period as cyclical conditions mature and investment growth slows. In 2017, import growth will only reach 2.2% but is expected to pick as export growth also accelerates. Import growth will fall beneath export growth during the forecast period. The contribution to economic growth from net exports will peak in 2017–2018.

The current account will balance out in 2017 when the trade surplus on goods increases and the services deficit contracts. The current account will improve, although the terms of trade are expected to deteriorate slightly in 2017, as the Competiveness Pact will restrain growth in export prices. Imports and exports will see similar price developments towards the end of the forecast period. The current account will also be boosted by growing capital gains on foreign assets and a reduction in interest payments on government debt. A balanced current account means that the national economy's income covers its expenses. (Chart 9)

Chart 9.

Finland's current account will balance out

EUR million per quarter

Sources: Statistics Finland and the Bank of Finland's forecast.
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As the current account reaches equilibrium, the amount of external sovereign net debt decreases. Finland has been a net borrower during early 2011–2017. Despite the improved external balance, Finland's domestic sectors are still imbalanced regarding borrowing and lending. The amount of net lending in the non-financial corporate and financial sectors has increased while the public sector's net borrowing has been reduced, but the household sector's deficit has grown. (Chart 10)

Chart 10.

Current account and net lending by sector

EUR million per quarter

Sources: Statistics Finland and the Bank of Finland's forecast.
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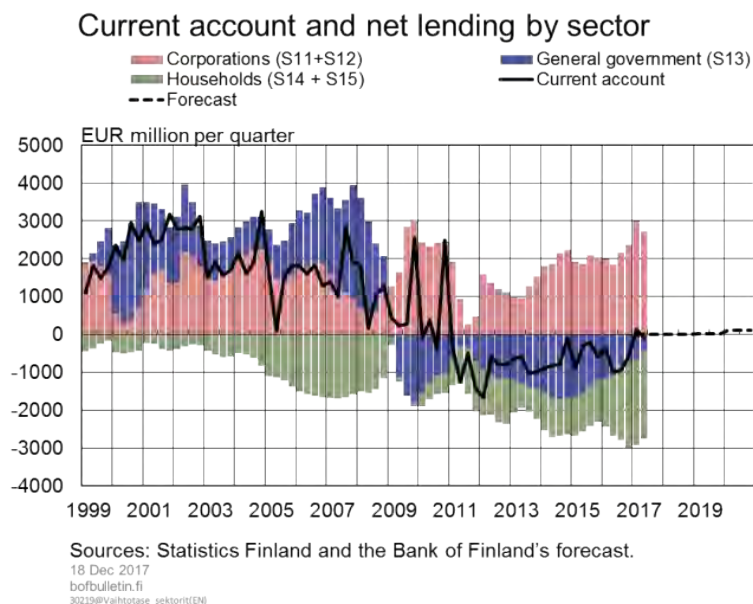
Labour market: Labour market recovering slowly

The upswing in the Finnish economy has so far only manifested as a relatively moderate improvement in employment and reduction in unemployment. An acceleration of growth in 2017 and 2018 will also improve the employment situation, but towards the end of the forecast period the employment growth rate will slow again. Labour demand is high thanks to the cyclical conditions, but employment growth is impeded by recruiting frictions and labour supply restrictions. The number of persons employed is forecast to increase by a total of about 2.4% in 2017–2020, with the employment rate rising to 70.7%. The unemployment rate will be about 7.6% in 2020. The labour force (people aged 15–74) will increase somewhat.

Chart 11.

Labour market situation improving gradually
— Employment rate, 15–64-year-olds, trend (left-hand scale)
— Unemployment rate, 15–74-year-olds, trend (right-hand scale)

Sources: Statistics Finland and Bank of Finland (forecasts).

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The employment rate has so far improved only moderately considering the cyclical conditions. Part of the reason for this may be that the employment rate never weakened that much in proportion to the sharp fall in GDP during the recession following the financial crisis. In the years since the crisis, downward nominal wage rigidity – and in low-inflation conditions especially downward real wage rigidity –during weak cyclical conditions undermined Finnish companies' profitability and competitiveness and hence also the creation of new jobs.[1] The profitability and competitiveness gap that opened up during the early years of the recession is only just beginning to close during the forecast period as a result of the Competitiveness Pact that entered into force in 2017.

The better economic situation in recent months has improved corporate profitability and strongly boosted investment, while employment growth has so far been more moderate. However, employment growth typically follows higher economic activity with a lag, so a

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1. See, for example, Obstbaum, M. and Vanhala, J. (2016) *Paikallinen sopiminen, Kansantaloudellinen aikakauskirja 2016; (2): 129–153 (Available only in Finnish.),* and Nurmi, S, Vanhala, J. and Virén, M. (2017) *Profitable firms generate employment and pay higher wages, Bank of Finland Bulletin 3/2017: Economic Outlook, 29.6.2017.*

higher rate of growth in 2017 and 2018 will improve the employment figures. In addition, investment will also increase companies' production potential, creating better conditions for more job creation in the future. The trend in wages and total factor productivity in the coming years will play an important role in the number of new jobs that will be generated in the future.

On the other hand, the moderate developments may also reflect the ongoing restructuring of the economy, with production requiring a smaller labour input than previously. Faster growth in the coming years indicates the end of the prolonged poor spell, particularly in industry. Yet industrial jobs have barely increased despite the economic upswing (Chart 12). The structural changes in the economy are also having an effect on the wholesale and retail trade sector, where the employment trend has been weak in recent years.

Thanks to the current cyclical situation, labour demand is very high, but several indicators suggest that labour market mismatch problems are set to increase (Chart 13). It is more and more difficult for companies to find people who have the right competence and are perhaps prepared to relocate, meaning that positions take longer to fill and people take longer to find a job. On the other hand, problems with labour supply and with incentives may lie behind what appear to be mismatch problems and the slow rise in the employment rate, for example high reservation wages. Incentives and labour market structures significantly influence the decisions of especially young people, women in childbearing age and older workers to participate in the labour market. (See the article 'The influence of age, gender and education on labour supply in Finland'.) According to many estimates, the Finnish labour market is already approaching the level of structural unemployment (see 'A new method to measure structural unemployment via labour market flows'), meaning that cyclical conditions cannot be expected to reduce the unemployment rate very quickly.

The reason why the unemployment rate has so far improved only slightly can be attributed to the only moderate improvement in the employment rate and a higher participation rate. As employment prospects improve, less people are leaving the labour market, while the number of people entering it has increased. The structure of unemployment has also changed slightly for the better, as the percentage of long-term unemployed has fallen somewhat.
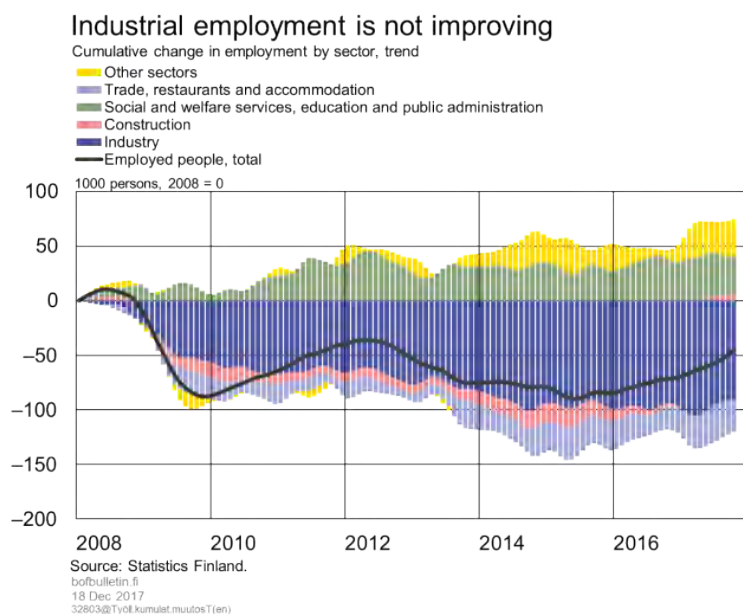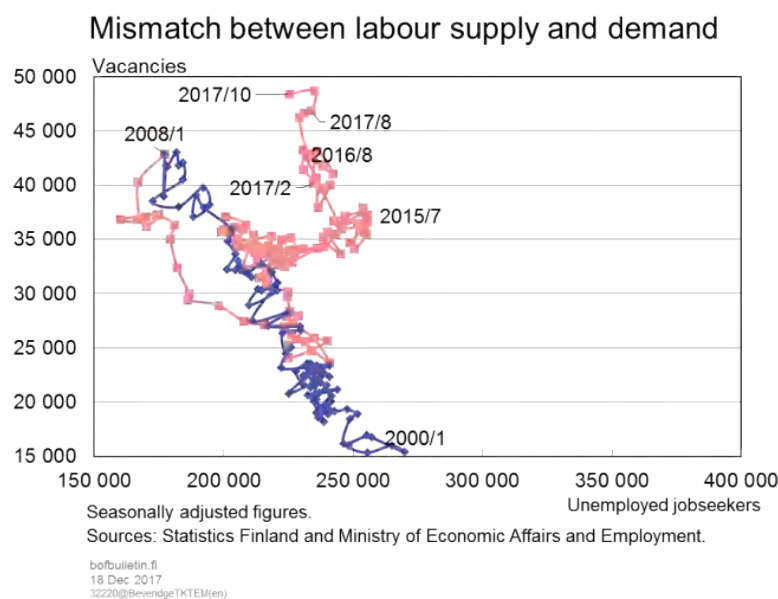
Chart 12.

Industrial employment is not improving
Cumulative change in employment by sector, trend

- Other sectors
- Trade, restaurants and accommodation
- Social and welfare services, education and public administration
- Construction
- Industry
- Employed people, total

1000 persons, 2008 = 0

Source: Statistics Finland.
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Chart 13.

Mismatch between labour supply and demand

Seasonally adjusted figures.
Sources: Statistics Finland and Ministry of Economic Affairs and Employment.

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Wages and prices: Prices rises still moderate

Inflation will accelerate slowly in 2017–2020 as economic growth picks up. Inflation according to the harmonised index of consumer prices (HICP inflation) will be 0.8% in 2017 and 1.1% in 2018. Towards the end of the forecast period, in 2020, consumer price inflation in Finland will still remain slower than in the euro area, reflecting moderate developments in costs in Finland. Inflation will still be sustained mainly by increases in services prices, and particularly by higher rents. Towards the end of the forecast period, growth in labour costs will exert an upward pressure on services prices. In addition, rises in the price of oil and other commodities will fuel the pace of increase in energy and food

prices (Chart 14). Prices will also be pushed up somewhat by increases in indirect taxation. On the other hand, the strengthening of the euro will dampen the upward trend in the prices of imported goods.
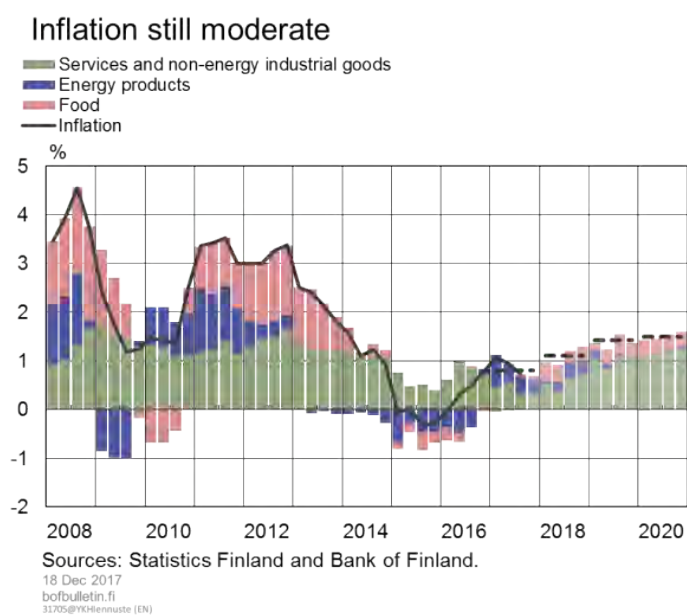
The upward trend in services prices will still be the most significant factor affecting consumer prices. The pace of increase in rents according to the consumer price index has moderated to 2%, which is slow by historical standards. However, the contribution to inflation of rents and housing services is only 0.2 percentage points. The upward trend in services prices will be fuelled also by increases in the prices of social and welfare services and prices charged by restaurants and cafes.

The prices of oil and other commodities have risen in the wake of the global economic upswing. The price of crude oil in US dollars has risen, but its impact on domestic prices has been dampened somewhat by the appreciation of the euro exchange rate. The price of crude oil per barrel has risen since summer 2017, from EUR 40 to EUR 55. The higher prices of crude oil will be reflected in the consumer prices of energy and food in the early part of the forecast period. Based on world market futures prices, the price of crude oil is expected to remain at its present level or even decrease slightly.

Food prices have decreased in recent years, as a result of price competition in retail trade. The upward trend in energy and commodity prices will be reflected in the producer prices of food and food prices will start rising. The increase in excise duties on alcohol will push up the consumer price index by some 0.1 of a percentage point.

The prices of goods have declined for four consecutive years, and this trend will continue until 2020. Prices have been depressed particularly by the lower prices of household equipment and electronics, as well as cars.

Chart 14.

Sources: Statistics Finland and Bank of Finland.
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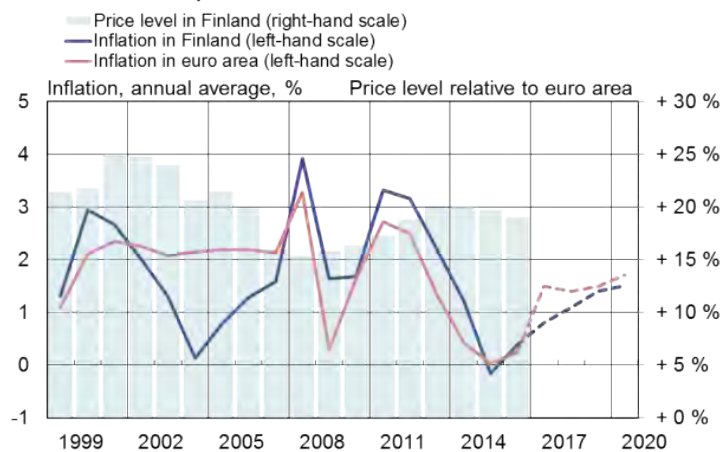bofbulletin.fi
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Overall, consumer price inflation in Finland will remain slower than the euro area average in the forecast period (Chart 15). Finland is thus narrowing the gap in price level

with the rest of the euro area. In 2016, Finland was the third most expensive country in the euro area. Food, alcohol and clothing are relatively expensive in Finland. In contrast, prices of furniture, household equipment and electronics are fairly close to the euro area average. Below the euro area average are the prices of energy (approximately −24%) and communications services (−27%).

Chart 15.

Inflation and price level relative to euro area

- Price level in Finland (right-hand scale)
- Inflation in Finland (left-hand scale)
- Inflation in euro area (left-hand scale)

Inflation, annual average, %   Price level relative to euro area

Sources: Bank of Finland, Eurostat and European Central Bank.

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In 2017, earnings growth in Finland will depend largely on the Competitiveness Pact. However, the statistics provide a mixed picture of earnings growth. Growth in nominal earnings according to the index of wage and salary earnings will remain only slightly above zero, reflecting the zero-level rises in negotiated wages, and the cut in holiday bonuses in the public sector, which will reduce earnings by public sector employees. Growth in average earnings according to national accounts data is in 2017 significantly higher than growth in average earnings according to the index of wage and salary earnings. This is due to the fact that, according to national accounts statistics, the number of hours worked has increased very little relative to the strengthening of economic growth (Chart 16).

Statistical data on labour cost developments in the first half of 2017 also provide a partly mixed picture. Compensation per hours worked according to national accounts statistics has not decreased despite cuts in employers' social security contributions, reflecting the fairly rapid growth in average hourly earnings. In contrast, according to the labour cost index, average hourly earnings have decreased significantly in the first half of 2017. The forecast for the change in labour costs per employee in 2017 is −0.6%, based on national accounts data.

In the ongoing negotiations between the social partners, the first sectors have reached agreement on pay rises for the next two years. In these agreements, negotiated wages will rise by 1.6% per year. The forecast is based on the assumption that this will be the general size of pay rises and that negotiated wages will rise by 1.6% on average, in 2018 and 2019 across the economy as a whole. The other factors affecting earnings growth are

expected to remain virtually unchanged, as a result of which wage drift would be approximately 0.7% per annum.

In the economy as a whole, average earnings will rise by 2.3% in 2018 and 2.2% in 2019. In 2020, the rise in average earnings will accelerate slightly, due to the ending of the temporary cut in holiday bonuses. The pace of growth in real wages in 2017–2020 will be slightly slower than productivity growth and unit labour costs will fall.

Chart 16.

Slower growth in unit labour costs

- Compensation per emloyee
- Unit labour cost
- Productivity per emlpoyed person

Sources: Statistics Finland and Bank of Finland.
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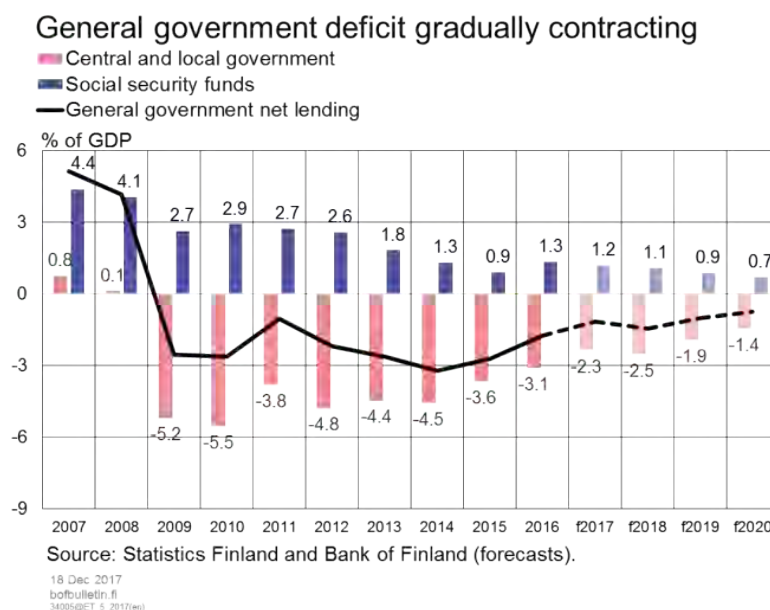bofbulletin.fi
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Public finances: General government deficit contracts amid improving cyclical conditions

Public consumption will grow slowly in 2017 as the Competitiveness Pact's reductions in public sector holiday bonuses, working-time extension and cuts in employers' social contributions depress public sector labour costs. At the same time, expenditure adjustments will restrain public consumption growth in the coming years, too, and especially in 2019. Public investment will increase in 2018 when the appropriations for key government projects grow around EUR 250 million from the previous year. Fiscal policy has been eased in 2017 by implementing the Competitiveness Pact's cuts in taxes and social security contributions. The total tax-to-GDP ratio will decline by over 1 percentage point, to 42.9% in 2017, and again, to 41.7% in 2018.

