



# FINLAND

## SELECTED ISSUES

December 2017

This Selected Issues paper on Finland was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on November 21, 2017.

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**International Monetary Fund**  
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# FINLAND

## SELECTED ISSUES

November 21, 2017

Approved By  
**European Department**

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## FINLAND'S PUBLIC SECTOR BALANCE SHEET<sup>1</sup>

*The public sector balance sheet approach expands analysis of public finances beyond government debt to also include government assets, public corporations, and pension liabilities. For Finland, it shows that static public sector net worth is negative at some -160 percent of GDP.<sup>2</sup> This implies that Finland's future fiscal balances and policies will have to be sufficiently strong to compensate, and also to address future spending pressures from rising health and long-term care. The intertemporal balance sheet shows that Finland's current medium-term fiscal framework meets this criterion—but only if health and social services reform achieves the targeted savings in public spending during the 2020s. In light of numerous risks it would be prudent to use the present economic upswing to make early headway in rebuilding buffers.*

### A. A Comprehensive View of Public Finances

1. **Public finances are often summarized by general government gross or net debt, but these concepts can be deceptive.** General government accounts do not include public corporations, implicit pension liabilities, and other contingent liabilities. Moreover, they do not account for higher expenditures associated with population aging. On the asset side, non-financial government assets may also be significant. A full public sector balance sheet includes these items. It can thereby inform policy making by providing new insights into fiscal health and risks.
2. **For Finland, the more comprehensive public sector balance sheet analysis finds that further fiscal savings will ultimately be needed—despite a positive net asset position** (i.e., negative net debt). Finland's general government has a net asset position of close to 50 percent of GDP. Without further analysis, this would suggest that the country has ample fiscal space. However, static public sector net worth is negative, at some -160 percent of GDP in 2016. To offset this and achieve long-term sustainability in face of still rising aging pressures, fiscal balances will actually need further strengthening.
3. **Public sector balance sheet analysis proceeds in two steps.** Deriving a static balance sheet represents the first step. In a second step, the static balance sheet can be augmented with future fiscal flows into an intertemporal balance sheet.
  - **The static balance sheet**—in addition to debt—also incorporates assets, public corporations, and existing pension liabilities (Appendix A). Inclusion of assets reflects the value of public investments and savings. It increases transparency and reveals practices of embellishing fiscal liabilities through asset decumulation (Milesi-Ferretti, 2004). Inclusion of public enterprises, defined as those firms over which the state directly exerts control, can capture important sources

<sup>1</sup> Prepared by Maren Brede and Christian Henn.

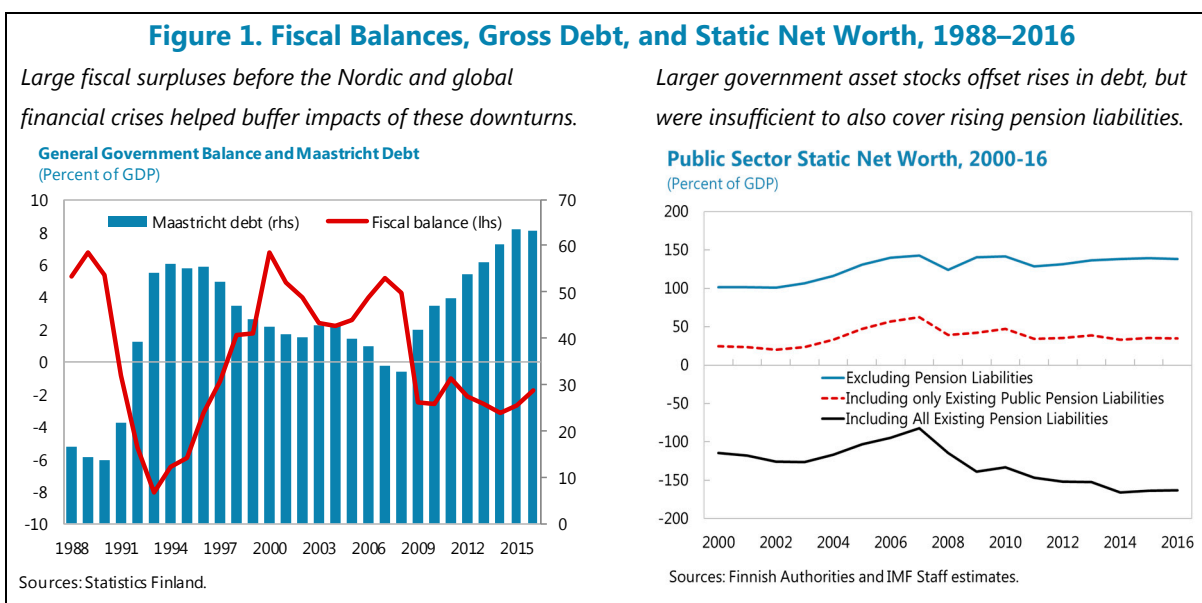
<sup>2</sup> This paper summarizes Brede and Henn (forthcoming), who construct and project a time series of public sector balance sheets for Finland. Readers are referred to their paper for further details, including on the construction of the public sector balance sheet and consolidation among public sector entities.

of revenue and identify risks otherwise neglected. It provides transparency on quasi-fiscal operations through such firms. Inclusion of existing pension liabilities is important given their large size in many countries. Pension obligations relating to all work already performed in the past are appropriately reflected as an already existing liability in the static balance sheet. As related payouts will occur over many years in the future, the static balance sheet includes their present value.

- **The intertemporal balance sheet** brings together all stocks and future flows in one comprehensive framework. It adds the present values of all future fiscal balances on top of the static balance sheet. Thereby it captures future aging costs. In the case of Finland those relate to health and long-term care costs; the 2017 pension reform ensures that pensions liabilities related to future work are completely covered by contributions. The intertemporal balance sheet provides as a bottom line a measure of intertemporal financial net worth (IFNW) that is equivalent to an intertemporal budget constraint. If IFNW drops significantly below zero and policies are not adjusted, the risk of a loss of confidence could increase.

## B. Finland's Static Public Sector Balance Sheets for 2000–2016

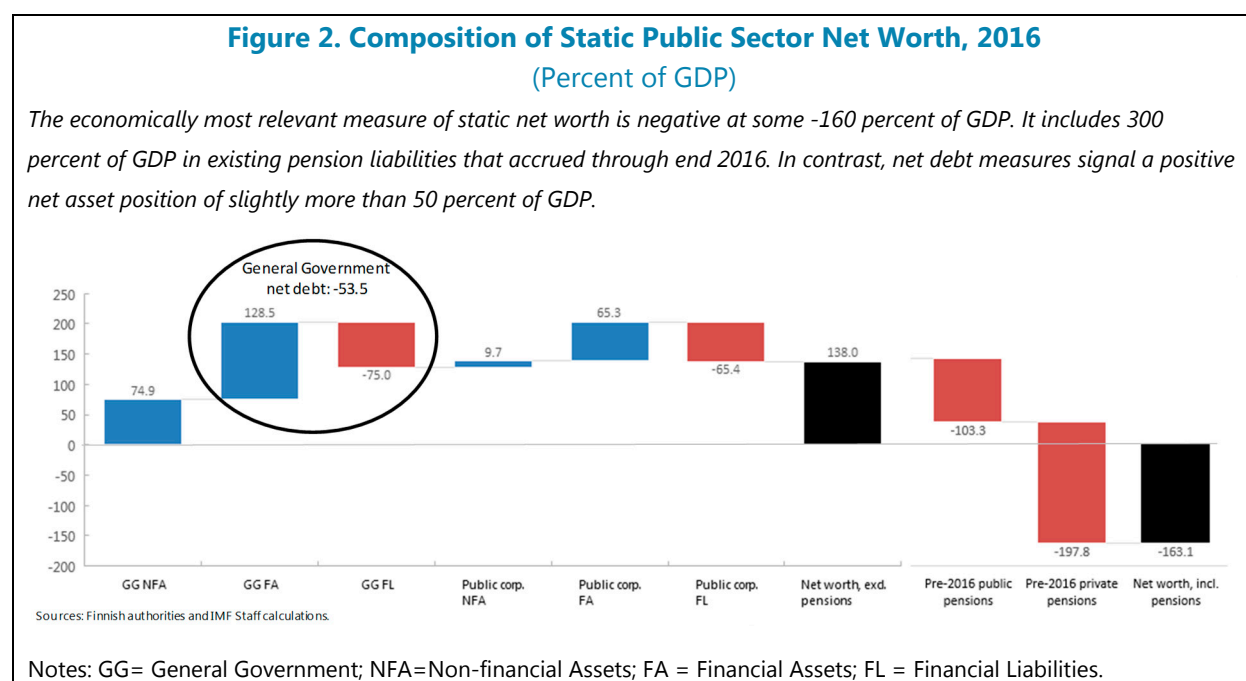
**4. Finland has a track record of prudent fiscal policy.** During good economic times, the authorities have run sizable fiscal surpluses (Figure 1). This helped buffer the impact of the large adverse shocks of the Nordic banking crisis in the early 1990s and the global financial crisis of 2008–09. Although debt ratios increased considerably, partly on account of GDP still remaining below its 2007 peak, the rise would have otherwise been much more pronounced.



**5. Finland has a positive net asset position under a typical net debt definition that disregards pension liabilities.** The country has a partially funded pension system under which social security funds held assets worth 90 percent of GDP at end 2016. As social security funds are part of general government, their assets are included by statistical convention in net debt measures.

With Maastricht debt at 63 percent of GDP, Finland's general government net debt is negative.<sup>3</sup> In absence of further information, this could be construed as Finland having ample fiscal space to increase expenditure or lower revenue.

**6. Static public sector net worth is negative in Finland; therefore, future fiscal positions will need to be sufficiently strong.** Finland's case illustrates that adding assets and pension liabilities is particularly important. The government is liable for pensions of both public and private sector employees. The 2017 pension reform ensures that pensions relating to future work will be completely covered by contributions. But, pension liabilities relating to work already performed until end 2016 amount to 300 percent of GDP in present value terms.<sup>4</sup> Accounting for these existing pension liabilities shows that public sector net worth is negative, at some -160 percent of GDP in 2016 (Figure 2).<sup>5</sup> This leads to a drastically different conclusion from the net debt measure: Finland's future fiscal positions will actually need to be sufficiently strong to make up for this negative net worth as well as address future age-related spending pressures from health and long-term care.<sup>6</sup>



<sup>3</sup> Maastricht debt is lower for Finland than the general government financial liabilities (of 75 percent of GDP) shown in Figure 2. The difference arises due to two reasons. First, Maastricht debt excludes accounts payable and financial derivatives (6.4 percent of GDP at end 2016). Second, debt under the Maastricht definition is evaluated at nominal value instead of market value.

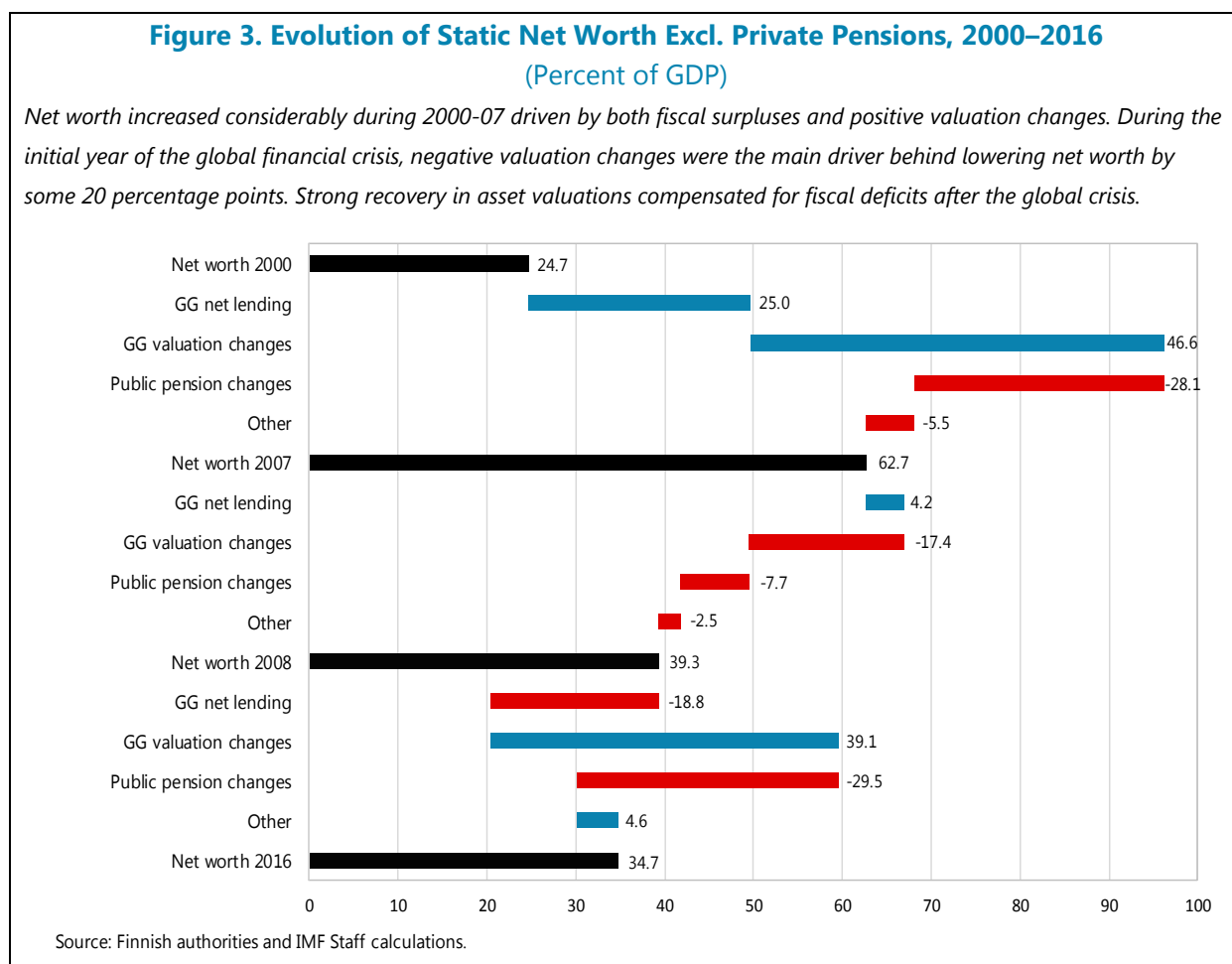
<sup>4</sup> In other words, 300 percent of GDP would be the upfront cost if Finland decided to move to a fully funded pension system, rather than partly fund them with future fiscal revenues as under its current partially funded pension system.

<sup>5</sup> Virtually all pensions in Finland represent obligations imposed by law rather than a contract. Thus, rules governing future payouts for both public and private pensions could be changed, albeit at a political cost. The only exception are public pension liabilities accrued before 1993, which are contractual liabilities.

<sup>6</sup> The public corporation sector in Finland has strong balance sheets and is profit making. As Figure 1 shows, it adds some 10 percent of GDP to static public sector net worth in Finland.

**7. Net worth is subject to larger swings than gross debt.** In response to adverse shocks, Finland's public net worth falls by more than its debt increases, but also has tended to recover faster. Two channels amplify swings in public sector net worth during economic downturns over what would be implied by standard macro-fiscal effects on liabilities: (i) valuation changes in assets—principally equity valuations of the social security funds' assets—and (ii) changes in pension liabilities, which grow faster than GDP during crises. Through these channels, static net worth declined steeply during the global financial crisis, largely on account of negative equity valuation changes.

**8. But, in certain situations, Finland's sizable stock of public sector assets can also attenuate fluctuations in net worth.** After the global crisis, valuation changes turned strongly positive. As a result, net worth did not change much during 2008–16, although gross debt roughly doubled (Figure 3). This suggests that social security fund assets can function as a hedge: Falling interest rates during periods of slack may support financial asset valuations. This can cushion decreases to net worth caused by fiscal deficits.



## C. The Intertemporal Balance Sheet

**9. Finland's intertemporal financial net worth (IFNW) is slightly negative** (Figure 4).<sup>7</sup> IFNW is -10 percent of GDP under the medium-term fiscal framework of the 2018 budget proposal, which projects the overall fiscal deficit to gradually converge from 1¾ percent of GDP in 2018 to 1 percent of GDP in 2022. From 2022 onwards, it is assumed that the deficit would fluctuate only in response to age-related spending pressures and no further reforms would be undertaken. Finland's IFNW is likely quite solid compared to many other countries. However, cross-country comparisons remain difficult as only a handful of countries devise intertemporal public sector balance sheets and use them for policy analysis (IMF, 2016).<sup>8</sup>

**10. Stress tests suggest positive IFNW in the range of 30–85 percent of GDP would be advisable.** These figures can provide an anchor for fiscal policy. They were obtained by calibrating a stress test of a shock similar to, but slightly less severe than, the global financial crisis (see Brede and Henn, forthcoming). A buffer at the lower end of this range could absorb the immediate impact of such a large shock, while maintaining IFNW above zero. But it would require that fiscal adjustment is undertaken after the crisis has passed to return fiscal balances to their baseline path. A buffer of 85 percent of GDP would be sufficient to weather this large shock without need for subsequent fiscal adjustment, while maintaining positive intertemporal financial net worth.

**11. Policy scenarios highlight the importance of following through on fiscal reforms to ensure long-term sustainability.**

- **Health and social security reform is crucial to fiscal sustainability.** We consider the planned health and social security reform, important parts of which remain under discussion. Implementation is currently slated for 2020. Fiscal savings of 1½ percent of GDP are envisaged to accrue by 2030 through enhanced competition and realization of economies of scale. Savings of this magnitude would boost IFNW by some 65 percent of GDP. This would be sufficient to bring IFNW to 54 percent of GDP—close to the middle of the target range.
- **Returning the fiscal deficit close to balance by the early 2020s would establish an important additional buffer.** Returning the overall fiscal balance to -¼ percent of GDP by 2022 would represent an additional ¾ percent of GDP in savings. This would improve IFNW by close to 34 percent of GDP. If implemented without health and social services reform, it would be sufficient to return IFNW to positive territory (at 23 percent of GDP), but leave it short of the target range. If implemented in addition to health and social services reform, IFNW would reach

<sup>7</sup> Public sector net worth, which includes non-financial assets, is the most appropriate bottom-line measure when evaluating the static balance sheet. However, when moving to an intertemporal balance sheet, net financial worth, which excludes non-financial assets, is more appropriate, because it includes future tax revenues—which would likely not be generated if most public non-financial assets were sold off.

