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FINLAND

Selected Issues

Fiscal Sustainability in Finland: The Role of Population Aging and Structural Reforms

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Approved by the European Department

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I. Introduction and Overview

1. **Although Finland's present fiscal position is relatively comfortable, especially in a comparative EU context, the long-term outlook is much less sanguine**. Demographic projections suggest that the full impact of population aging would arrive in Finland about a decade earlier than in most other European economies. Moreover, with Finland's extensive public provision of welfare services, the effects of the changes in the population structure on the public finances are anticipated to be especially pronounced. While economic growth—driven by the emergence and rapid expansion of the high-technology sector—has been strong in recent years, potential growth is likely to slow sharply as the labor supply begins to shrink.

2. **Staff analysis suggests that, in the absence of further structural reforms, sizeable fiscal surpluses would be required over the coming decade to meet the demographic shock**. Staff's baseline projections suggest that, on present policies, a permanent fiscal adjustment of about 2 percent of GDP is required to ensure sustainability. The conclusion of this scenario mirrors that of the authorities' own assessment, which suggests that the currently envisaged general government surpluses of about 2 percent of GDP for the rest of the decade will eventually result in accelerating public debt, as the fiscal costs of aging materialize. In the same vein, a recent OECD study suggests that—assuming no further pension reforms, potential output growth of 2¼ percent and even some increase in employment—a permanent fiscal adjustment of 1 percent of GDP would be needed to avoid a sharp deterioration of the government net asset position by 2050. A significant fiscal tightening would be needed under the authorities' present policies to achieve the required adjustment.

3. **The authorities have taken important steps which go some way towards addressing the demographic challenge**. The pension reforms being phased in at the beginning of 2005 are expected to enhance labor supply by raising the effective age of retirement and promoting higher labor participation. Competition in product markets has gradually risen in recent years, especially in communications, air transport and retail trade, which could raise the economy's growth potential. Nevertheless, there is significant scope for further reforms of the pension regime, promoting greater competition in product markets, and facilitating a more flexible labor market, perhaps by moving towards a more decentralized wage formation.

4. **Further structural reforms encompassing labor and product markets, as well as the pension system, would substantially improve the outlook for fiscal sustainability**. Finland's employment ratios are relatively low in comparison to other Nordic economies, especially at both ends of the age spectrum. This reflects in part long education periods, multiple avenues to early retirement, and labor market mismatches, especially for the less skilled. Job creation is also hindered by barriers to entry in some sectors, which discourages innovation and allocative efficiency. Despite Finland's high rankings in "soft" measures of

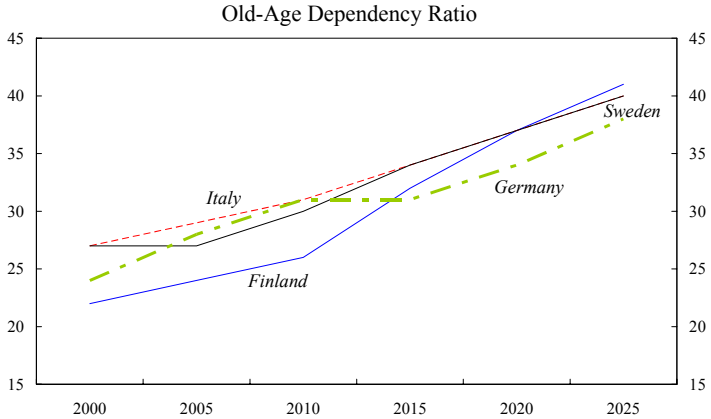
competitiveness based on its institutional and educational strengths, it lags behind in "hard" measures such as the tax burden, labor costs and the flexibility of wage formation.[1]

5. **A holistic approach to reforms is likely to initiate a virtuous circle of higher growth and stronger public finances, reducing the need for fiscal adjustment**. For instance, the authorities have cut taxes on labor income significantly in recent years, with further reductions in train, with a view to promote employment, although tax rates and labor tax wedges remain high by international comparison. The payoff from such tax cuts in terms of growth and employment is likely to be higher if they are complemented with steps to reduce labor and product market rigidities. Staff estimates presented in this paper using a computable general equilibrium model, calibrated to the Finnish economy, suggest that a more extensive combination of labor and product market reforms could substantially improve the long-term fiscal outlook. Indeed, the staff's assessment is that the magnitude of long-term fiscal adjustment otherwise necessary for fiscal sustainability could be halved. Such a package, supported by further pension reforms and efforts to raise the efficiency of public spending, especially at the local government level, could create room for further reductions in the tax burden on labor, with attendant beneficial effects on growth.

6. **The structure of the paper is as follows**. Section II reviews the economic and policy background, including developments in demography, labor and product markets, and recent structural reforms. Section III presents the baseline fiscal scenario on present policies—including the pension reforms recently put in place—and the fiscal adjustment necessary to ensure sustainability. Section IV presents the alternative scenario, based on the staff's estimates (using the IMF's Global Economic Model–GEM) of the macroeconomic impact of a more comprehensive set of labor and product market reforms, and the resulting residual fiscal adjustment. The section then discusses possible further measures, including additional pension reforms, that would allow a further reduction in the tax burden. Section IV presents concluding remarks.

II. Background and Policy Setting

7. **Finland faces the demographic challenge of aging earlier than most other advanced economies**. The old-age dependency ratio—defined as the ratio of the population aged 65 and older to those 15–64 years old—is projected to rise from 25 percent in 2000 to around 37 percent by 2020, the fastest pace of increase in the OECD. Driven by



Source: United Nations.

[1] See, for example, Vartia and Nikinmaa (2004).

declining fertility rates and rising life expectancies, the ratio is projected to continue rising thereafter, eventually reaching over 48 percent by 2050. Although the extent of aging by 2050 would be comparable to that in other industrialized countries, Finland will experience the impact much earlier than others, with its dependency ratio expected to be among the highest in the EU by 2025. This implies that to effectively address the pressures from aging, Finland will have a shorter window for policy action than will other countries.

8. **The economic impact of aging will be major, spanning a variety of dimensions**. As elsewhere, the change in the age structure of the population will lead to pressures on public spending devoted to pensions, health and long-term care. In the Finnish case, the increased spending on old-age pensions is projected to account for the bulk of the increase in age-related public spending, with the latter projected by the staff to increase from about 27 percent of GDP in 2000 to 36 percent of GDP in 2050 (see Section III). As the effective supply of labor shrinks with the fall in the population of working age, potential growth is likely to decline, unless offset by productivity gains. The lower potential growth, in turn, is likely to reduce the tax base, intensifying the strains on the public finances.

A. The Public Finances: Falling Surpluses and A High Tax Burden

9. **Finland's current fiscal position is comparatively strong**. Expenditure restraint and rapid economic growth, led by the high technology sector, combined to bring about a sharp turnaround in the public finances in the second half of the 1990s. The overall surplus of the general government peaked at 7 percent of GDP in 2000, benefiting from large increases—some temporary—in tax revenues. However, since then, the surplus has fallen sharply to about 2 percent of GDP in 2004, reflecting a sizable discretionary policy shift (equivalent to some 3¼ percent of GDP) in the face of the downturn of the early 2000s. The public sector's gross debt has fallen to 45 percent of GDP and its net assets are of the order of 10 percent of GDP at the end of 2004.

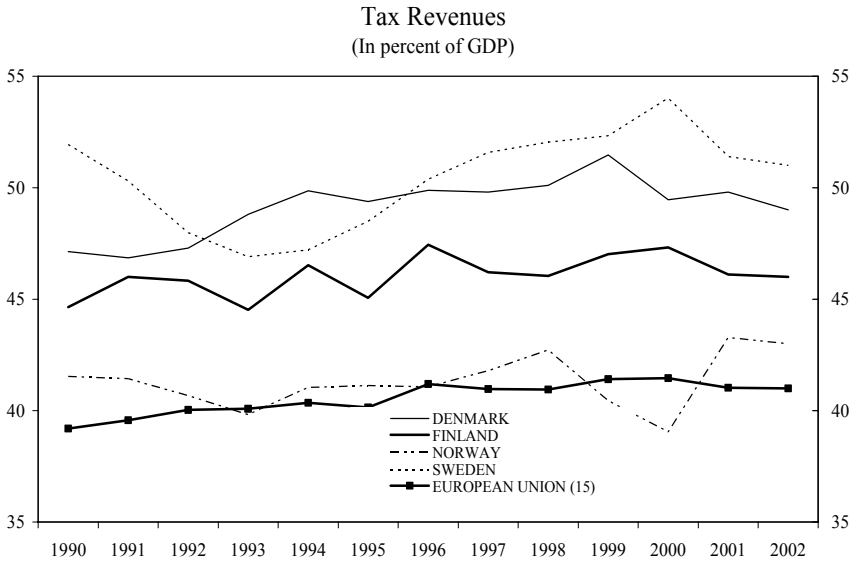
10. **However**, **in assessing the strength of the fiscal position, some important caveats are in order**. Finland's faster pace of aging than that in most other EU countries implies a need for earlier fiscal adjustment. Moreover, the sizeable surpluses of the general government are more than accounted for by the public pension funds. Indeed, abstracting from these pension fund surpluses, the central and local governments were in small deficits in 2003–04. The Stability Program of the government (November 2004 update) projects a continuation of this deficit into 2008, amounting to over ½ percent of GDP.[2]

11. **Pressures on public spending are likely to be especially intense at the local government level**. Municipalities are largely responsible for providing most social services, including primary healthcare and institutional and home-based help for the elderly, areas expected to expand strongly with population aging. Moreover, in contrast to tight

[2] Ministry of Finance (2004a).

expenditure controls in the mid- and late-1990s, recent slippages in efficiency in the provision of these services are worrisome. These trends have tended to affect adversely local government finances, prompting increases in local income tax rates, at times frustrating central government efforts to reduce the tax burden.