In 2017, the general government deficit will contract to 1.1% and further to 0.7% by 2020 (Chart 17). The central government deficit has contracted for three consecutive years since 2015. In 2017, it stands at 2.1% of GDP, after which it will contract to below 1% by the end of the forecast period. At its highest level in the 2000s, the central government deficit-to-GDP ratio was over 5% in 2010.

Chart 17.

General government deficit gradually contracting

- Central and local government
- Social security funds
- General government net lending

% of GDP

Source: Statistics Finland and Bank of Finland (forecasts).

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The consolidation measures in the Government Programme and lower expenditure on unemployment benefits and immigration will push down government expenditure. On the other hand, key government projects, the net increase in appropriations due to the Competitiveness Pact and higher pension expenditure will all push up government expenditure. At the same time, the easing of income taxation has reduced tax receipts. However, tax receipts for 2017 have been boosted by an individual supplementary prepayment of EUR 700 million relating to corporation tax. In addition, receipts from inheritance and gift tax have temporarily increased in 2017 as the Tax Administration has cleared its backlog work. Certain excise and vehicle duties will be increased in 2017–2018, while the car tax will be reduced.

The contraction in the local government deficit will come to a halt in 2018, and the local government budget balance will weaken each year in 2018–2020. The local government deficit-to-GDP ratio will rise from 0.2% in 2017 to 0.6% by 2020. Annual central government transfers to local government will decrease by about 4% from the level of 2016, since the transfers take account of a contraction in labour costs due, in part, to the Competitiveness Pact. On the other hand, local government finances will be supported by lower compensation of employees paid by municipal employers on account of the Competitiveness Pact and the pension reform. This forecast does not include an assessment of the effects of the regional government reform on the central and local government budget balances.

The surplus on the earnings-related pension funds will contract in the forecast period, continuing the trend witnessed for ten years already. Net lending relative to GDP will decrease from 1% in 2017 to 0.6% by 2020. Pension benefits paid by earnings-related pension providers will increase in the forecast period by just under 4% on average per annum. At the same time, pension contributions received by earnings-related pension providers as well as current transfers from central government and other social security funds will grow at a slower pace. Growth in earnings-related pension assets is explained

by investment returns, since earnings-related pension providers' pension expenditure has been higher than the pension contributions received by them since 2014.

Other social security funds are forecast to post a slight surplus in 2017–2019. Expenditure on unemployment benefits will decrease on the back of lower number of unemployed and the cuts in the maximum duration of earnings-related unemployment allowances. On the other hand, the negative cyclical buffer of the unemployment insurance scheme will need to be strengthened in the coming years. Central government transfers to other social security funds will grow in 2017 from the previous year by about EUR 1.4 billion, as government will compensate revenue losses arising e.g. from the Competitiveness Pact's cuts in social security contributions.

Growth in the consolidated general government debt moderated in 2016 and will continue at somewhat slower rates than in previous years throughout the forecast period. The debt-to-GDP ratio turned onto a downward trend already in 2016 and will fall to around 61.5% in 2017–2019 (Chart 18). The positive developments in the debt ratio during the forecast period are primarily the result of GDP growth.

Chart 18.
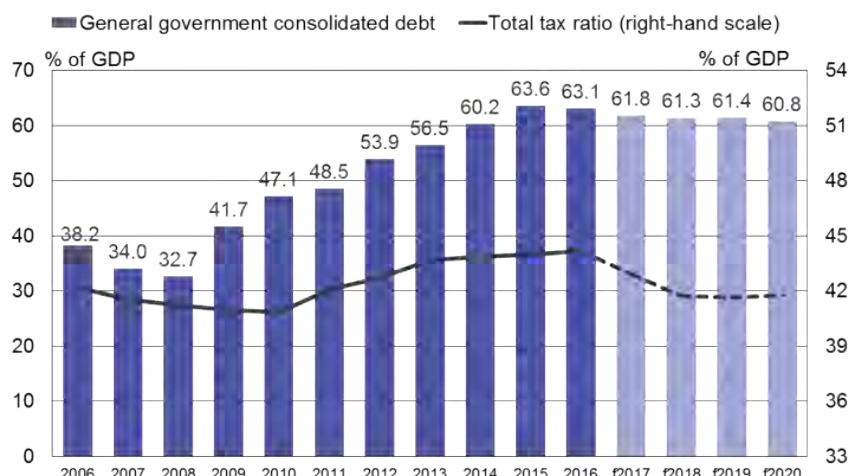
Risk assessment: Risks facing global economic growth lessened

Finland's economic growth is set to become increasingly broadly based in the near term on the back of export growth as well as investment and private consumption. Concerns about the performance of the global economy are easing, possibly leading to an even stronger increase in export demand than forecast. There are, however, downside risks associated with Finland's domestic economy.

Growth risks to the global economy have eased on the back of diminished political uncertainty worldwide. The cyclical upswing driving the global economy has now been

ongoing for some time, however, so growth risks in the medium term are predominantly on the downside. A greater share of Finnish export growth now stems from China and the United States rather than Europe, so the risks associated with economic developments in these countries are becoming increasingly significant for Finland's economy.

In the United States, the Trump administration is about to implement a large tax reform bill, of which one goal is to significantly reduce corporate taxation. While these tax cuts might produce a temporary boost in economic growth, they will also upset the balance of an already strained public sector. Moreover, the long term effects on the country's economic performance are still unclear. The US economy poses risks for the Finnish export sector in the form of potential tariffs and deteriorating terms of trade. Global financial stability may also become more susceptible to risk if the deregulation of US financial markets goes ahead.

China's economic growth has largely been based on debt, increasing the vulnerabilities of the country's financial sector. A crisis in the Chinese financial sector would quickly erode confidence on financial markets worldwide. This, in turn, would quickly impact growth in the real economy.

Although growth remains strong in the euro area, the region's banking sector is still relatively vulnerable. One particularly thorny issue is the large amount of non-performing assets held by many European banks. Uncertainties shadowing the outcome of Brexit have lifted, as meaningful steps have been taken in the negotiations. So far, settlements have been reached on Northern Ireland, Britain's payments to the EU, and the rights of EU citizens residing in Britain. The next phase of the negotiations will outline the terms of free trade between the EU and Britain.

The Nordic banking system's large size, concentration and interconnectedness all add to the risks faced by the Finnish banking sector. Over the forecast period, the largest risks to financial stability lie in the Swedish housing market, which is showing signs of overheating. A rapid and deep decline in house prices would increase the risk weights on mortgage loans on banks' balance sheets. Because of the banking system's interconnectedness, banks who also operate in Finland might find it more expensive to raise funding on international capital markets. A decline in housing prices would also halt Swedish new-build construction, which would impact Finland's exports to Sweden.

Negotiated pay increases outlined in the autumn 2017 round of collective wage negotiations were set at approximately 1.5%, which should increase Finland's cost-competitiveness over the forecast period. Yet, as growth continues at a relatively brisk pace, the limits of the economy's output draw closer, especially with regard to labour requirements. At the end of the forecast period, there is a risk of wage acceleration, which would spur inflation and erode the export sectors' competitiveness. On the other hand, increased adoption of industry-specific bargaining could improve labour market efficiency and lead to lower wage drift.

Household consumption continues to surpass disposable income and the savings rate will remain negative while indebtedness continues to grow. Insolvency amongst households with outstanding housing loans has increased somewhat, but the overall risk

to financial stability caused by household indebtedness remains low in Finland. A rise in the number of heavily indebted households can still create macroeconomic instability in the long run, as indebted households' propensity to consume is sensitive to unemployment and mortgage rate hikes. These households' precautionary savings may also rapidly increase if cyclical conditions worsen.

New-build housing accounts for a significant proportion of investment growth, and housing construction activity is historically sensitive to changes in the business cycle. The majority of construction is in the form of flats built in the Helsinki metropolitan area that have been directly sold to real estate investors. Especially in 2018 a lot of apartments will come on the market, which might cause a temporary oversupply. If the rent level of new leases falls as the market seeks equilibrium, investors' demand for new rental units could be quickly eroded.

Tags

economic development, economic forecast, Finland, general government deficit, households, inflation, public finances

Accelerating global growth raises price of oil

The global economy is still enjoying strong and broadly based growth. A growth spurt was seen in world trade in 2017, reflecting in part an upward correction from a lacklustre previous year. Consequently, the growth in world trade has accelerated past that of global GDP for the first time in several years. Many economies continue to support growth through accommodative financing conditions and stimulus measures. In the advanced economies, a return to conventional monetary policy has been delayed by persistently low inflation, although this does now appear to be accelerating somewhat.

The global economy's growth outlook has remained good and the outlook for the immediate years ahead has also brightened. The growth in world trade has been exceptionally strong during the past year, but part of this is a correction from a sluggish year in 2016. Growth in global trade lagged behind that of global GDP for several years. This ratio seems to have been reversed during the past year, but this does not in itself guarantee a sustained trend.

Import growth in Finland's export markets is expected to increase by almost 6% in 2017 and by at least 4% in 2018. In addition, the export prices of Finland's competitors are set to increase, although at a considerably lower rate than previously forecast. This year their export prices will increase by 3.6%, but this rate is expected to fall to under 0.5% next year before levelling out to slightly over 2% annually.

US growth outperforms expectations

The pace of economic growth in the United States surpassed forecasts set for this year. In 2017 Q3, annual growth accelerated to 3.3%, despite the hurricanes that hit the country in late summer, and is expected to remain strong in the immediate years ahead.

Private consumption has proved to have been a key source of growth. Consumer confidence is significantly above the long-term average, while industrial confidence is also strong, reaching its highest level for seven years. Industrial production has also picked up after a couple of weak years, with production increasing 1.7% in January–October compared with a year earlier.

Meanwhile, US unemployment has fallen to close to 4%, yet wage growth remains relatively modest. This is thought to reflect both underemployment, i.e. unused capacity in the labour force, as well as lethargic productivity growth.

US inflation has accelerated since 2016 and has trended around 2% in recent months, largely owing to the increasing price of oil. However, the personal consumption expenditure (PCE) measure, which the Federal Reserve uses as its primary measure of inflation, only suggests an inflation rate of approximately 1.5%. Nevertheless, inflation expectations are well above those of the euro area, and markets expect the Fed to introduce further rate hikes to continue.

Strong recovery in euro area

Economic recovery in the euro area has proved to be strong this year and has exceeded expectations. Tailwinds in global trade have driven demand for euro area exports, although this has also coincided with increased demand for imports. As such, euro area economic growth is being driven by domestic demand, covering both consumption and investment, rather than net exports.

Meanwhile, industrial confidence has strengthened on the back of increased demand for exports. The annual growth rate of industrial output has accelerated to almost 4% over the summer and autumn and is thus faster than in the United States.

World trade driven by Chinese demand

The growth of world trade heavily relies on the development of the Chinese economy. Although the pace of China's economic growth is still expected to slow, this year saw growth that not only beat forecasts but also improved upon the previous year.

Moreover, consumer confidence has risen above the long-term average. Retail trade has slowed down from previous years but remains strong.

China's investment ratio has continued its almost decade-long downward trend. The underlying problem behind the current economic growth is that it is largely debt-driven and is thus feared to pose a risk to the stability of the country's financial markets.

Brighter outlook for emerging economies

Compared with the previous forecast, the growth outlook appears brighter for many emerging economies. The rise in the price of oil has played a particularly important role in supporting the Russian economy, where private consumption turned toward accelerating growth in the early months of 2017. In addition, Brazil, whose economy has suffered considerable setbacks, has re-established a positive growth trend.

The assumption concerning the price of oil has been revised substantially upwards relative to the previous forecast. The difference is only a few dollars a barrel in 2017, but is forecast to reach approximately ten dollars a barrel in 2018, when the oil price is expected to surpass 60 dollars. Following this upswing, the price will fall slightly. The main rationale behind the revised estimate is the increase in demand driven by accelerating growth in the global economy.

Interest rates will rise slowly

The interest rate assumptions in the forecast are derived from financial market prices. Both short and long-term rates are expected to slowly increase.

Based on market expectations, the assumption for the 3-month Euribor in 2017 has remained unchanged at -0.3%, and the estimate for 2018 has been revised down to the same level. In 2019, it is assumed to have risen to -0.1%, and by 2020, to a positive value of 0.1%.

The assumption concerning yields on Finnish 10-year bonds has been revised downward somewhat. Yields are expected to gradually rise from 0.5% in 2017 to 1.1% in 2020.

The euro's value relative to the dollar is assumed to slightly appreciate in 2017 and 2018, but to thereafter remain steady until the end of the forecast period. Finland's trade-weighted exchange rate will somewhat increase in 2017 and 2018 and will remain relatively unchanged throughout 2019 and 2020.

Table.

Forecast assumptions

	2016	2017[f]	2018[f]	2019[f]	2020[f]
Finland's export markets[1], % change	2.4	5.9	4.3	3.9	3.6
Oil price, USD/ barrel	44.0	54.3	61.6	58.9	57.3
Export prices of Finland's competitors, euro, % change	−4.5	3.6	0.4	2.2	2.2
3-month Euribor, %	−0.3	−0.3	−0.3	−0.1	0.1
Yield on Finnish 10-year government bonds, %	0.4	0.5	0.7	0.9	1.1
Finland's' trade-weighted exchange rate[2]	101.6	104.3	104.6	106.8	106.8
US dollar value of one euro	1.11	1.13	1.17	1.17	1.17

[1] The growth in Finland's export markets is the import growth in the countries Finland exports to weighted by their average share of Finland's exports.

[2] Broad nominal effective exchange rate.

Sources: Eurosystem and Bank of Finland.

Tags

economic situation, economic development, Finland, forecast

Sensitivity analysis using alternative outlooks for the global economy

Finland's recent brisk economic growth is largely a consequence of the upswing in the global economy. The external environment has always played a decisive role in shaping Finland's GDP and, in particular, export growth. Changes in the external environment are, however, always surrounded by a high degree of uncertainty.
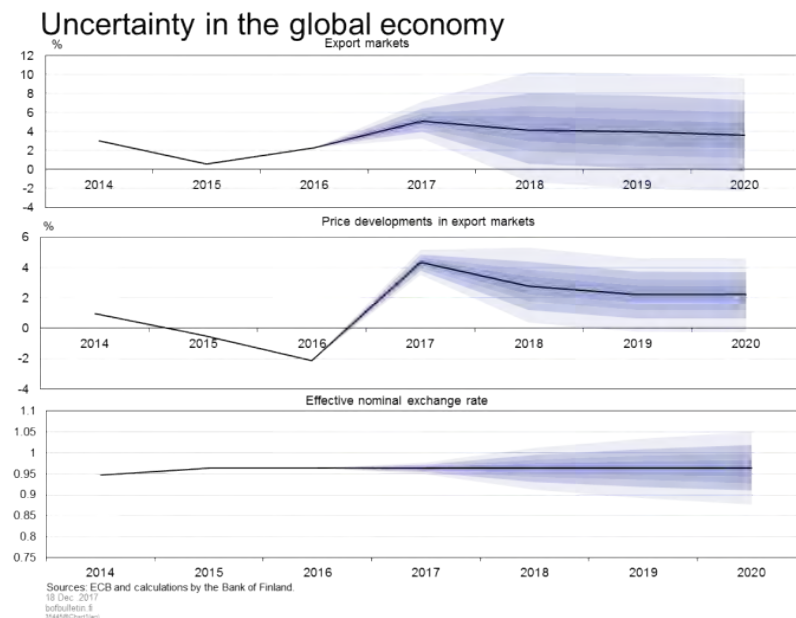

The performance of the global economy has always been central to the performance of Finland's domestic economy. Consequently, uncertainties in the global economy also bring uncertainties into any attempt to forecast developments in the Finnish economy. The Bank of Finland's Aino model can be used to gauge the impact that fluctuations in external variables relating to the export market as well as international prices and exchange rates might have on the performance of Finnish exports and, consequently, overall developments in the economy.

The Bank of Finland forecast considers several important non-domestic factors, including the composition of export markets, exchange rates, international price levels and monetary policy. Commodities whose prices are closely linked with inflation, such as crude oil, are also factored in. A more detailed analysis of these assumptions can be found in 'Forecast assumptions: Accelerating global growth raises price of oil'.

The calculations in this article constitute a sensitivity analysis, where Finnish export and GDP growth are subject to alternative assumptions concerning the export markets, exchange rates and international prices. Together, these factors provide a good overview of shifts in the global economy, and the joint variation of these variables has been modelled using historical data. This model can then be used to create a large variety of alternative forecast paths for the global economy. Entering these in the Aino model, in turn, produces an equivalent array of alternative forecasts for Finnish export and GDP growth.

The uncertainty surrounding the global economy and its potential impact on the Finnish economy is best illustrated by a fan chart (Chart 1). The outermost interval accounts for 90% of the historical fluctuation of the selected external variables, with approximately 30% (dark blue) accounted for in the innermost interval.

Chart 1.