<sup>8</sup> These countries include Australia and New Zealand. In addition, earlier work by Traa and coauthors devised intertemporal fiscal balance sheets for several other countries at certain points in time (IMF 2006a,b; 2008; 2009).

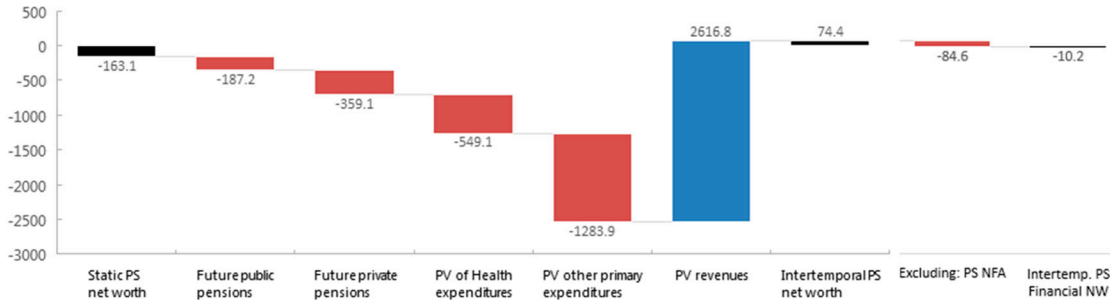


### Figure 4. Intertemporal Public Sector Balance Sheet and Underlying Projections

Under the gradual consolidation envisaged in the 2018 budget, future fiscal balances are not quite sufficiently strong to completely offset negative static net worth: Intertemporal financial net worth is slightly negative at -10 percent of GDP.

#### Composition of intertemporal financial net worth, 2016

(Percent of GDP; reflects fiscal projections of 2018 budget, but excludes health and social services reform)

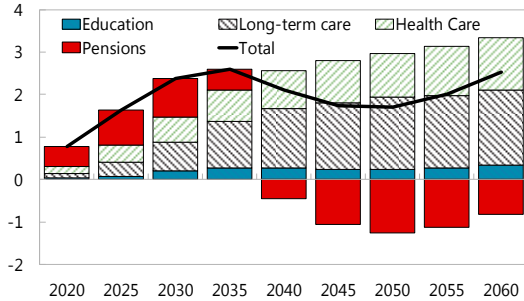


Sources: Finnish authorities and IMF Staff calculations.

Aging pressures are intense until the 2030s, but then slow, imposing a wave pattern on long-term fiscal projections.

#### Change in Age-related Expenditure

(Percent of GDP, relative to 2015)

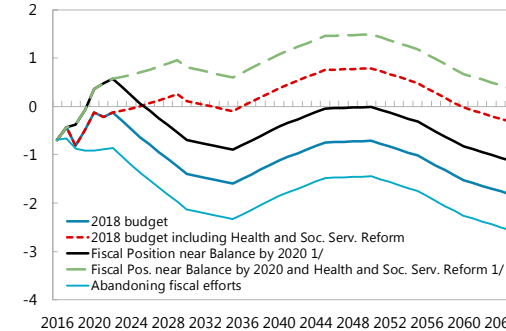


Sources: Finnish Ministry of Finance (2017a).

Improvements to the future fiscal path through health and social services reform or other savings ...

#### Fiscal primary balance under various scenarios

(Percent of GDP)

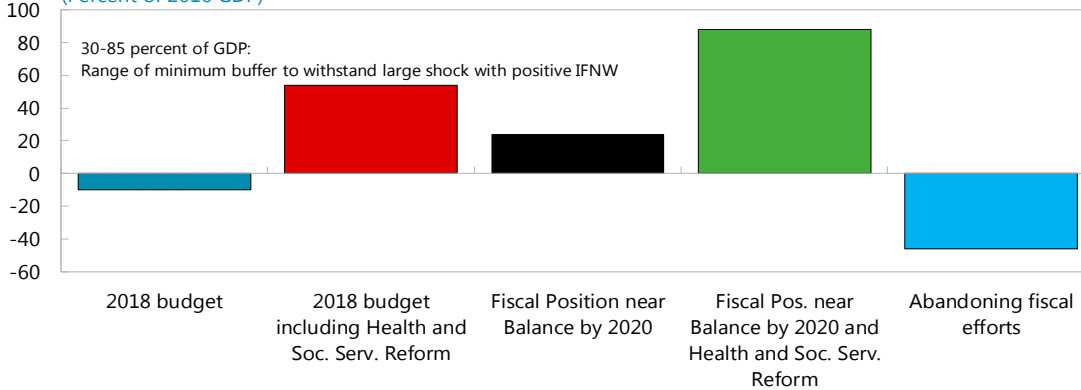


Sources: Brede and Henn (2017) and Fund staff projections.

... can increase intertemporal financial net worth (IFNW) to 30 to 85 percent of GDP, which would allow Finland to withstand a large shock and maintain positive IFNW. Long-term sustainability crucially depends on savings from health and social services reform.

#### Intertemporal Financial Net Worth Under Various Scenarios

(Percent of 2016 GDP)



Sources: Brede and Henn (forthcoming) and Fund staff estimates.

88 percent of GDP—the top of the target range. The authorities' long-term plan to eliminate the sustainability gap is virtually equivalent; their calculations suggest that an average fiscal surplus of 2 percent of GDP would be needed over the long term.<sup>9</sup>

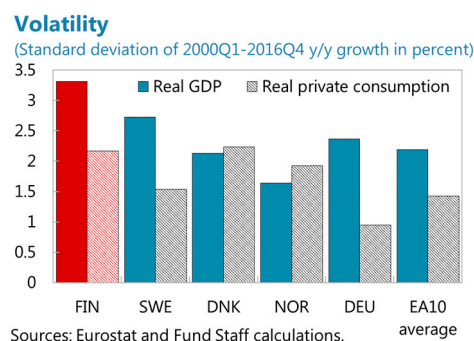
- **Abandoning fiscal efforts would leave Finland more vulnerable.**<sup>10</sup> If the authorities were to abandon current efforts to realize fiscal savings and not undertake further reforms, IFNW would drop to -46 percent of GDP.

## D. Policy Implications

**12. The analysis shows that Finland's fiscal position is sustainable—if planned reforms are completed and achieve their targeted savings.** Finland's future fiscal positions will need to be sufficiently strong to offset negative static net worth of 160 percent of GDP and, in addition, address age-related spending pressures from health- and long-term care. Intertemporal financial net worth (IFNW), which aggregates all existing stocks of the static balance sheet with future flows into one bottom-line figure, can provide a long-term anchor for fiscal policy. Stress testing suggests that aiming for a positive IFNW in the 30–85 percent of GDP range would allow Finland to weather a large crisis while maintaining adequate IFNW. The fiscal path set out in the 2018 budget proposal would achieve this, provided that health and social services reform indeed yields the envisaged 1½ percent of GDP in fiscal savings during the 2020s.

**13. However, the authorities should consider using the present economic upswing to make early headway in building buffers.** This would be in line with long-standing practice that has served Finland well in the past. It would also help provide insurance against risks:

- First, as a small open economy, economic growth in Finland is relatively volatile.
- Second, it is uncertain how much savings health and social services reform will ultimately yield. Economic literature suggests that demands for and relative prices of social and health services could well increase more than envisaged (Andersen et al, 2007).<sup>11</sup>



<sup>9</sup> The authorities' calculations of the S2 sustainability gap indicator emphasize that a 3 percent gap is expected to remain in 2021, when the overall fiscal deficit is projected to be around 1 percent of GDP (Finnish Ministry of Finance, 2017b; European Commission, 2016). Given that public interest expenditures are about 1 percent of GDP, reaching a 1 percent primary surplus by 2030 (as in the green scenario of Figure 4) would also close the sustainability gap.

<sup>10</sup> In this scenario, the overall fiscal deficit is assumed to stand at 1¾ percent of GDP throughout 2022, after which it would change in line with aging-related spending, as in the baseline.

<sup>11</sup> Wagner's law suggests that demand for some welfare services tends to increase faster than income and Baumol's law suggests that productivity in production of welfare services tends to increase at a lower rate than in production of goods and other services. While demographic projections attempt to account for these effects, they may prove stronger.

- Third, the size of Finland’s balance sheet is quite large, with sizable pension assets counterbalancing liabilities. While this can in certain situations attenuate fluctuations in net worth, it does imply vulnerability to asynchronous valuation changes. Governments are well advised to abstain from immediate policy reactions in response to valuation changes, but would need to act if they leave net worth persistently depressed.
- Fourth, contingent liabilities need close monitoring. While provisioning and risk management are adequate, the stock of government guarantees is the highest in the EU and risks are concentrated (see Brede and Henn, forthcoming, Box 1). While the banking sector is well capitalized, relocation of Nordea Group’s headquarters to Helsinki in 2018 will more than triple the current size of bank assets under supervision and expand implicit contingent liabilities.
- Fifth, the analysis presented here is inevitably subject to considerable uncertainty inherent in macroeconomic and demographic projections and relating to the future interest rates.<sup>12</sup>

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<sup>12</sup> The balance sheet analysis implicitly assumes that yields on assets and liabilities would move in line with each other in the future. But if interest rates on liabilities rose faster than on assets, the fiscal position would be negatively affected.

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## Appendix I. Public Sector Balance Sheet Dec 31, 2016

Public Sector Balance Sheet Dec 31, 2016 (Percent of GDP)										
	General Government					Public Corporations			Public Sector	
	Central Government	Social Security Funds	Local Government	Consolidation	Total	Non-financial	Financial	Central Bank	Consolidation 1/	Total
Assets	52.8	90.9	62.3	-2.8	203.4	17.9	20.2	36.9	-23.3	255.1
Nonfinancial	24.4	0.7	49.8	0.0	74.9	9.6	0.0	0.1	0.0	84.6
Financial	28.3	90.0	12.4	-2.8	128.5	8.3	20.2	36.9	-23.3	170.5
Liabilities	59.7	107.1	14.3	-2.8	178.3	11.9	19.8	33.7	-23.3	220.4
Financial	59.7	3.8	14.3	-2.8	75.0	11.9	19.8	33.7	-23.3	117.1
Public Pensions		103.3			103.3					103.3
Net Worth, excl. private pensions	-7.0	-16.5	48.0		25.1	6.0	0.4	3.2		34.7

Memo items (percent of GDP):  
 Public sector net financial worth: -49.8  
 Maastricht debt: 63.1  
 Private pension liabilities: 193.5

*Net Financial Worth (NFW) = Financial assets - Liabilities (including public pensions)*  
*Net Worth (NW) = net financial worth + nonfinancial assets*  
 Sources: Statistics Finland, Eurostat, Bank of Finland, Finish Center for Pensions, Financial Statements of Corporations listed in Table 1, author's calculations.  
 1/ The consolidation on the public sector level is an approximation based on available information in the financial statements of the public corporations. The consolidation relates equity, loans and deposits. The consolidation of non-financial public corporations with general government accounts relates to equity held by the general government according to their shareholdings. On the financial corporations, MuniFin and Finnvera reported explicitly on the interactions with government units, in particular with loans that had to be consolidated. Information on central banks accounts interacting with general government units that have to be consolidated was obtained from Statistics Finland.

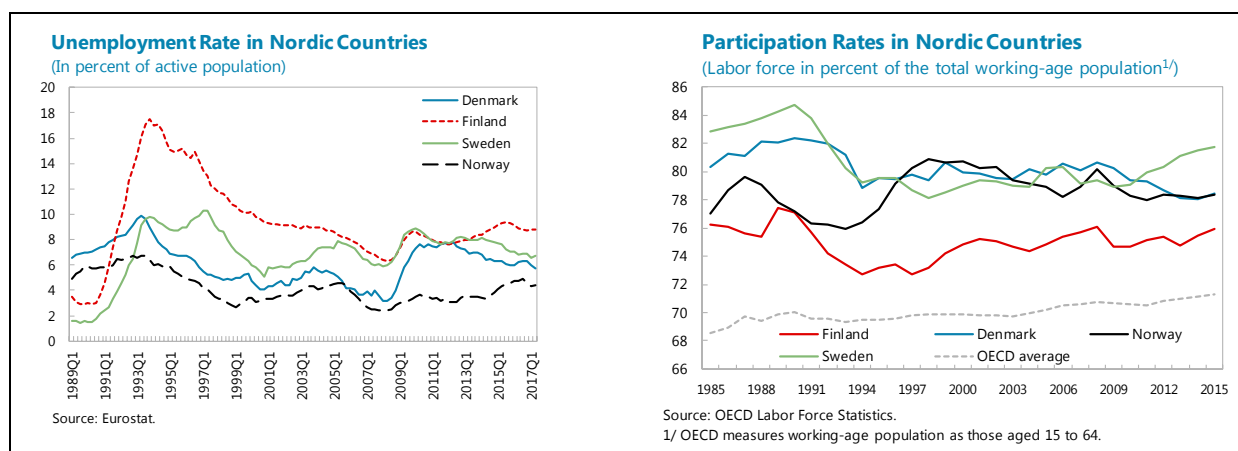
# FINLAND'S LABOR MARKET<sup>1</sup>

Finland's labor market features a highly educated workforce and has safeguarded equality during a time of adverse shocks. But labor market outcomes have not been as good as in Nordic peers for many years. This paper suggests that there is room for improvement in two main areas. First, wages have become misaligned with productivity at the sectoral level during the past decade. More firm-level flexibility in collective bargaining could help to address this. Second, labor supply is lower among certain population groups compared to other Nordics; to this end, bolstering work incentives further for the low skilled, women of child-bearing age, young and old workers would help. These structural measures would be important also because employment seems to respond less to cyclical growth upswings now than before the turn of the millennium. Finally, additional policies to facilitate the adjustment of the labor market to global trends—technological change and globalization—will likely be needed over the longer term.

## A. Introduction

**1. Despite the ongoing economic recovery, the Finnish labor market has been improving more slowly.** The fall in the unemployment rate has been modest so far, although composition of unemployment has favorably shifted away from long-term unemployment during 2017. Similarly, employment rates have only started to increase relatively late in the recovery. Meanwhile, several changes to the labor market policies have been announced recently, and government's fiscal sustainability goals crucially depend on a strong recovery in employment and labor force participation.

**2. Labor market outcomes have been worse in Finland than in other Nordic countries for many years.** The Nordic banking crisis in early 1990s was followed by a large decline in participation and a rise in unemployment, that have not recovered to their previous levels since. The persistently low participation and high unemployment rates in Finland compared to the rest of the region suggest that structural inefficiencies may be weighing down Finland's labor market.



<sup>1</sup> Prepared by Christian Henn, Lucyna Gornicka, and Yi Xiong.

**3. Considerable improvements in labor market outcomes are needed to support Finland’s social model amid aging pressures.** High employment and incomes are necessary to finance Finland’s comprehensive welfare state (Andersen et al. 2007). But the country’s working age population is projected to shrink by ¼ percent annually over the medium term. Therefore, it is important that productivity growth remains positive and employment rates rise.

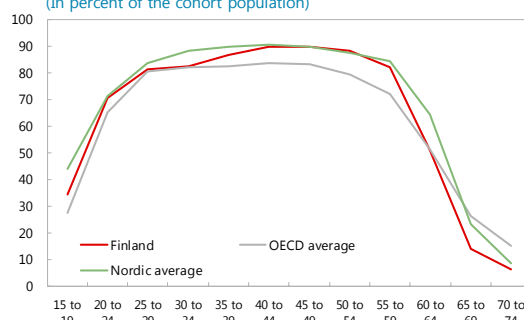
**4. This paper identifies main areas for improvement in the Finnish labor market, analyzes factors behind the observed outcomes, and looks at future challenges.** Sections B and C compare Finland’s labor market performance and labor market institutions to other advanced economies, and to Nordic peers in particular. Section D analyzes how much scope there is for a purely cyclical improvement in the labor market outcomes. Section E discusses future technology-induced challenges facing the Finnish labor market. Section F concludes.

## B. Labor Market Developments in Finland: An Overview

**5. There is room for improvement in several labor market segments in Finland.** Other Nordic countries—Finland’s natural benchmark given similar social models—achieve better outcomes in cohorts such as low skilled workers, females aged 25–40, and among young and older workers. Male workers have a lower participation rate in Finland than in other OECD countries on average. Detailed comparisons are presented below.

**6. The labor force participation rate is low compared to countries in the region.** In Finland, the participation rate among 15–64 year-olds is above the OECD average, but is low compared to the countries in the region. This reflects primarily the low participation of young and older cohorts. The female participation rate—at 74.1 percent in 2016—is considerably above the OECD average of 63.6 percent, but male participation is somewhat below the OECD average of 80 percent.

**Labor Force Participation by Age**  
(In percent of the cohort population)



Source: OECD Labor Force Statistics.

**7. The same holds for the employment rate, which is considerably lower than in other Nordic countries** (Figure 1). The share of employed in the total working age population was 68.7 percent in 2015, compared to a Nordic average of 74.6 percent (among Norway, Sweden and Denmark). While employment rates of women are high from a cross-country perspective, they are the lowest among the Nordic countries, especially in the 25–40 years-old cohort. Finland’s male employment rate is below that the OECD and the Nordic averages in terms of employment of men, especially those unskilled.

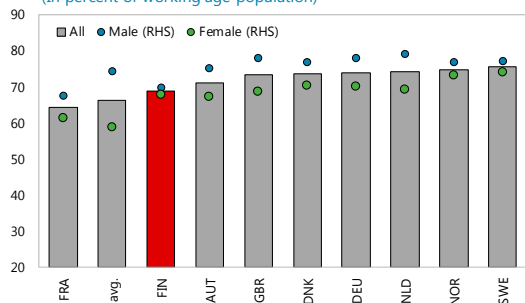
**8. Participation and employment rates in Finland have been low relative to the region for over 25 years.** Both participation and employment rates decreased considerably after the Nordic banking crisis and have not fully recovered since. Generous labor market and social policies introduced in the 1980s, including extended unemployment benefits, possibly contributed to long-

lasting effects of the Nordic crisis on the labor market (Duell et al. 2009). Only employment rates of older cohorts currently exceed pre-1990 levels, underpinned by reforms to pensions and early retirement possibilities. Nonetheless, older cohorts work more in other Nordic countries. Employment rates of the young have deteriorated the most over last 25 years, partially reflecting longer education duration.