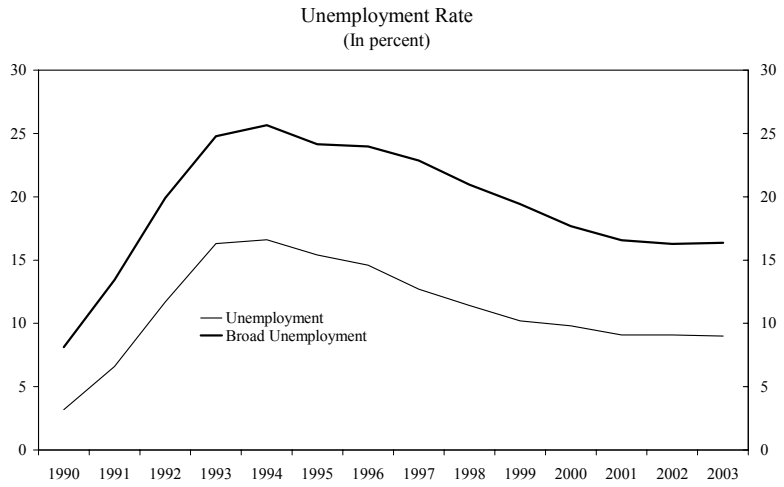
12. **Despite recent tax cuts, Finland's tax burden remains among the highest in the world**. The overall tax ratio in Finland is about 5 percentage points of GDP higher than the EU average, exceeded only by Sweden and Denmark. The marginal tax wedge on labor remains also well above the OECD average, and high marginal tax rates set in at comparatively low income levels. The 2005 budget includes a three percentage point reduction in the corporate tax rate (to 26 percent), and a one percentage point cut (to 28 percent) in the personal capital income tax rate. Moreover, in the context of a recently agreed moderate central wage negotiation, the authorities have pledged a further one percentage point of GDP reduction in labor taxes through 2007. Without offsetting expenditure cuts or higher revenues from an induced rise in employment, these tax cuts are likely to raise the burden of fiscal adjustment, ahead of the onset of aging-related spending pressures.



Source: OECD.

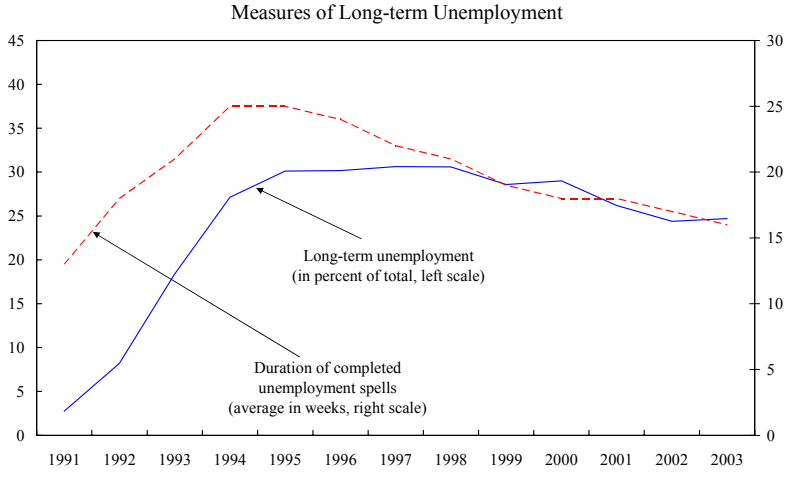
B. The Labor Market: High Structural Unemployment and Shrinking Labor Supply

13. **Despite efforts to boost employment, labor resources remain underutilized**. The unemployment rate is much higher than in the other Nordic countries, although it is close to the EU average. After peaking in 1994 at almost 17 percent of the labor force, following the severe recession in the early 1990s, the unemployment rate fell until 2000; however, since then it has hovered at about 9 percent. A broader definition of unemployment, including "disguised unemployment," is about 16 percent of the labor force.[3]



Source: Finnish authorities.

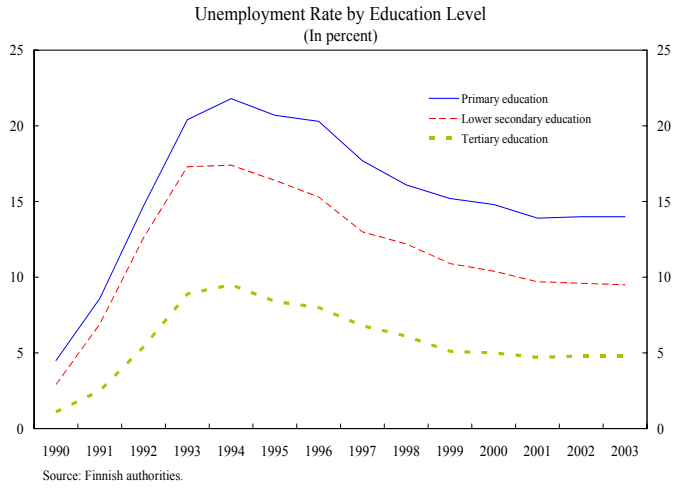
14. **A variety of indicators point to an inflexible labor market**. The share of long-term unemployment as well as the duration of unemployment spells substantially exceed their early-1990s levels. The Beveridge curve, which compares the unemployment and job vacancy rates, has shifted outward, indicating an increased mismatch between skills demanded and those offered by the unemployed. This mismatch has been accompanied by a rise in the dispersion of unemployment across regions. In particular, areas in which the agriculture and the increasingly mechanized forestry sectors are the main activities, the unemployment rates have risen and remain persistently



Source: Finnish authorities.

[3] In addition to the standard definition of unemployment, this also includes unemployed pensioners, trainees and workers included in active labor market measures. See Kurri (2004).

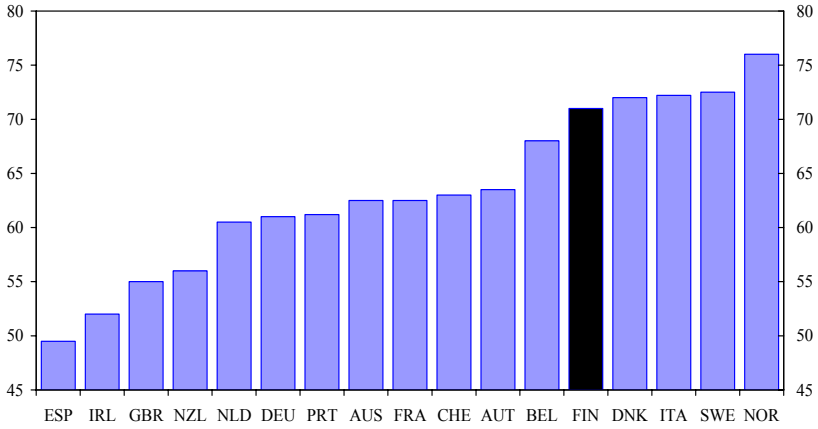
higher than in those regions where manufacturing and the information and communication technology (ICT) sectors predominate. Moreover, unemployment has become more heavily concentrated among low-skilled workers, as suggested by unemployment rates by educational attainment and by age groups (mainly the young and the older cohorts). While the employment rate has increased in recent years to about 67 percent of the working- age population, it remains well below its early-1990s level (74 percent), as well as the authorities' 70 percent target by 2007. Employment rates among the young and the older cohorts are rather low by Nordic standards, reflecting longer education periods for some, and poor job prospects among the less educated, and are lower than the OECD and EU averages for men of all age groups.



15. **Institutions and the tax-benefit regime undoubtedly play an important role in labor market outcomes**. For instance, low employment rates among older cohorts reflects in part multiple pathways to early retirement, including through extended

unemployment compensation with relatively generous benefits.[4] While pension reforms beginning in 2005 are intended to limit these pathways somewhat (see below), many will remain. The effects of Finland's centralized wage bargaining system on labor market outcomes is also as important, but difficult to disentangle. According to some researchers (Koskela and Uusitalo, 2003, and Calmfors, 2001, and references therein), cross-country data suggest that centralized bargaining moderates wage demands and reduces equilibrium unemployment. According to others (Holmlund and Zetterberg, 1991, and Thomas, 2002), however, the process can result in wage compression, imposing wedges between productivity and labor remuneration. Such wage compression can have deleterious effects at both ends of the skill distribution, underpaying highly productive workers, while resulting in increased unemployment among the low-skilled. The authorities have tried to counter the effects of wage compression by subsidizing low-skilled employment through tax credits for domestic work, which has become quite popular in recent years. As demand for low-wage personal services is likely to increase with population aging, the impact of wage compression is likely to be felt to a greater extent.