Uncertainty in the global economy

Sources: ECB and calculations by the Bank of Finland.
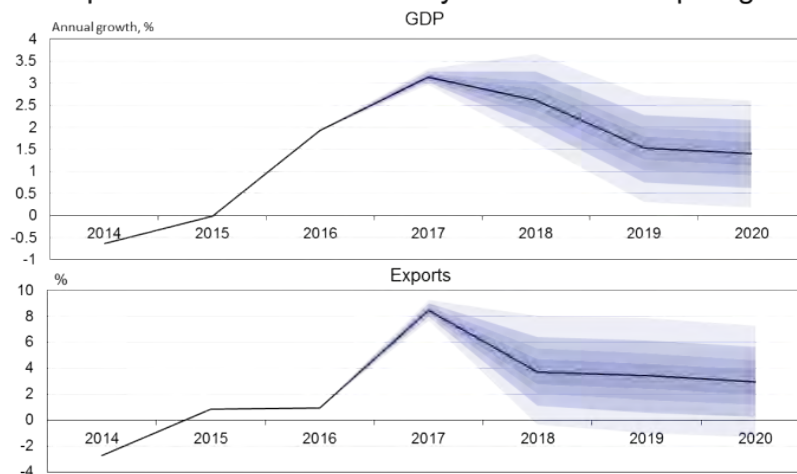18 Dec. 2017
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Using the standard forecast assumption as baseline, export growth displays a spread of -2% to almost 10% over the forecast period 2017–2020. Both global export price developments and the trade-weighted exchange rate also exhibit a significant degree of uncertainty. The sum effect of this manifests itself as uncertainty in GDP growth, which fluctuates between 0.2% and 2.6% (Chart 2).

Exports are even more sensitive to changes in the external environment. This is also illustrated in Chart 2, where export growth sees an even wider spread near the end of the forecast period. Export growth fluctuation moves from approximately -1% to 8%, with the standard forecast assumption as baseline.

Chart 2.

Impact of external uncertainty on GDP and export growth

Sources: ECB and calculations by the Bank of Finland.

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These results reflect the Finnish economy's considerable sensitivity to changes in the external environment and underline how important the global economy is to the performance of a small open economy like Finland. Although the results are, in part, a reflection of the dynamics of the Aino model, the charts do offer a degree of insight into how Finland's export and GDP growth respond to changes in the external environment. However, it is important to remember that the real world economy contains, in addition, many other fluctuating factors that lie outside the scope of this analysis.

Tags

economic growth, exports, export markets, gross domestic product

Economy growing across a broad front

During the third quarter of 2017, Finland's GDP increased by 3%, private consumption by 2.1% and public consumption by 1.8% year on year. Investments increased by 9.3% year on year.

The Bank of Finland's macroeconomic forecast is based on Statistics Finland's publications on 1 December 2017 on the quarterly national accounts and indicator material describing economic developments in broad terms. The latest quarterly national accounts include information about the developments in the Finnish economy until the end of the third quarter of 2017.

GDP increased in the third quarter by 0.4% on the previous quarter, and by 3.0% year on year. The volumes of all main balance sheet items in the balance of resources increased on the previous year.

Private consumption continued to rise in the third quarter of 2017, up by 0.5% on the previous quarter and by 2.1% year on year. The growth rate of private consumption has been about the same since late 2015.

Public consumption increased in the third quarter of 2017 by 1.1% on the previous quarter and by 1.8% year on year. The data on public consumption was somewhat down from the previous statistical release.

Investment was 2.3% up quarter on quarter and 9.3% year on year. Growth in construction investment slowed clearly, being only 3.4% higher than a year ago, as opposed to a 2016 growth rate that averaged 10%.

Investment in machinery and equipment (incl. weapons systems) soared by 39% year on year but has remained practically unchanged since the last quarter of 2016. Investment in machinery and equipment has been high in the chemical and metal industries and energy management. On the whole, the growth rate of investment has been about the same since mid-2016.

Export volumes shrank in the third quarter of 2017 by 2.0% on the previous quarter, but increased by 5.8% year on year. Export volumes rose sharply in the first quarter of 2017 (7%), but have fallen slightly since then.

Import volumes also shrank in the third quarter, by 2.5% on the previous quarter, but were up by 0.5% year on year.

The balance on goods and services in the quarterly national accounts has been positive since the beginning of 2017, with the surplus during the first three quarters amounting to about EUR 1.2 billion. As to foreign trade, the revised figures in the quarterly national accounts often differ considerably from first estimates.

The volume of value added increased in all main sectors apart from the information and communication sector. Value added in the information and communication industries shrank in the third quarter by 3% on the previous quarter and by 0.5% year on year. Early in 2017, the sector had still been growing at an annual rate of about 7%.

The value added of all industrial sectors increased in the third quarter by 2.7% year on year. Of all industries, the highest growth was in the forest industries (6.3%) and the metal industry (5.6%), while the service industries with the most growth were business services (9.9%) and financial and insurance services (8.1%). The entire economy's value added increased by 3.4% year on year.

The number of persons employed increased in the third quarter by 0.2% on the previous quarter and 0.5% year on year. The number of hours worked increased by 0.5% on the previous quarter, but decreased 0.2% year on year.

According to the Labour Force Survey, the unemployment rate in the third quarter of 2017 was 8.7%, i.e. 0.1 of a percentage point higher than at the same time in 2016. The labour market has improved rather moderately compared with the rate at which the economy has grown.

Aggregate wages and salaries increased in the third quarter by 0.2% on the previous quarter and 1.6% year on year. The total of social security contributions paid by employers was reduced by 6.3% year on year owing to the Competitiveness Pact.

Tags

exports, gross domestic product, private consumption , quarterly national accounts

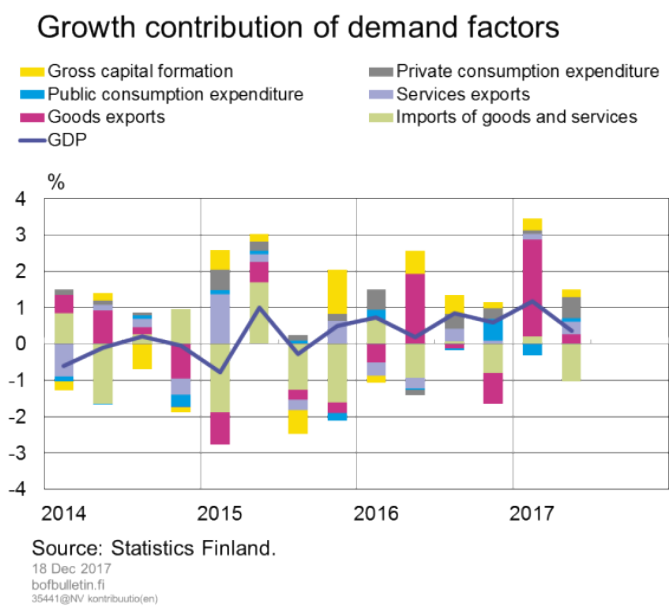# Finland's cyclical expansion bolstered by investment and export growth

The Finnish economy entered a phase of cyclical recovery in mid-2015. After several years of contraction and zero growth, Finnish GDP grew by 1.9% in 2016. Growth has continued to accelerate during the course of 2017. The current cyclical upturn has been supported by growth in exports and investment. Finland's economy has also benefited from the broader recoveries seen in both the euro area and the global economy.

Finnish GDP growth was largely dependent upon private consumption during the period of low growth in 2012–2015 (Chart 1). In 2016, investment increased sharply by 7.2% (Table 1), while export growth also gathered pace over the same period. This trend has continued into the current year, and both investment and exports have seen robust growth.

While investment growth is commonly associated with quickening domestic demand and construction, corporate fixed investment is also sensitive to the fluctuations of the global economy and export markets. Monetary policy and availability of funding have also played a large role in shaping investment growth. The prolonged contraction in investment and resulting degradation of fixed assets (e.g. obsolescence and wear and tear) could also help explain the surge in investment activity. Most importantly, however, confidence in the economy has strengthened, while at the same time profit development has outpaced costs, resulting in ideal conditions for investment.

Chart 1.

Growth contribution of demand factors

- Gross capital formation
- Public consumption expenditure
- Goods exports
- GDP
- Private consumption expenditure
- Services exports
- Imports of goods and services

%

(Chart showing growth contribution of demand factors from 2014 to 2017, y-axis from -4 to 4)

Source: Statistics Finland.
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According to Statistics Finland's annual national accounts, the majority of investment flowed to the service sector. Firms within the service industry accounted for 5.8 percentage points of the total increase in investment. The contribution of secondary production was much smaller, at 1.3 percentage points.

The service sector's prominence was largely driven by new-build construction, which accounted for 3.3 percentage points of investment growth in 2016. In addition, the domestic trade sector has seen substantial investment, particularly in wholesaling. Investment in transportation and storage has also been strong. Public sector investment also increased in 2016, where it had trended poorly in earlier years.

Table 1.

Investment by sector

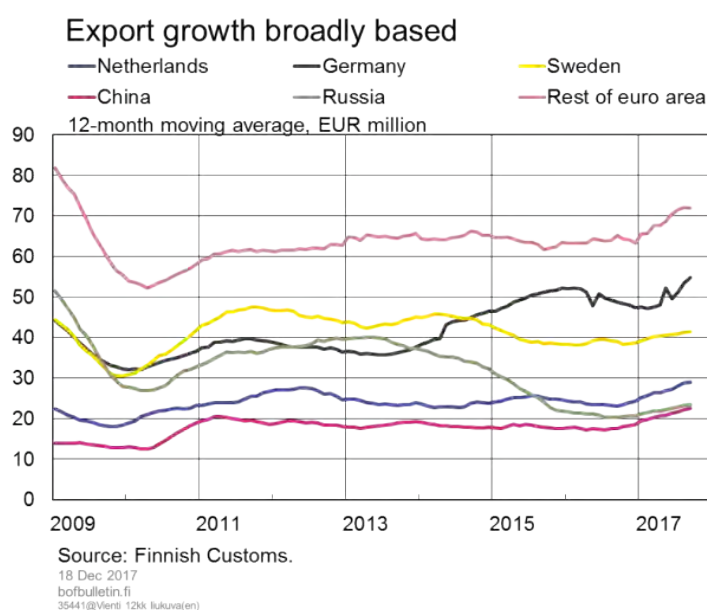| Gross fixed capital formation	2014	2015	2016
Secondary production	0.1	0.8	1.3
B_E Industry. total	0.1	0.8	1.1
B Mining and quarrying	−0.1	0.2	0.0
C Manufacturing	−0.2	0.5	0.0
16_17 Forest industries	−0.4	0.3	0.6
19_22 Chemical industry	−0.4	0.8	−0.4
24_25+28_30+33 Metal industry excl. manufacture of electrical and electronic products	0.3	0.2	0.0
26_27 Manufacture of electrical and electronic products	0.1	−0.7	−0.5
D_E Electricity and water supply and waste management	0.3	0.1	1.0
F Construction	0.0	0.0	0.3
Services	−0.3	0.5	5.8
G Trade	0.1	−0.8	0.9
H Transportation and storage	−0.5	0.2	1.0
J Information and communication	0.7	0.1	−0.5
L Real estate activities	−3.6	2.2	3.3
Public administration: education. healthcare and social services	0.2	−1.6	0.7

Source: Statistics Finland.

The secondary sector saw much slower investment growth than services. Industrial investment accounted for 1.1 percentage points of total investment growth in 2016, of which the majority went to the energy supply and forest industries. Investment in electrical engineering and electronics and other metals-related industries contracted in 2016. The secondary sector's seemingly modest investment growth belies the fact that secondary production extensively uses the service industry's intermediate goods as inputs (see Pekkarinen, 2017). As such, some service sector investments do actually flow into the secondary sector.

Finnish exports surged in early 2017 and enjoyed an improved market share, both geographically and across commodity categories. Goods exports have had a major impact on GDP growth (Chart 2). Services exports have also increased, but at a slower pace. While services account for a much smaller share of total exports, their domestic value added is larger than that of goods. As such, services exports actually have a larger impact on GDP than if it were explained only by its share of total exports.

Data collected by the Finnish Customs provide a breakdown of export growth by country of import and commodity category. Export growth has been geographically broad and particularly rapid during the past year. Germany in particular has increased its intake of Finnish exports. This has had a considerable effect on the composition of export growth, as Germany has now become Finland's most important export destination. Exports to China, Sweden and Russia have also increased notably during the past year. Overall, exports have increased with almost all of Finland's major trading partners.

Chart 2.

Export growth broadly based

— Netherlands   — Germany   — Sweden
— China   — Russia   — Rest of euro area

12-month moving average, EUR million

Source: Finnish Customs.
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Export volumes increased across the board for practically all major goods. Looking at individual commodities, basic metals saw the greatest improvement in early 2017. In addition, machinery and equipment exports turned to growth, ending a prolonged period of decline, and the export value of motor vehicles also exhibited a surge.

Exports have been supported by international as well as domestic factors, with a particular emphasis on the former. External demand and price factors account for approximately two-thirds of the growth in exports, according to the Bank of Finland's dynamic general equilibrium model, Aino. Monetary policy and exchange rates, in turn, account for approximately one fifth of export growth. Finland's export markets have been developing favourably since late 2016, and world trade has recently experienced a surge in growth. Wage development has remained modest. This, coupled with overall subdued cost developments, has improved Finland's cost-competitiveness. Corporate taxation has also been eased, improving the profitability of firms.

Tags

economic growth, exports, investment, national accounts

ASSESSMENT OF PUBLIC FINANCES 2017

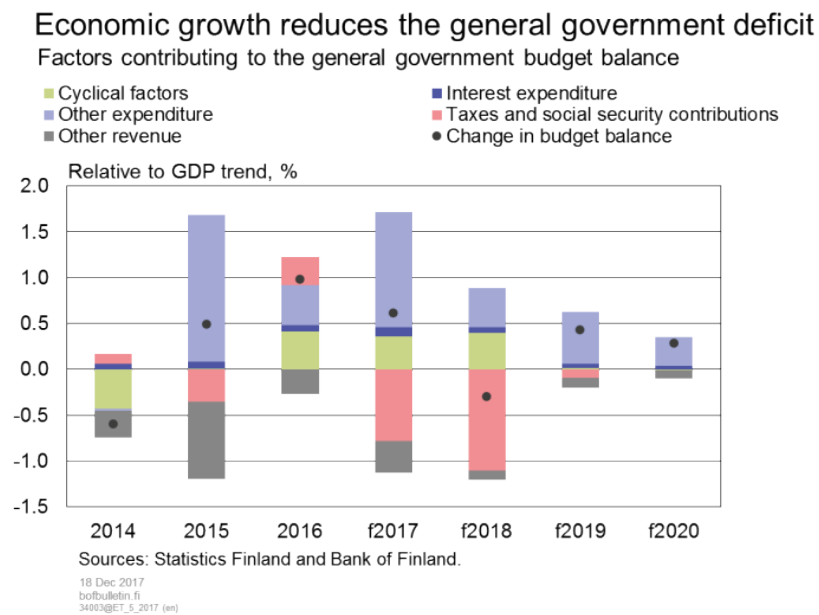# Overall positive sentiment will not resolve structural problems in public finances

Finland's rapid economic growth in 2017 has notably improved the situation for the public finances. With the cuts in taxes related to the Competitiveness Pact, fiscal policy will ease in 2017 and 2018 and the structural deficit will deepen. Moreover, the projected acceleration of economic growth will not resolve the longer-term problems associated with Finland's public finances. Population ageing will push up public expenditure, while the contraction in the working-age population will rein in economic growth and thus weaken the funding base of the public finances. Growth in age-related expenditure will generate a sustainability gap that is still estimated at around 3% of GDP.

Fiscal policy to ease in 2017–2018

The strengthening of Finland's economic growth is favourably reflected in the public finances. Cyclical factors will have a positive impact on the general government budget balance in 2016–2018, in particular (Chart 1). There is, however, a structural imbalance between public revenue and expenditure, reflected in the fact that the rebalancing of public finances by 2020 does not appear plausible even in an environment of normalising economic growth.

Chart 1.

Economic growth reduces the general government deficit
Factors contributing to the general government budget balance

- Cyclical factors
- Other expenditure
- Other revenue
- Interest expenditure
- Taxes and social security contributions
- Change in budget balance

Relative to GDP trend, %

Sources: Statistics Finland and Bank of Finland.

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The composition of public expenditure has changed especially due to growth in pension expenditure. Compared with 2004, when central government finances were in balance and the social security funds posted robust surpluses, the pension expenditure-to-GDP ratio had risen by 3 percentage points by 2016.

Growth in social benefits and allowances has also been fuelled by a cyclical increase in unemployment expenditure. This increase, however, has already turned downward due to the improved employment situation. Nevertheless, it is still unclear how the prolonged recession has impacted the level of structural unemployment.

Other public expenditures have been adjusted since 2015. The current Government seeks to reduce public expenditure by EUR 4 billion by 2020. The public expenditure-to-GDP ratio will decrease to about 52% in 2020. The ratio was 49.3% in 2004 and 55.8% in 2016.

Over 80% of general government revenue consists of taxes and social security contributions. Increases in these items pushed up public revenue in 2011–2016. Employers' social security contributions were considerably reduced in 2017 in line with the Competitiveness Pact. At the same time, labour taxation was eased, and the tax cuts will continue in 2018. On the other hand, tax revenue for 2017 will be boosted by one-off corporate tax receipts and more efficient processing of the inheritance and gift tax. In light of the Bank of Finland forecast, rebalancing of the public finances by 2020 does not appear plausible.

Finland's fiscal policy was accommodative in most of the years following the financial crisis. Fiscal policy was not tightened until 2015–2016, when the general government structural deficit – i.e. deficit adjusted for cyclical fluctuations – improved (Chart 2).

In 2017–2018, fiscal policy will ease markedly, with the economy already growing at a robust pace. Expenditure adjustments will be dampened by, on one hand, the

Government's temporary allocation of EUR 1.6 billion to key government projects and, on the other hand, the Competitiveness Pact's cuts in income taxes and employers' social security contributions.

In 2019, fiscal policy will tighten again, as the financing of key government projects comes to an end and expenditure adjustments continue, assuming that the budget for the election year complies with the agreed spending limits.

Chart 2.