**Figure 1. Labor Market Indicators in Finland**

Compared to regional peers, male employment is low in Finland...

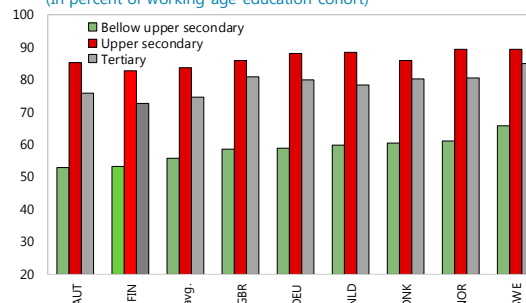
**Employment Rates in OECD Countries in 2015**  
(In percent of working age population)



Source: OECD.

... and employment of low skilled is below the regional average too.

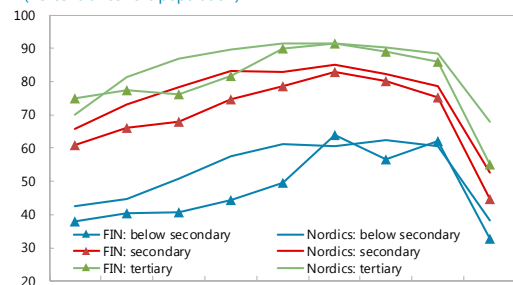
**Employment Rates in OECD Countries in 2015**  
(In percent of working-age education cohort)



Source: OECD.

Employment rates of females between 25-40 years-old lag behind those of other Nordic countries.

**Female Employment Rates by Age and Education, 2014**  
(Percent of cohort population)

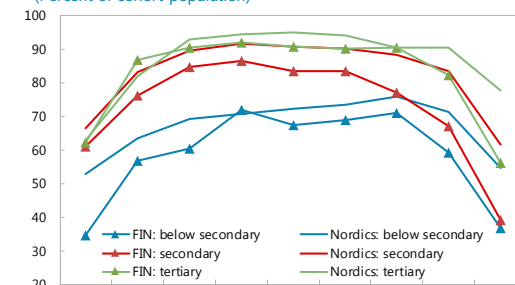


Source: Eurostat.

Note: Employment status during parental/child care leave differs somewhat across the Nordics.

Among men, employment of the low skilled is considerably lower than in the rest of the region.

**Male Employment Rates by Age and Education, 2014**  
(Percent of cohort population)

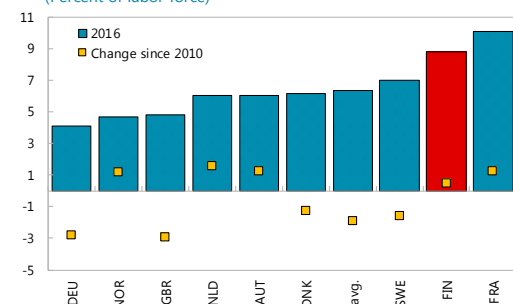


Source: Eurostat.

Note: Employment status during parental/child care leave differs somewhat across the Nordics.

The unemployment rate is high and has not decreased relative to 2010.

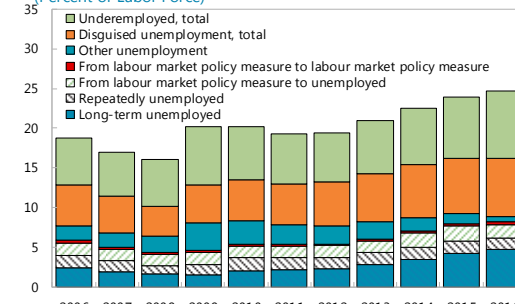
**Unemployment in Selected OECD Countries**  
(Percent of labor force)



Source: OECD.

In addition, a large share of the population remains in disguised unemployment or underemployment.

**Broad Unemployment**  
(Percent of Labor Force)



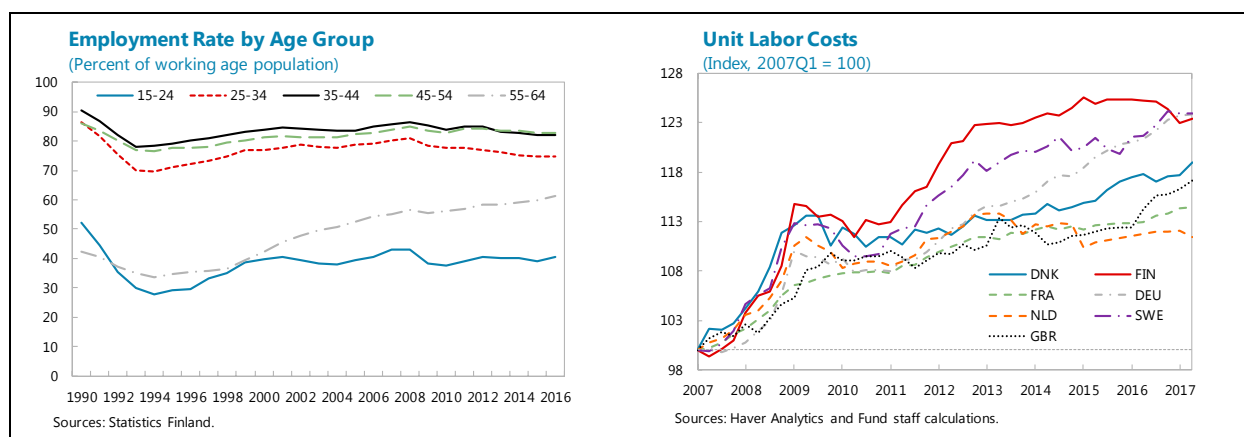
Source: Statistics Finland.



**9. The unemployment rate does not reflect high disguised unemployment and underemployment** (Figure 1). At 8.5 percent, the October 2017 trend unemployment rate remains high and—unlike in most other advanced economies—it has not declined since the global financial crisis (GFC). Instead, structural unemployment has increased: unemployed persons classified as “difficult to employ”<sup>2</sup> made up 7.1 percent of the labor force in June 2017—compared to 5 percent in 2007. Also, a notable share of the population reports that they are working part-time only because full time work is not available (underemployment), or that they would be ready to work despite currently not looking for a job (disguised unemployment). Accounting for these two groups yields an estimated broad unemployment rate of 24.6 percent of the labor force in 2016.

**10. Low frequency of job-to-job moves may negatively affect productivity.** The transition probabilities between employment and unemployment in Finland are one of the highest<sup>3</sup> in the OECD (Garda 2016). This suggests a relatively flexible labor market, although some of this may be driven by students and unemployed persons moving between short-term job. However, job-to-job transitions are less frequent than in the OECD on average, hindering efficient labor allocation. Increasing job-to-job transitions could boost aggregate productivity, lead to higher pay, and support longer employment spells (Haltiwanger et al., 2015).

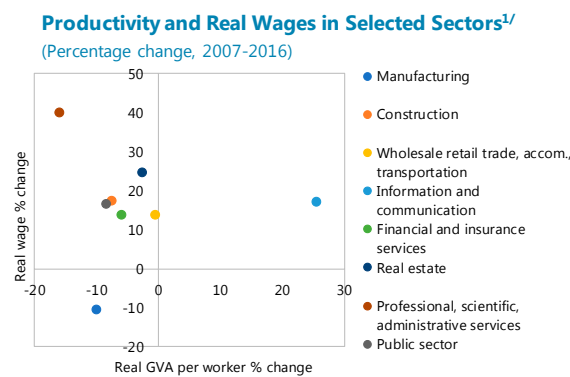
**11. Unit labor costs increased strongly in the years following the global crisis.** Since 2007 Finland has recorded one of the highest increases in unit labor costs (ULC) in Europe. The post-crisis growth in ULCs is a legacy of nominal wage increases between 2008–2012, when productivity was stagnant or falling. The continued stagnation in productivity growth after 2012 contributed too. Higher nominal wages amid falling productivity likely have had a negative impact on hiring incentives over the last decade. Most recently, wage moderation and increasing labor productivity have resulted in a fall in ULCs, and a recovery in competitiveness.



<sup>2</sup> “Difficult to employ” include the long-term unemployed, repeatedly unemployed, those becoming unemployed after an active labor market policy measure, and those repeatedly circulating between measures.

<sup>3</sup> However, while the probability of moving from employment to unemployment was higher in 2005–2012 than in 1994–2001, the probability of transitioning from unemployment to employment decreased between the two periods.

**12. Wages and productivity have been misaligned at the sector and firm levels during the past decade.** Recent wage moderation and the Competitiveness Pact have helped to regain national competitiveness, which had deteriorated post crisis.<sup>4</sup> However, changes in real wages in individual sectors and firms have in many cases not matched productivity growth. Overall factor misallocation, especially for labor, has been relatively high in Finland, including before the GFC (Dabla-Norris et al., 2015).



<sup>1/</sup> Real wages were obtained by dividing nominal wages by a sectoral PPI for manufacturing and construction, and an aggregate PPI for the rest of sectors. Sources: Eurostat, Statistics Finland.

**13. Both cyclical and institutional factors have likely contributed to the relatively weak labor market outcomes in Finland.** Low employment rates of cohorts such as older workers and women of child-bearing age, and persistently low participation compared to other Nordic countries suggest that there might be areas for improvement in the labor market institutions. At the same time, the negative shocks that hit Finland in the last decade have had a considerable impact on the labor market outcomes too. The next two sections look at these institutional and cyclical factors in turn.

## C. Institutional and Policy Framework of the Labor Market in Finland

**14. Finland's labor market institutions differ from Nordic peers in some important aspects.** The institutional framework can affect labor market outcomes and its responsiveness to cyclical developments.<sup>5</sup> Thus, comparing the Finnish labor market institutions to other countries can help identify the reasons for different labor market performance. This section shows that some parts of the Finnish institutional framework—for example in the areas of collective wage bargaining, unemployment benefits, and childcare support—deviate in important aspects from other countries.

<sup>4</sup> The Competitiveness Pact, *inter alia*, instituted a wage freeze in 2017, a reduction in the labor tax wedge, an extension of working hours, and a temporary decrease of public sector holiday bonuses during 2017–19.

<sup>5</sup> For example, Bernal-Verdugo et al. (2012) find that policies aimed at increasing labor market flexibility may have an important effect in reducing unemployment.

**15. Historically, collective bargaining has been more centralized than in other Nordics.** Like in other Nordics, collective wage bargaining plays a key role in setting minimum wages in Finland,<sup>6</sup> with around 90 percent of workers covered by collective agreements. However, compared to other Nordic countries, which have continued to decentralize collective bargaining over last decades, the bargaining process in Finland has been quite “tight”, with high coordination and a very limited role for firm-level bargaining (Visser, 2013). Sector-level agreements in Finland have typically mandated both minimum wages and wage increases, imposing high wage rigidity onto firms. Extension clauses ensure that sector agreements also apply to non-unionized (and small) firms.<sup>7</sup> Vainiomäki (2016) links the relatively low contribution of between-firm wage variation to wage growth in Finland (e.g. compared to Sweden) to the absence of local bargaining. Moreover, Finland is the only Nordic country where the role of the exports sector has not been formalized:<sup>8</sup> wages in Sweden, Denmark and Norway are negotiated for the tradeable sector first, and the outcome effectively sets a binding benchmark for the rest of the economy. This helps ensure external competitiveness, although it may have a downside in limiting cross-sector wage adjustments.<sup>9</sup>

**16. Unemployment benefits are generous and fall only mildly with unemployment duration** (Figure 2). More generous unemployment benefits can have a positive effect on labor allocation by giving recipients time for a more thorough job search. However, they can also discourage active job search (Carling et al., 2001; Roed and Zhang, 2003; Uusitalo and Verho, 2010). This negative effect can be measured through a Participation Tax Rate (PTR), which reflects the extent to which taxes and benefits reduce the financial gain of moving from unemployment into work. The PTR in Finland is higher than the OECD average, but similar to other Nordic countries. However, benefits are tapered more slowly along the unemployment duration in Finland than elsewhere in the region (Pareliussen et al., 2016). At the same time, incentives to take up part-time or temporary work are good in Finland, as participants can retain some of their unemployment benefits. Moreover, the 2016 reform to unemployment benefits reduced their maximum duration from 500 to 400 working days,<sup>10</sup> and a proposal to slightly reduce benefits for persons not active is being considered. Box 1 describes the unemployment benefits system in Finland and the most recent reforms more in detail.

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<sup>6</sup> Minimum wages are not imposed by law in Finland, but are a result of agreements between trade unions and employers.

<sup>7</sup> Firm-level flexibility in setting non-wage work conditions has increased in some sectors in recent years.

<sup>8</sup> The export sector has lead wage negotiations implicitly for many years. There have been attempts to formalize the role of the exports sector in recent years, but they have not been successful.

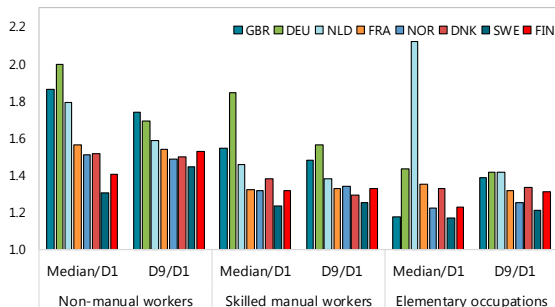
<sup>9</sup> For instance, anecdotal evidence for Sweden suggests that labor shortages in healthcare may be partly driven by insufficient wage increases in the sector.

<sup>10</sup> Except for workers older than 58 years. Also, workers with shorter tenure are only eligible for 300 working days of earnings-related unemployment benefits.

**Figure 2. Labor Market Policies in Finland**

Dispersion of wages in Finland remains low especially at the low end.

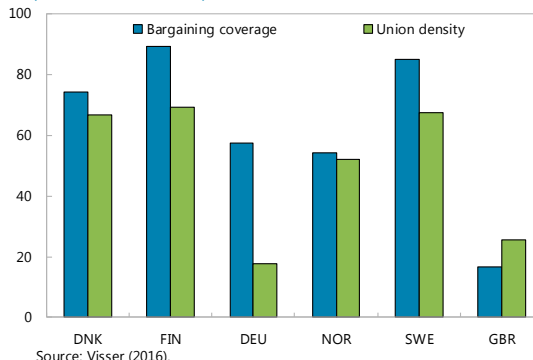
**Gross Hourly Earnings Dispersion Ratios in Selected Countries**  
(Median to first and ninth decile)



Source: Eurostat.

A large share of workers is covered by collective wage agreements.

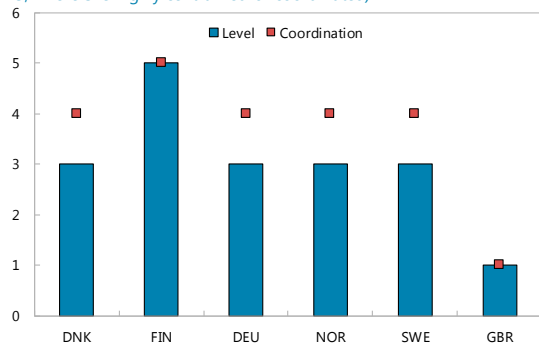
**Collective Wage Bargaining Indicators Across Countries**  
(Percent of all workers)



Source: Visser (2016).

Historically, wage bargaining has been more centralized than in other Nordic countries.

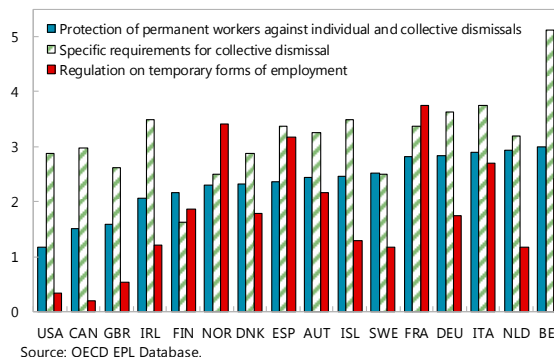
**Coordination and Dominant Level of Wage Bargaining, 2013**  
(1-5, where 5 is highly centralized or coordinated)



Source: Visser (2016).

EPL in Finland is not strict compared to other countries.

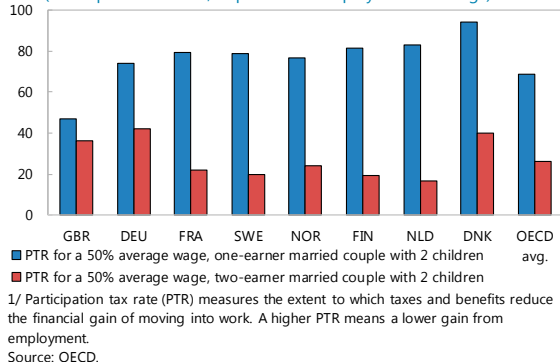
**Employment Protection Legislation in the OECD, 2013/14**  
(Scale from 0 (least restrictions) to 6 (most restrictions))



Source: OECD EPL Database.

Unemployment benefits do not deviate from levels observed in other AEs...

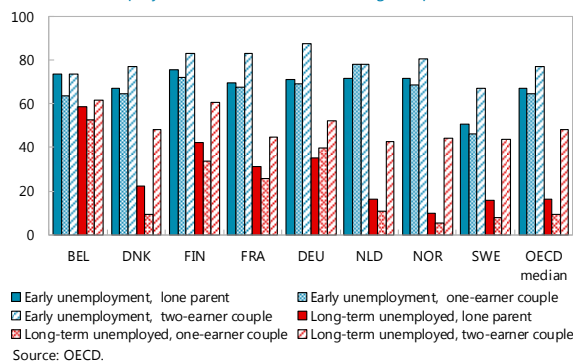
**Unemployment Benefits in OECD Countries, 2015<sup>1/</sup>**  
(Participation tax rate, in percent of employment earnings)



1/ Participation tax rate (PTR) measures the extent to which taxes and benefits reduce the financial gain of moving into work. A higher PTR means a lower gain from employment.  
Source: OECD.