Earnings Compression in Selected OECD Countries 1/
(Earnings of lowest decile as a percentage of median, 1998 or latest year available 2/)



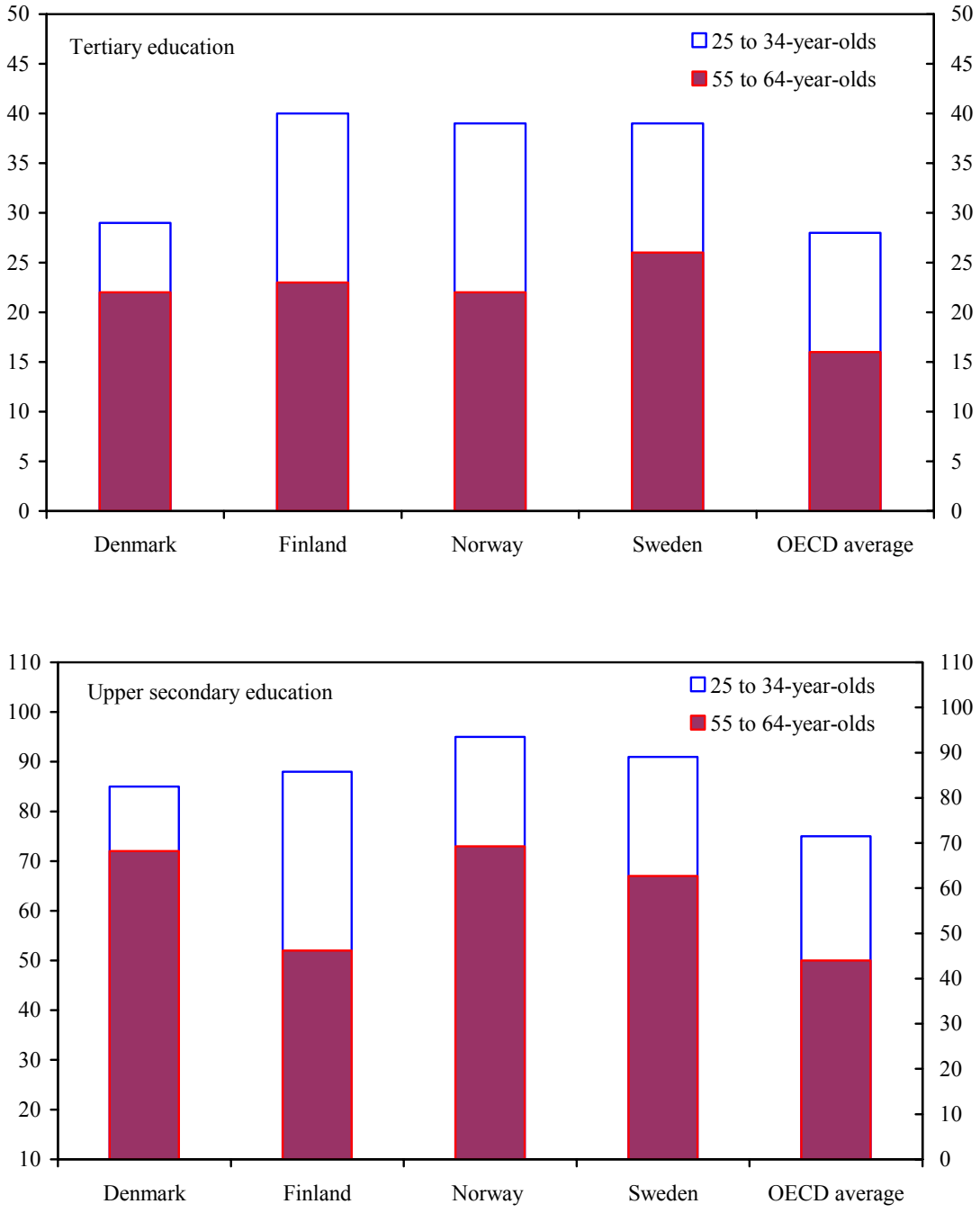
1/ Data are based on gross earnings of full-time workers.
2/ 1997 for Ireland, Netherlands and New Zealand; 1996 for Austria and Italy; 1995 for Belgium and Spain; 1993 for Portugal; 1991 for Norway; 1990 for Denmark.
Source: OECD Earnings database, December 2002.

16. **Looking forward, an increased education level may improve labor market performance**. The rise in educational attainment in Finland is the highest among the Nordic economies and above the OECD average, which may in part explain why employment rates among the young have decreased in the last decade (Figure 1). This suggests that younger cohorts could meet the shifting demand for more skill-intensive jobs and display more flexibility in accommodating technological change. Hence, it is possible that trend labor participation could increase somewhat and unemployment rates could decline.

17. **However, employment and growth prospects are set to worsen substantially, absent more sweeping reforms**. Despite the possible reduction in labor market mismatches from improved educational levels, the working age population is projected to peak at about 2010, and decline by a cumulative 16 percent by 2050. Thus, in the absence of additional labor market reforms that boost participation and employment rates, or a sharp increase in productivity, the Finnish economy's potential growth is set to decline markedly.

[4] An extensive discussion of this is provided in Chapter 3 of OECD (2004).

Figure 1. Relative Educational Attainment, 2002
(Percentage, by age group)



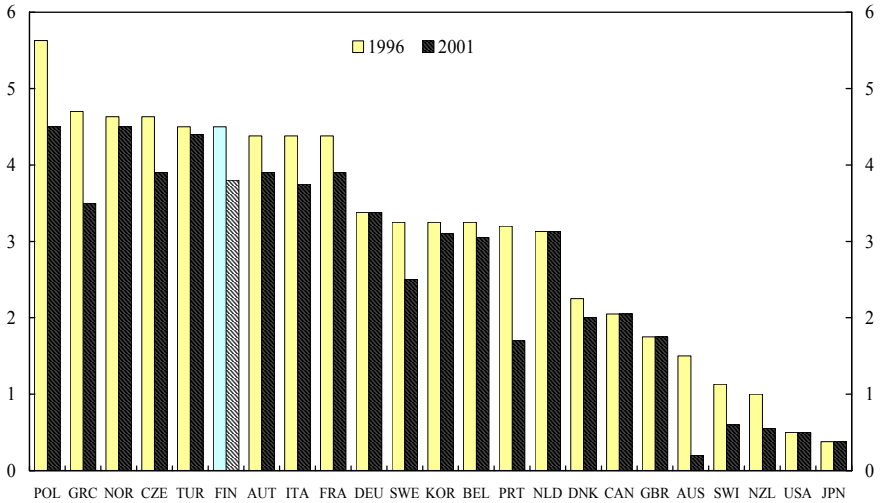
Source: OECD.

C. Product Markets: Inadequate Competition in Sheltered Sectors

18. **The recent productivity growth has been concentrated in the high technology and financial services sectors**. While Finland ranks near the top in terms of total research and development spending as a share of GDP, the majority of this is accounted for by the electronics sector, will relatively little activity undertaken in other areas.[5] And while Finland is a major producer of ICT, it is only a middling user of these products, with relatively few direct links between this and other sectors of the economy (Pilat and Devlin, 2004, and Daveri and Silva, 2004). Aside from financial services, whose productivity growth compares favorably with that in other countries, productivity levels in other non-ICT sectors lag well behind those in better-performing OECD economies. This in part reflects compositional effects, with a relatively large role still played in Finland by low- and medium-technology, slow-growth sectors.

19. **Insufficient competition in a number of sheltered sectors contributes to rigid product markets**. Sheltered sector competitiveness appears to be relatively weak, with high prices (even after taking into account Finland's remote location and harsh climate), high producer concentration ratios, low degrees of openness, widespread public ownership in some service sectors, and low levels of inward foreign direct investment. Despite recent efforts to reduce administrative barriers to competition, economy-wide regulations in Finland remain above the average for the advanced economies (Nicoletti and Scarpetta, 2003, and Hoj and Wise, 2004).

Relative Size of the Public Enterprise Sector in OECD /1



Source: OECD.
1/ Index 0-6 scale from the lowest to highest share of public enterprises; index based on the extent of state ownership and (gross) proceeds from privatizations.

20. **Recent research indicates that product market rigidities are often accompanied by labor market interventions, suggesting benefits from a comprehensive liberalization**

[5] Finland's R&D expenditures were 3.5 percent of GDP in 2002, well above the EU15 average of 1.9 percent, second only to Sweden (at 4.3 percent of GDP). However, the electronics sector alone accounted for slightly more than half of the total. See Statistics Finland (2004).

of both sectors. Cross-country evidence compiled by the OECD (Nicoletti et al, 2001, Jean and Nicoletti, 2002) document the interactions of the two sets of policies on various outcomes, including employment, wage premia, and rates of innovation. Greater product market regulations are found to be correlated with higher wage premia. Thus, it would appear that the benefits from a coordinated deregulation of both labor and product markets could be mutually reinforcing.