Fiscal policy will ease in 2017–2018

General government net lending

—Structural   —Nominal

Relative to GDP, %
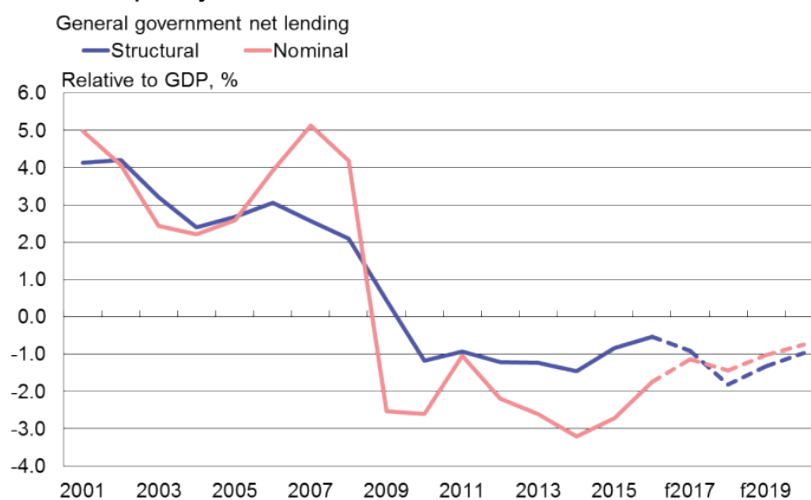
Sources: Statistics Finland, European Commission and the Bank of Finland (forecasts).

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Structural balance target escaping again

On the basis of the European Commission's calculations, Finland achieved – perhaps somewhat surprisingly – the medium-term objective (MTO) for the general government structural balance in 2016. According to the Commission's calculations, Finland's structural balance was −0.4% of GDP, while the MTO is set at −0.5% of GDP.

In spring 2017, the Commission still assessed that the structural balance would only improve to −0.9% in 2016. However, the assessment changed not only due to a slight positive revision in the nominal deficit but also because of a higher output gap estimate used in calculating the structural balance. This is a good example of the problems associated with the measurement of the structural balance.

The structural balance will deteriorate again in 2017–2018. However, Finland has been granted temporary allowances linked to the structural reform and investment clauses, i.e. a temporary deviation of 0.6 of a percentage point from the required adjustment path towards the MTO for the structural balance. Therefore, the MTO will not significantly restrict fiscal policy in the latter part of the government term.

The General Government Fiscal Plan and Finland's Stability Programme drafted in spring 2017 included targets for the general government structural deficit and debt. Since

the target paths deviated from the Ministry of Finance's forecast, the General Government Fiscal Plan stated that the targets would not be met without new measures. In that context, it would have been advisable to also discuss the means to achieve the targets. On the basis of the Bank of Finland forecast for the public finances, only the achievement of the target path for the debt ratio is plausible. Achievement of structural balance in 2010, meanwhile, is not plausible.

Finland's public debt (EDP debt) has grown significantly since the financial crisis. With the central and local government deficits contracting as forecast, debt growth will moderate. It does not appear that the Government's objective of bringing an end to living on debt – that is, the rebalancing of central and local government finances – will be achieved by 2021. However, the debt-to-GDP ratio will decline in the forecast period because the nominal growth rate of GDP has picked up.

Fiscal sustainability gap unchanged

The Bank of Finland assesses that the sustainability gap in Finland's public finances will remain at approximately 3%. The sustainability gap estimate is based on the Bank of Finland's medium-term forecast for 2017–2025 and pressure calculations for the subsequent years. In the calculation, age-related expenditure will grow in line with the population structure, age cohort-specific social and health care expenditure and education expenditure. Long-term GDP growth is based on expected developments in the labour force and productivity. GDP growth is expected to average 1.2%. The real interest rate on the public debt is estimated to rise to 3% by the mid-2030s, and the return on pension funds to 3.5%.

Growth in social and health care expenditure will accelerate in the 2020s with the ageing of the baby boomers. According to the population projection, the number of persons aged over 80 in Finland will increase by about 200,000 in 2017–2030. The old age dependency ratio, i.e. the number of persons aged over 65 relative to the working-age population, will rise from 34% to 43% over the same period.

Population ageing will increase the demand for social and health care services and inevitably put a strain on the public finances. The social and health service reform seeks to restrain expenditure growth to below 1% per annum in real terms in the 2020s. Achieving this target is of key importance for the medium and long-term outlook for the public finances.

The defence materiel procurements envisaged for the 2020s are estimated to increase the public debt by 4–5% relative to GDP. Since no actual decisions have yet been taken, the procurements have not been taken into account in the medium-term forecast or the sustainability gap estimate. The defence materiel procurements will only have a marginal effect on the sustainability gap, via interest payments on the additional debt.

Risks to public finances high

Taking on more public debt was regarded as a necessary buffer when the Finnish economy drifted into recession in 2009. The debt-to-GDP ratio grew from 32.7% in 2008

to 63.6% in 2015. Despite this growth in public debt, the debt interest payments relative to GDP have decreased from 1.4% to 1.1% and are estimated to fall further, to 0.8% by 2020.

The decline in interest payments has supported management of public finances during the recession years. However, when the level of interest rates normalises, the interest payments on the public debt will also eventually start to rise. At the same time, growth in age-related expenditure will accelerate and the rebalancing of the public finances will become difficult. If the debt ratio cannot be placed on a clear downward path in the coming years, the fiscal policy buffer against future economic shocks will be considerably weaker.

Contingent government liabilities also pose a risk to the public finances. Over the past ten years, state guarantees have increased in Finland to reach the highest level in relative terms among EU Member States. The majority of this increase has stemmed from export credit guarantees granted via Finnvera. Finnvera's importance has been apparent especially in funding exports of large ship deliveries. However, with the economic situation stabilising, it is time to assess whether state guarantees of similar magnitudes are still necessary to support exports, especially since growth in the stock of guarantees has inevitably led to higher associated risks.

Earnings-related pension funds play an essential role in the overall fiscal framework. At the end of June 2017, the investment assets of Finnish earnings-related pension insurers were record high, at about EUR 197 billion, which is over 90% relative to GDP. The proportion of equity and investment fund shares in pension assets has almost doubled in 2000–2016. As a result of the changes enforced in 2017 in connection with the pension reform, individual pension institutions' possibilities to increase equity risk have been enhanced. A higher weighting of equities increases fluctuations in investment returns and risks to earnings-related pension insurers.

Despite the positive economic sentiment, the structural problems in the public finances have not been resolved. Pension expenditure growth has changed the composition of public expenditure, and savings elsewhere in the public sector are insufficient to compensate for higher pension expenditure. With population ageing, growth in public social and health care expenditure will accelerate already in the mid-2020s. Therefore, measures to contain public expenditure growth will be necessary in the coming years, too. At the same time, growth in the funding base of the economy, and hence of the public finances, is in risk of falling below the rates recorded in previous decades. The funding base of the public finances can be bolstered, particularly by structural reforms to boost employment.

The fiscal policy stance over the forecast horizon will be expansionary in relation to the economic cycle. A relaxed fiscal policy is ill suited to a situation in which the composition of public expenditure is subject to pressures and the country seeks to restore the competitiveness of the economy.

Tags

fiscal policy, public debt, public finances, sustainability gap, structural deficit

New tools for monitoring the economy

There is an increasing amount of information and tools available for the evaluation of the state of and developments in the economy. At the same time, economic decisions increasingly require the support of real-time information. Official statistics provide reliable information on the overall state of the economy, but these statistics are published with a considerable time lag. For example, the most recent official GDP statistics provide a picture of the economy in the previous 2–5 months.

In recent years, many new methods have been developed for the utilisation of large data sets, and they can also be used for monitoring the current state of the economy and for short-term forecasting. These methods include nowcasting models, i.e. short-term forecast models that utilise data with short publication lags from a number of sources to generate an overall picture of the state of the economy.

In terms of forecasting, the advantage of a large group of variables is that it dampens random variation, i.e. the noise in individual statistical releases. The time series of each variable consists of variable-specific variation and variation related to the economy as a whole. In the examination of a large group of variables, the aim is to dampen variable-specific variation to enable the examination of the factor that explains the covariation of the group of variables. This factor reveals the state of the economy. An analysis of a large group of variables by means of a statistic model, however, involves a challenge, as it increases parameter estimation uncertainty. Economic forecasting that utilises a large group of variables requires the application of tailored methods.

The Bank of Finland has developed a new short-term forecasting model which is suitable for processing continuously updated data. The model is a large Bayesian vector

autoregressive model. The key idea is to utilise statistical interdependencies between different variables and use them for forecasting the development of GDP in the most recent quarters. The model comprises nearly 50 variables. They include, for example, labour market variables, confidence indicators and sector-specific cyclical indicators and turnover data.[1]

At the time of writing this article, the statistical release on fourth quarter 2017 GDP was not yet available, whereas statistical releases on a large group of monthly variables are already available even for the present quarter. These data include, for example, confidence indicator values for October and November and employment statistics for October. The model generates a forecast of GDP developments in the present quarter that is conditional on the statistics already published. The GDP forecast is updated in accordance with deviations from the anticipated data in new statistical releases.

The following example illustrates the functioning of the nowcasting model (Table 1). According to the October 2017 statistical release, the unemployment rate is 8.1%, which is 0.2 percentage points lower than anticipated. As a result, GDP growth forecasts will be revised upwards, because the forecast errors for GDP growth and unemployment are, on average, negatively correlated. For updating the forecast based on new information, the model uses Kalman filtering. The forecast is updated via mathematical equations based on statistical probabilities.

The nowcasting model also enables evaluation of the significance of new statistical releases. As the GDP growth forecast is updated based on deviations of statistical releases from the expected, only the unanticipated information is of significance. Even a large decrease in e.g. unemployment increases the GDP growth forecast only to the extent that the decrease is unanticipated. The significance of statistical releases depends also on the amount of random variation – i.e. noise – in the time series. For example, large occasional peaks are often observed in the releases of new orders in manufacturing, and therefore it is difficult to conclude, based on the amount of new orders, whether the changes reflect a turn in the economy or other factors.

Table 1.

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1. For a more detailed description of the model, see Itkonen, J. and Juvonen, P., 'Nowcasting the Finnish economy with a large Bayesian vector autoregressive model'. Bof Economics Review 6/2017

An example of news analysis in the nowcasting model

					Impact on GDP forecast
Variable	Month	Actual	Forecast	News	17/IV
Unemployment rate, %	October	8.1	8.3	0.2	0.2
Job vacancies, % change	October	0.5	0.6	−0.1	−0.1
					GDP forecast
		Before new statistical releases			1.2
		After statistical releases			1.3

The Bank of Finland has published a new website (in Finnish) for nowcasts prepared with the new nowcasting model and the statistical releases on which the nowcasts are based. The website makes it possible to monitor how the nowcasts of GDP growth have evolved over time as new statistical releases have become available. The model calculations facilitate the monitoring of the economy and reveal which statistical data are significant for our overall picture of the economy.

Tags

economic forecast, forecasting models, gross domestic product, nowcasting, statistics

Higher education a solid currency in Finland

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Well-educated people typically earn more than those with a lower level of education. This article discusses the financial benefits of education when, in addition to earnings level, we also take into account the better employment prospects of people with higher education. A higher education degree would still appear to be a profitable investment, especially for men.

The profitability of an education can be assessed on the basis of how much it affects people's earnings during their lifetime. Education typically increases productivity, and therefore also earnings level.[1] We also know that the better their education, the more likely a person is to be employed. [2]

The following looks at the connection between educational background and annual income by means of simple charts.[3] Not only do people with a higher education

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1. The connection between education and earnings is discussed by e.g. Asplund, R. and Maliranta, M. (2006) *Koulutuksen taloudelliset vaikutukset* ('Economic effects of education'), Sitra reports no. 60.
2. For the connection between education and labour market status, see the feature article 'The influence of age, gender and education on labour supply in Finland' elsewhere in this publication.
3. The research was based on household data in Statistics Finland's 'Survey on income and living conditions'.

(includes both graduate and post-graduate degrees) typically have higher earnings, but they also have better employment prospects. Because a comparison of annual incomes takes into account both of these benefits, it describes the benefits accruing to an individual from education better than a comparison focused solely on earnings level or earnings development.

In order to assess the actual personal return on education, we should remember that productivity also depends on a number of personal characteristics and background factors, not just education. To assess the profitability of education, we should also look at the costs of acquiring an education and the risks related to income development. Here, however, we will just cover on a general level the connection between education and income development.

The significance of education was evaluated by dividing households and persons into groups on the basis of their educational background and gender, and then comparing both average disposable income and wage and salary earnings. Comparison of wage and salary earnings was done separately for men and women in order to evaluate differences on the basis of education. The comparison of disposable income shows to what extent taxation and current transfers improve the financial standing of especially those with just a basic education.[4]

Measured in terms of disposable income, acquiring a higher education degree[5] would seem like a profitable choice in Finland, as the average income of people below the age of 35 at the turn of the millennium was one and a half times as high as those with no more than a basic education (Chart 1), and by 2015 this ratio had risen to almost 1.9. The benefit of a post-comprehensive qualification[6] is, however, surprisingly low. At the turn of the millennium, the median income of people with a post-comprehensive qualification did not differ much from those with just a basic education, and even in 2015 the difference was a mere 10%.[7]
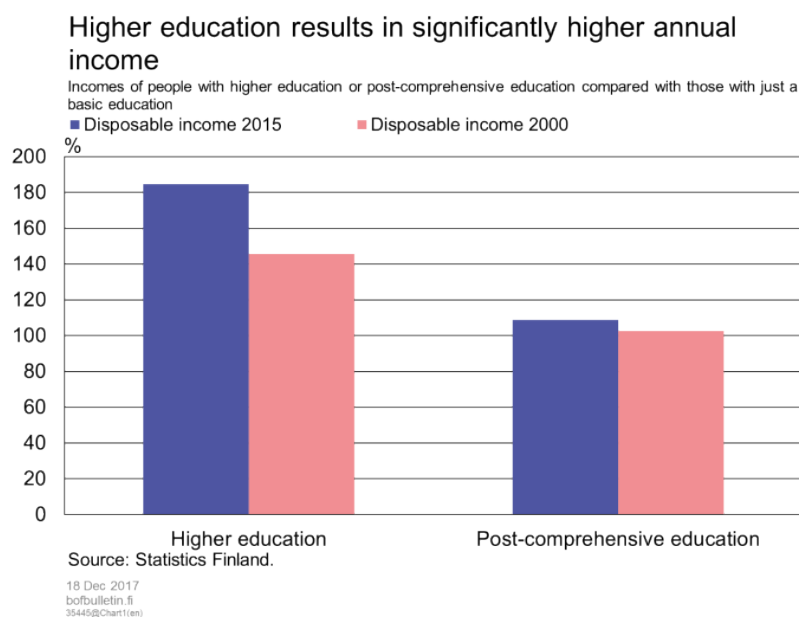
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4. Under the current education system in place in Finland, this term covers primary and lower secondary education, also referred to as the comprehensive stage.

5. The term 'higher education qualification' covers, according to the educational classifications of Statistics Finland, bachelor's and higher degrees (including those achieved at a polytechnic) and the lowest level of higher education qualifications, e.g. technician, business college and nursing qualifications.

6. The term 'post-comprehensive qualification' refers to qualifications taken after from 1 to 3 years of study after completing the basic, or comprehensive level of school. The term covers e.g. high school (upper secondary) graduation, 1–3-year vocational qualifications and vocational first degrees.

7. This is similar to what Koerselma & Uusitalo (2014) proposed in their study on the significance of education for lifetime incomes, where they also took account of the risk attendant on education. According to their results even the risk-adjusted incomes of people with a higher education are considerably higher than the incomes of those with just post-comprehensive or only basic education. In contrast, the lifetime incomes of those with post-comprehensive education differed little from those with just a basic education. The same outcome was also found by Asplund & Maliranta (2006).

Chart 1.

Higher education results in significantly higher annual income

Incomes of people with higher education or post-comprehensive education compared with those with just a basic education

■ Disposable income 2015   ■ Disposable income 2000

%

Higher education   Post-comprehensive education

Source: Statistics Finland.

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Disposable income includes not only wage and salary earnings but also income transfers that typically improve the position of those with the lowest income and in the poorest employment situation. This partly explains the fact that the annual income differences are small between those with a post-comprehensive education or just a basic education. For the same reason, comparison of disposable income may actually undervalue the benefits of higher education.

Chart 2 compares the average (gross) wages and salaries of people with basic, post-comprehensive, or higher education by gender in 1990, 2002 and 2015. The annual income of the six groups thus formed is presented relative to the income of all people of working age. The annual income of each group in relation to the income of all employees has weakened during the review period. This observation is explained by a higher proportion of people with higher education compared with all employees, which has raised the comparison level, i.e. the average income of all employees.

On the basis of wage and salary comparison, the labour income of highly educated men relative to working age people with an average income has fallen more than in other groups. In 1990, men with a higher education degree earned an average of 3.5 times as much as employees on average, but in 2015 the ratio was only about 2.5. However, the difference in income with people who have a post-comprehensive education, and especially just basic education, remains substantial.
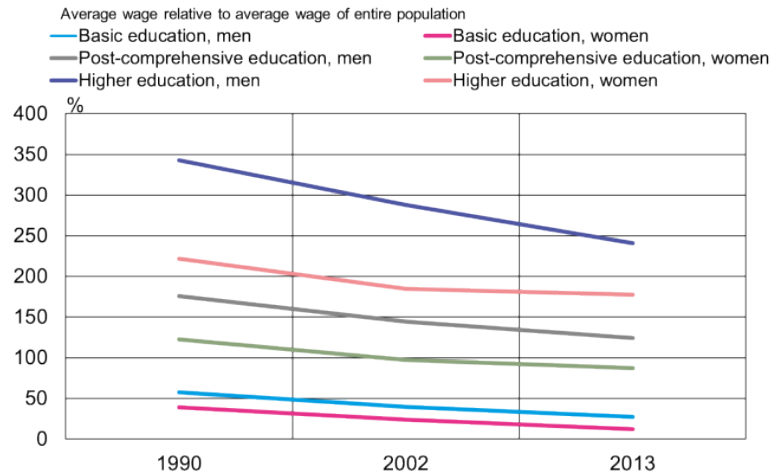
The benefits of higher education for women in terms of income development are much lower than those for men. The labour income of women with higher education has averaged around double the average income of all people of working age. The position of highly educated women in relation to highly educated men has nevertheless improved somewhat since 2000.

When comparing wages and salaries, obtaining a post-comprehensive qualification is also worthwhile, especially for men. The labour income of men who had completed a

post-comprehensive education in 2015 was 30% higher than the average pay of all people of working age. Yet the annual income of women with a post-comprehensive education fell slightly short of the average income of all people of working age, although it was nevertheless well above the income of those with just a basic education. The income of people with only a basic education is, regardless of gender, much less than half of the average income of all people of working age.[8]

Chart 2.