...although they are generous for longer in Finland than in other Nordic countries.

**Generosity of Benefits Along Unemployment Spell**  
(Ratio of unemployment benefits to the last wage, in percent)



Source: OECD.

### Box 1. The Unemployment Benefits Framework in Finland

Earnings-related unemployment insurance covers over 90 percent of Finnish employed workers. It is financed from voluntary contributions made by individual workers to unemployment funds, many of which are administered by labor unions. An unemployed person is eligible for receiving earnings-related benefits if he or she has worked and paid contributions to an unemployment fund for at least 26 weeks within past 28 months. The amount of the benefit depends on the most recent salaries received, and replacement rates are around 60 percent.<sup>1</sup>

Those unemployed, who do not qualify for receiving earnings-related benefits, can receive a fixed-rate labor market subsidy paid by the social security agency. The subsidy is means tested but can be received for an unlimited period. Additionally, workers satisfying the employment duration condition, and who are not members of unemployment funds, can apply for a basic unemployment allowance (not means tested), which is paid for the same period as the earnings-related benefits would. For childless applicants, the amount of both these benefits is about 700 euros per month.

The 2017 unemployment benefits reform introduced the following changes:

The maximum duration of earnings-related benefits was shortened from 500 to 400 days for workers with 3 or more years of employment history, and from 400 to 300 days for those with employment record shorter than 3 years. Unemployed persons over 58 years were exempted from the changes.

The unpaid waiting period was extended from the first 5 to the first 7 working days of the unemployment spell.

The conditions for receiving unemployment benefits related to active job search were tightened, with the unemployed obliged to complete at least 12 job applications every 3 months, and increased frequency of reporting to the unemployment services agency.

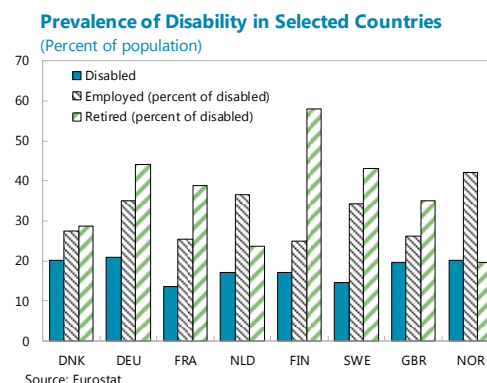
Overall, Kyyrä et al. (2017) calculate that most of those who were eligible for earnings-related benefits already in 2000, are now entitled to less benefits after the 2017 reform, with the largest fall for older workers.

Finally, a further change to unemployment benefits is currently under consideration by the parliament. The level of earnings-related benefits would be made conditional on participation in ALMP programs and part-time work. Under the proposal, unemployed persons who have not worked at least 18 hours or did not participate at least 5 days in ALMPs over the previous 3 months would see their benefits reduced by 4.65 percent during the next 3 months.

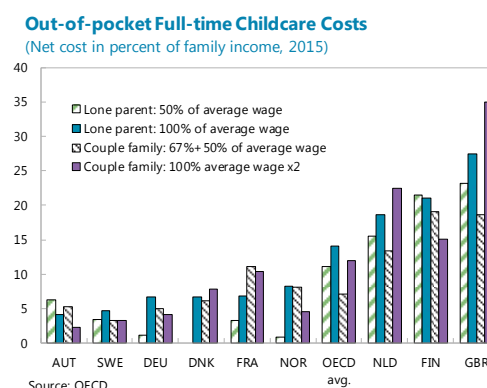
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<sup>1</sup>Replacement rates decrease with previous income. A childless worker who previously earned 2000 euros per month would receive about 1240 euros (a replacement rate of 62 percent).

**17. Long term unemployment remains a path to earlier retirement.** Although a formal unemployment pension has been discontinued, unemployed persons over 61 years old can still extend their unemployment benefits until reaching pension age. This possibility reduces employment rates among older workers and is estimated to considerably reduce the impact of the 2017 pension reform. Over 57 percent of all disabled in Finland are retired (compared to an average of 30.5 percent in other Nordic countries), and only 25 percent of disabled work, compared to 34 in Sweden and 42 in Norway. The high share of disabled among retirees is a legacy of the period—before a reform in mid-2000—when disability was a frequently used path to early retirement as well.<sup>11</sup>



**18. High out-of-pocket costs of public childcare lead to long breaks in working careers, especially among women.** Effective out-of-pocket costs of full-time childcare in Finland are above the OECD-average, both for low- and average-income families, for single parents, and for couple families. This is because putting children in day care implies giving up the home-care allowance. The allowance is paid for longer (3 years) than in other Nordic countries. Moreover, many municipalities offer supplements to the federal allowance, partly because it is cheaper than providing daycare (Kela, 2015). Pareliussen et al. (2016) argue that this explains low enrollment in early childhood education and care in Finland compared to other countries. The 2018 budget proposal includes reductions in early childhood education fees for lower-income households, and the government is conducting an evaluation of the family leave policies.



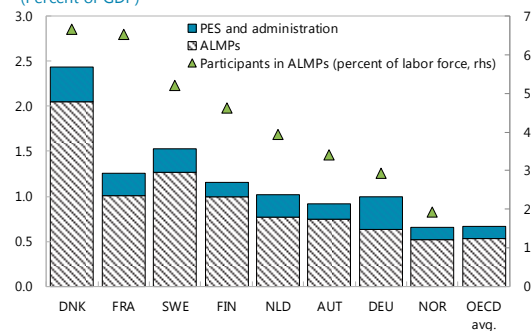
**19. Education takes longer in Finland than in other countries.** The transition from secondary to tertiary education is slow,<sup>12</sup> and average duration of tertiary education is 6.5 years, compared to 4.8 years for other Nordics and 5 years for OECD countries on average. While around a half of students work part-time during university (Pareliussen et al., 2016), timelier graduation would likely increase labor market participation of the young cohorts. Recognizing these concerns, the authorities are adjusting study grants for higher education, and are further reducing the importance of entrance exams for university admissions by 2020.

<sup>11</sup> The number of disability pension claims has gone down by 21 per cent since the global financial crisis. The share of accepted claims has gone down by 28 per cent.

<sup>12</sup> Reliance on entrance exams rather than performance during secondary school when accepting students to universities is an important factor.

**20. Spending on Active Labor Market Policies (ALMPs) is above the OECD average, but activation policies are triggered late in the unemployment spell.** Public spending on labor market policies (ALMPs and public employment services, PES) is above the OECD average, and comparable to Nordic peers. However, the distribution of spending is tilted towards ALMPs more than in other countries, corresponding to a relatively high share of the labor force enrolled in ALMPs. A 2009 OECD report found that ALMPs were of high quality but selective, with low-skilled young workers, old workers, as well as difficult-to-employ workers underrepresented (Duell et al., 2009). There is also evidence that activation policies are used only late in the unemployment spell, and that they are often not properly targeted to the needs of the unemployed. Moreover, despite broad application, efforts to evaluate the effectiveness of various ALMPs could be reinforced. Developing a proper evaluation framework would help to inform spending on ALMPs and improve their design.

**Spending on Public Employment Services and ALMPs**  
(Percent of GDP)



Source: OECD.

**21. Finland spends far less on PES services per unemployed than its Nordic peers.** Face-to-face contacts with PES counsellors are rare, possibly reflecting relatively low funding for PES compared to ALMPs. Although frequency of interviews with the unemployed by the PES counsellors has been increased to quarterly, they are still often conducted via phone, thus decreasing their effectiveness. Resource constraints also hinder rigorous matching of the unemployed with appropriate ALMPs and job search training seems to be underprovided. This reduces effectiveness of job search particularly of easily-employable persons that have not looked for a job in a long time.

**Expenditure on Employment Services Per Unemployed**  
(Thousand euro per unemployed, 2015)



Source: OECD.

**22. Employment Protection Legislation (EPL) in Finland does not seem overly strict in international comparison.** Strictness of Finland's EPL is below the OECD average in terms of protection of permanent workers against dismissals and in terms of regulation of temporary forms of employment. While part-time working arrangements are less frequent in Finland than the EU-average, Finland scored highest in a EU-wide survey of working-time flexibility offered at the workplace (Eurofund, 2013).

**23. Finland's low wage dispersion might contribute to worse labor market outcomes, especially for the low skilled.** In Finland, wages are particularly compressed at the lower end—even



when compared to other Nordics—because of relatively high effective<sup>13</sup> minimum wages.<sup>14</sup> Such compression has been associated with reduced employment and labor market flexibility (Neumark and Wascher 2006). Moreover, as small wage differences discourage job switching, wage compression might discourage job-to-job moves (¶24), thus increasing labor misallocation over time.

**24. Constraints to regional mobility likely hinder job-to-job transitions and matching the unemployed with job vacancies.** Incentives to encourage wider job search by the unemployed have been expanded, but housing remains a key constraint. Housing supply in the most productive and job-rich urban areas has not been able to keep up with increasing demand.<sup>15</sup> Moreover, anecdotal evidence suggests that differences in house prices across Finnish regions constitute a barrier for homeowners willing to move to areas with better job opportunities (homeownership rates are high at around 70 percent). On the other hand, businesses located in certain less populated regions have experienced labor shortages in recent years: Insufficient supply of housing, transportation infrastructure and other public services have been identified as key factors preventing larger inflows of workers to these areas.<sup>16</sup>

**25. Efforts to formalize a new bargaining model featuring more firm-level flexibility have been elusive** (Staff Report, Annex IV). This was one of the aims of the 2016 Competitiveness Pact, but social partners could not reach a final agreement. As a result, the ongoing collective bargaining round will be on an uncoordinated sector-by-sector basis. Unlike in the past, the Government will not play an active role in wage negotiations. Export-oriented sectors happen to be first to negotiate, given that their existing agreements expire earlier. However, it remains to be seen whether other sectors recognize the lead role of the exports industries. It is also unclear whether the new uncoordinated sectoral bargaining can deliver more firm-level flexibility, as a more active role of local labor representatives in wage bargaining and the establishment of local negotiating structures have been difficult to agree on.

## D. Structural and Cyclical Components of Unemployment

**26. A key question is how much employment can be expected to recover in response to the ongoing cyclical recovery.** The previous section has identified areas for improvement in Finland's labor market institutions. However, to gauge the importance of structural factors, it is important to evaluate the extent to which the ongoing recovery can improve labor market outcomes by itself. To this end, much of the literature has focused on determining the level of structural

<sup>13</sup> See footnote 6.

<sup>14</sup> According to some studies wage dispersion in Finland has increased over last decades due to the growing role of performance-related pay (Vainiomäki, 2016). At the same time, Bockerman et al. (2017) find that minimum wages in Finland are binding at least for some low-wage industries.

<sup>15</sup> A Parliamentary Audit Committee study recently concluded that housing demand in urban areas has outpaced construction for some time, partly as not sufficient land had been made available.

<sup>16</sup> The Ministry of Finance has conducted an assessment of factors preventing migration to these regions.



unemployment, i.e. the employment that would not be eliminated even if the output gap closed completely, referred to as the Non-Accelerating Inflation Rate of Unemployment (NAIRU).<sup>17</sup> An additional question is to which extent the cyclical recovery in employment will be generated by increasing participation of previously inactive persons. A key caveat of such analysis is that it is subject to considerable uncertainty (Obstbaum and Sariola, 2017).

**27. The Okun's law relationship can be estimated to gauge the labor market response to a cyclical output recovery.** The law, which describes a negative short-run relationship between unemployment and output, has proven quite stable over time and across countries (Okun, 1962; Ball et al., 2013). In its original form, it is set out in deviations of unemployment and output from the NAIRU ( $U_t^*$ ) and potential output ( $Y_t^*$ ), respectively:

$$(1) U_t - U_t^* = \beta(Y_t - Y_t^*) + \varepsilon_t.$$

Okun's law can be rewritten in terms of the employment ( $E_t$ ) response to output fluctuations, and the response of unemployment to swings in employment:

$$(2) U_t - U_t^* = \delta(E_t - E_t^*) + \mu_t$$

$$(3) E_t - E_t^* = \gamma(Y_t - Y_t^*) + \eta_t.$$

The above representation shows that  $\beta$  in Okun's law is driven by two underlying coefficients, i.e.  $\beta = \gamma\delta$ , and we would expect our estimated coefficients to broadly adhere to this relationship. Taking first differences of variables allows to eliminate the unobservable equilibrium values from the analysis. The underlying implicit assumption is that the equilibrium values do not change over time,<sup>18</sup> which seems reasonable given that the estimation is done separately for different time periods. The estimation equations become:

$$(4) \Delta U_t = \delta\Delta E_t + \Delta\mu_t$$

$$(5) \Delta E_t = \gamma\Delta Y_t + \Delta\eta_t.$$

Finally, the aggregate Okun's law relationship is also estimated in differences as a robustness check:

$$(6) \Delta U_t = \beta\Delta Y_t + \Delta\varepsilon_t.$$

**28. Regressions on different subsamples confirm that the relationship between employment and unemployment has been relatively stable in Finland** (Figure 3). One percent of additional employment growth has historically reduced unemployment by 0.63 percentage points during the entire 1973–2016 sample period. A coefficient of less than one in absolute terms is in line with intuition, because increases in employment raise returns to job search, and thus incentivize also previously inactive workers to enter the labor force. Separate regressions for different subsamples

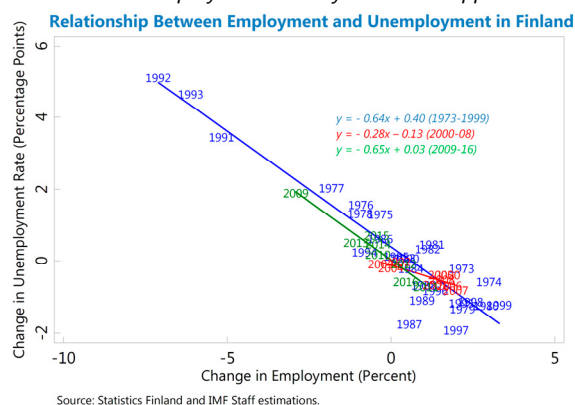
<sup>17</sup> See Ball et al. (2013) and references therein.

<sup>18</sup> To be exact, the transformation of e.g. equation (3) would still be valid if changes in  $\Delta U_t^*$  are proportional to  $\Delta E_t^*$  with the same coefficient  $\delta$ , with which  $\Delta U_t$  are proportional to  $\Delta E_t$ .

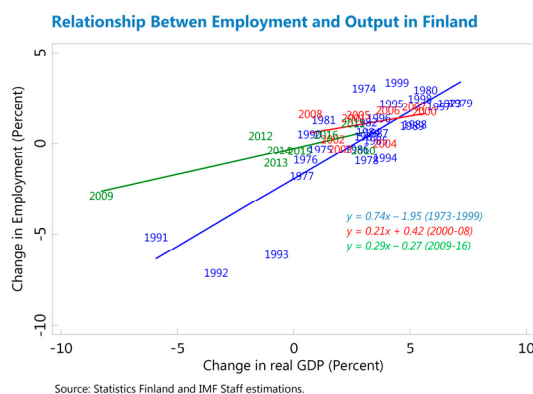
confirm that  $\hat{\delta}$  has remained relatively stable over time, except for a short period during 2000–2008. However, it returned to around -0.6 after 2008. Thus, in the calculations that follow, we use  $\hat{\delta} = -0.6$ .

**Figure 3. Estimating Okun's Law for Finland**

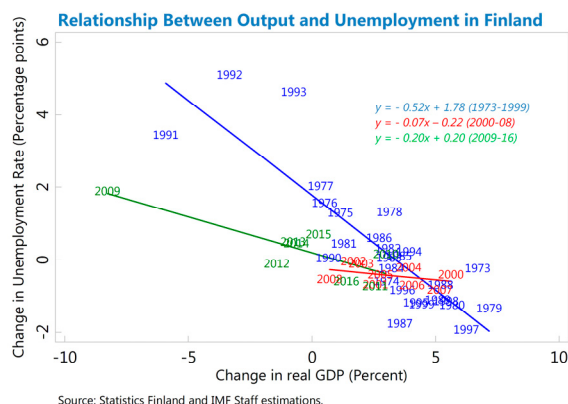
*In the past, additional employment growth of 1 percent reduced the unemployment rate by around 0.6 pp.*



*The unemployment-employment elasticity fell to about 0.3 in recent years.*



*Estimating the aggregate Okun relationship directly shows that an additional percentage point of output growth has decreased the unemployment rate by some 0.2 percentage points in most recent years.*



Note: All Okun's coefficients are statistically significant at the 1 percent levels, except those for  $\gamma$  and  $\beta$  in the 2000–08 period. The full results are presented in Tables A.1-3 in the Appendix.

**29. The response of employment to output seems to have slowed since 2000.** Based on the entire 1973–2016 sample, the estimate of  $\gamma$  is equal to 0.5. However, there are substantial differences between the subsamples considered. For example, using data until 2000 yields a  $\hat{\gamma}$  of 0.75, while more recently a one percent increase in output has been associated only with a 0.3 percent expansion of employment. Looking at the pre-GFC period, the decrease may have been caused by strong expansions in capital-intensive industries, such as forestry (physical capital) or the IT sector (human capital). After the GFC, it may have been caused by labor retention in the downturns, leading to less new hiring during brief recoveries. On the other hand, the decline of  $\hat{\gamma}$  may be structural, if technology and trade have played a large role in reducing routine tasks. In what follows 0.3 is assumed as a baseline estimate for  $\gamma$ .

**30. The direct estimation of the Okun's elasticity confirms these results.** Multiplying the preferred  $\hat{\gamma}$  (of 0.3) and  $\hat{\delta}$  (-0.6) yields a  $\hat{\beta}$  of -0.2 for the most recent years. The estimate of  $\beta$  using equation (6) returns a value of -0.2 for the post-GFC period as well.<sup>19</sup>

**31. A comparison of labor market responses to the GFC and the Nordic banking crisis also suggest a declining labor market sensitivity to changes in output** (Figure 4). Although the output loss during the crisis in early 1990s was only somewhat larger than after the GFC, the unemployment rate increased by much more in the former event. The participation rate and hours worked also responded by less to the 2008 crisis. In line with this observation, based on 1995–2013 firm-level data, Vainiomäki (2016) finds that Finnish firms reduce wage costs primarily by reducing hiring, rather than through other margins, such as turnover of employees, wage cuts, or overtime hours.

