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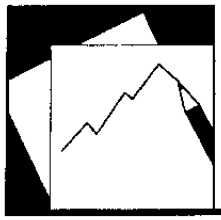

IMF Working Paper

Population Aging and Long-Term Fiscal Sustainability in Austria

Leif Lybecker Eskesen

INTERNATIONAL MONETARY FUND

 WP/02/216

IMF Working Paper

European I Department

Population Aging and Long-Term Fiscal Sustainability in Austria

Prepared by Leif Lybecker Eskesen[1]

Authorized for distribution by Robert Corker

December 2002

Abstract

Austria faces significant population aging. This will increase public spending on pensions, health care, and long-term care, while tax and social security revenues will fall. This paper analyzes the fiscal burden facing Austria due to aging and the policy steps necessary to address it. The paper finds that Austria is not well prepared to meet the fiscal burden of aging and that fiscal sustainability is threatened, even under fairly optimistic assumptions about the effects of recent pension and labor market reforms. Consequently, to ensure long-term sustainability, pension reform must go further and other saving measures might also be necessary.

JEL Classification Numbers: E6, H1, H5, H6, J1, J2

Keywords: Population Aging, Pensions, Health Care, Fiscal Policy, Public Finance Sustainability.

Author's E-Mail Address: leskesen@imf.org

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[1] The author would like to thank Dimitri Demekas, Peter Part (Ministry of Finance), and Hans Stefanits (Ministry of Social Security and Generations) for very helpful comments.

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I. Introduction and Summary

Similar to other industrialized countries, Austria faces a significant aging of its population over the next 50 years. The ratio of elderly to people of working age will more than double over this period. As the average age of the population increases, spending on pensions, health care, and long-term care will rise. At the same time, the shrinkage in the number of labor force participants will lower tax and social security contribution revenues. This will put pressure on public finances from both the expenditure and revenue side, undermining the finances of the traditional Austrian welfare state.

This paper looks at the fiscal burden facing Austria due to aging and the policy steps necessary to address it. It gives a short description of the Austrian pension, health care, and long-term care systems, and describes how aging will affect the costs of these systems. It then analyses the development of age-related spending and the sustainability of general government finances under different scenarios, and quantifies the primary adjustment required to keep public finances on a sustainable path in the long term. The main conclusions are the following:

- Austria has an expensive public pension system, while spending on health and long-term care is comparable to that in other EU countries.

- The pronounced aging of the population will translate into more people claiming pensions and needing care. Also, the increased longevity will in itself increase the demand for care as health diminishes with age, giving rise to a "double-aging" problem.

- In a public pension system, the burden of aging is a fiscal burden. Since Austria's pension system is a public pay-as-you-go system based on the notion of solidarity among generations, its financial sustainability cannot be examined in isolation. Instead, it should be seen in the wider context of long-term sustainability of the public finances.

- Austria is not well prepared to meet this fiscal burden. Even under fairly optimistic assumptions about the success of pension and labor market reforms already under way, age-related spending will increase significantly and jeopardize long-term public finance sustainability. Under less optimistic assumptions, age-related spending will rise even more and place public finances onto an unsustainable path.

- To ensure long-term sustainability the authorities need to increase permanently the primary fiscal balance. The longer this increase is postponed, the larger the required adjustment. Given that increasing taxes is not likely to be an available or desirable option—indeed, the government plans to reduce the tax burden over the medium term—policy measures should focus on spending. Such measures should first and foremost include pension reforms, such as bringing forward the harmonization of female and male retirement ages; increasing the effective retirement age further by

narrowing eligibility and strengthening disincentives to early retirement; moving toward price indexation of pensions; and lengthening the benefit assessment period. If such measures are not taken—or are insufficient—additional savings should be generated in other areas, for instance through reforms of civil service or other welfare entitlements.

II. The Austrian Pension, Health, and Long-Term Care Systems

A. Pension System

As in most continental European countries, the Austrian public pension system is built on the concept of solidarity among generations. The public pay-as-you-go pension system provides the principal source of income for retirees. Despite some build-up in recent years, fully-funded pension schemes are still not very important.