Those with a higher education degree have much higher annual incomes than others

Average wage relative to average wage of entire population

- Basic education, men
- Post-comprehensive education, men
- Higher education, men
- Basic education, women
- Post-comprehensive education, women
- Higher education, women

Source: Statistics Finland.

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Sources

Asplund, R. and Maliranta, M. (2006) *Koulutuksen taloudelliset vaikutukset* ('Economic effects of education'), Sitra reports no. 60.

Koerselma, K. and Uusitalo, R. (2014) 'The Risk and Return of Human Capital. Investments', Labor Economics, vol. 30, 154–163.

Tags

disposable income, employment, return on education

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8. A comparison of annual wages and salaries shows that those with only a basic education are in a much weaker position that the earnings structure statistics of Statistics Finland indicate. According to the earnings structure statistics, which measure monthly income and full-time employees, those with just a basic education earned 85% of the average income. This shows that people with a low level of education often have irregular work.

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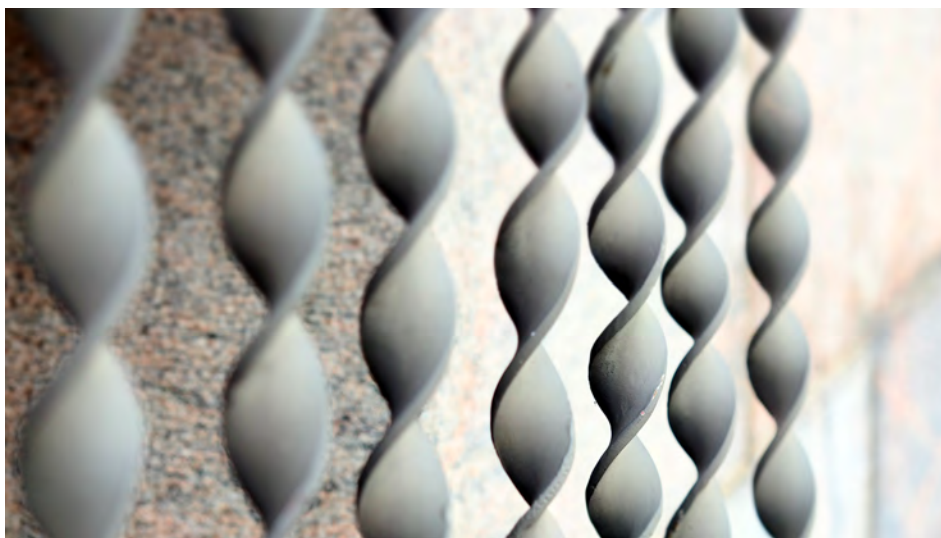# A new method to measure structural unemployment via labour market flows

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According to a new structural unemployment indicator based on labour market flows developed by the Bank of Finland, unemployment is currently close to the structural level in Finland and cannot therefore be expected to decline very rapidly in the immediate years ahead. After the financial crisis, structural unemployment grew almost without a pause until very recently, since the flow out of unemployment dried up. This reflects the fact that, during the recession following the financial crisis, people who have lost their jobs have experienced difficulties in finding a new job, possibly because new jobs may have been created in sectors and/or geographical locations other than those where they disappeared. However, with the upturn in economic growth the probability of finding a job has begun to improve, which will with time also reduce structural unemployment.

How is structural unemployment measured?

At the beginning of a cyclical upswing, unemployment usually declines for some time without growth in wage pressures, as labour is readily available. Unused labour market

resources are traditionally estimated on the basis of structural unemployment, which reflects the structures of the economy and the labour market. When unemployment is higher than structural unemployment, a reduction in unemployment brought about by economic growth will not lead to wage pressures jeopardising a balanced development of the economy.

The reduction in unemployment in Finland has been limited in recent years, despite the strengthening of economic growth. This could indicate that unemployment is already close to the structural level. On the other hand, wage growth has been relatively modest, which is consistent with the perception that there is still slack in the labour market. In this article, we introduce an indicator based on international research literature that is suitable for estimating structural unemployment and hence labour market slack. Based on the indicator, we present a quantitative estimate of structural unemployment in Finland and assess particularly developments since the global financial crisis.

Structural unemployment can be measured either purely with statistical indicators or using methods originating from economic theory. In the case of the latter, the most well-known estimate of structural unemployment is the NAIRU.[1] Equally well known is that significant uncertainty attaches to the estimation of the NAIRU and the estimates for past as well as present developments are subject to considerable revisions over time.

In this article, we present a structural unemployment indicator alternative to the NAIRU, based on labour market search theory and equilibrium unemployment. The indicator is grounded in an equilibrium unemployment theory, based on research by Nobel laureates Peter Diamond, Dale Mortensen and Christopher Pissarides, which lays emphasis on labour market frictions relating to job search and job creation.[2]Equilibrium unemployment is determined by transition probabilities, i.e. flows from employment to unemployment and vice versa, derived from worker flows. Equilibrium unemployment refers to an unemployment rate that would prevail if transition probabilities were observable but the unemployment rate remained unchanged at a given time. In accordance with research by Tasci (2012), we estimate trends from transition probabilities. The transition probability trends determine the trend of equilibrium unemployment, which can be referred to as structural unemployment.

The structural factors affecting equilibrium unemployment are not constant over time, and therefore the level of equilibrium unemployment also varies. According to the theory, equilibrium unemployment rises if, for example, the job destruction rate grows, pay demands (the reservation wage) edge higher or minimum wages rise. Long-term or permanent changes in worker flows cause variation in structural unemployment, too. Flows into unemployment, i.e. the job destruction rate, can permanently rise if, for example, employment protection against dismissal is diluted. Flows out of unemployment can diminish if, for example, unemployment benefits and reservation wages increase. The probability of finding work can also weaken if a protracted recession leads to an erosion of skills or weaker job-seeking activity by the unemployed, i.e. via so-called hysteresis.

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1. Non-accelerating inflation rate of unemployment.

2. For equilibrium unemployment theory, see e.g. Pissarides (2000) Equilibrium Unemployment Theory. MIT Press.

The trend of equilibrium unemployment is structural unemployment, just like the NAIRU, but their definitions differ slightly. The NAIRU is generally a useful indicator in determining the stance of monetary policy because it is directly linked with the relation between macroeconomic activity and price developments. For the purposes of labour market analysis, however, equilibrium unemployment provides a more robust approach. Unlike in the case of the NAIRU, the equilibrium unemployment trend is not affected by short-term changes in wages and prices, nor by inflation expectations. Instead, equilibrium unemployment reflects the genuine structural factors underlying structural unemployment, such as the economic environment, labour market institutions, demographic changes and technological advances.

Flows into and out of unemployment determine the level of unemployment

The fundamental concepts associated with our structural unemployment indicator are those used in labour market search theory, namely the job-finding rate and the job destruction rate.[3] Worker flows between unemployment and employment can be large and fluctuating even when unemployment remains unchanged. Basically, unemployment may grow either because the flow into employment decreases and the flow into unemployment does not decrease correspondingly, or because the flow into unemployment increases without a corresponding increase in the flow into employment.

The job-finding and job destruction probabilities can be measured on the basis of monthly unemployment statistics using a method developed by Shimer (2012). The job-finding probability measures flows out of unemployment, while the job destruction probability measures flows into unemployment; hence changes in unemployment can be measured as the difference between these flows. The measurement of labour market flows has featured in recent years' economics literature, especially in connection with cyclical fluctuations in unemployment, when the focus has been on analysing which of the two flow types drives changes in unemployment. According to the older research literature, the most important factor explaining structural unemployment is the fact that during cyclical downturns the job destruction rate rises, i.e. the flow into unemployment increases.[4] The more recent view is that the job destruction rate has been relatively stable over time but that the job-finding probability declines strongly in a cyclical downturn, i.e. the flow out of unemployment moderates.[5]

Measured labour market flows can be used in estimating the structural component of unemployment. In this article, we apply the method of Tasci (2012), in which the structural component of unemployment is calculated by using labour market flows and

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3. In this article, we use the common terms for labour market flows from the research literature even though, strictly speaking, the 'job finding probability' is here 'flow out of unemployment' and the 'job destruction rate' is 'flow into unemployment'. Namely, our labour market flow calculations do not take into account flows out of the labour market (inactivity) or flows from inactivity into unemployment or directly to employment. We intend to discuss these flows in further research. In addition, in this article we do not differentiate between the job destruction rate and the job separation rate (people quitting), even though in reality a job may not be destroyed when an employee quits the job.

4. E.g. Darby, M. et al. (1986).

5. E.g. Hall, R. (2005).

an unobserved components model. The model includes three equations for changes in real GDP, job finding probability and job destruction probability. Each variable is simultaneously decomposed in the model into an unobserved component (i.e. trend) and a cyclical component. The model produces trends in labour market flows that can be used to calculate structural unemployment.

How are labour market flows measured?

At the heart of the measurement of labour market flows is an equation in which a change in unemployment is determined by labour market flows.

On the basis of the job destruction probability *(St)* and the job creation probability *(Ft)*

$$\frac{du_t}{dt} = S_t l_t - F_t u_t$$

A change in unemployment at a given time equals the difference between the number of workers who have lost their job *(lt)* and the number of unemployed persons who have found a job *(ut)*.

The job finding probability F_t is calculated using the following equation:

$$F_t = -\log\left(\frac{u_{t+1} - u^s_{t+1}}{u_t}\right)$$

where u^s_{t+1} is short-term unemployment (in monthly data less than 4 weeks and in quarterly data less than 12 weeks).

The job destruction rate can in turn be derived from the following equation:

$$u_{t+1} = \frac{(1 - e^{-F_t - S_t})S_t}{F_t + S_t}(l_t + u_t) + e^{-F_t - S_t}u_t$$

The labour market flows are calculated on the basis of data on unemployed job-seekers from the Employment Services Statistics of the Ministry of Economic Affairs and Employment. The data extends from the first quarter of 1981 to the second quarter of

2017. It is essential that the data be broken down according to the duration of unemployment, since flows into unemployment can be calculated in the selected calculation method on the basis of short-term unemployment and total unemployment. In the baseline calculation, we produce quarterly time series from the data because the unobserved components model also uses data on real GDP published on a quarterly basis. Short-term unemployment is defined in the calculation as an unemployment spell of less than 12 weeks.[6]

The calculation could also be based on the unemployment statistics of Statistics Finland's Labour Force Survey, from which the official unemployment rate is calculated. However, we use the register data of the Ministry of Economic Affairs and Employment, as this data is available for a longer period and can also be regarded to better reflect the genuine duration of unemployment. The reason is that, strictly speaking, Statistics Finland's Labour Force Survey measures the duration of job-seeking and not necessarily the duration of unemployment. This is because the Labour Force Survey categorises only those persons as unemployed who have reported as having actively sought employment during the past four weeks.
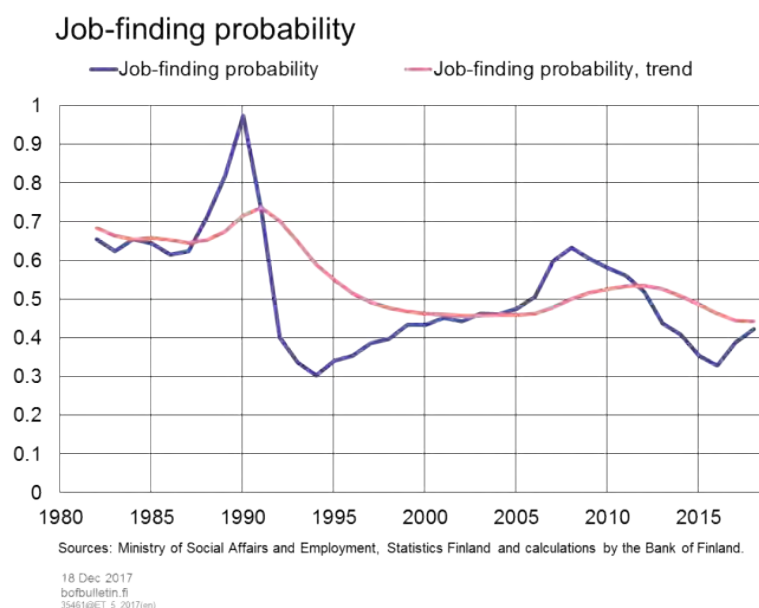
How has job-finding probability varied?

The flow out of unemployment was relatively strong in Finland in the 1980s (Chart 1, blue line). Job-finding probability was high and peaked during the period of overheating preceding the recession of the 1990s.

During the recession, in turn, job-finding probability dropped to the lowest level throughout the review period, until it began to grow steadily immediately after the recession. Prior to the global financial crisis, the flow out of unemployment temporarily picked up again, but turned onto a downward trend during the subsequent recession. The downward trend continued almost to the present day.

6. The labour market flows calculated from the monthly data of the Ministry of Economic Affairs and Employment are similar to the flows calculated from the quarterly data. Equally, the results for structural unemployment are similar to results based on the quarterly data if the unobserved components model uses labour market flows calculated from monthly data and data on the monthly trend indicator of real output.

Chart 1.

Job-finding probability

Sources: Ministry of Social Affairs and Employment, Statistics Finland and calculations by the Bank of Finland.

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The trend of job-finding probability has naturally been slightly more stable than the actual developments (Chart 1, red line).

The probability of finding a job has since the 1990s recession remained permanently lower than before the recession. In the late-1990s, the flow out of unemployment started to strengthen, until it turned downwards during the protracted recession that followed the financial crisis. Since 2012, the flow out of unemployment has decreased uninterruptedly, to the lowest level in the period under review, and turned onto an upward trend only recently.

The decline in the job finding probability since the financial crisis reflects the worsening of structural problems in the labour market. The duration of unemployment has become longer and as a result, a person's activity of seeking employment may have decreased and the skills required in employment may have eroded. Due to structural changes in the economy, new jobs are created partly in different sectors than in which they were lost, and this too decreases the job-finding probability. At the same time, incentives to work have even weakened.[7]

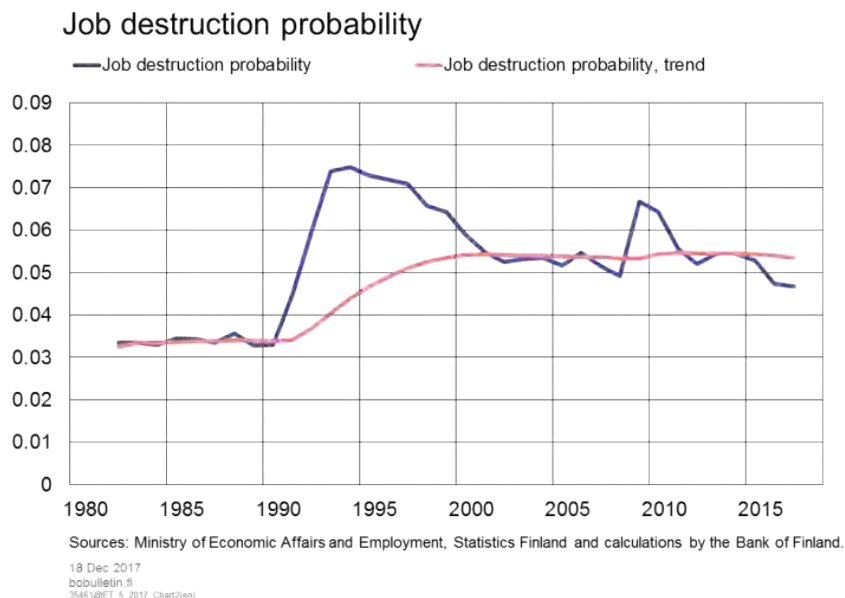## What is the probability of job destruction?

The flow into unemployment was in Finland very small in the 1980s, but in the 1990s recession, it more than doubled, contributing to the emergence of mass unemployment (Chart 2, blue line).

Following the 1990s recession, the flow into unemployment slowed in Finland at a quite steady pace until the onset of the financial crisis, and in 2009 it strengthened very sharply. Thereafter, the flow into unemployment has slowed again, notwithstanding the

7. Kotamäki, M. (2016).

small increase in 2014 and 2015, in the second phase of the double-dip recession that followed the financial crisis. The flow into unemployment has weakened recently and is now even slower than before the financial crisis.

Chart 2.

Job destruction probability

— Job destruction probability   — Job destruction probability, trend

Sources: Ministry of Economic Affairs and Employment, Statistics Finland and calculations by the Bank of Finland.

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In structural terms, too, the job destruction rate jumped to a new level during the 1990s recession and has remained virtually unchanged since (Chart 2, red line).

How has structural unemployment varied in different decades?

The trend of equilibrium unemployment, which can be interpreted as structural unemployment, is calculated based on trend changes in worker flows.[8] Structural unemployment in Finland remained stable and low in the 1980s (Chart 3, red line), because the underlying labour market flows were also very stable. The probability of job destruction was low and the probability of finding a job was high. Reflecting the small flow into unemployment and the high probability of finding a job, the structural unemployment rate was very low, approximately 5% throughout the decade.[9]

8. Equilibrium unemployment is calculated using the equation
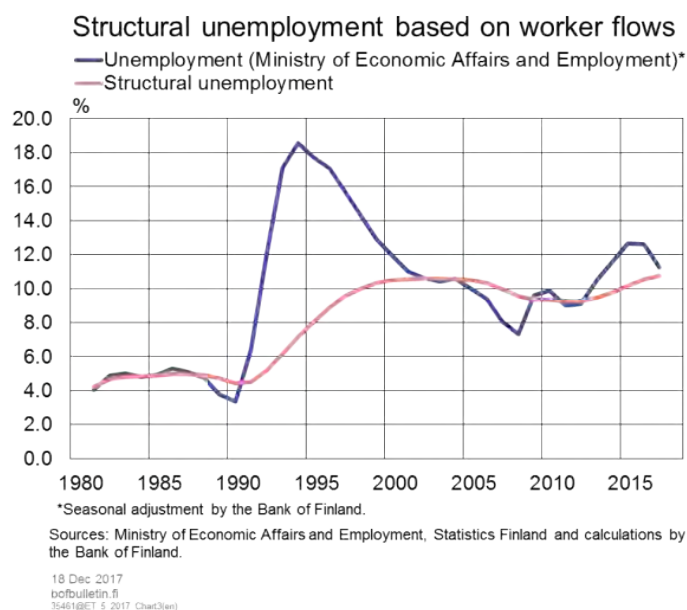
$$u_t^* = \frac{s_t}{s_t + f_t}.$$

Structural unemployment can in

$$\bar{u}_t^* = \frac{\bar{s}_t}{\bar{s}_t + \bar{f}_t}.$$

turn be derived based on the trends of transition probabilities.