**32. The more muted labor market response could reflect structural changes in the Finnish labor market.** For example, Obstbaum (2011) shows that the separation rate<sup>20</sup> has declined from over 20 percent to below 10 percent after the Nordic banking crisis, and has not recovered since. At the same time, the responses of employment and working time to the GFC were comparable in magnitude to other European countries: employment rates fell in a large group of countries, while hours worked declined only in a few cases.

**33. The estimates of the Okun's relationship are used to translate the projected GDP change until 2021 into labor market changes.** For small changes in output, it is true that a percentage change in  $Y$  is explained by the sum of the percentage changes in labor productivity ( $Y/H$ ), hours worked per worker ( $H/E$ ) and employment ( $E$ ):

$$\Delta Y = \Delta(Y/H) + \Delta(H/E) + \Delta(E)$$

<sup>19</sup> For the entire sample period, this value is -0.3. Ball et al. (2013) found even stronger responses for Finland;  $\beta = -0.5$ . This is partly driven by their sample covering the 1980–2011 period, therefore giving much weight to the strong labor market response following the Nordic banking crisis, as well as differences in estimation methodology. The  $\beta$  coefficient using their sample but applying the first-differences approach is 0.39.

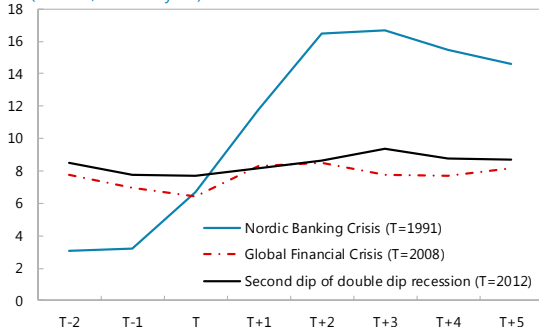
<sup>20</sup> Defined as the percentage of employees who left jobs, both for voluntary and involuntary reasons, during a given year.

**Figure 4. Responses of the Finnish Labor Market to Crisis Periods**

Unemployment responded less to the GFC than to the Nordic banking crisis.

#### Unemployment Rate In Historical Crises

(Percent; T=crisis year)

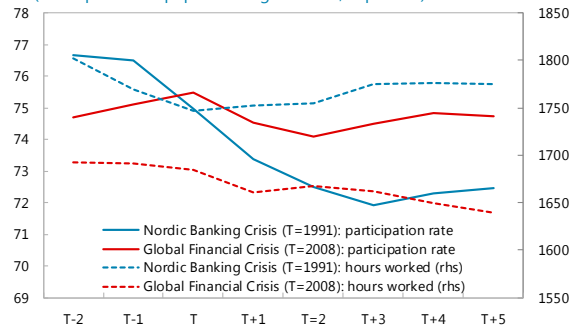


Sources: Statistics Finland and Fund Staff projections.

The participation rate and working hours have also adjusted by less in the more recent crisis period.

#### Participation Rate and Hours Worked per Employee

(Participation for population aged 15-64, in percent)

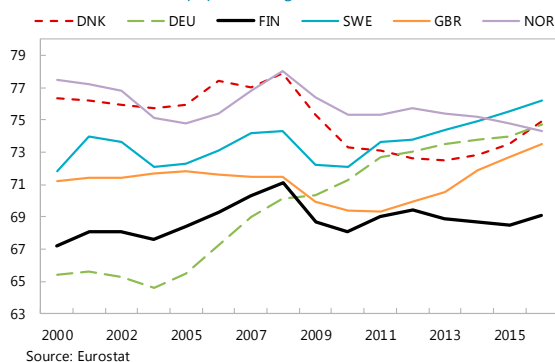


Source: Statistics Finland

The response of employment to the GFC has been similar to other countries...

#### Employment Rate

(Percent of total population aged 15-64)

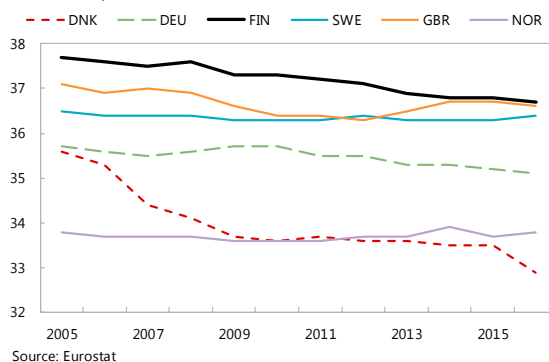


Source: Eurostat

...while there was no clear cross-country pattern in the dynamics of hours worked.

#### Average Hours Worked per Employed

(Total per week)



Source: Eurostat

**34. The projected cyclical recovery, if realized, would likely be accompanied by convergence of labor market variables towards pre-crisis averages** (Figure 5). Staff currently projects that the real GDP would increase by a cumulative 10 percent during 2017-2021. Broken down into the three growth-accounting components, this increase in output could be realized as follows:

- **Labor productivity growth** would need to average 1 percent during the projection period, and converge to 1¼ percent over the long term. While subject to a high degree of uncertainty, this value is higher than productivity growth in recent years (although still considerably below the 2.4 percent average observed during 1991–2008). Nevertheless, a sharp rebound of labor productivity in 2017 so far suggests that such a recovery could be achievable.
- **Hours worked per worker** would also need to continue their present recovery and grow by 0.8 percent cumulatively during the projection period. This seems realistic, as hours worked

dipped considerably since 2013, and around 4 percent of the working-age population were underemployed in 2016 (compared to the 2000–2007 average of 3 percent).

- **Total employment** would need to rise by around 3 percent. This is in line with the derived  $\gamma$  elasticity of 0.3, and would amount to a cumulative rise in employment of around 70,000 persons. This is in line with pre-crisis employment growth in response to output expansions: During 2000–2007, employment grew by 6.7 percent while real GDP increased by 24.4 percent, implying a  $\hat{\gamma}$  of 0.28. During 1999–2001, employment grew by 3.1 percent while real GDP increased 8.4 percent implying a  $\hat{\gamma}$  of 0.37.

**35. To gauge if the projected employment change is achievable, it is useful to break it down into the sources of new employment** (Table 1). These can come from lengthening working lives (LWL), integrating the unemployed or disguised unemployed into the labor market, or activating other persons currently outside the labor force:

$$\Delta(E) = \Delta(LWL) - \Delta(U) - \Delta(\text{Disguised } U) - \Delta(\text{Inactive persons})$$

- **Longer working lives.** Based on the estimates of the Finnish Centre for Pensions (2015, p. 19), the 2017 pension reform is expected to increase employment by about 6,000 persons by early 2020s.
- **Re-integrating the unemployed.** Using  $\hat{\delta} = -0.6$  yields an estimate of a 1.8 percentage points decline in the unemployment rate following an increase in employment of 3 percent. This would imply a fall in the unemployment rate from 8.8 percent in 2016 to 7 percent—below the NAIRU estimate of 7.5 percent by the OECD and the Eurostat. Assuming that the long double-dip recession caused some deterioration in employability among the long-term unemployed, the Staff's estimate of NAIRU is more conservative, and the projected unemployment rate in 2021 is 7.4 percent. This implies that 39,000 unemployed persons would be reintegrated into work until 2021 on a net basis, and slightly more than 200,000 would remain unemployed.<sup>21</sup>
- **Integrating the disguised unemployed.** Disguised unemployment has historically moved in line with unemployment in Finland, so it is also expected to decrease in a cyclical recovery. If disguised unemployment were reduced from its peak of 3.6 percent of the 15–64 years-old working age population to its average of 2.7 percent observed during 2000–2007, this would boost employment by 31,000 persons.
- **Activating other inactive persons.** Finally, another 30,000 persons are projected to join the labor force from the ranks of the inactive population. This would increase the participation rate among the 15–74 years-old population from 65.3 percent in 2016 to 66.3 percent, which is in line with the 2000–2007 average. However, as the population has aged since then, this will imply a stronger rise in the employment rates for 15–64-year-olds: from 68.7 percent in 2016 to 72.2

<sup>21</sup> In its Employment Service statistics, the Ministry of Economic Affairs and Employment's classified around 200,000 persons as being "difficult to employ" during 2014–2016 (Economic Policy Council, 2016). A higher NAIRU therefore also seems reasonable; it implies that as some difficult-to-employ persons retire during the projection period, there will be space for search employment within the stock of 200,000 unemployed projected for 2021.

percent in 2021. Such a high level has not been recorded since the 1980s when employment rates were in the 72–74 percent range.

**Table 1. Finland: Sources of Projected Cumulative Employment Increase During 2017–2021**

	In thousands of persons	In percent of 2016 employment
Lengthening of working lives	6.0	0.2
Reduction in unemployment	39.1	1.6
Activation of previously inactive persons	61.5	2.5
Disguised unemployed	31.1	1.3
Other previously inactive persons	30.4	1.2
Employment reduction due to population aging 1/	-35.4	-1.4
Net employment gain	71.2	2.9
Memorandum items:		
Change in 15-64 year-old working age population	-46.2	

Source: Fund Staff projections.  
1/ Computed based on the decline in the 15-64 year-old working age population and the corresponding labor force participation rate.

**36. In sum, the analysis suggests that there are two risks to the cyclical labor market recovery.** First, to realize the projected growth path, employment rates would need to return to pre-1990 peaks. This would require activating a considerable amount of currently inactive persons in addition to reducing unemployment. The analysis suggests that this is possible, even in the light of the reduced Okun’s law estimates, and recent labor market reforms should positively affect activation. But further measures to stimulate activation would nonetheless be advisable. The second risk reinforces this policy recommendation: if labor productivity growth were to fall short of projections, more employment creation than set out above will be needed to attain the growth path projected by the Staff, which would be hard to achieve absent further reforms.

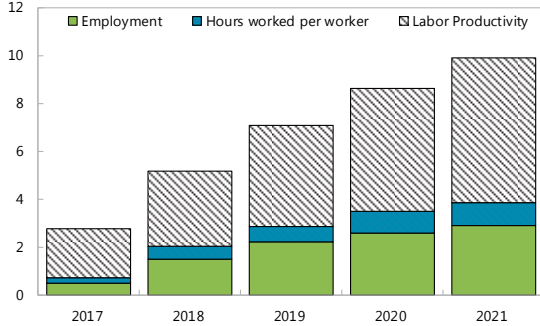
**37. Overall, the analysis in sections C and D suggests that there is scope for further labor market reforms in improving labor market outcomes in Finland.** Reforms targeting different labor market segments could support the ongoing cyclical recovery in bringing participation and employment rates closer to the levels observed in other Nordic countries. In the long term, additional policies facilitating the adjustment of the labor market to global trends—technological change and globalization—will likely be needed too. Section F investigates whether these global trends have had an impact on the Finnish labor market already.

**Figure 5. Potential Employment Impact of the Ongoing Recovery**

Staff projects that GDP would increase by 10 percent during 2017-2021.

**Projection of Real GDP**

(Cumulative percentage change from 2016 level)

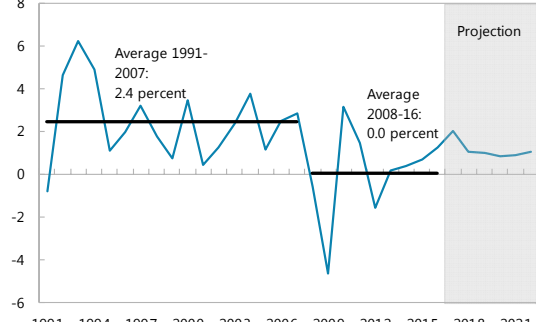


Sources: IMF Staff projections.

This requires that labor productivity growth averages 1 percent and converges to 1¼ percent over the longer term.

**Labor Productivity Growth**

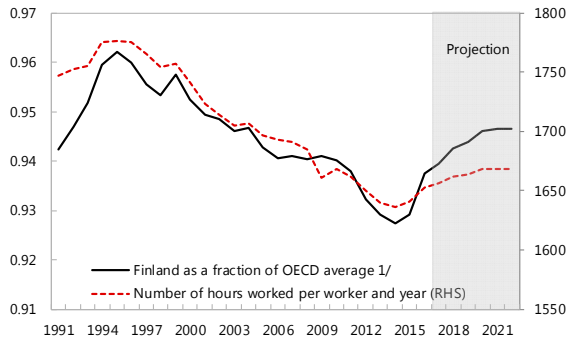
(Percent; based on hours worked)



Sources: Statistics Finland and IMF Staff calculations.

Hours worked would need to return to the 2010-2011 level.

**Hours Worked Per Worker in Finland**

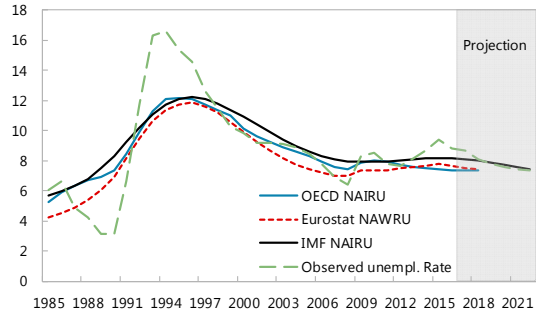


Sources: OECD and IMF Staff projections.  
1/ For 2017-22, it is assumed that OECD average remains constant at the 2016 value.

There seems to be consensus that the unemployment rate could fall to around 7½ percent if the output gap closes.

**NAIRU Estimate and Observed Unemployment Rate**

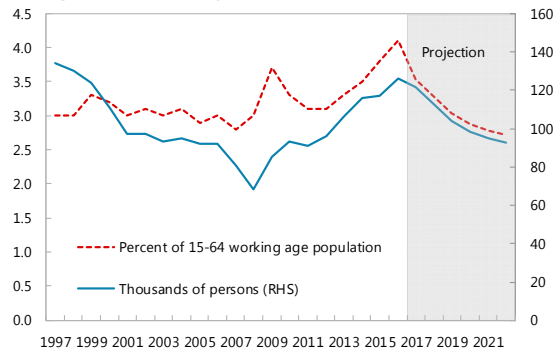
(Percent of labor force)



Sources: OECD, Eurostat, IMF Staff estimates, Statistics Finland.  
Note: NAWRU refers to Non-Accelerating Wage Rate of Unemployment.

Disguised unemployment is projected to return to its pre-crisis average.

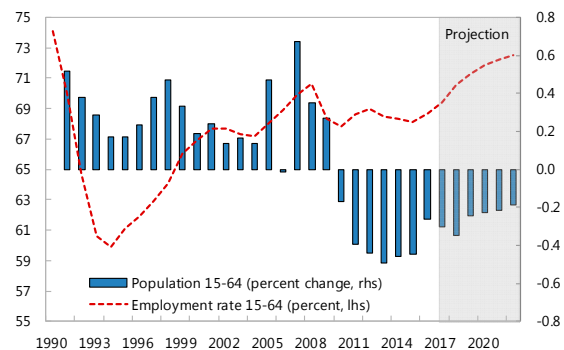
**Disguised Unemployment**



Sources: Statistics Finland and Fund Staff projections.

This, together with activation of other previously inactive persons, would increase employment rates.

**Employment and Working Age Population**

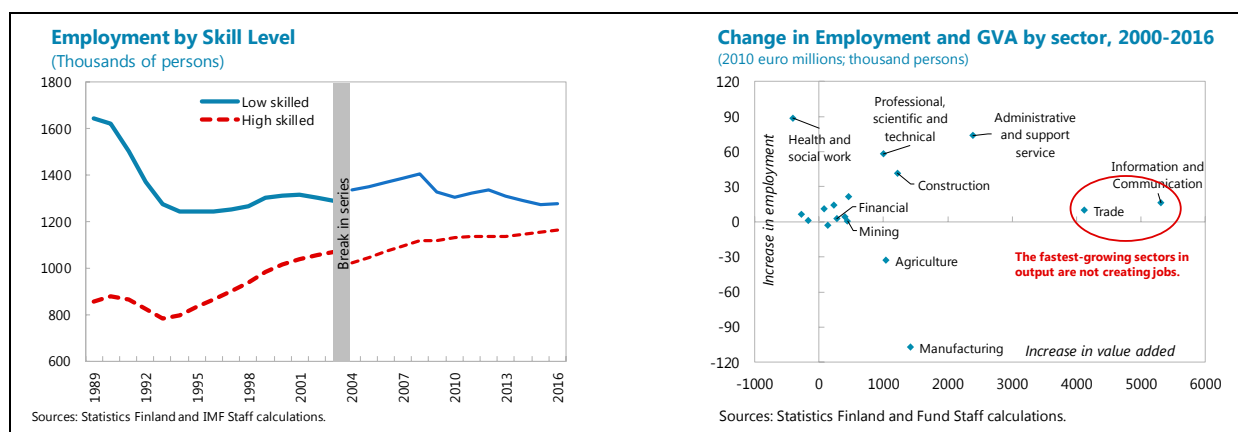


Sources: Statistics Finland and Fund Staff projections.

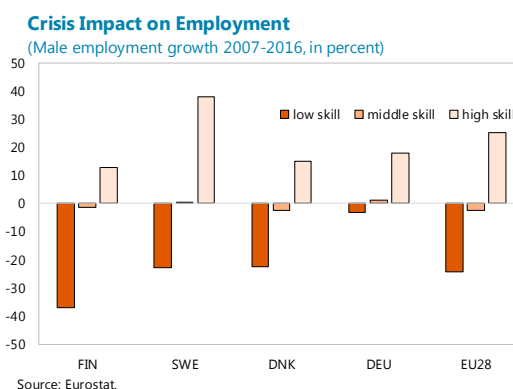
## E. Future Challenges

**38. Going forward, the Finnish labor market will need to adapt to the global trends facing most advanced economies.** The ongoing skill-based technological change (SBTC), and—related to it—automation and routinization of production processes will increasingly affect demand for labor, and the way labor markets operate.