D. Recent Structural Reforms

21. **Structural policy initiatives in the past several years include steps to promote employment, especially of the low-skilled and older workers**. In addition to existing and planned cuts in labor income taxation to encourage employment, the government is revising the organization of its employment services in order to promote job-seeking and to enhance the prospects for employment among hard-to-place jobseekers.[6] It is also revising the tertiary-level curricula (creating a two-tier degree structure), and has proposed changes in the student loans system to reduce time spent in university education.[7]

22. **A significant reform of the pension system was initiated at the start of 2005**. (Box 1). The reform is expected to raise the effective retirement age, currently about 59 years. A critical element of the reform is the replacement of the standard retirement age with a flexible retirement age ranging from ages 62 to 68, and an accrual rate rising with age for older workers. The variable retirement age, coupled with much higher pension accrual rates for older workers and the removal of the 60 percent cap on the replacement rate, is intended to induce older workers to remain employed longer. The reforms also introduce an automatic link of pensions to life expectancy and a nexus between pension benefits and lifetime earnings in place of the former "ten-year rule".

23. **However, alternative pathways to early retirement remain, complicating attempts to improve the pension system**. In recent years, the flow of new retirees through other channels, especially those receiving disability and unemployment pensions, has far outweighed the number of those earning standard old-age pensions. While the unemployment pension (available to those beginning at age 60 who have exhausted their unemployment benefits) is to be phased out beginning in 2009, the disability pension requirements were in fact eased for those 60 years and over in the recent reforms. Entrance into the so-called "unemployment pipeline," which allows eligible older workers who exhaust their standard unemployment benefits to continue receiving payments until of pensionable age, has been raised from 55 to 57 years, but remains an avenue for leaving the labor market early with relatively generous benefits.

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[6] A comprehensive overview of Finland's policies to promote employment is contained in the National Action Plan For Employment 2004 (Ministry of Labor 2004).

[7] Ministry of Finance (2004b).

Box 1. Main Features of the Pension Reform[1]

The reforms to the Finnish old-age pension system are being introduced over an extended period beginning in 2005. Among the most important features of the reforms are the following:

- **Automatic link of benefits to future changes in life expectancy**: Beginning in 2009, pension benefits will be reduced in light of increases in life expectancy such that expected lifetime pension benefits remain constant;

- **Link of pension benefits to lifetime earnings**, instead of the earnings over the last 10 years of employment;

- **Introduction of a flexible retirement age range, with a sharp increase in the accrual rate after age 62**: The standard retirement age of 65, and the early old-age pension earlier available from age 60, are replaced with a flexible retirement age range between 62 and 68 years. The accrual rate remains at 1.5 percent per year for those aged 18–52, increases to 1.9 percent for those aged 53–62, and increases markedly to 4.5 percent for those aged 63–67. The pension payable at age 62 will be reduced by 0.6 percent per month for each month of retirement before age 63;

- **Elimination of the cap on the replacement rate** which limited pensions to 60 percent of pensionable earnings;

- **Transition to an index for benefits with greater weight to prices than wages**: The previous system, in which pension benefits were indexed to an equally weighted average of increases in wages and consumer prices, is replaced with two indices. The index for pension benefits will have a weight of 20 percent for wages and 80 percent for prices, while an index with a weight of 80 percent for wages and 20 percent for prices will be used to scale up lifetime earnings in determining the pension base;

- **An increase in pension contributions by employees aged 53 and over** by 1.2 percentage points, to 5.8 percent of earnings;

- **An increase in the minimum age for part-time pensions** from 56 to 58 years, and an halving of the accumulation of pension rights by part-time workers, previously equal to that for those working full time.

[1] See Finnish Centre for Pensions (2004), and OECD (2002, 2004).

24. **The pension reforms are expected to increase the effective retirement age**, **but the magnitude of the effect is uncertain**. It is difficult to estimate the impact of the recent reforms on future labor force participation and employment rates. The authorities estimate

that the reforms could raise the effective retirement age by 2–3 years.[8] However, estimates by the OECD suggest that the impact on labor force participation and employment rates is likely to be limited without further efforts to curtail early retirement or improve incentives to postpone old-age retirement ages.[9]

25. **Efforts to reduce product market inefficiencies are underway as well, and are beginning to bear some fruit**.[10] Competition is increasing in the retail sector, especially in groceries, resulting in falling markups. The authorities intend to launch a more comprehensive reform of shop opening hours, which could further boost competition. An amendment to the Communications Market Act allowing for telephone number portability has resulted in over one million mobile phone owners (one quarter of all users) switching providers in 2004, increasing pricing pressures in an already comparatively competitive market. The Competition Law was revised in 2004, harmonizing it with EU directives, and enhancing the Competition Authorities' powers. The government is also reorganizing its ownership structure in state-owned enterprises, with a view to separating ownership and regulatory roles in order to eliminate potential conflicts of interest.

III. THE BASELINE SCENARIO

26. **The staff's baseline long-term fiscal scenario reflects the effects of the projected decline in and aging of Finland's population**. The scenario incorporates the authorities' latest demographic projections, which now anticipate slightly longer life expectancies than those in Eurostat's 1999 projections. The baseline scenario also employs the authorities' age-specific labor force participation assumptions, as contained in the latest update

Baseline Scenario Age-Related Expenditure Projections, 2005-50
(percent of GDP)

	2005	2010	2020	2030	2040	2050
Total age-related expenditures	29.0	30.3	33.2	36.0	36.3	36.0
Pensions	11.6	12.4	14.5	16.0	15.8	15.5
Social & healthcare services	7.4	7.6	8.5	9.5	10.2	10.3
Sickness insurance	2.5	2.7	3.0	3.2	3.3	3.4
Education	5.8	5.7	5.7	5.7	5.6	5.5
Unemployment benefits	1.7	1.8	1.5	1.5	1.4	1.3

Sources: Finnish authorities; and staff projections.

[8] Ministry of Finance (2003).

[9] OECD (2004).

[10] An overview of the authorities' record and intentions regarding product market competition is contained in the Ministry of Finance's annual "Product and Capital Market Reforms in Finland" (2004c).

of their Stability Program.[11] However, while the authorities' long-term scenario assumes that the unemployment rate falls to 4 percent by 2030 from 8½-9 percent in 2004–05, this exercise takes a more conservative view, with the rate falling only to 6½ percent, reflecting an anticipated rise in the average education level, especially among older cohorts, and resulting reduction in labor market mismatches. The growth in labor productivity is assumed to be 1¾ percent per year, as in the authorities' scenario, somewhat below that in Finland since the 1990s.[12] Inflation is assumed to be 2 percent per year, and the real interest rate is set at 3.5 percent, as in the authorities' scenario.

27. **The baseline scenario incorporates projected aging-induced changes in public spending**.[13] These include projections for pensions, social, and healthcare services, sickness insurance, and education and unemployment expenditures. However, these projections are adjusted for the staff's differing macroeconomic scenario than that of the authorities, especially concerning spending on unemployment compensation. The projections show an increase in age-related expenditures by 7 percentage points of GDP (compared to a 6 percentage point increase in the authorities' projection), with the largest increases occurring in pensions and social and healthcare services, while education and unemployment expenditures fall slightly. As in the authorities' scenario, other primary expenditures are assumed to remain unchanged as a share of GDP, as are non-interest revenues, implying an unchanged overall tax rate.

28. **Absent significant fiscal or structural reforms, the staff's baseline scenario suggests the unsustainability of the long-term fiscal position**. The general government surplus, while remaining at about 2 percent of GDP through the end of the decade, is set to worsen thereafter significantly, with the deficit exceeding 10 percent of GDP by 2050 (Figure 2).[14] The government's net asset position worsens from a comfortable 21 percent of GDP in 2008 to a net debt position of about 120 percent of GDP by 2050. Moreover, the deficit and debt ratios are set to worsen further beyond 2050, especially since the demographic composition of the population is not expected to rapidly improve thereafter.

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[11] Ministry of Finance (2004a).

[12] Labor productivity growth averaged 2.1 percent during 1995-2003, and 2.3 percent during 1990–2003. However, these rates were influenced by the ICT-led surge in economic activity in the late 1990s, and the rebound from the deep recession in the early 1990s, during which employment declined significantly more than the drop in output.

[13] The authorities' long-term projection begins in 2008, the last year of the forecast horizon for the Stability Program. The staff scenario is based on its WEO projections for 2004–08, which are broadly similar, especially regarding the overall general government balance and the gross debt/net asset positions.