9. The unemployment rate in Chart 3 is the ratio of unemployed jobseekers (data from Ministry of Economic Affairs and Employment) and the labour force, which consists of Ministry of Economic Affairs and Employment data on the number of unemployed and Statistics Finland data on number of employed.

Chart 3.

Structural unemployment based on worker flows

— Unemployment (Ministry of Economic Affairs and Employment)*
— Structural unemployment

%

*Seasonal adjustment by the Bank of Finland.

Sources: Ministry of Economic Affairs and Employment, Statistics Finland and calculations by the Bank of Finland.

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As a result of the 1990s recession in Finland, structural unemployment reached a new high of approximately 10%, where it has since remained, with the exception of some small changes. During the recession, the flow into unemployment increased and the flow out of unemployment decreased, and therefore both these factors contributed to the growth in structural unemployment.

Structural unemployment started to decline slowly only after the turn of the millennium, reflecting improvements in job-finding probability in structural terms and a decrease in the probability of job destruction. Both flows contributed to the slight decline in structural unemployment until the onset of the financial crisis. Structural unemployment nevertheless remained significantly higher than in the period preceding the 1990s recession.

Following the financial crisis, structural unemployment in Finland initially remained unchanged, after which it started to grow at a rather slow pace. As the rise in unemployment remained significantly smaller than in the period following the 1990s recession, the trend of job destruction probability rose only very little, leading to a slight increase in structural unemployment. In contrast, flows out of unemployment continued to increase and dampened growth in structural unemployment. In fact, the trend of job-finding probability turned downwards only in 2012.

Flows out of unemployment have slowed through until the most recent observations, thereby increasing structural unemployment. Job-finding probability is now at its lowest in the entire review period. At the same time, the job destruction rate has decreased only slightly and, as a result, the downward impact on structural unemployment has remained smaller than the upward impact caused by the decline in job-finding probability.

Structural unemployment has continued to grow through until the most recent observations, and, according to the structural unemployment indicator presented in this article, unemployment is close to its structural level.

The fact that the unemployment rate is already close to the rate of structural unemployment does not, however, mean that virtually none of the job-seekers currently unemployed could find a job. On the contrary, flows in and out of unemployment are large, and only some of the unemployed remain unemployed for a long period of time. In October 2017, of the slightly less than 300,000 unemployed jobseekers, over 90,000 had been unemployed for more than a year, and slightly less than 30,000 for more than 3 years. The number of persons who have been unemployed for more than a year does, however, still account for nearly 35% of all the unemployed. In 2016, the proportion of long-term unemployed reached a level that was significantly higher than after the 1990s, and it has decreased only a little since.

How else can we assess structural unemployment?

The Bank of Finland's new indicator of structural unemployment provides a similar picture assessed based on both the Labour Force Survey of Statistics Finland and data from the Ministry of Economic Affairs and Employment (Chart 4). Structural unemployment derived from worker flows is close to the current seasonally adjusted official unemployment rate.
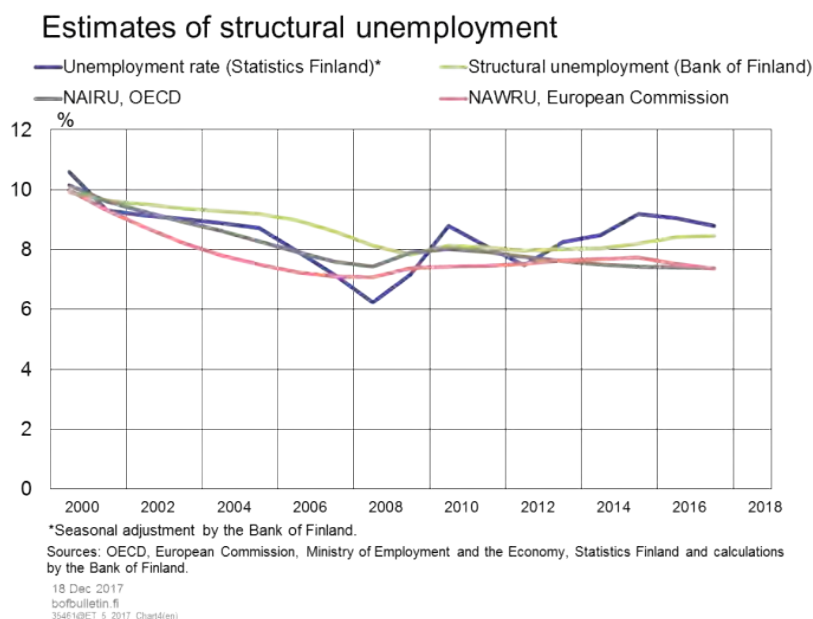
Structural unemployment according to the European Commission's production function methodology for calculating potential output, i.e. the NAWRU,[10] has throughout the 2000s been significantly lower than the indicator of structural unemployment based on labour market flows. The Commission's indicator, too, points to an increase in structural unemployment in the period following the financial crisis, even though according to this indicator structural unemployment declined already in 2016 and continued on a downward trend in 2017, reaching 7.3%.

According to the OECD's NAIRU estimate, structural unemployment in Finland has been declining already since 2010, despite the protracted recession and rise in unemployment. In 2010–2016, the number of long-term unemployed doubled, which is difficult to square with the idea that structural unemployment declined in the period in question. According to the OECD estimate, the structural unemployment rate is at present approximately 7.4% and the labour force reserve larger than based on the worker flow estimate; therefore unemployment could decline more rapidly if the economy continues to grow.

In the past 25 years, unemployment was below the OECD's current NAIRU estimate only in 2007–2008. The low level of the NAIRU estimate in recent years may also be due to subdued developments in actual wages and prices. In the present exceptional economic situation, it may, however, not necessarily reflect structural unemployment. Secondly, the European Commission and OECD estimates for present structural unemployment are also affected by forecasts for developments in the years ahead. Continuation of the cyclical upswing in the next few years and a decline in unemployment will also lower the estimate of present structural unemployment. In the new indicator of structural unemployment presented in this article, the results are not affected by the forecast.

10. Non-accelerating wage rate of unemployment.

Chart 4.

Estimates of structural unemployment

— Unemployment rate (Statistics Finland)* — Structural unemployment (Bank of Finland)
— NAIRU, OECD — NAWRU, European Commission

*Seasonal adjustment by the Bank of Finland.
Sources: OECD, European Commission, Ministry of Employment and the Economy, Statistics Finland and calculations by the Bank of Finland.
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What is the impact of the business cycle?

According to the new structural unemployment indicator developed by the Bank of Finland, unemployment in Finland is currently already close to the structural level, despite having declined only slightly.

According to a strictly theoretical interpretation of structural unemployment, this would mean that a continuation of the cyclical upswing alone would be insufficient to significantly reduce unemployment without an increase in wage pressures.

The job destruction probability has been decreasing for a number of years already, and it is therefore unlikely that the flow to unemployment would continue to slow significantly and hence reduce unemployment. In contrast, the probability of finding a job is still small and the flow out of unemployment is at its weakest since the recession of the 1990s, despite signs of an upturn. A reduction in unemployment to the pre-financial-crisis level would also require a rise in the job-finding probability to the pre-financial-crisis level. Unemployment is, however, still far from that level.

There is variation in both structural unemployment according to the new structural unemployment indicator based on labour market flows and the estimates of structural unemployment based on the NAIRU method, reflecting changes in labour market structures and to some extent also actual cyclical fluctuations in unemployment. The impact of cyclical changes in unemployment on structural unemployment is called hysteresis. The impact of actual cyclical fluctuations on the quantitative estimate of structural unemployment depends ultimately on the cyclical adjustment by statistical methods applied in the various models of the actual labour market flows or fluctuations in unemployment.

The use of each model is preceded with a selection process involving the model's structure and parameters, and therefore there is a fine line between cyclical unemployment and structural unemployment. There is no unambiguous way of assessing at precisely which stage cyclical unemployment develops into structural unemployment, or to distinguish between the effects of hysteresis and structural factors.

According to the structural unemployment indicator presented in this article, structural unemployment in Finland is currently high and very close to the observed rate of unemployment. In future, unemployment can decline either as a result of a prolonged period of robust economic growth or new structural measures. Measures that boost the supply of labour and improve the professional and regional compatibility of jobs and workers could promote the strengthening of employment in the current economic upswing.

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Tags

employment, labour market flows, structural unemployment, unemployment, labour

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The influence of age, gender and education on labour supply in Finland

TODAY 1:00 PM • BANK OF FINLAND BULLETIN 5/2017 • ECONOMIC OUTLOOK

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Bolstering the supply of labour has long been one of the most important objectives of economic policy in Finland. The impact of policy measures is typically greatest in those population groups who have available alternatives to paid work. Incentives and labour market structures are significant, particularly in influencing the decisions of the young in general, women of childbearing age and older workers and for furthering their chances of joining the labour market. When planning policy measures, we must be able to discern the extent to which observed employment developments are due to structural factors or to cyclical factors. Although the improved economic situation at present is attracting young people back to the labour market, improvements to the employment situation will require economic policy measures. In such measures, education is particularly important.

The motive of ensuring a sufficient supply of labour has long been the key factor shaping Finland's economic policy. Labour supply among older cohorts has been supported through incentives built into the pension system and the pension reform that has only recently come into force. Reforms aimed at a more even distribution of the costs of parental leave and parenthood in general are, for their part, designed to increase

employment among women of childbearing age. In respect of the young, the focus has been on supporting education and directing social services to those in danger of exclusion.

The population groups targeted by these measures are those who have plausible reasons to be outside the labour market. The young, women of childbearing age and older workers are either compelled or choose more readily to leave the labour market in order to study, care for their children, retire or just take time out.

In this article we examine the factors that influence labour supply. We draw on data from research into incomes and living conditions to examine what background factors influence the probability of an individual transitioning from one labour market status to another. Under the spotlight are shifts between employment and unemployment as well as between being on the labour market and being outside it. In addition, we estimate the development of labour market potential by using cohort analysis to look at how those born in different years respond to the economic cycle. After all, from the perspective of policy measures aimed at structural reform, it is important to know to what extent observed trends in employment are structural or cyclical in nature.
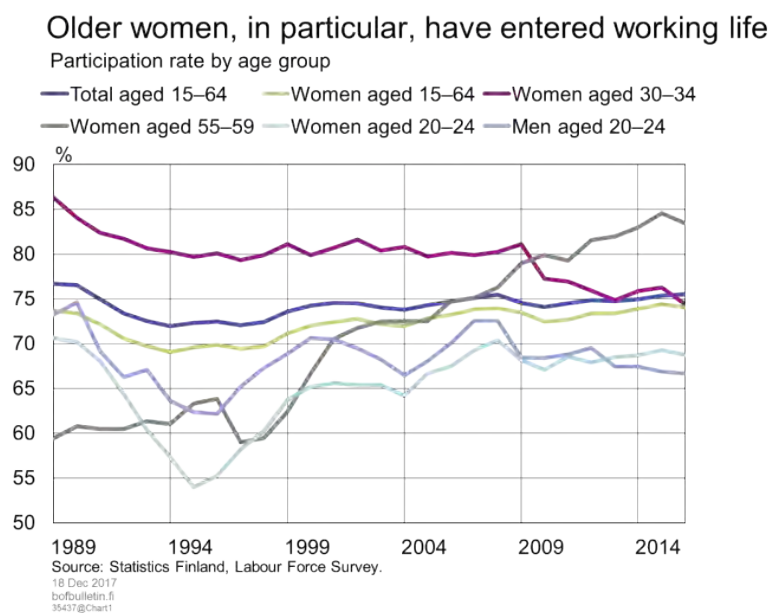
Development of labour supply by population group

Developments in the size of the labour force by gender and age group over the past 30 years reveal the long-term development of the labour market. The difference in participation rates between women of all age groups (15–64) and men has narrowed (Chart 1). In particular, for women close to 60, the trend participation rate has risen. While at the end of the 1990s the participation rate among women aged 55–64 was around 60%, by 2016 it was already 84%. The participation rate amongst men has also risen, but not so strongly.

A long-term evaluation of labour force shares can also tell us how the different groups respond to the economic cycle. The recession of the 1990s was reflected particularly in a reduction in the labour force participation rate of both men and women in their twenties.

Since 2008, the participation rate of women aged over 30 has particularly declined.[1] Young men also account for a much smaller share of the labour force than in 2008. In contrast, the participation rate of young women aged just over 20 remained more or less unchanged even during the recession.
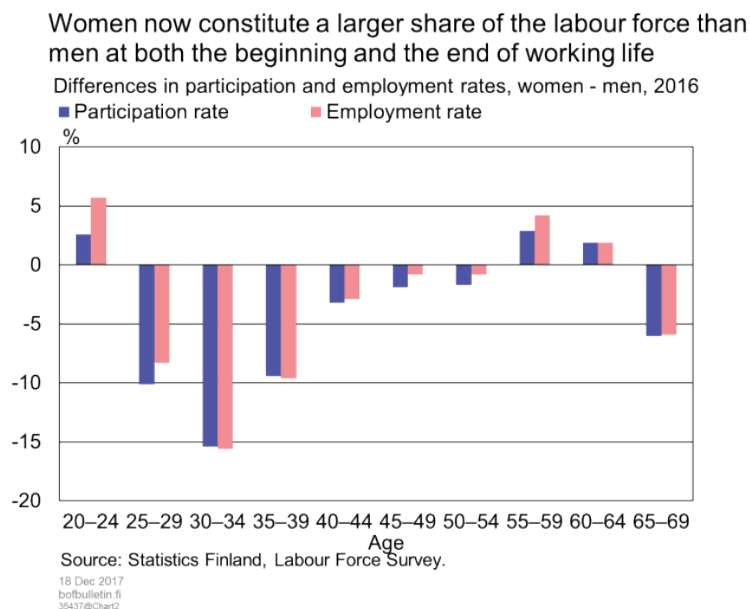
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1. The rapid decline is partly due merely to a change in statistical practices, according to which those on parental allowance or home childcare allowance are no longer entered in the statistics as belonging to the labour force, as they used to be. Since 2008 only those on family leave of a maximum of 3 months and who have a job to return to are recorded as employed.

Chart 1.

Older women, in particular, have entered working life

Participation rate by age group

— Total aged 15–64 — Women aged 15–64 — Women aged 30–34
— Women aged 55–59 — Women aged 20–24 — Men aged 20–24

Source: Statistics Finland, Labour Force Survey.
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The gender-related trends in labour force share and the different responses of the different population groups to the weak condition of the economy have produced a situation in which within the age groups 20–24 and 55–64 a larger proportion of women than men are now participating on the labour market (Chart 2). Differences in participation and employment rates in favour of men are at their largest in the age group 30–34, when many women are having children.

Chart 2.

Women now constitute a larger share of the labour force than men at both the beginning and the end of working life

Differences in participation and employment rates, women - men, 2016
■ Participation rate   ■ Employment rate

Age

Source: Statistics Finland, Labour Force Survey.
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Education supports both male and female employment. This is clearly visible if we examine how the employment rate for both men and women varies at different ages according to educational background (Chart 3). The employment rate among women

with only basic education[2] is as much as 30 percentage points lower than for those with a post-comprehensive education.[3] As women's educational level rises, their employment rate also rises and the difference relative to men is also eroded. Data based on employment statistics from 2015 show that the employment rate for women with only basic education is at around the age of 45 much lower than for similarly educated men. Thereafter the difference in employment rates almost disappears. As their level of education rises, employment differences decline strongly also for women of childbearing age. For women with higher education[4] the difference is only marginal. It is interesting that after around 50 years of age the proportion of women in employment is actually higher than for men, irrespective of educational level.

Chart 3.

Employment much weaker among women with just basic education than among similarly educated men

Male and female employment according to age and education
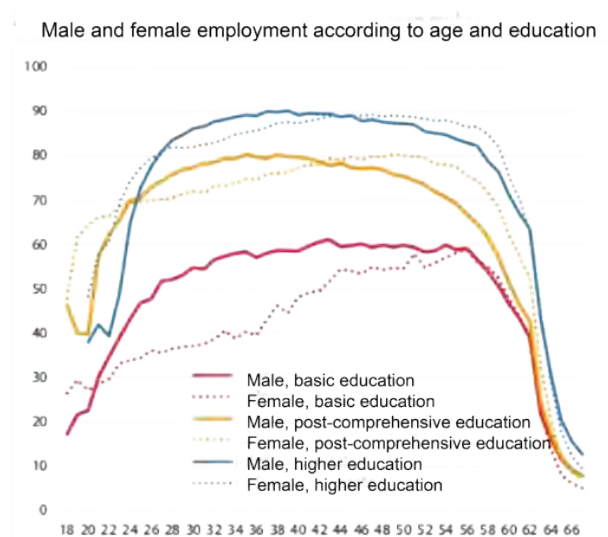
Source: Pekka Myrskylä, Katoavat työpaikat, Työllisten määrän ja rakenteen kehitys Suomessa 1987–2017 ('Disappearing jobs, Trends in the number of employed and structure of employment in Finland 1987–2017'), SAK 3/2017.

Background factors influencing employment

Age, gender and education all affect a person's opportunities and willingness to enter and leave the labour market. In addition to personal qualities, institutional factors such as the

2. Under the current education system in place in Finland, this term covers primary and lower secondary education, also referred to as the comprehensive stage.

3. The term 'post-comprehensive' refers to qualifications taken after from 1 to 3 years of study after completing the basic, or comprehensive level of school. The term covers e.g. high school (upper secondary) graduation, 1–3-year vocational qualifications and vocational first degrees.

4. The term 'higher education' covers, according to the educational classifications of Statistics Finland, bachelor's and higher degrees (including those achieved at a polytechnic) and the lowest level of higher education qualifications, e.g. technician, business college and nursing qualifications.

flexibility of the labour market and employment incentives also affect people's decisions over whether to be on the labour market or outside it. Institutional factors also influence opportunities to find employment or the risk of becoming unemployed. Many institutional labour market factors, for example incentives to work, can be influenced by economic policy measures.