**39. There is some evidence of relative demand shifting toward high-skilled workers already.** Instead of conventional neutral technological progress, which by assumption does not affect the demand for low- versus high-skilled labor, production technologies appear to be shifting to favor skilled over unskilled workers.<sup>22</sup> In Finland, the shift in employment toward higher skill levels began already in the 1990s. More recently, employment of low-skilled workers declined considerably since the GFC, while employment of high-skilled workers increased.<sup>23</sup> At the same time, the increase in employment of the high-skilled in Finland was lower than in the EU on average, and not nearly as strong as in Sweden. This pattern seems more consistent with a deep and long-lasting recession affecting *all* skill levels, relatively, rather than being *driven* by SBTC.



**40. At the same time, the fastest-growing sectors in Finland are not creating jobs.** Over the period 2000–2016, the two sectors with the highest value-added gains—trade, information and communications—have created only few jobs compared e.g. to health and administrative services. This is consistent with developments observed in other countries, and with the nature of technological change. However, it might reflect some sector-specific developments, such as the substantial decline in manufacturing, and the restructuring of



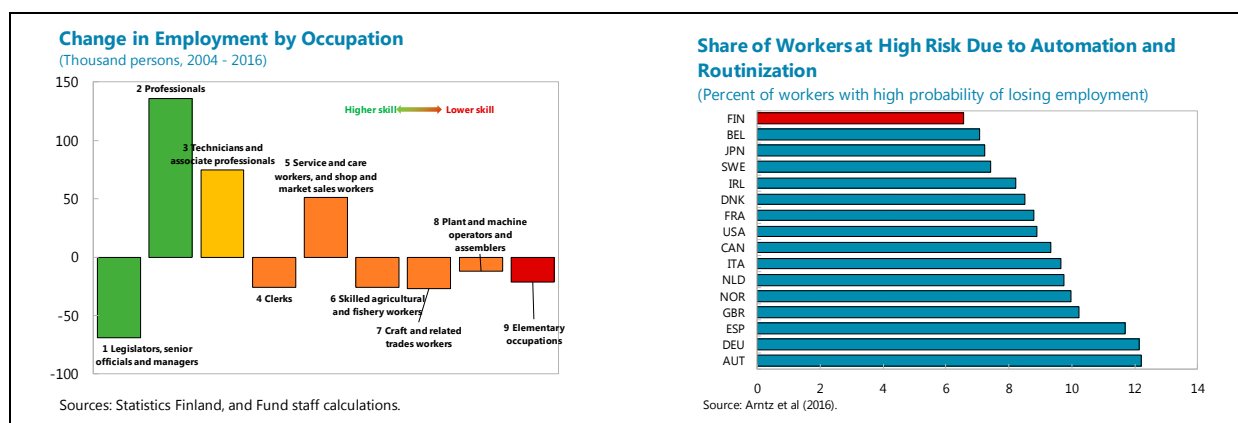
<sup>22</sup> Empirical evidence indicates positive correlation between the use of new ICT and either the employment share of skilled workers or their wage share.

<sup>23</sup> Brynjofsson and McAfee (2014) argue that firms restructure during recessions; when facing SBTC, they will shift more rapidly toward more skilled labor.

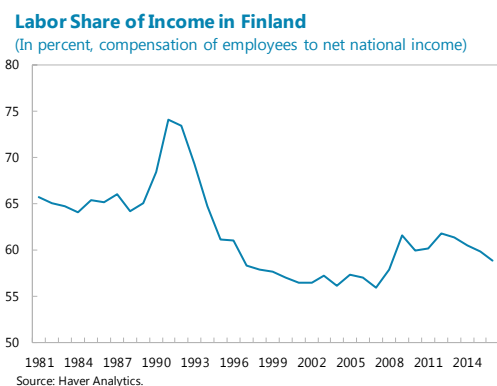


Nokia. In general, the lack of new jobs in the growing sectors could generate pressures on the social insurance model going forward.

**41. Evidence of job polarization in Finland remains mixed.** Starting from the 1970s, the rapid growth of information technologies in advanced economies has resulted in a decline of labor input for routine cognitive and manual tasks, as compared to non-routine analytic and interactive tasks. This shift has taken place across all educational levels.<sup>24</sup> A by-product of routinization and the on-going SBTC has been *job polarization*: decreased demand for middle relative to high- and low-skill occupations. Focusing on Finland, there has been a decrease in employment of some middle-skill jobs (e.g. clerks, plant and machinery operators) over the last years, whereas some middle skill jobs have increased employment (e.g. “face-to-face” jobs in service provision). Looking forward, the OECD ranks Finland relatively low compared to other countries in terms of the share of workers at risk due to further automation and routinization.<sup>25</sup>



**42. The share of national income paid to workers in Finland is lower than in 1980s.** The share of national income paid to workers has declined in most AEs compared to the pre-1990s levels. In Finland, after a steep decline in mid-1990s, the wage share in GNI has been quite stable for the past two decades. It increased after the global crisis as output fell more than labor compensation given that firms retained employees. Most recently, the wage share in GNI started declining again, as firms' capacity utilization is increasing. The decline in the share of national income paid to workers in AEs since 1990s has been associated to the technological change and globalization (IMF, 2017), with the latter implying more frequent offshoring of labor-intensive tasks from the AEs. The lower share of national income attributable to labor is often linked to increased income and wealth



<sup>24</sup> See e.g. Autor et al. (2003).

<sup>25</sup> See Arntz et al. (2016).

inequality, and “hollowing” out of middle class income and employment. Importantly, factors found to be significant for vulnerability to globalization include exposure to value chains—which for Finland is relatively high.

## F. Conclusions

**43. There is substantial scope to increase labor utilization in Finland, given relatively low participation of many groups and relatively high unemployment.** While some of the existing labor market slack will be removed along the ongoing recovery, achieving substantially participation rates will require additional reforms.

**44. Expanding firm-level flexibility in collective bargaining and reforms to labor market institutions could boost labor supply.** Integrating increased wage variation across sectors and firms into the bargaining process, as in Sweden and Denmark, could help alleviate the very high wage compression at the lower end of the pay scale, and better align wages with productivity. Reforms to unemployment and other social benefits, some of which are being explored, should aim to enhance work incentives, lengthen working lives, and increase labor mobility. Improved public employment services could help shorten unemployment spells as well.

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## Appendix I. Okun Relationships

<b>Table A.1: Relationship Between Employment and Unemployment in Finland</b>			
Dependent variable:			
<b>Change in unemployment rate (p.p.)</b>	<b>1973 – 2000</b>	<b>2000 – 2008</b>	<b>2009 – 2016</b>
Change in employment (percent)	-0.644*** (0.048)	-0.277*** (0.061)	-0.656*** (0.079)
Constant	0.397*** (0.125)	-0.126 (0.084)	0.028 (0.095)
Obs.	27	9	8
Adj. R-squared	0.872	0.708	0.907
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1			

<b>Table A.2: Relationship Between Employment and Output in Finland</b>			
Dependent variable:			
<b>Change in employment (percent)</b>	<b>1973 – 2000</b>	<b>2000 – 2008</b>	<b>2009 – 2016</b>
Change in real GDP (percent)	0.742*** (0.098)	0.213 (0.184)	0.288** (0.077)
Constant	-1.954*** (0.400)	0.416 (0.649)	-0.270 (0.255)
Obs.	27	9	8
Adj. R-squared	0.684	0.042	0.652
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1			

<b>Table A.3: Relationship Between Unemployment and Output in Finland</b>			
Dependent variable:			
<b>Change in unemployment rate (p.p.)</b>	<b>1973 – 2000</b>	<b>2000 – 2008</b>	<b>2009 – 2016</b>
Change in real GDP (percent)	-0.522*** (0.064)	-0.066 (0.059)	-0.196** (0.053)
Constant	1.784*** (0.259)	-0.220 (0.210)	0.201 (0.176)
Obs.	27	9	8
Adj. R-squared	0.718	0.026	0.646
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1			

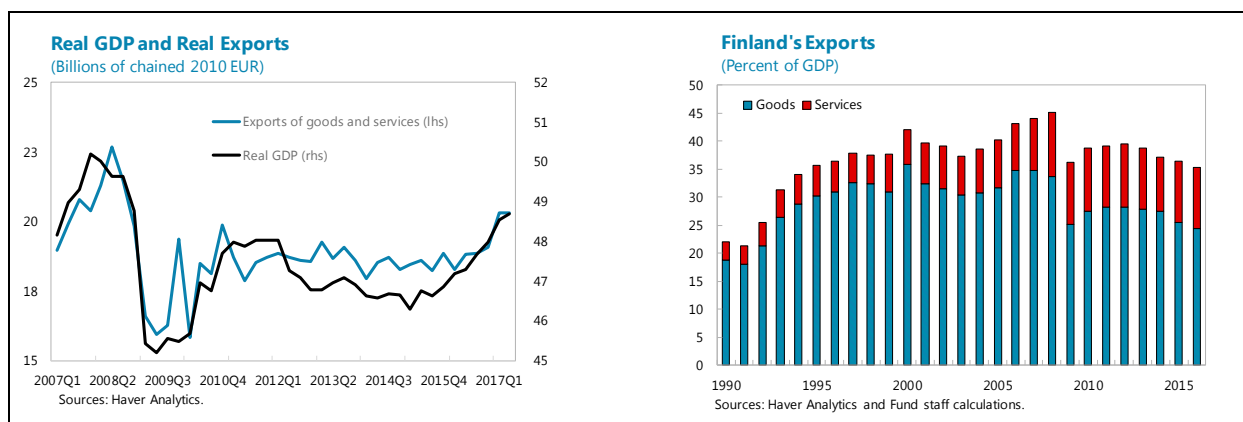
## UNDERSTANDING FINLAND'S EXPORT PERFORMANCE<sup>1</sup>

Finland's weak recovery was associated with very weak exports. Analysis shows that a large part can be accounted for by the fall in aggregate demand in the key export destinations of Russia and the euro area, and by shifts in export composition consistent with the restructuring of Nokia. But these factors do not explain all the shortfall, raising the question of whether it reflects more structural weaknesses. There are few signs of significant product market rigidities facing Finnish exporters; indeed, Finland scores very highly in terms of measures of integration into world trade. It also scores highly in terms of the sophistication of its exports, indicating that reduced share of world exports is not simply a matter of producing the "wrong" products. Deterioration in price competitiveness is another potential explanation. Finnish unit labor cost growth has outpaced that of its peers. A simple model of export demand is able to explain bilateral trade patterns quite well for major trading partners, suggesting that competitiveness losses played a major role in weak exports.

### A. Motivation

#### Why Focus on Export Performance?

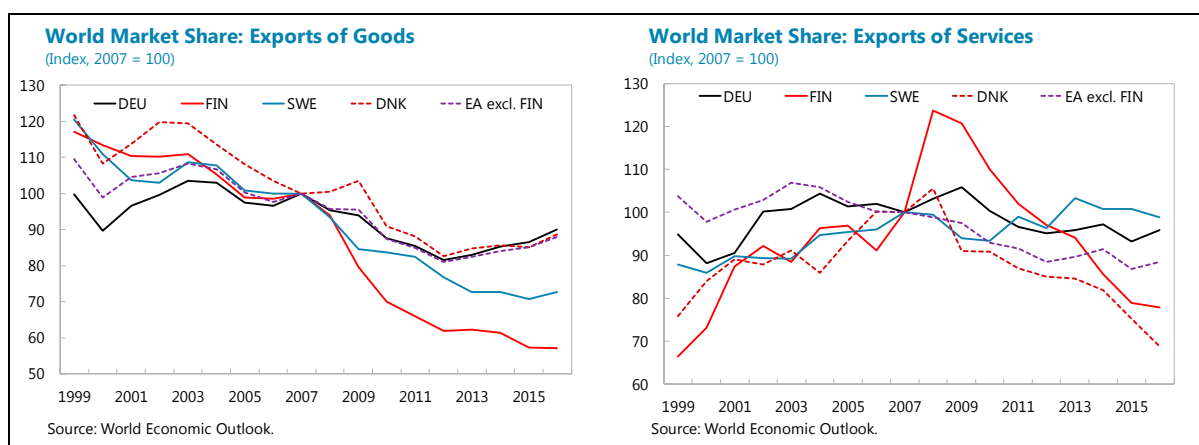
**1. Being a very small and open economy, Finland needs good export performance.** The economy should be sufficiently flexible to adjust to larger exposure to shocks that come with the greater trade openness. But the recovery from the economic crisis in 2008 has been weak, and associated with very weak export performance. This raises an important question of whether the Finland's economy is as diversified as it can be in terms of export destination and products, and is sufficiently competitive and flexible. This paper aims to analyze the key reasons for export decline and separate exogenous shocks from domestic structural issues that need fixing.



**2. The decline in Finland's exports has been associated with a significant loss of market share.** Finland's share of goods exports has declined by more than 40 percent from 2007 to 2015 (from 0.68 to 0.39 percent of world exports); the share of services exports has also declined, by

<sup>1</sup> Prepared by Anna Shabunina.

20 percent. During the same period, many other advanced economies have experienced a downward trend in their market share due to the growing integration of emerging economies in global trade and adverse impact of the global financial crisis. However, Finland's decline in market share was significantly worse than that of its peers, including other Nordic economies. Additionally, there appears to be an inflexion point at the time of financial crisis—the rate at which Finland was losing market share became notably worse than Nordic peers. In recent years, exports have started to recover, but are still 10 percent below their pre-crisis level.



**3. Since 2007, Finland has been exposed to other shocks beyond the common shock of the global financial crisis.** These include shrinking of demand from one of its major partners, Russia, and the restructuring of its largest multinational company, Nokia, which is estimated to have contributed nearly 5 percent of Finland's GDP.<sup>2</sup> A critical question is whether these exogenous shocks fully explain the subpar performance of Finland's exports. To this end, the paper aims to analyze the key reasons of the decline and to separate exogenous and one-off shocks from domestic structural issues. Exogenous shocks are split in two types: i) country-specific export demand shocks; and ii) industry-specific changes to the size of product in global market. On the structural front, there are several potential types of weaknesses to consider: i) impediments to exporting (e. g. the regulatory environment) and integration into world trade; ii) impediments to product innovation and adaptation; iii) productivity weaknesses (e.g. inefficient factor allocation); and/or iv) cost competitiveness.

### ***Was it all Just Bad Luck?***

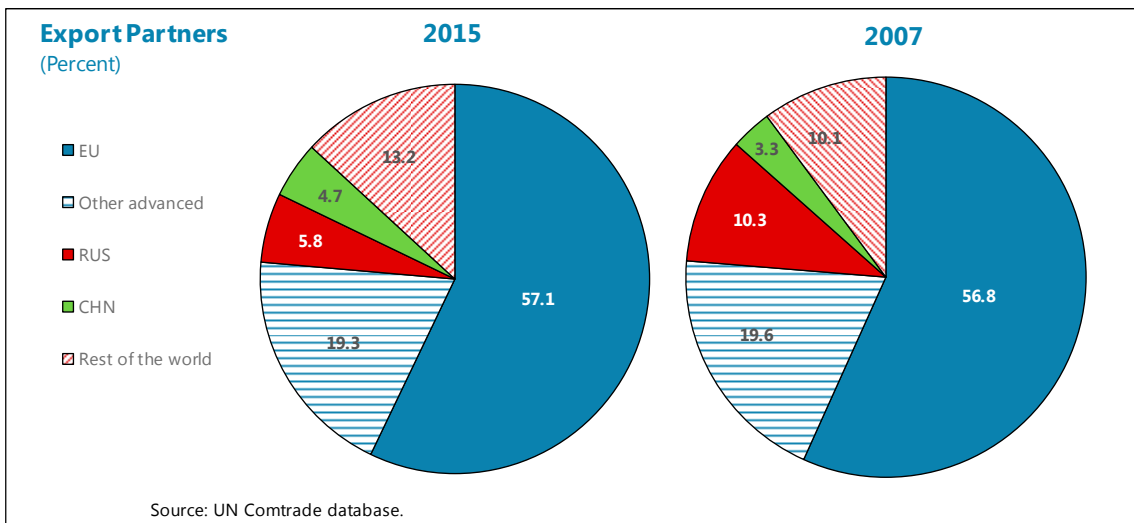
## **B. Export Development by Product Market and Geographical Destination**

**4. Finland's exports were largely focused on advanced economies that were hit the most by the crisis** and had lackluster recoveries in its aftermath. Around 75 percent of Finland's exports were directed to EU and other advanced economies. Additionally, before the crisis Finland had a large exposure to Russia that was hit by economic problems and falling commodity prices. In general, the orientation of Finland's exports meant it did not benefit from countries that had the

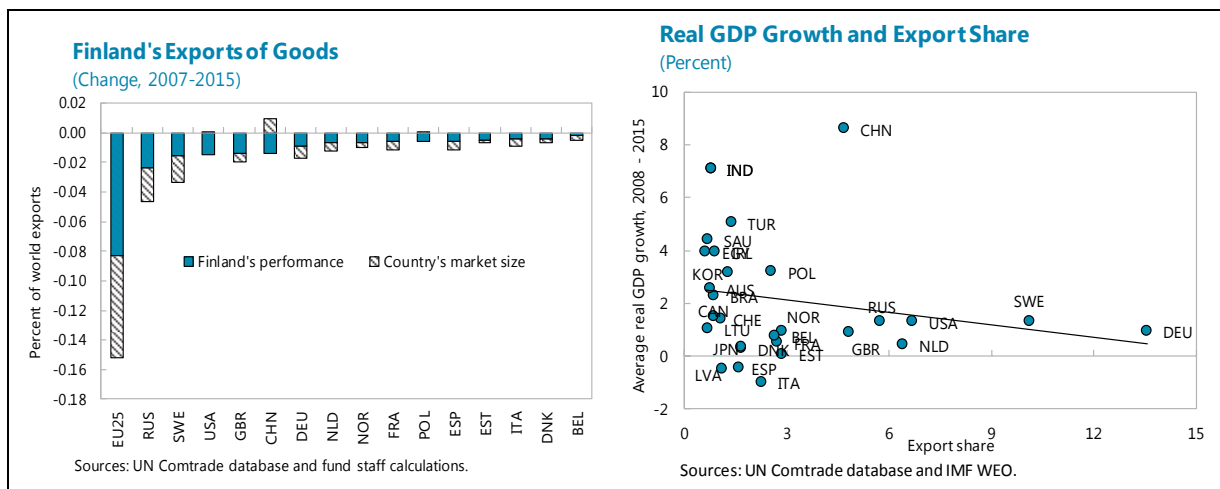
<sup>2</sup> See Ali-Yrkkö (2010).



strongest recoveries. Since 2007, Finland’s share of total world exports of goods has declined across all its major partners, except for China and Poland.