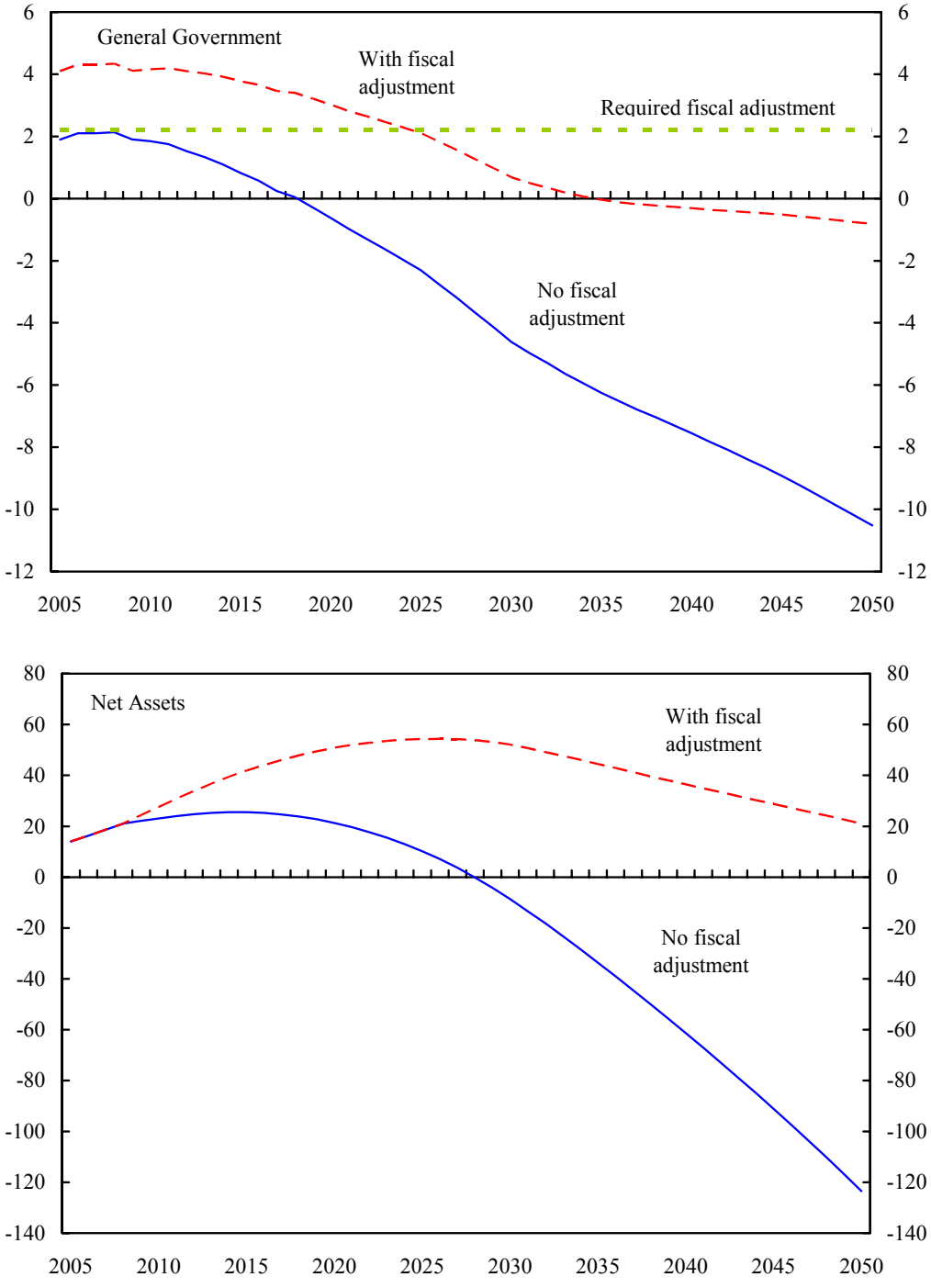
[14] This compares to a deficit of 7½ percent in the authorities' scenario, reflecting the staff's less optimistic macroeconomic outlook, and the resulting less favorable debt dynamics.

29. **The magnitude of fiscal adjustment necessary to reverse the projected deterioration is considerable**. The permanent adjustment necessary to regain the government's 20 percent net asset position by 2050 is slightly more than 2 percent of GDP. This would imply an overall surplus of the general government of about 4 percent of GDP through the end of the decade. Of course, the level of adjustment would vary with the net asset/debt position targeted for 2050; for example, the required adjustment would decline to 1½ percent of GDP, ending with a net debt level of 25 percent of GDP in 2050. But, as mentioned above, the underlying demographic developments, and therefore the resulting fiscal pressures, are not assumed to end in 2050, which would argue for an even more ambitious fiscal adjustment.[15]

30. **The projections of age-related spending are subject to significant uncertainty, with a risk that they may be biased downwards**. The staff's baseline projections, as in the authorities' Stability Program, assume no improvement in the productivity of social and healthcare services, although wages for the public sector employees providing these services are assumed to rise with those in the rest of the economy. But alternative outcomes are also possible. For instance, as discussed in Kinnunen (2004), developments in health care technologies could increase both the number and cost of treatments. Also, wage pressures on local governments could rise sharply, since about a quarter of the current municipal workers are expected to retire by the end of the decade. Finally, the assumption that the distribution of students by age group would remain stable may be overly optimistic, since rapid technological advance could raise the education needs of the adult population.

[15] The concept of fiscal sustainability, and its practical implications for finite time period projections, are discussed in Blanchard et al (1990).

Figure 2. Finland: Baseline Scenario, 2005-50
(Percent of GDP)



Sources: Finnish authorities; and staff projections.

31. **The economic and fiscal benefits of a comprehensive package of labor and product market reforms could be considerable**. Such a program could initiate a virtuous circle, which would both reduce the fiscal burden of unemployment compensation and boost revenues (although the accrual of future pension claims must also be taken into account), while benefiting from improved debt dynamics. Such benefits could imply a sizeable reduction in the level of adjustment necessary to secure fiscal sustainability.

IV. THE STRUCTURAL REFORM SCENARIO

32. **A general equilibrium model-based approach is employed to quantify the impact of reforms on economic activity**. Rigidities in labor and product markets are explicitly modeled using the IMF Research Department's GEM. GEM is a useful tool for studying structural reforms, because it incorporates markups in labor and product markets that are summary measures of rigidities and inefficiencies in these markets, reflecting production regulations and the setup of the labor market. (The appendix provides a more detailed description of the model). In particular, labor market inefficiencies are captured and modeled by the markup of wages over the marginal rate of substitution between consumption and leisure in a perfectly competitive market. This markup, which depends on such factors as minimum wage legislation, the generosity of unemployment and welfare benefits, the wage bargaining system, and unionization, results in higher unemployment and lower output. Similarly, inefficiencies in product markets are captured by the markups of prices over the marginal cost of production. Price markups depend on public and private monopolies, product standards, administrative regulations (working hours), and lead to higher prices and unemployment, and lower output.

33. **Empirical estimates of the labor and product markups are used to calibrate their size in the baseline and reform scenarios**. The estimated markups for product

Estimated Markups in Labor and Product Markets

	Manufacturing 1/	Services 2/	Wages 3/
France	1.16	1.39	1.38
Italy	1.18	1.37	1.28
Denmark	1.15	1.29	1.20
Finland	1.24	1.36	n.a.
Sweden	1.16	1.20	1.20
EU average 4/	1.18	1.36	1.23

Sources: Manufacturing and Services: Oliveira Martins, Scarpetta and Pilat (1996); Wages: Jean and Nicoletti (2002).

1/ Weighted average for 36 industries by 1990 production shares.
2/ Simple average for transport, storage, and communication.
3/ Markups were derived by comparing average economy wide wages to those in three sectors that are believed to have no markups due to their competitive nature (textiles, wearing apparel, and leather) and were adjusted for the degree of public ownership following Bayoumi et. al. (2003).
4/ For manufacturing&services: average for Germany, France, Italy, UK, Belgium, Denmark, Finland, Netherlands, Norway, and Sweden
For wages: average for Austria, Belgium, Denmark, France, Greece, Ireland, UK, Spain, Sweden, and UK

markets suggest a mixed performance in manufacturing and services. While in manufacturing, the markups in Finland are higher than both the EU average and in Sweden and Denmark, Finnish markups in services are equal to the EU average but higher than in Sweden and Denmark. Based on this comparison, the markups of both tradables (manufacturing) and nontradables (services) in Finland are assumed to decline by 5 percentage points in the reform scenario compared to the baseline scenario (tradables converge to the EU average; nontradables approach the Danish level). Regarding labor market markups, empirical estimates for Finland were not available in the literature. Therefore the markup for the reform scenario was assumed to be the same as in Denmark and Sweden, while in the baseline scenario, given that the unemployment rate in Finland is higher than in those two countries, the markup was assumed to be 5 percentage points higher than in the reform scenario (higher than the EU average, but lower than in France and Italy).