Chart 4 illustrates the probability that someone in employment, unemployed or otherwise outside employment will be in employment one year ahead. The household data in Statistics Finland's 'Survey on income and living conditions' allows comparison of the same person's labour market status in the December of succeeding years. The status of someone who has entered the labour market is fairly stable insofar as approximately 90% of those in employment in any given year are still in employment one year later. Unemployment is also fairly permanent, or at least repeated, as only around one fifth of those unemployed are in work one year later. Of those outside the labour market altogether, only around one in ten is employed a year later.

Chart 4.

The proportion employed one year on relative to their labour market status the previous year
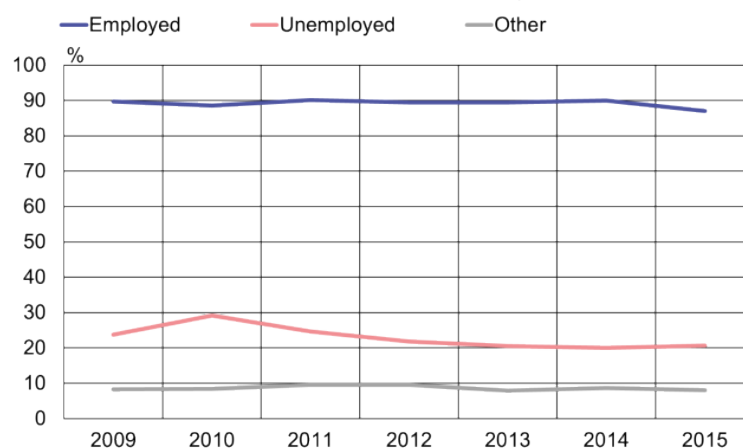
Sources: Statistics Finland's 'Survey on income and living conditions' and calculations by the Bank of Finland.

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The factors lying behind changes in labour market status can be examined more closely using logit models.[5] Our first model examines the probability of transferring between employment and unemployment, while the second examines the transition between labour market participation and exiting the labour market. The dependent variable is the subject's labour market status in December of the year under examination, and this is compared with their labour market status in December of the following year. As the time gap between the periods being compared is one year, at least some of those still unemployed will have been so without a break, and they are therefore classified as long-term unemployed. In this respect, the model also points up people's transition from simple unemployment to long-term unemployment.

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5. As an example of this type of analysis, see e.g. BYRNE, Stephen; O'BRIEN, Martin D., 'Understanding Irish Labour Force Participation', The Economic and Social Review, [S.l.], v. 48, n. 1, Spring, p. 27–60, March 2017.

The dependent variable indicates the probability of a transition from one labour market status to another between the two comparison years. It receives the value 0 when the labour market status is unchanged, and the value 1 when it changes. A number of independent background variables generally assumed to influence labour market status and changes therein have been selected as explanatory variables in the model.

As material for the study we have selected household data from Statistics Finland's annual 'Survey on income and living conditions' for the years 2006–2015. The research sample changes in part from year to year, but some of the individuals surveyed can be followed for two successive years, as approximately half the households covered by the annual sampling were also present in the previous year's sample. From the successive two-year observation periods we gathered material that contained a total of 77400 observations. The survey, which also contains information on the subjects' labour market status, is based on register data.

One value of each explanatory variable has been selected as a benchmark (given the value 0 in the model), to which the transition probability for the other values of the explanatory variable (given the value 1 in the model) is compared. The explanatory variables are:

- Age groups 16–34 and over 55; benchmark, those of prime working age (35–54 years)
- Gender
- Level of education (post-comprehensive, higher);
- point of comparison those with only basic education
- Marital status
- Does the subject have children aged under three or seven?
- Place of residence by region; benchmark, Helsinki–Uusimaa
- Type of housing (owner-occupied or rental)
- While unemployed, has the subject received earnings-related unemployment benefit
- Low pay (disposable income <60% of median income)
- An indicator of material deprivation

The results indicate the effect each variable has on the probability of a shift from one labour market status to another when the values of the other explanatory variables remain unchanged (average marginal effect). We have separately estimated models to explain the probability of transition from employment to unemployment and from unemployment to employment.

The probability of transition from unemployment to employment is best explained by an individual's age and educational level (Table 1). The probability an unemployed person aged over 55 will make the transition to employment is 15 percentage points lower than for someone of prime working age. On the other hand education, particularly higher education, improves an unemployed person's employment prospects. A person with higher education has a 16 percentage point higher probability of finding employment than someone with just a basic education.

The gender differences are minimal, but women's probability of finding employment is on average around 1 percentage point lower than for men.

Table 1.

Probability of transition between employment and unemployment

	From unemployment to employment	From employment to unemployment
16–35-year-olds	0.02	0.07***
over-55s	−0.15***	0
Women	−0.01***	0.03
Post-comprehensive education	0.10***	−0.01**
Higher education	0.16***	−0.02***
Married	-0.01	-0.01***
Children under 3 years	0.05	0.01***
Children under 7 years	0.04	0.01*
Employed in public sector	−0.01	0
Southern Finland	0	0
Western Finland	0.02	0
Northern and eastern Finland	0.02	0.01**
Åland	0.32	−0.02***
In rental accommodation	−0.04	0.00

Probability of transition between employment and unemployment

In receipt of housing allowance	−0.04	0.02**
* = Statistically significant at 10% significance level.		
** = Statistically significant at 5% significance level.		
*** = Statistically significant at 1% significance level.		

Sources: Statistics Finland and calculations by the Bank of Finland.

A previous study[6] showed that employment incentive traps can explain unemployed people's probability of re-employment. The observed incentive traps relate particularly to housing allowance. The results we present here also give tentative support to the assumption of a connection between housing allowance and employment, as the probability of finding employment is 12 percentage points lower among those who received housing allowance in the previous year.[7] The model is less useful in explaining the probability of becoming unemployed, as the variables' impact on the risk of unemployment is generally 1–2 percentage points. The results nevertheless lend force to the idea of the connection between age and educational level and a person's labour market status. The risk for under-35s to become unemployed is 7 percentage points higher than for those of prime working age. Education, for its part, reduces the risk of unemployment. The unemployment risk among those with higher education is around 2 percentage points less than for people with only basic education, while post-comprehensive education reduces the risk of unemployment by around 1 percentage point.

Of the other background factors, the probability of becoming unemployed is explained by e.g. family relations. For married people, the probability of becoming unemployed is 1 percentage point lower than for unmarried people. On the other hand, for parents (particularly with children aged under three) it is higher by the same amount.

Table 2.

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6. An investigation into incentive traps and geographical mobility in Finland conducted under the leadership of the Ministry of Finance (Ministry of Finance, 2017) highlights the weak employment incentives for families with children and people with a lower level of education. In addition, the participation tax rate, used to evaluate incentives, is higher for people in receipt of earnings-related unemployment benefit.
7. According to the working group set up to investigate incentive traps, the benefit from accepting a job offer is lowest for families with children living in rental accommodation, and particularly for single parents.

Probability of transition into and out of the labour force

	In	Out
16–35-year-olds	−0.10***	0.07***
over-55s	−0.15***	0.01***
Women	−0.08***	0.04***
Post-comprehensive education	0.03	−0.01**
Higher education	0.09**	−0.02***
Married	0.0228	0.005
Children under 3 years	−0.03	0.02***
Children under 7 years	−0.01	0
Employed in public sector	0.04**	0.00*
Southern Finland	0.04**	0.003
Western Finland	0.02**	0.002
Northern and eastern Finland	0.03**	0.01**
Åland	0.153	0
In rental accommodation	−0.04	0
In receipt of housing allowance	−0.04	0.01**

* = Statistically significant at 10% significance level.

** = Statistically significant at 5% significance level.

*** = Statistically significant at 1% significance level.

Sources: Statistics Finland and calculations by the Bank of Finland.

The on-average weaker employment situation in northern and eastern Finland relative to the rest of the country is reflected in our results, as the unemployment risk of people living in this region is 1 percentage point higher than for those in the Greater Helsinki area.

Our results give further support to assumptions of a connection between incentives to work and unemployment. The statistical risk of unemployment among those in receipt of housing allowance is 4 percentage points higher than for other people.

We separately examined streams into and out of the labour force (Table 2). Included in the category 'in the labour force' were all those who in December of each year were either employed, unemployed or self-employed entrepreneurs. 'Outside the labour force' were students, conscripts performing their military service, people on disability pension and those caring for their home full-time or looking after infirm relatives. Retired pensioners were excluded from the examination, as only a very small proportion of retired people return to the labour market.

In addition to employment and unemployment, age and education also explain movement into and out of the labour force. People of prime working age are much more firmly rooted in the labour market than other age groups. The probability of leaving the labour market is greater among both older and younger age groups. Similarly, the probability of re-entry is lower than for those of prime working age.

The probability of those with a higher education degree entering the labour market is 9 percentage points higher than for those with just basic education. This outcome does, however, probably overestimate the general impact of education on labour market entrance, as our material includes students who graduated the preceding year and went on directly into working life. Acquiring an education does also to some extent reduce the probability of becoming unemployed. The effects of education in this regard are, however, less significant.

Women's probability of finding themselves outside the labour force is approximately 4 percentage points higher than men's, and the probability of a return to the labour force as much as 8 percentage points lower. This outcome could reflect the greater willingness and opportunities for women of all ages to transfer from working life to the home, for example to care for their children. However, the impact on labour market status of being a parent of children under school age has been taken into account with the help of several background variables. Of these variables, having children aged under 3 years of age increases slightly the risk of leaving the labour market.

Age groups and labour supply

Long-term changes in the population's educational level and age structure are key to the future development of labour supply. Young people's educational level was rising through to the end of the 1970s, which boosted the average educational level of the entire working-age population. The population's average educational level is, however, estimated to begin to fall in the near future,[8] which in turn threatens to reduce labour

supply over the long term. On the other hand, the significance to the size of the labour force of an unfavourable age structure[9] is compensated by increased labour supply among older cohorts. A very important question for the future development of labour supply is whether the participation rate of older people can rise further still. Of particular interest is also the significance of the economic cycle for developments in labour supply among different age groups. For example, could the participation rate among young men and women of childbearing age rise during a cyclical upswing?

We next examine these questions through a cohort analysis, i.e. an examination of the labour-market status of people born in different years. The analysis was performed separately for men and women. Our year-of-birth (or cohort) model is an updated version of a model that was estimated for the first time in 2013.[10]

Possible explanatory variables for the different levels of participation between different cohorts include differences in lifetime living standards, health, educational opportunities and structural and cyclical factors in the economy. Higher-educated younger cohorts who have also benefited from better health care have in Finland typically participated more actively on the labour market than older cohorts. This trend has also been influenced by the progressively lighter nature of work nowadays as the amount of physically heavy work has steadily declined.

Chart 5 depicts some example cohorts, of which the oldest was born in 1944 and the youngest in 1994. With our material being from the years 1989–2016, the 1944 cohort is in working life during this period from 45 years of age. Similarly, we have data on the 1994 cohort only for ages 15–22. The trends in participation rates for individual cohorts show how differently those born in different years have participated in working life at the same age. For example, we can see that women born in 1974, who were on average slightly over 20 during the 1990s recession, were much less on the labour market than those born in 1984, for example. At the other end of the age spread, we can observe the different statuses of the 1944 and 1954 cohorts towards the end of their working lives.

8. On the question of educational level see Aleksi Kalenius (2014) *Suomalaisten koulutusrakenteen kehitys 1970–2030* ('Structural development of Finnish education, 1970–2030'). Ministry of Education and Culture, 2014.
9. Kinnunen, H. and Orjasniemi, S. (2013) *'Työvoiman tarjonta - tilastoluvut ja väestörakenteen muutos'* ('Labour supply – the statistics and structural demographic change'), in the journal *Kansantaloudellinen aikakauskirja* 2013/2, p. 226–233.
10. Kinnunen, H. and Mäki-Fränti, P. 'Labour supply and population cohorts: impact of the business cycle on labour market attachment' Bank of Finland Bulletin 2013/3: Economic outlook, p. 61–69. Bank of Finland 2013.
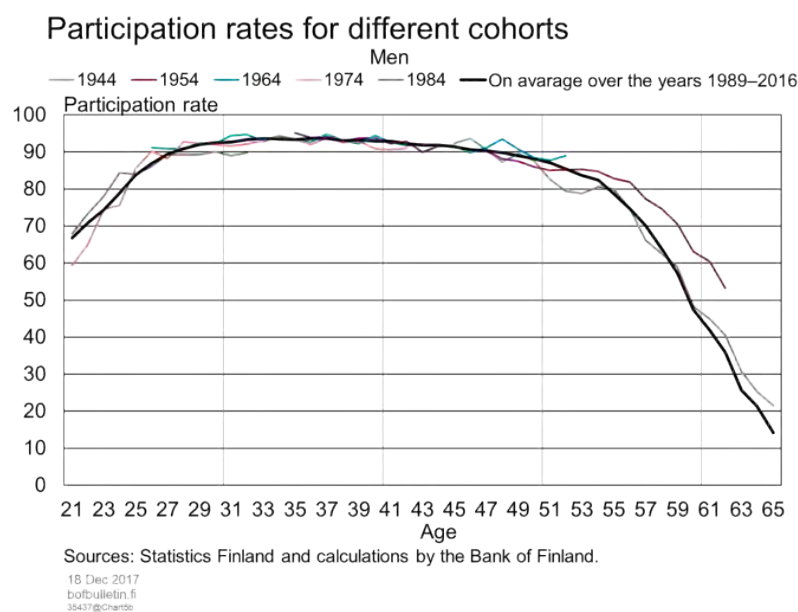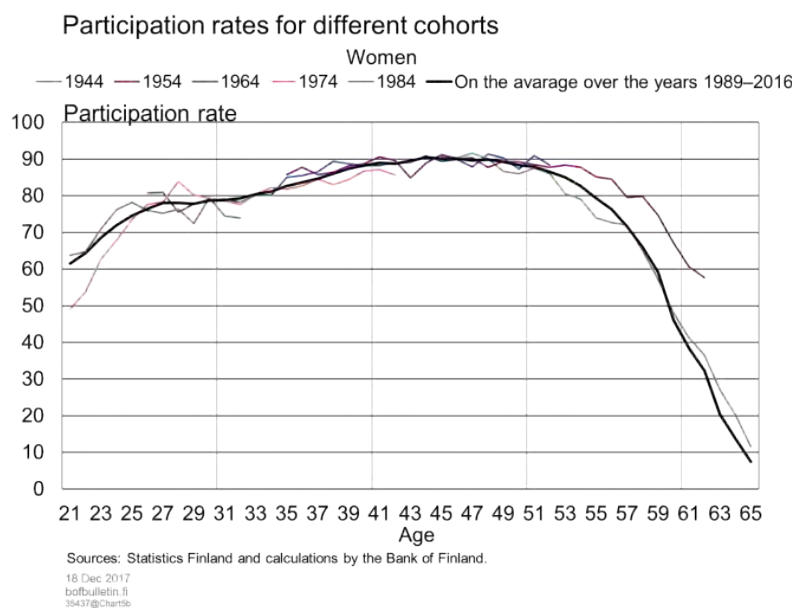
Chart 5a.

Participation rates for different cohorts
Men

— 1944 — 1954 — 1964 — 1974 — 1984 —On avarage over the years 1989–2016

Participation rate

Sources: Statistics Finland and calculations by the Bank of Finland.

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Chart 5b.

Participation rates for different cohorts
Women

— 1944 — 1954 — 1964 — 1974 — 1984 —On the avarage over the years 1989–2016

Participation rate

Sources: Statistics Finland and calculations by the Bank of Finland.

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The cohort data helped us examine how the labour market participation of different age groups varies in different cyclical situations. First, the cohort-specific variation was controlled for the effects of both age and year of birth. In addition, we used year dummies to take account of the recession years in the early 1990s and the right of access to the fast track to an unemployment pension and actual receipt of such a pension. The cyclical situation on the labour market was described according to the level of vacant jobs as a proportion of the labour total force.

As in previous estimations, cyclical flexibilities exhibited a clear age profile (Chart 6). A cyclical upswing most benefits the labour market participation of men and the under-30s

in general. The cohort model does not suggest that the low participation rate among 30–40-year-old women can be explained primarily by the economic cycle. For that age group, the cyclical situation on the labour market does not appear to exert a particularly strong influence on labour market participation.

Chart 6.

Labour supply among men and the young is cyclically sensitive

Economic cycle's impact on labour market participation, estimated regression equation coefficient
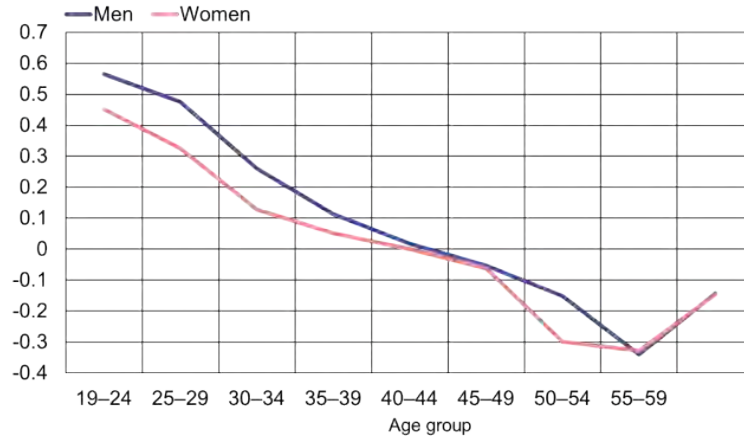
— Men — Women

Sources: Statistics Finland and calculations by the Bank of Finland.

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Based on cohort-specific constants, we can also estimate whether there are any visible age-group-linked factors that support growing participation rates at the older end of the age distribution. Such factors would particularly include the general development of educational level as the age structure of the population changes.

For labour supply among men, year of birth would appear to have a short-term positive impact towards the older end of the age distribution (Chart 7). When in the near future those born in the 1950s leave working life, they will be replaced by an age group with a higher participation rate. This outcome would seem intuitively sound when we know that educational levels are continuing to rise. The position among women at the upper end of the age spectrum is somewhat different. The cohort effect does not appear to bring a positive increase in labour supply anymore over the longer term at the upper end of the age distribution. The cohort-specific constant for those born in the 1960s is more or less the same as for those born in the 1950s.

Chart 7.