**5. However, Finland was losing market share even conditional on the geographical structure of demand.** The text figure shows the constant share decomposition into the change of the market size and relative performance by Finland’s exports. Indeed, the decline in the relative market size of Finland’s major export markets (“Total”) was responsible for one third of the total decline after the crisis, while the relative performance of Finland’s exports (blue bars) has fallen across all major trade partners explains two thirds of the decline. In China (and to some extent Poland) its effect was outweighed by the growing market size, but the absolute share of Finland’s exports to fast-growing emerging economies remains relatively low.



**What Was the Role of the Large Exposure to Russia?**

**6. The shrinking Russian market after the 2008 crisis had a large negative impact on Finland’s exports.** The text figure shows the contribution of Russian market to Finland’s exports growth. More than half of the decline in Finland’s exports to Russia since 2008 was due to the

economic difficulties and contraction of aggregate demand of the Russian market (striped bar 2008), but more than 40 percent is accounted due to the relative performance of Finnish products. In contrast, the recent decline (2014–2015) in Finland's export share is largely due to the decline in Russia's market, probably due to sanctions that started in 2014.

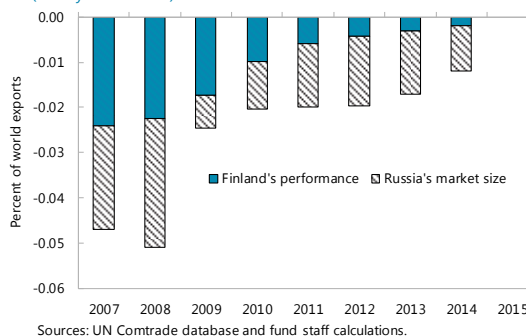
### ***Was Finland Exporting the "Wrong" Products?***

**7. The decline in machinery and electronics sectors was by far the main cause of Finland's exports decline since the crisis.** Before the crisis, Finland's exports were largely concentrated in two sectors: machinery and electronics accounted for 34 percent of total exports, and wood and pulp almost 20 percent; by 2015, these shares had changed to around 22 percent each due to a sharp decline in machinery and electronics. The text figure shows the change in Finland's world market share by sector, decomposing it in the change in relative size of the product market (red bar) versus Finland's relative performance (blue bar). The world share of Finnish goods exports has declined across all industries, except for miscellaneous items, minerals and fuels. Apart from machinery and electronics, Finland notably lost market share in metals, chemicals, transportation, fuels and wood industry. In wood, pulp and paper industry, fuels and metals, the decline was largely driven by the shrinking global demand for this product (red bar). In machinery and electronics, chemicals, and transportation it was due to the loss of competitiveness (blue bar), which in machinery and electronics was only partially attenuated by the growing product market size.

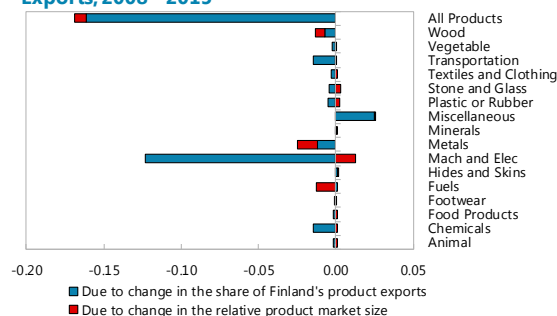
### ***What Was the Role of the Telecommunications Industry ("The Nokia Effect")?***

**8. The Nokia effect was substantial:** the telecommunication industry alone was responsible for more than 30 percent of Finland's total market share loss since 2007 (and for half of machinery and electronics sectors' exports decline). The decomposition shows that this was predominantly due to the loss of product market share by Finland. Indeed, global demand for telecommunication products has increased during the same period. The key factor contributing to the decline was the loss of market position, followed by restructuring, of Finland's largest multinational, Nokia. Most other

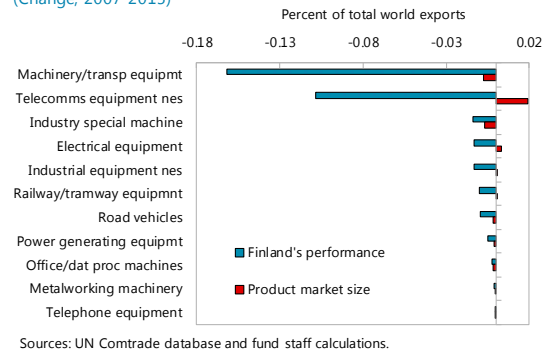
**Finland's Exports to Russia**  
(Base year to 2015)



**Change in the Share of Finland's Exports in World Exports, 2008 - 2015**



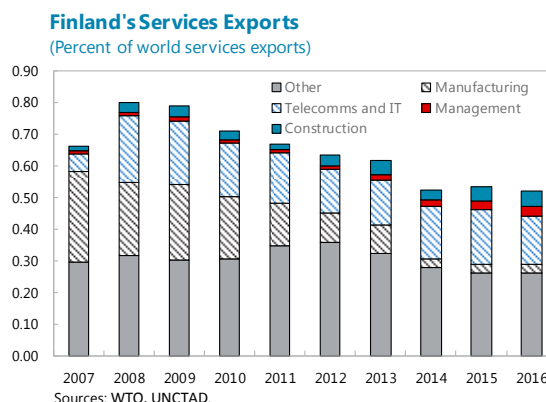
**Finland's Machinery and Electronics Exports**  
(Change, 2007-2015)



subsectors of machinery and transportation industry also experienced a decline in market share, however, to a considerably smaller degree.

### ***What Happened to Services Exports?***

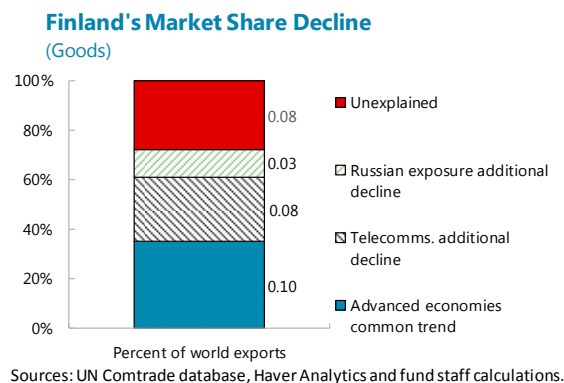
**9. The Nokia effect also carried over to services exports.** Finland also lost market position in services exports, which declined from 0.7 percent of world services exports in 2007 to 0.5 in 2016. There was a significant increase in IT services in 2008, responsible for the sharp growth that year, which was partially reversed in 2010. The evaporation of manufacturing services explains most of the decline in Finland's market share in services. Positive gains (2014–2016) in construction, professional management and consulting, mitigated the decline. In the past three years, services exports have kept track of world services exports.



### ***Do Common Trends and Exogenous Shocks Explain it all?***

**10. Common trends and exogenous shocks explain a substantial proportion, but certainly not all, of the decline in exports.** The decomposition below attempts to get an approximate answer to the question of whether two adverse shocks experienced by Finland in addition to the global financial crisis and secular negative trend shared with other advanced economies fully explain Finland's exports underperformance.

- From end-2007 to 2015, Finland has lost 43 percent of its market share, which declined from 0.68 percent to 0.39 percent of world goods exports. During the same period, other EU economies lost on average 12 percent of the market share. If Finland's exports had followed a similar trend, their share in the world market would have been 0.58 percent, a 0.10 percentage points difference (blue).
- The total decline in Finland's telecommunication equipment exports, netted off 15 percent of a general decline accounted above, accounts for 0.08 percentage points of the world market exports (orange).
- The total decline in exports to Russia (with the exclusion of general decline and telecommunications sector) amounts to 0.03 percentage points of world exports (grey).

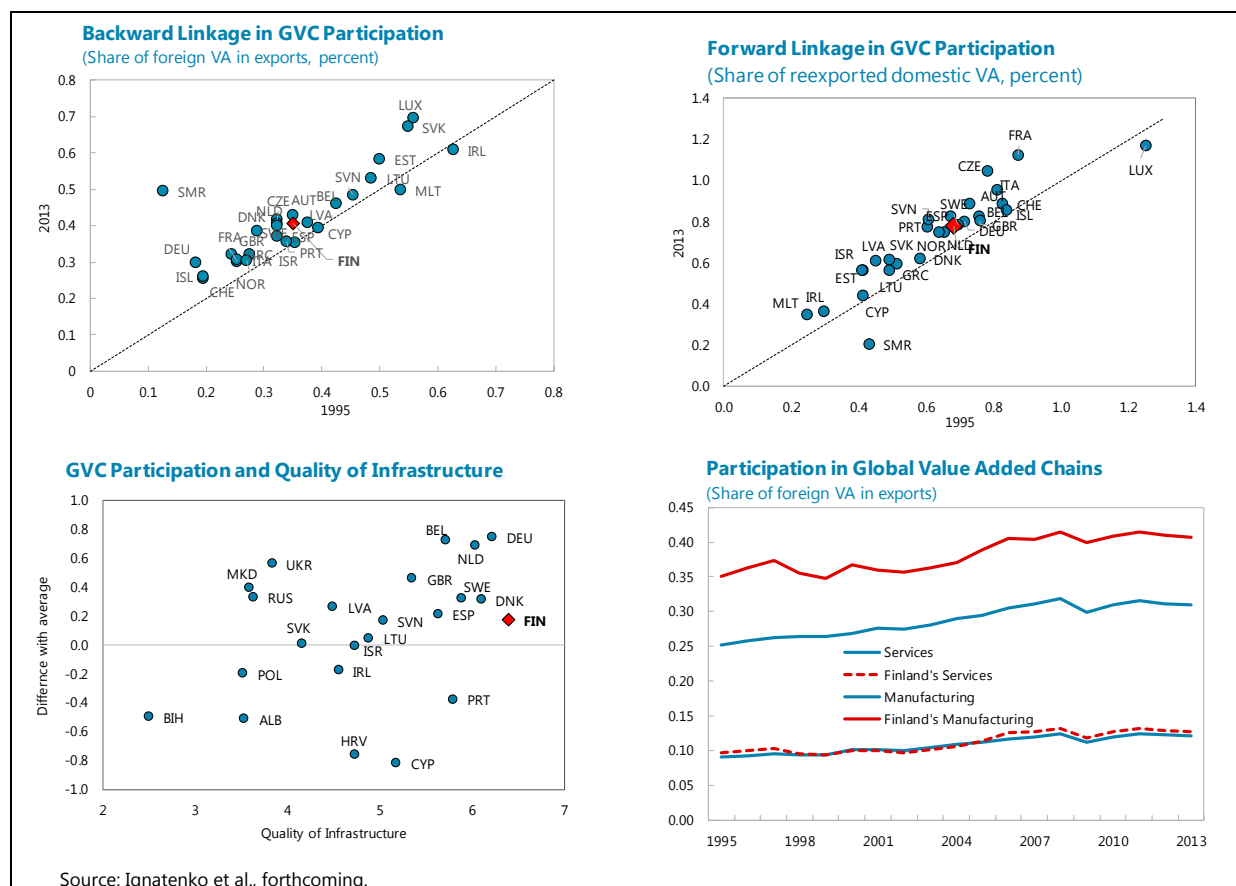


Hence, about 0.08 percentage points of loss of world market share is unexplained by the common trend in advanced economies and the two major exogenous shocks faced by Finland—in other words, “bad luck” does not fully explain the exceptional fall in exports<sup>3</sup>.

### C. GVC Integration and Complexity of Exports

#### *Has Finland missed out on the recovery in global trade by not being sufficiently integrated?*

**11. Finland is well integrated** in global value added chains (GVCs), with its manufacturing participation being well above the average. As world production has become more organized around GVCs, most European countries have increased their participation in GVCs from 1995 to 2013.<sup>4</sup> Countries that were slow in the process of integration into GVCs have experienced declining market share. Finland, being above average in GVC integration (measured as the share of foreign value added in total exports), has been increasing its participation in manufacturing and to a smaller degree in services. Finland’s overall rate of integration has not been worse than the rest of the world. Finland has increased both backward and forward GVC integration, in line with European peers.<sup>5</sup>

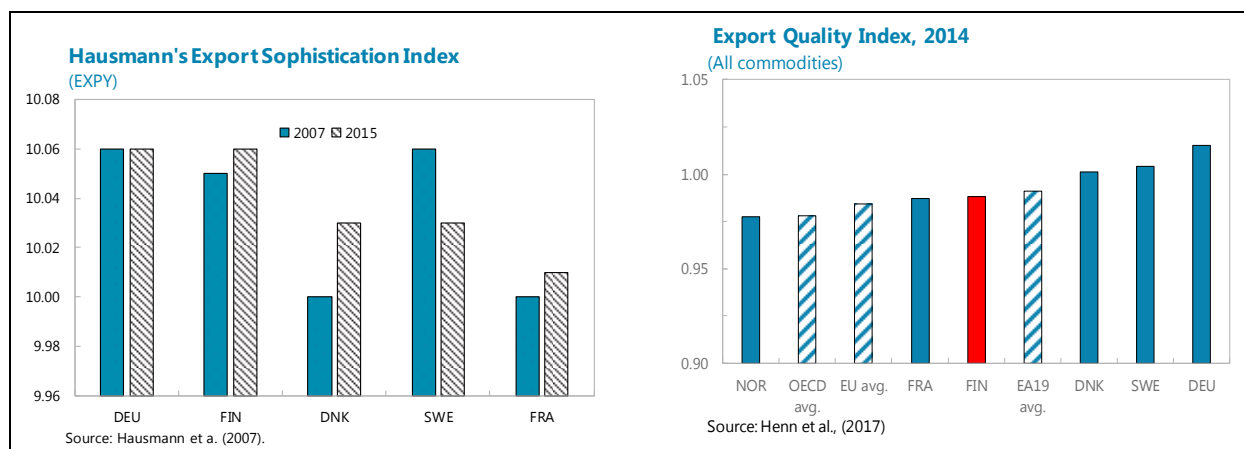


<sup>3</sup> These results are in line with those in the 2017 No.3 Bank of Finland Bulletin (p. 66), which decomposes Finland’s fall in export market share into composition effects and competitiveness effects.

<sup>4</sup> See Ignatenko et al. (forthcoming).

<sup>5</sup> Backward integration is measured as the share of foreign value added in exports. Forward integration is measured as the share of reexported value added in exports.

**12. Finland also ranks highly on export quality and sophistication.** Hausmann et al. (2007) have demonstrated that the mix of goods that a country produces has important implications for economic growth. The authors designed an export sophistication index, which estimates the average “income level of a country’s exports”. Finland’s export sophistication index has increased over 2007–2015 to the level of Germany, and is above the Nordic peers. Finland also ranks high on another export quality indicator, that improves with exported product unit values with granular disaggregation at SITC 4-digit-plus level<sup>6</sup>.



## D. Non-price Competitiveness and Regulation

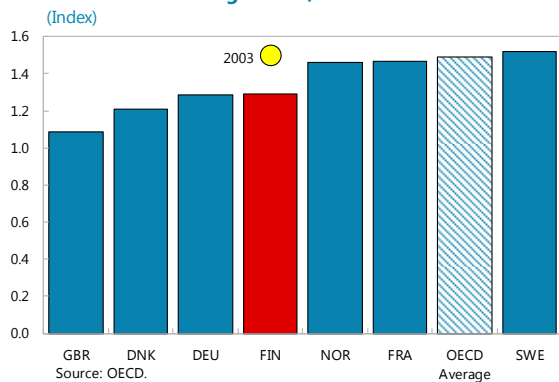
### *Are There any Structural and Regulatory Issues that Prevent Flexible Responses?*

**13. Finland ranks well in terms of the regulatory environment and competitiveness,** based on World Bank Doing Business, OECD Product Market Regulation, and World Global Competitiveness surveys. Overall, Finland’s Product Market Regulation score is substantially better than the OECD average and has declined significantly since 2003. Finland scores below the average of advanced economies in an index component that assesses regulatory impediments to entrepreneurship. Finland ranks particularly well with respect to low barriers to trade and investment according to the OECD (Figure 1, chart 4). On the overall ease of trading across barriers, the World Bank ranks Finland to be slightly below the OECD average but above Germany, and the Global Competitiveness Index places Finland among the top three countries in terms of the low burden of customs procedures.

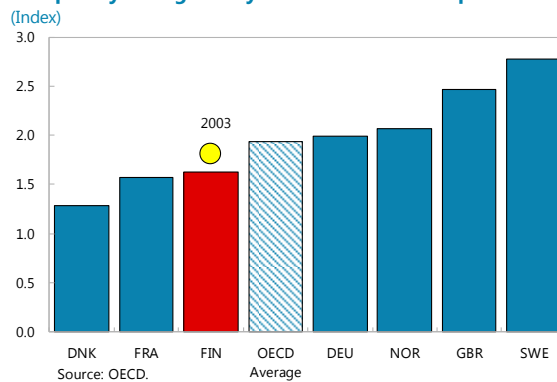
<sup>6</sup> See Henn et al. (2013).