34. **Labor and product market reforms influence economic activity through several channels)**. Deregulation of product markets, captured by declining markups in tradables and nontradables, raises competition and drives down prices. As a result, demand for final goods increases and firms respond by employing more capital and labor to meet the rising demand. Real wages rise and boost labor supply to match the increased demand for labor. Labor market reforms initially influence employment, and thereafter capital, output, and prices. As inefficiencies in the labor market are reduced, wage markups are lowered, employment increases, giving incentives to firms to install more capital, resulting in higher output and lower prices.

35. **The analysis suggests that labor and product market reforms have a significant potential for raising output and employment in Finland**. In the long run, as shocks from the reforms taper off, the economy reaches a new equilibrium with more efficient labor and product market outcomes, in which output and employment are higher by 3¼ percent and 2¾ percent respectively. Also, as both markets become more competitive, the price level declines by about 2¼ percent (Table 1).[16]

[16] The magnitude of the impact of reforms on economic activity estimated in this study is comparable to that found elsewhere. For instance, an OECD study on Finland finds that labor productivity could increase by 3 to 3½ percent and producer prices could decline by 3–4 percent (OECD, 2004). A similar study for Denmark finds that labor and product market reforms could increase output by about 4 percent and employment by 2¾ percent (IMF, 2004a).

Table 1. Impact of Product and Labor Market Reforms on Economic Activity
(Percentage point difference from the baseline)

	5 Years	10 Years	Long run (25 Years)
Output			
Simultaneous product and labor market reforms	1.3	2.3	3.3
Product market reforms	0.8	1.6	2.3
Tradables	0.0	0.1	0.3
Nontradables	0.8	1.4	2.0
Labor market reforms	0.5	0.7	1.0
Employment			
Simultaneous product and labor market reforms	1.6	2.2	2.7
Product market reforms	0.8	1.1	1.4
Tradables	0.1	0.3	0.3
Nontradables	0.7	0.9	1.1
Labor market reforms	0.7	1.0	1.2
Prices			
Simultaneous product and labor market reforms	-1.1	-1.8	-2.3
Product market reforms	-0.7	-1.3	-1.7
Tradables	0.7	1.0	1.4
Nontradables	-1.4	-2.3	-3.0
Labor market reforms	-0.4	-0.5	-0.6
Capital stock			
Simultaneous product and labor market reforms	1.4	4.5	7.4
Product market reforms	1.3	3.9	6.3
Tradables	0.6	1.0	1.4
Nontradables	0.7	2.9	4.8
Labor market reforms	0.1	0.6	1.0

Source: GEM simulation results.

36. **A substantial part of the gains is experienced already in the short- to medium-term, with similar contributions from both labor and product market reforms**. In particular, around 40 percent of the output increase and over 60 percent of employment gains take place within the first 5 years after the initiation of reforms. Labor and product market reforms contribute each roughly a half of the employment gains over the simulation period. However, the impact of product markets reforms on output and prices, which come mainly

from nontradables, gains momentum after the first 5 years and is double that of labor market reforms in the long-term.

37. **Despite uncertainties in quantifying the impact of the reforms on output and employment, the scenarios allow rough estimates of the magnitude of potential gains**. The results depend on the calibration of the model and the size and pace of structural reforms, both of which affect the short- and long-run impact on output and employment. Sensitivity tests suggest that the estimates could be considered as a lower bound of the impact of reforms. This conclusion is supported by the fact that the results presented here abstract from changes in productivity growth, the main driving force behind output growth, which could boost output growth further. For instance, Nicoletti and Scarpetta (2003) conclude that more competitive labor and product markets result in faster productivity and output growth, as rising competitiveness pressures increase incentives for developing and adopting new technologies. Therefore, it is likely that allowing for variations in productivity growth would likely result in output and employment gains beyond what is implied by the labor and product market reforms alone.

Reform Scenario Age-Related Expenditure Projections, 2005-50
(percent of GDP)

	2005	2010	2020	2030	2040	2050
Total age-related expenditures	29.0	30.0	32.2	34.6	34.9	34.7
Pensions	11.6	12.3	14.2	15.6	15.4	15.1
Social & healthcare services	7.4	7.6	8.3	9.3	9.9	10.1
Sickness insurance	2.5	2.7	2.9	3.2	3.2	3.3
Education	5.8	5.6	5.5	5.6	5.5	5.4
Unemployment benefits	1.7	1.8	1.2	1.0	0.9	0.8

Sources: Finnish authorities; and staff projections.

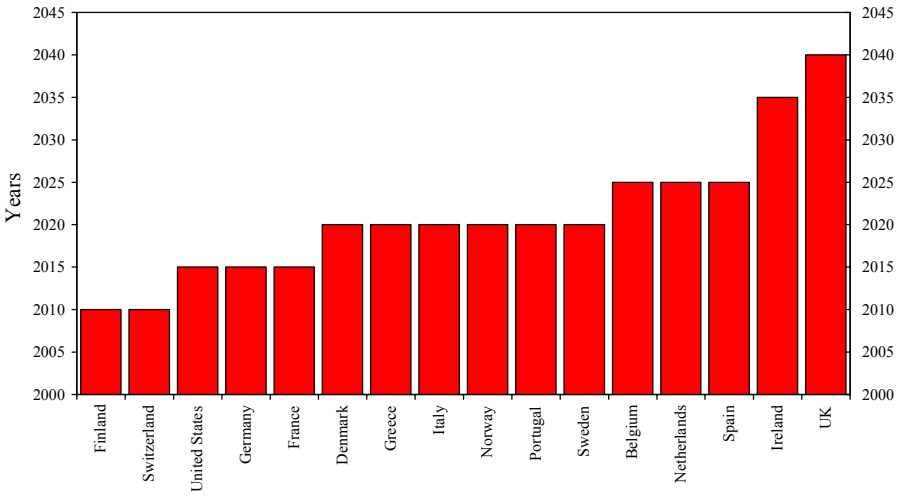
38. **The structural reform scenario has significant implications for fiscal sustainability**. The three main macroeconomic changes resulting from the reforms—higher output, employment, and lower prices—have differing influences on general government revenues and expenditures. The assumption of an unchanged tax ratio (assuming that progressive tax schedules are adjusted for both prices and increased productivity) implies that nominal revenues rise with the increase in nominal GDP (by 0.9 percent, the effect of higher real GDP, and lower prices). Lower prices are also expected to reduce proportionally government non-pension primary expenditures. Pension expenditures are reduced too, but with a weight of 80 percent of the price change (as discussed in Box 1). The larger increase in real output compared to the gain in employment is modeled in the reform scenario as an increase in real wages (resulting from capital deepening). This increases non-pension primary expenditures proportionally (implicitly assuming that nonwage expenditures are indexed to both wages and prices), while the "volumes" of government inputs (including teachers, healthcare workers, and civil servants) are unchanged compared to the baseline scenario. The higher employment rate is modeled to result from a combination of higher

labor force participation (by 1.2 percent use points), and a reduction in the unemployment rate (by one percentage point, to 5½ percent), thereby reducing the level of unemployment compensation.[17]

39. **The underlying fiscal position improves substantially as a result of reforms, thereby reducing the additional fiscal adjustment necessary to ensure sustainability**. Higher nominal output and lower prices, as well as lower unemployment compensation, combine to reduce age-related expenditures by slightly more than 1¼ percent of GDP per year over the long run. This, combined with more favorable debt dynamics, sharply reduces the degree to which the overall fiscal balance deteriorates (to about 5 percent of GDP, compared to over 10 percent in the baseline scenario), and the run-up of net debt (to 50 percent of GDP, compared to over 120 percent in the baseline scenario (Figure 3). As a result, by endogenously improving the underlying fiscal position, the structural reforms are projected to halve the amount of additional fiscal reforms (to about 1 percent of GDP) required to return the government's net asset position to 20 percent of GDP in 2050.

40. **Additional pension reforms could be considered among the measures that are necessary to achieve fiscal sustainability**. The latest pension reforms, while significant, are acknowledged to be insufficient by themselves to make the long-term fiscal position sustainable. Therefore, consideration could be given to additional measures that would further raise the effective retirement age. This would, however, be politically difficult at a time when the present reforms have yet to be fully phased in, and before their effects can be examined. However, Finland's rapid aging poses difficulties in political arithmetic which suggests that waiting too long to begin consideration of additional