Impact of year of birth on participation rate

Estimated regression equation coefficent
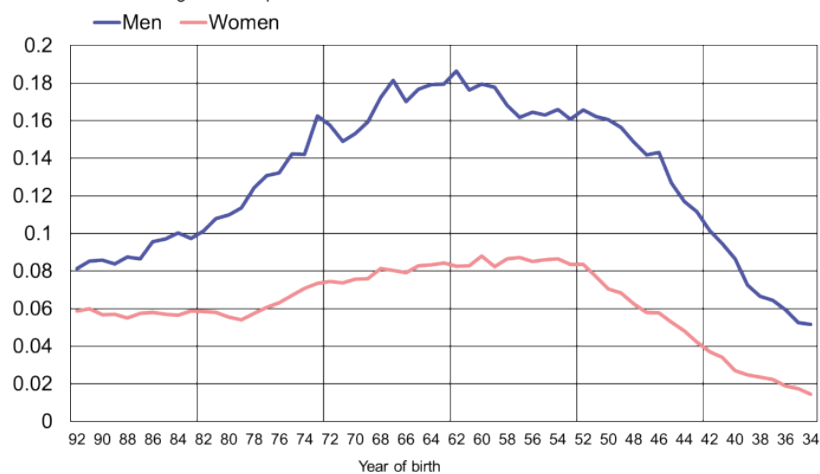
—Men —Women

Year of birth

Sources: Statistics Finland and calculations by the Bank of Finland.

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The most concerning feature with regard to labour supply is the weakening cohort effect among the young, and particularly among young men. The cohort-specific constant is much smaller among men born in the 1980s than among those born in the 1970s. The same phenomenon is discernible among young women, if not to nearly the same extent as with young men. The participation rate at a young age among those born after the 1960s has presumably been affected by a lengthening of study times. However, this does not seem to explain the lower participation rate among men born after the 1970s. It is worth noting that for the youngest cohorts the number of observations is relatively small. Thus our estimates contain a high degree of uncertainty.

Measures to boost employment are important

As the population is ageing, a larger proportion of working-age people need to be attracted to the labour market. Economic policy measures should continue to be directed at population groups that have a natural alternative to labour market participation. On the other hand, when planning policy measures, it is important to be able to discern to what extent the observed employment trend is due to structural factors and to what extent it is cyclical in nature.

The lengthening of working careers among older cohorts will inevitably continue, if only because of the pension reform. It is, however, hard to assess whether older cohorts' labour market participation will increase more than estimated purely on the basis of the effects of the pension reform. It is highly possible that, as public health improves and life expectancy consequently rises, working careers could continue beyond the period estimated in the pension reform. The analysis presented here reinforces the picture derived from employment statistics, according to which among the cohort effects a higher educational level is a particularly good predictor of labour market participation. The average educational level of people of working age will continue to rise through the next couple of decades as the less well-educated cohorts leave the labour market. The

population's average educational level will, however, eventually decline, as those born in the mid-1970s remain the best-educated age group in Finland's history.[11]

Turning to the young, it is clear that a cyclical upswing will attract a greater share of the age group on to the labour market. There is nevertheless a substantial risk that an increasing proportion of the young and young adults will remain for a longer period outside the labour market, meaning improvements to employment will still also require economic policy measures.

The labour market status of women of childbearing age would naturally be supported by measures to divide family leave more evenly between the sexes. In the youngest cohorts, the proportion with only basic education has begun to grow, which will serve to reduce the supply of labour. Particularly problematic is the position of young men. The proportion of young men in higher education is also lower than that of women. The deterioration in their position is already visible in a rapid increase in low pay among young men. When, in addition to this, we know that demand for poorly educated labour is receding as digitalisation progresses, education policy will come to occupy a key position in Finland. Besides the implications for labour supply and hence the long-term growth outlook for the economy, it will also have an impact on income differences and the risk of poverty.[12]

Tags

economic slack, employment, cohort analysis, education

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11. See e.g. Aleksi Kalenius (2014) *Suomalaisten koulutusrakenteen kehitys 1970–2030* ('Structural development of Finnish education, 1970–2030'). Ministry of Education and Culture, 2014.
12. On the connection between education and income development, see the box 'Higher education is a good investment in Finland' elsewhere in this edition of the Bank of Finland Bulletin.

FORECAST TABLES

Forecast for 2017–2020

See forecast tables for the Finnish economy in 2017–2020 (December 2017).

The figures presented here may differ slightly from those published by the European Central Bank on 28 December 2017, as the Bank of Finland's figures include economic data updated after 30 November 2018.

December 2017

1. BALANCE OF SUPPLY AND DEMAND, AT REFERENCE YEAR 2010 PRICES

% change on previous year

	2016	2017^f	2018^f	2019^f	2020^f
GDP at market prices	1.9	3.1	2.5	1.6	1.4
Imports of goods and services	4.4	2.2	3.4	2.9	2.7
Exports of goods and services	1.3	8.4	3.8	3.5	3.0
Private consumption	1.8	1.9	1.8	1.3	1.2
Public consumption	1.2	0.5	0.7	0.1	0.4
Private fixed investment	7.9	11.2	5.8	3.2	2.5
Public fixed investment	3.9	−1.1	3.3	−0.5	1.2

Source: Bank of Finland.

2. CONTRIBUTIONS TO GROWTH[1]

	2016	2017^f	2018^f	2019^f	2020^f
GDP, % change	1.9	3.1	2.5	1.6	1.4
Net exports	−1.2	2.2	0.2	0.2	0.1
Domestic demand excl. inventory change	2.8	3.1	2.4	1.3	1.3
of which Consumption	1.3	1.2	1.1	0.7	0.7
Investment	1.5	1.9	1.2	0.6	0.6
Inventory change + statistical discrepancy	0.4	−2.2	0.0	0.0	0.0

[1] Bank of Finland calculations. Annual growth rates using the previous year's GDP shares at current prices as weights.

Source: Bank of Finland.

3. BALANCE OF SUPPLY AND DEMAND, PRICE DEFLATORS

Index 2010 = 100, and % change on previous year

	2016	2017^f	2018^f	2019^f	2020^f
GDP at market prices	113.4	114.9	116.9	118.5	120.8
	0.9	1.3	1.8	1.4	1.9
Imports of goods and services	97.6	101.3	103.6	105.9	107.8
	−2.8	3.8	2.2	2.2	1.8
Exports of goods and services	101.2	104.2	107.1	109.0	111.1
	−1.9	3.0	2.8	1.8	1.9
Private consumption	111.5	112.4	113.8	115.5	117.3
	0.9	0.8	1.2	1.5	1.5
Public consumption	113.3	111.5	113.1	114.7	117.7
	0.0	−1.6	1.5	1.4	2.6
Private fixed investment	111.1	113.4	115.8	117.9	120.4
	1.5	2.0	2.1	1.8	2.2
Public fixed investment	111.5	113.5	116.0	118.5	121.1
	1.1	1.8	2.2	2.2	2.1
Terms of trade (goods and services)	103.7	102.9	103.4	103.0	103.0
	1.0	−0.8	0.5	−0.5	0.1

Source: Bank of Finland.

4. BALANCE OF SUPPLY AND DEMAND, AT CURRENT PRICES

EUR million and % change on previous year

	2016	2017[f]	2018[f]	2019[f]	2020[f]
GDP at market prices	215,615	225,200	235,104	242,162	250,380
	2.9	4.4	4.4	3.0	3.4
Imports of goods and services	78,616	83,412	88,165	92,788	97,059
	1.5	6.1	5.7	5.2	4.6
Total supply	294,231	308,612	323,269	334,950	347,439
	2.5	4.9	4.7	3.6	3.7
Exports of goods and services	75,967	84,847	90,473	95,293	99,995
	−0.6	11.7	6.6	5.3	4.9
Consumption	170,771	173,468	178,307	182,671	187,819
	2.3	1.6	2.8	2.4	2.8
Private	119,056	122,327	126,050	129,625	133,192
	2.8	2.7	3.0	2.8	2.8
Public	51,715	51,141	52,257	53,046	54,626
	1.2	−1.1	2.2	1.5	3.0
Fixed investment	46,423	51,577	55,519	58,007	60,633
	8.7	11.1	7.6	4.5	4.5
Private	37,860	42,955	46,423	48,753	51,070
	9.5	13.5	8.1	5.0	4.8
Public	8,563	8,623	9,096	9,254	9,563
	5.1	0.7	5.5	1.7	3.3
Inventory change + statistical discrepancy	1,070	−1,280	−1,031	−1,021	−1,008
% of previous year's total demand	0.0	−0.8	0.1	0.0	0.0

4. BALANCE OF SUPPLY AND DEMAND, AT CURRENT PRICES

Total demand	294,231	308,612	323,269	334,950	347,439
	2.5	4.9	4.7	3.6	3.7
Total domestic demand	218,264	223,765	232,796	239,657	247,443
	3.6	2.5	4.0	2.9	3.2

Source: Bank of Finland.

5. BALANCE OF SUPPLY AND DEMAND

% of GDP at current prices

	2016	2017^f	2018^f	2019^f	2020^f
GDP at market prices	100.0	100.0	100.0	100.0	100.0
Imports of goods and services	36.5	37.0	37.5	38.3	38.8
Exports of goods and services	35.2	37.7	38.5	39.4	39.9
Consumption	79.2	77.0	75.8	75.4	75.0
Private	55.2	54.3	53.6	53.5	53.2
Public	24.0	22.7	22.2	21.9	21.8
Fixed investment	21.5	22.9	23.6	24.0	24.2
Private	17.6	19.1	19.7	20.1	20.4
Public	4.0	3.8	3.9	3.8	3.8
Inventory change + statistical discrepancy,	0.5	−0.6	−0.4	−0.4	−0.4
Total demand	136.5	137.0	137.5	138.3	138.8
Total domestic demand	101.2	99.4	99.0	99.0	98.8

Source: Bank of Finland.

6. PRICES

Index 2010 = 100, and % change on previous year

	2016	2017[f]	2018[f]	2019[f]	2020[f]
Harmonised index of consumer prices, 2005=100	100.4	101.2	102.3	103.8	105.3
	0.4	0.8	1.1	1.4	1.5
Consumer price index, 2005=100	100.4	101.1	102.1	103.5	105.0
	0.4	0.7	1.0	1.3	1.5
Private consumption deflator	111.5	112.4	113.8	115.5	117.3
	0.9	0.8	1.2	1.5	1.5
Private investment deflator	111.1	113.4	115.8	117.9	120.4
	1.5	2.0	2.1	1.8	2.2
Exports of goods and services deflator	101.2	104.2	107.1	109.0	111.1
	−1.9	3.0	2.8	1.8	1.9
Imports of goods and services deflator	97.6	101.3	103.6	105.9	107.8
	−2.8	3.8	2.2	2.2	1.8
Value-added deflators					
Value-added, gross at basic prices	113.3	113.8	115.5	117.1	119.0
	1.0	0.4	1.5	1.4	1.6
Private sector	112.8	113.7	115.4	117.0	118.7
	1.3	0.8	1.5	1.4	1.4
Public sector	115.3	113.9	115.6	117.2	120.3
	−0.3	−1.2	1.5	1.4	2.6

Source: Bank of Finland.

7. WAGES AND PRODUCTIVITY

% change on previous year

	2016	2017ᶠ	2018ᶠ	2019ᶠ	2020ᶠ
Whole economy					
Index of wage and salary earnings	0.9	0.2	2.3	2.3	2.4
Compensation per employee	1.0	−0.6	1.3	2.0	2.8
Unit labour costs	−0.5	−2.8	−0.4	1.0	1.7
Labour productivity per employed person	1.5	2.3	1.8	1.1	1.1
Source: Bank of Finland.					

8. LABOUR MARKET

1,000 persons and % change on previous year

	2016	2017ᶠ	2018ᶠ	2019ᶠ	2020ᶠ
Labour force survey (15–74-year-olds)					
Employed persons	2,447	2,466	2,485	2,498	2,507
	0.4	0.8	0.8	0.5	0.4
Unemployed persons	236	232	220	214	206
	−6.4	−1.8	−4.8	−3.0	−3.5
Labour force	2,683	2,698	2,705	2,712	2,713
	−0.2	0.5	0.3	0.3	0.0
Working–age population (15–64-year-olds)	3,463	3,452	3,445	3,438	3,432
	−0.4	−0.3	−0.2	−0.2	−0.2
Labour force participation rate, %	65.3	65.5	65.5	65.5	65.6
Unemployment rate, %	8.8	8.6	8.2	7.9	7.6
Employment rate (15–64-year-olds), %	68.7	69.3	69.9	70.4	70.7
Source: Bank of Finland.					

9. GENERAL GOVERNMENT REVENUE, EXPENDITURE, BALANCE AND DEBT

% OF GDP

	2016	2017[f]	2018[f]	2019[f]	2020[f]
General government revenue	54.0	52.3	50.9	50.7	50.8
General government expenditure	55.8	53.4	52.3	51.7	51.5
General government primary expenditure	54.7	52.5	51.5	50.9	50.7
General government interest expenditure	1.1	0.9	0.9	0.8	0.8
General government net lending	−1.8	−1.1	−1.4	−1.0	−0.7
Central government	−2.7	−2.1	−2.0	−1.3	−0.8
Local government	−0.4	−0.2	−0.5	−0.6	−0.6
Social security funds	1.3	1.2	1.1	0.9	0.7
General government primary balance	−0.7	−0.2	−0.6	−0.2	0.1
General government debt (EDP)	63.1	61.8	61.3	61.4	60.8
Central government debt	47.5	46.9	46.9	46.8	46.1
Tax ratio	44.1	42.9	41.7	41.6	41.7
Current prices, EUR billion					
General government net lending	−3.8	−2.6	−3.4	−2.5	−1.8
Central government	−5.8	−4.8	−4.8	−3.2	−2.1
Local government	−0.9	−0.5	−1.1	−1.4	−1.5
Social security funds	2.9	2.7	2.5	2.2	1.8
General government debt (EDP)	136.0	139.2	144.5	148.7	152.3

Source: Bank of Finland.

10. BALANCE OF PAYMENTS

EUR billion

	2016	2017^f	2018^f	2019^f	2020^f
Exports of goods and services (SNA)	76.0	84.8	90.5	95.3	100.0
Imports of goods and services (SNA)	78.6	83.4	88.2	92.8	97.1
Goods and services account (SNA)	−2.6	1.4	2.3	2.5	2.9
% of GDP	−1.2	0.6	1.0	1.0	1.2
Investment income and other items, net (+ statistical discrepancy)	2.2	1.2	0.4	0.4	0.5
Current transfers, net	−2.5	−2.6	−2.8	−2.8	−3.0
Current account, net	−3.0	−0.3	0.0	0.1	0.4
Net lending, % of GDP					
Private sector	0.4	1.1	1.4	1.1	0.9
Public sector	−1.8	−1.1	−1.4	−1.0	−0.7
Current account, % of GDP	−1.4	0.0	0.0	0.0	0.2
Source: Bank of Finland.					

11. INTEREST RATES

%

	2016	2017[f]	2018[f]	2019[f]	2020[f]
3–month Euribor[1]	−0.3	−0.3	−0.3	−0.1	0.1
Average interest rate on new loan drawdowns[2]	1.9	1.8	1.9	2.0	2.2
Average interest rate on the stock of loans[2]	1.5	1.4	1.4	1.5	1.7
Average interest rate on the stock of deposits[3]	0.2	0.1	0.1	0.2	0.4
Yield on Finnish 10-year government bonds[1]	0.4	0.5	0.7	0.9	1.1

[1] Technical assumption derived from market expectations.

[2] Finnish credit institutions' loans to households and non–financial corporations (excl. overdrafts, credit card credits and repurchase agreements).

[3] Finnish credit institutions' deposits from households and non-financial corporations.

Source: Bank of Finland.

12. INTERNATIONAL ENVIRONMENT

The Eurosystem staff projections

	2016	2017f	2018f	2019f	2020f
GDP, % change on previous year					
World	3.0	3.6	3.6	3.6	3.5
USA	1.5	2.3	2.5	2.2	1.9
Euro area	1.8	2.4	2.3	1.9	1.7
Japan	1.0	1.5	1.0	0.7	0.1
Imports, % change on previous year					
World	2.0	5.5	4.5	4.2	3.8
USA	1.3	3.5	4.8	5.2	4.3
Euro area	4.7	5.1	5.2	4.4	3.9
Japan	−2.3	2.6	3.0	3.7	2.0
Index, 2010 = 100, and % change on previous year					
Import volume in Finnish export markets	120.9	127.1	132.4	137.7	142.7
	2.3	5.1	4.2	4.0	3.6
Export prices of Finland's trading competitors (excl. oil), national currencies	105.9	110.5	113.5	116.0	118.6
	−2.1	4.3	2.8	2.2	2.2
Export prices of Finland's trading partners (excl. oil), in euro	100.3	106.4	109.3	111.8	114.2
	−4.7	6.1	2.7	2.2	2.2
Industrial raw materials (excl. energy), HWWA index, in US dollars	97.3	118.3	120.8	124.3	129.8
	−2.8	21.6	2.1	2.9	4.4
Oil price, USD per barrel[1]	44.0	54.3	61.6	58.9	57.3
	−15.9	23.3	13.4	−4.3	−2.7
Finland's nominal competitiveness indicator[1,2]	104.1	102.3	102.3	102.3	102.3

12. INTERNATIONAL ENVIRONMENT

	2.7	−1.7	0.0	0.0	0.0
US dollar value of one euro[1]	1.11	1.13	1.17	1.17	1.17
	−0.2	1.9	4.1	0.0	0.0

[1] Technical assumption derived from market expectations.

[2] Narrow plus euro area, 1999Q1 = 100

Source: Bank of Finland.

13. Current and June 2017 forecast

	2017^f	2018^f	2019^f	2020^f
GDP, % change	3.1	2.5	1.6	1.4
June 2017	2.1	1.7	1.4	
Inflation (HICP), %	0.8	1.1	1.4	1.5
June 2017	0.8	1.0	1.3	
Current account, % of GDP	0.0	0.0	0.0	0.2
June 2017	−1.2	−0.9	−0.8	
General government net lending, % of GDP	−1.1	−1.4	−1.0	−0.7
June 2017	−2.4	−2.2	−2.0	
General government debt (EDP), % of GDP	61.8	61.3	61.4	60.8
June 2017	65.1	66.1	66.8	
Unemployment rate, %	8.6	8.2	7.9	7.6
June 2017	8.6	8.2	8.1	

Source: Bank of Finland.

Tags

economic situation, forecast, indicators