**Figure 1. Product Market Regulation**

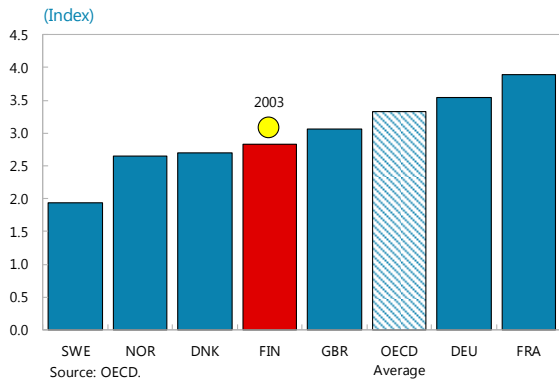
**Product Market Regulation, 2013**



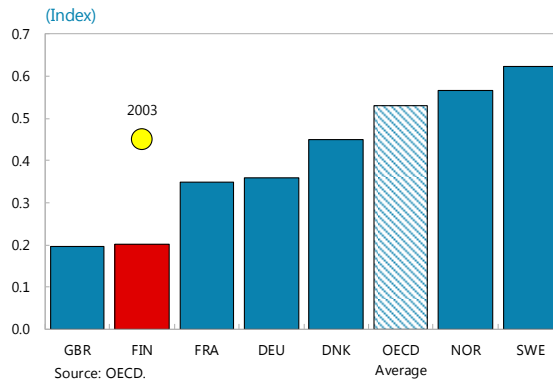
**Complexity of Regulatory Procedures for Entrepreneurs**



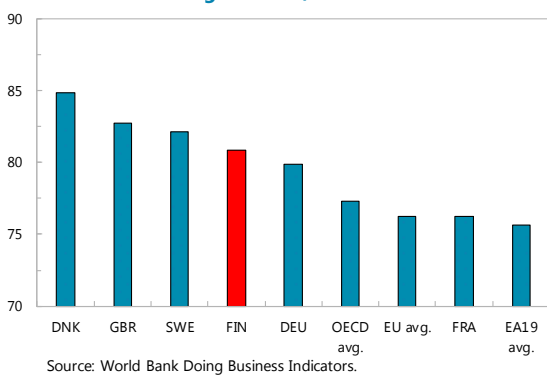
**Barriers in Services Sector, 2013**



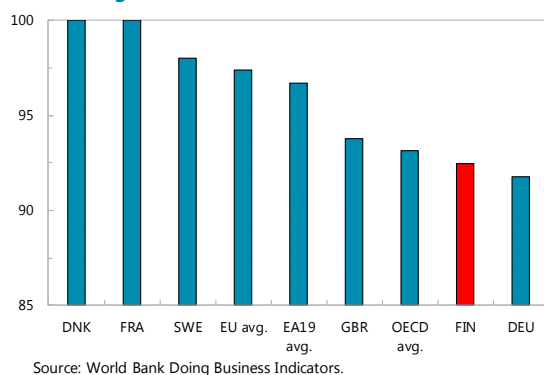
**Barriers to Trade and Investment, 2013**



**Overall WB Doing Business, 2017**

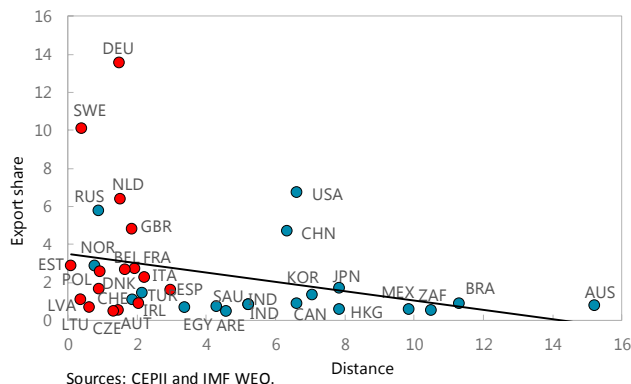


**Trading across Borders, 2017**



**14. Geography is likely to be the most important structural factor.** Finland’s slow change in geographical export orientation is more likely to result from its geographical proximity to the Euro area and Russia. Indeed, in line with the standard gravity models, the partner’s export share is highly correlated with its distance to Finland. But overall, the relative comparison of non-price competitiveness indicators does not reveal any obvious impediments to exports, or exporting the wrong things, or to the wrong countries given geographical position. Thus, to look for the explanation of the remaining gap in export decline, next section turns to the trends in labor costs and productivity.

**Distance and Export Share**  
(Percent and thousand km)

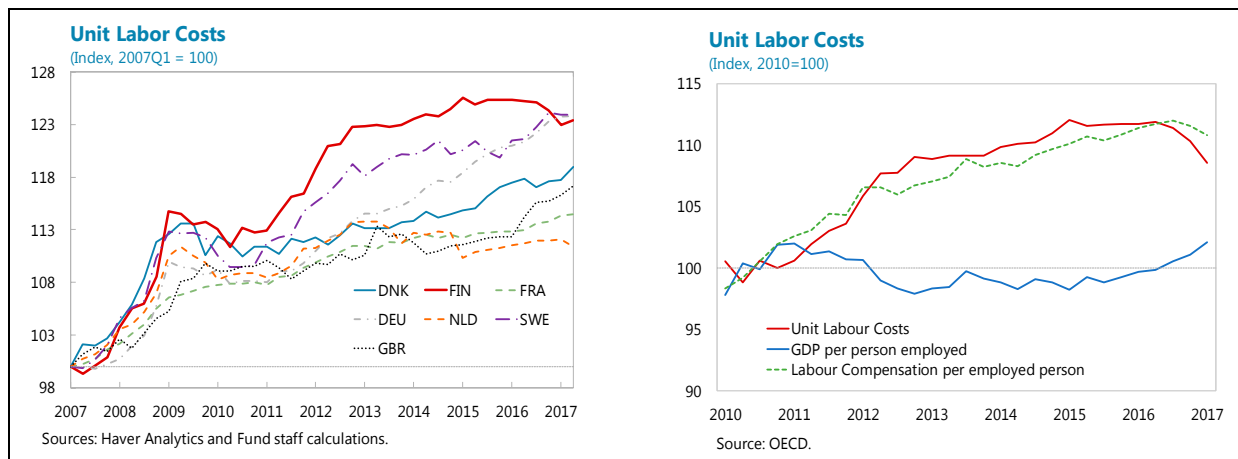


Sources: CEPPI and IMF WEO.

### E. Cost Competitiveness

#### What Was the Role of Wage Growth Relative to Productivity?

**15. Unit labor cost growth in Finland has significantly outpaced the average growth in the EU countries and its Nordic peers.** Although some of the deterioration in ULCs came from a slump in labor productivity, most was from increases in nominal wages.



**16. To look at the role of cost competitiveness, in-sample predictions from a simple export demand specification are tested.** The specification simply relates Finnish exports to country *j* to relative prices and demand, or, more precisely

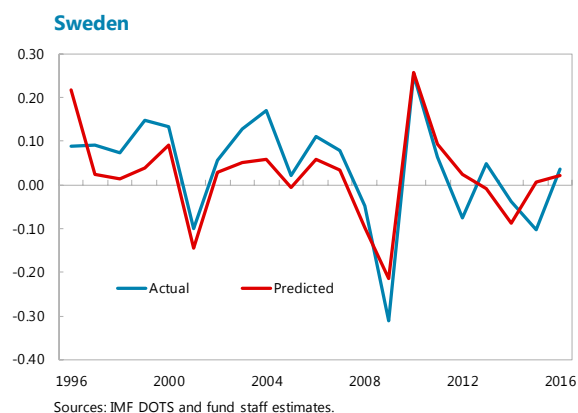
percent change in real exports to country  $j$  =

$$\text{price elasticity} \times \text{percent change in bilateral real exchange rate}^7 + \\ \text{income elasticity} \times \text{change in real GDP in partner country } j$$

Based on values in the literature, the price elasticity used was 1.8 and the income elasticity 0.97.<sup>8</sup>

### 17. The simple model performs well in most

**cases.** As seen in Figure 2, The in-sample projections fit bilateral export patterns for most of the major trading partners quite well<sup>9</sup>. For example, the in-sample projection follow the actual path of exports to Sweden (the second largest share of Finland's exports) very closely during the post crisis period (text figure). As it has already been seen that simple market size (i.e. export demand) explains only about one third of export fluctuations, the implication is that relative prices (i.e. cost competitiveness) explains the majority.



<sup>7</sup> The real exchange rate used was a CPI-based real exchange rate, to be consistent with the estimates of elasticities from the literature; to the extent that the ULC-based real exchange rate appreciated by more than the CPI-based real exchange rate, the ULC-based real exchange rate likely would explain more of the variation than the CPI-based exchange rate.

<sup>8</sup> See, respectively, Tokarick (2014) and Bahmani-Oskooee and Kara (2005).

<sup>9</sup> The shares of the top twenty trading partners in 2015 are listed in Appendix I.



**Figure 2. Bilateral Exports**  
(Growth rate, yoy)



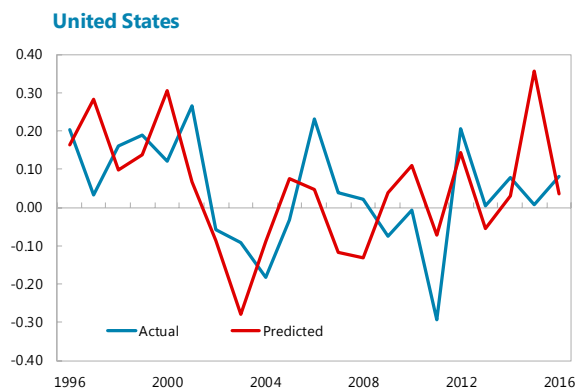
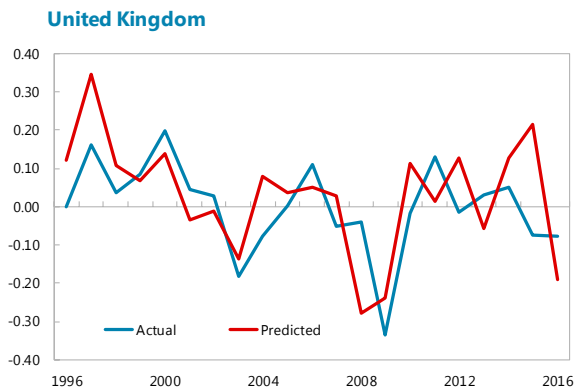
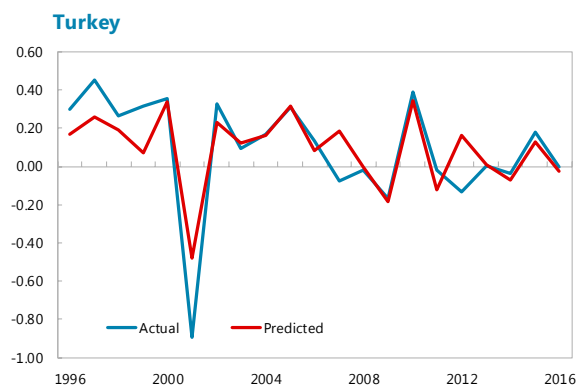
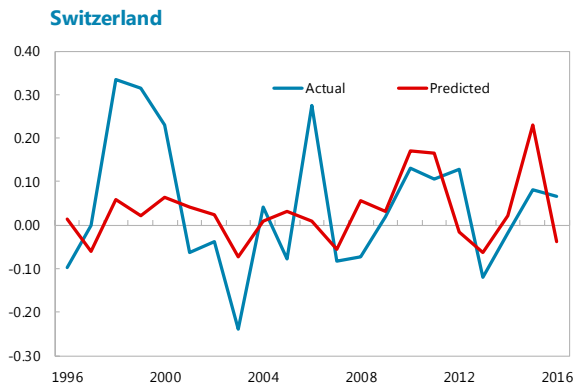
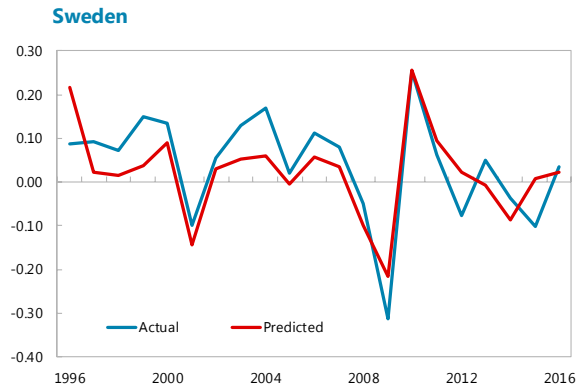
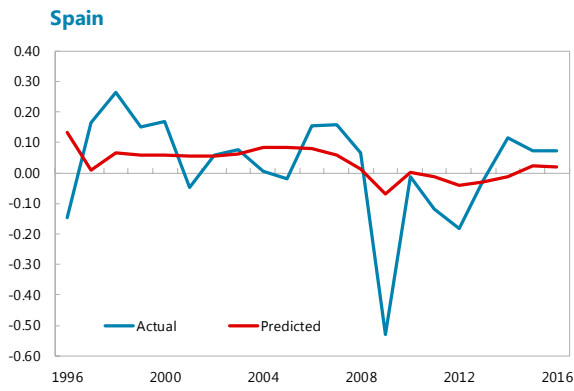
Sources: IMF DOTS and Fund staff estimates.

**Figure 2. Bilateral Exports (continued)**  
(Growth rate, yoy)



Sources: IMF DOTS and Fund staff estimates.

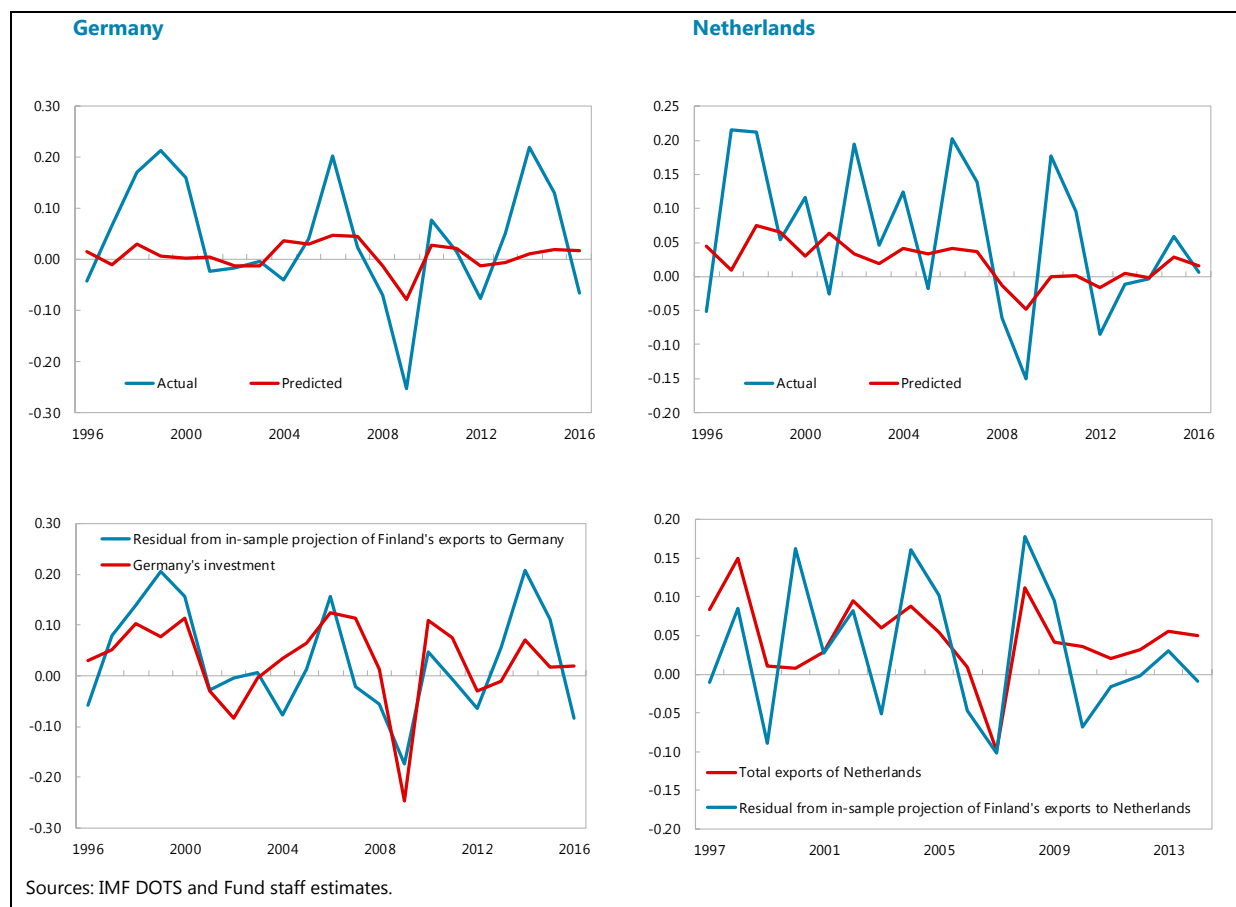
**Figure 2. Bilateral Exports (concluded)**  
(Growth rate, yoy)



Sources: IMF DOTS and Fund staff estimates.

### 18. Exports to Germany and the Netherlands are explained well with simple modifications.

The German capital investment cycle improves the fit of that specification considerably, consistent with the fact that Finland exports a high proportion of intermediate goods and is tightly connected via value chains. In the case of the Netherlands, the addition of Netherland's own exports aids fit, consistent with re-exporting via Rotterdam.



## F. Conclusions

**19. Finland's weak recovery was associated with very weak exports.** Potential explanations include simple bad luck, in the form of exogenous shocks; underlying structural weaknesses; and endogenous developments. The analysis in this paper shows that a large part can be accounted for by bad luck—namely, the fall in aggregate demand in the key export destinations of Russia and the euro area, and by shifts in export composition consistent with the restructuring of Nokia. But these factors do not explain all the shortfall. Fortunately, aside from the obvious factor of geographical proximity and “gravity” effects, there are few signs of underlying structural weaknesses, such as product market rigidities inhibiting Finnish exports; indeed, Finland scores very highly in terms of measures of integration into world trade and the sophistication of its exports, indicating that reduced share of world exports is not simply a matter of producing the “wrong” products. But endogenous developments appear to have played a key role: Finnish unit labor cost growth

outpaced that of its peers during the period in which Finland was hit by the major exogenous shocks. A simple model of export demand explains trade patterns quite well. In sum, the evidence suggests that exogenous shocks and endogenous—but reversible—developments affecting competitiveness can account for weak exports over the past decade.

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## Appendix I. Finnish Exports by Destination

Finnish Exports by Destination		
Rank	Country	Share (percent)
1	Germany	13.57
2	Sweden	10.14
3	United States	6.71
4	Netherlands	6.41
5	Russian Federation	5.77
6	United Kingdom	4.85
7	China	4.69
8	Estonia	2.89
9	Norway	2.87
10	France	2.75
11	Belgium	2.68
12	Poland	2.57
13	Italy	2.28
14	Denmark	1.69
15	Japan	1.68
16	Spain	1.63
17	Turkey	1.40
18	Korea, Rep.	1.30
19	Latvia	1.13
20	Switzerland	1.07

Source: UN Comtrade database and Fund staff calculations.