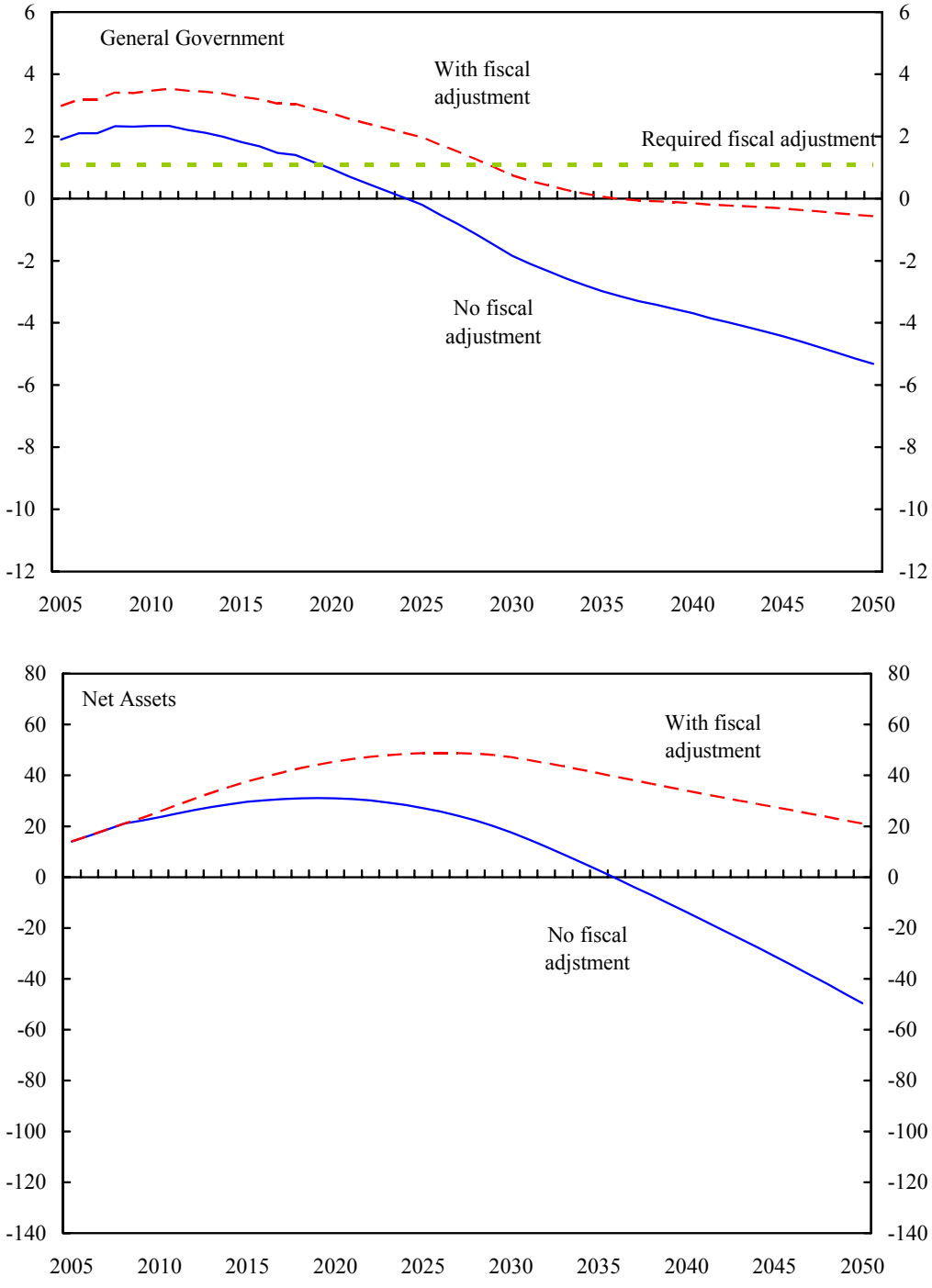
Voters Age 50 and Older Exceed 50 percent of All Voters



Source: IMF (2004b).

[17] Since Finland is small relative to the euro area, it is assumed that the nominal interest rate remains unchanged from the baseline scenario.

Figure 3. Finland: Reform Scenario, 2005-50
(Percent of GDP)



Sources: Finnish authorities; and staff projections.

reforms may endanger the ability to garner necessary public support. Among measures that could be considered are a closing of the "unemployment pipeline," a tightening (rather than the current loosening) of the medical conditions required to receive a disability pension, and accelerating the phasing out of the unemployment pension (presently scheduled for 2009). Efforts to enhance public expenditure efficiency, especially of locally–provided social services, could also make a welcome contribution to fiscal sustainability. If these additional measures improve the public accounts sufficiently, then further cuts in labor taxation could also be considered.

V. CONCLUSIONS

41. **Finland is expected to face aging-related pressures on its public finances earlier than most other European economies**. The authorities are taking important steps towards addressing the demographic challenge, including substantial pension reforms, measures to enhance product market competition and promote employment. Nevertheless, the staff's assessment, employing a model-based framework and based on official demographic and fiscal projections, suggests that public finances are unsustainable under current policies, with government debt well over 120 percent of GDP by 2050. Alternately, permanent fiscal adjustment of some 2 percentage point of GDP would be necessary to stabilize the government's net asset position at its initial level.

42. **Further structural reforms encompassing labor and product markets as well the pension system would substantially improve the outlook for fiscal sustainability**. A holistic approach to reforms is likely to initiate a virtuous circle of higher growth and stronger public finances. Reductions in labor and product market inefficiencies is estimated, on the basis of a staff computable general equilibrium model, to raise output and employment significantly, while reducing the price level. This would improve the fiscal accounts substantially, through larger revenues and lower unemployment compensation, cutting in half (to about one percent of GDP) the amount of additional fiscal adjustment necessary to stabilize the government's net asset position by 2050. Additional pension reforms could further increase employment, boost economic growth, and improve public finances, as could improved expenditure efficiency, thereby creating room for further reductions in labor income taxation. It is politically difficult to garner sufficient support for further pension reform given that the recent reforms are still in train. Nevertheless, staff analysis suggests that the payoff to further structural reforms is likely to be considerable, and given Finland's worsening political arithmetic—with a majority of the voting age population set to exceed age 50 by 2010—the window for feasible and effective policy action is limited.

APPENDIX: A BRIEF NOTE ON THE GEM

A. Overview

1. **The IMF Research Department's Global Economic Model (GEM) is a large multi-country macroeconomic model,derived from a choice-theoretic basis, designed to analyze a range of policy issues**. Building on recent research in international finance and monetary economics and following recent models in "New Open-Economy Macroeconomics" literature, GEM provides a general equilibrium stochastic framework for policy analysis (Bayoumi et al 2004). In particular, the model can be used to analyze policy questions such as the impact of structural reforms and the international transmission of shocks in the context of macroeconomic interdependence among countries. Among others, GEM has the following main features:

- Imperfect competition (monopoly power) in product markets, for both tradables and nontradables;

- Nominal wage and price rigidities, with wages and nominal prices of tradables and nontradables subject to adjustment costs, both for levels and rates of change;

- Realistic hump-shaped responses of macroeconomic variables to shocks due to habit persistence in consumption and adjustment costs in capital accumulation and imports.

2. **A three-country version of GEM is used in this paper**. The three blocks are: Finland, the euro area, and the rest of the world (ROW), comprising the United States, Russia, Sweden, and Norway. The weights for the euro area and the ROW match the Finland's trade weights with these regions. In each block, there are households, firms, and a government. Households maximize utility derived from the consumption of goods and leisure. Firms use capital and labor to maximize their net incomes from the production of non-tradable and tradable intermediate goods and produce final goods. Governments consume goods financed through non-distortionary taxes and adjust short-term nominal interest rates to provide nominal anchors.[18]

B. The Model Structure

3. **Households own domestic firms and the domestic capital stock, which is rented to firms, supply differentiated labor inputs to firms, and consume the final good**. Houselolds' monopoly power in labor supply implies that the wages they receive contain a markup over the marginal rate of substitution between consumption and leisure. In addition,

[18] Given that Finland, as a member of the common currency area, has an exogenous monetary policy, the model is calibrated to ensure that the nominal interest rates are the same as in the euro area.

aggregate nominal rigidities materialize through the wage bargaining process due to adjustment costs in wage contracts. The market for capital is competitive, with accumulation subject to adjustment costs that also contribute to the gradual pace of adjustment of macroeconomic variables. Both labor and physical capital are immobile internationally. Households trade internationally short-term nominal bonds, denominated in ROW dollars; there are intermediation costs for households entering the bond market.

4. **Firms produce three types of goods—non-tradable final goods, non-tradable intermediate goods, and tradable intermediate goods—and provide financial intermediation**. The *final goods* are produced in a perfectly competitive market. Firms use non-tradable and tradable intermediate goods (domestic and/or imported) as inputs in final goods production. The final good is either used for investment or consumed by domestic households or the government. The *intermediate goods* are produced in a monopolistically competitive market—as a result prices contain a markup over marginal cost. International trade is driven by the interaction of preferences, technology, and relative prices, as the structure of final good production reflects the preferences of households' demand for, and firms' production technology of, intermediate goods. Firms also provide financial intermediation services, enabling households to trade in bonds.

5. **Governments use interest rates as nominal anchors and spend exclusively on final non-tradable goods**. Government spending is financed through a non-distorting consumption tax. The governments in the euro area and the ROW control their national short-term nominal interest rates with the goal of providing a nominal anchor and price stability for their economies.

6. **The parameter values of GEM used in this paper are calibrated by taking into account the following factors**: empirical estimates available in the literature; the desired steady-state characteristics of the economies; and the model's dynamic adjustment properties.[19] While the focus has been primarily on the steady-state characterization of the economies, attention was also given also to achieving plausible dynamic adjustment responses for some key variables. The main steady-state characteristics of the model are provided in Table A1 (a full calibration is available on request from the authors). In order to provide an insight into the model's dynamic adjustment properties, the impulse responses for several key macroeconomic variables to a temporary increase in the short-term nominal interest rate and a permanent decline of one percentage point in the target rate of inflation are given in Figures A1 and A2 respectively.

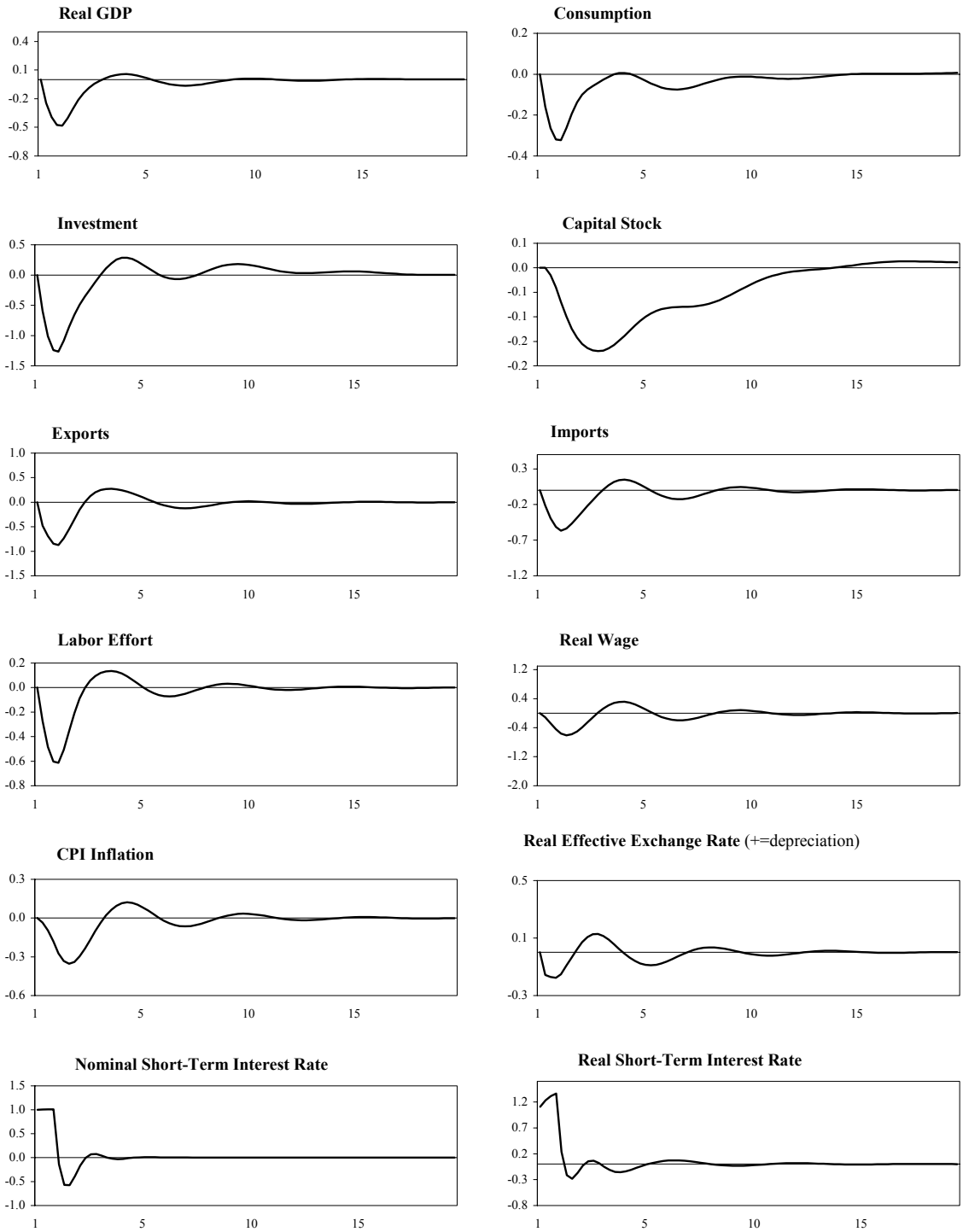
[19] To enhance the data coherence of the model's parameter values, the IMF's Research Department is working on Bayesian methods to estimate GEM parameters, extending the approach applied in Smets and Wouters (2002) and Schorfheide (2002).

Table A1. Calibration of the Steady-State 1/

	Finland	EU	Rest of the world
Size, in percent (sum to unity)	0.6	46.0	53.4
GDP per capita (PPP, relative to EU)	1.2	1.0	1.1
	(In percent of GDP)		
Private consumption	58	58	63
Public consumption	22	20	16
Investment	20	22	21
Imports of goods to GDP ratio			
Finland	n.a.	18.0	3.2
EU	0.3	n.a.	3.3
Rest of the world	0.1	3.1	n.a.
Non-tradables	70	67	75

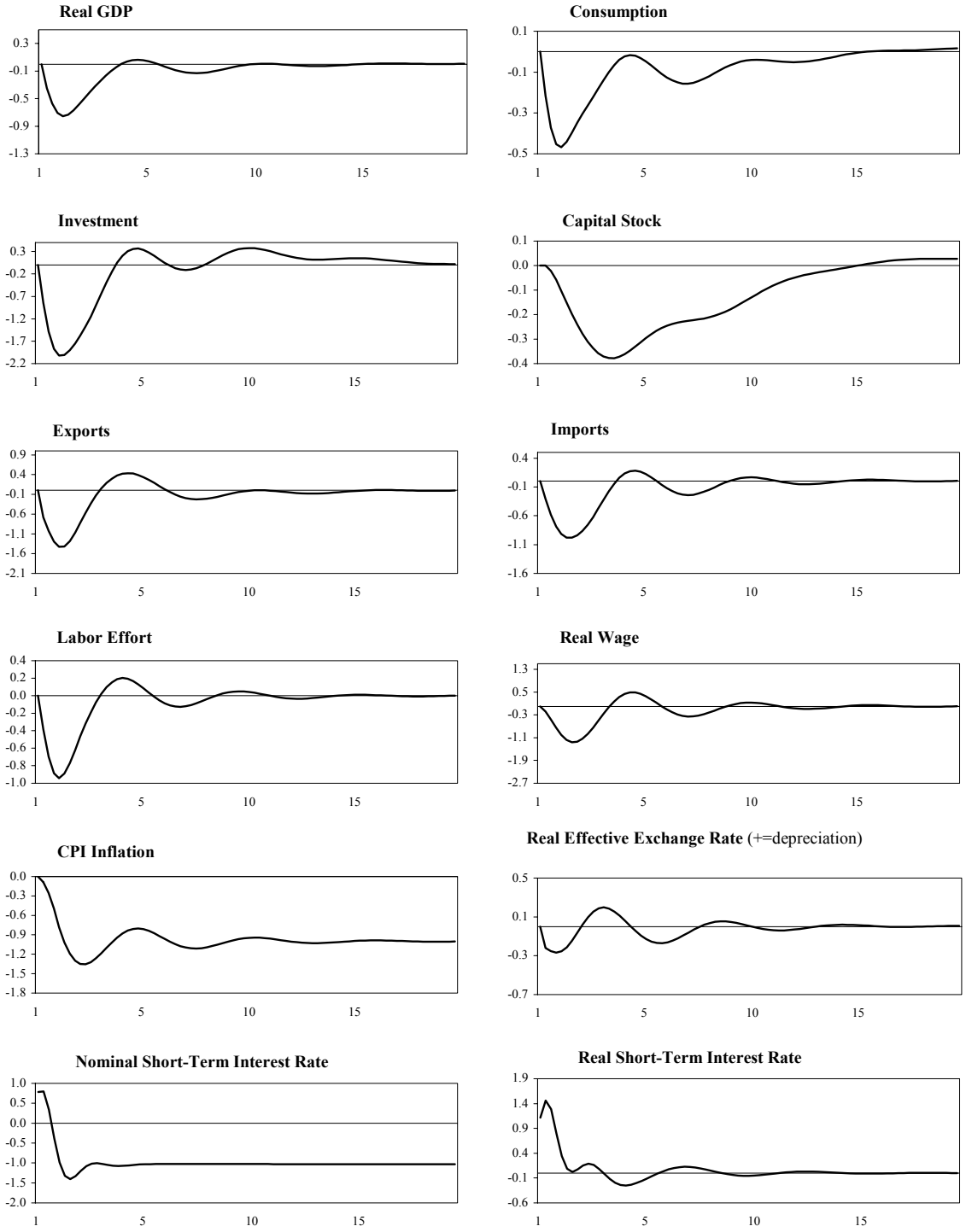
1/ Calibrated using data for 2003.

Figure A1. One Percentage Point Increase in the Euro Area Nominal Short-term Interest Rate
(Percent or percentage point deviation from baseline)



Number of quarters on horizontal axis.

Figure A2. One Percentage Point Decline in the Euro Area Target Rate of Inflation
(Percent or percentage point deviation from baseline)



Number of quarters on horizontal axis.

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