Reflecting the corporatist nature of the system, different compulsory pension schemes exist for different professional groups. There are three major schemes for the private sector: (1) Allgemeines Sozialversicherungsgesetz (ASVG); (2) Gewerbliches Sozialversicherungsgesetz/Freiberuflich Selbständige-Sozialversicherungsgesetz (GSVG/FSVG); and (3) Bauern-Sozialversicherungsgesetz (BSVG) for dependent workers, self-employed, and farmers, respectively. Civil servants have their own pension scheme covering the three levels of government and a number of public sector entities. The scheme for private dependent workers (ASVG) is by far the largest and covers around three-quarters of the employed. The schemes for the self-employed and farmers cover 12 percent, while 10 percent belong to the civil servant plans. Only around 4 percent of the employed earn below a certain minimum threshold income and are not covered by any of the schemes.

Public pension schemes provide old-age, early retirement, disability and survivor pensions. Eligibility for old-age pensions depends on the length of the contribution period, with a minimum age requirement of 65 for men and 60 for women in the ASVG. For civil servants, the minimum pension age is 65 for both genders. Early retirement pensions are provided based on either length of contribution, length of unemployment spell, or reduced capacity to work. Early retirement due to reduced capacity to work was, however, recently abolished and claimants directed to the disability schemes. Under the ASVG scheme the minimum early retirement age for men and women is currently being raised to reach 61.5 and 56.5 years by 2003, respectively, while for civil servants it is being raised to 61.5 for both men and women (see Box 1 for recent pension reforms). Finally, disability pensions are subject to medical certification, and survivor pensions to marital status, age, and/or disability.

Box 1. Recent Pension Reforms in Austria

A number of policy measures were taken in three waves of reforms to the pension system in 1993, 1997, and 2000.

The main measures taken in 1993 were (1) the application of a new annual adjustment formula for private sector pensions linking average pension growth to the growth of average wages (net of social contributions); (2) an extension of the benefit assessment period from the best 10 to the best 15 income years; (3) the introduction of partial retirement; and (4) a implementation of a so-called "pension security contribution" for civil servants (see footnote 3).

As part of the 1996/1997 fiscal consolidation package, the government took further steps to discourage early retirement by lengthening the contribution period and raising the discount rate in case of retirement before the statutory pension age. Also, the government introduced (1) costs for counting years spent in education toward the pension insurance coverage period; (2) contributions for rehabilitation; and (3) tighter means-testing for households receiving two pensions, or both work income and pensions. At the same time, the 1997 benefit reform (1) extended the benefit assessment period from 15 to 18 years in case of early retirement to be phased in over 22 years; (2) introduced a uniform replacement rate of 2 percentage points per contribution year and a 2 percentage point discount per year in the event of early retirement; (3) tightened the eligibility criteria for early retirement due to inability to work; and (4) extended the pension adjustment system implemented in 1993 to civil servants. Furthermore, self-coverage in pension schemes for farmers and the self-employed was increased. At the same time, however, insurance coverage was extended to low part-time incomes, conditions for part-time retirement were made more favorable, and child-rearing years were to a larger extent counted as a contribution period.

The 2000 pension reform increased the minimum early retirement age for all pension schemes by a total of 1.5 years, gradually phased in until 2003. This meant an increase in the early retirement ages in the private sector schemes to 61.5 for men and 56.5 women, and in the civil servant schemes to 61.5 for both genders. Moreover, in case of early retirement, the discount rate was raised from 2 to 3 percentage points of the contribution base per year up to a maximum of 10.5 percentage points in the private sector and 18 percentage points in the civil service. Incentives to work longer were strengthened by the introduction of a reward for retirement later than the statutory age, which could increase the benefits by 4 percentage points of the contribution base per year, up to a maximum replacement rate of 90 percent. Furthermore, early retirement due to work inability was abolished, and the means-testing of widower's pensions was strengthened. Finally, pension contributions of active and retired civil servants were increased by 0.8 percentage points.

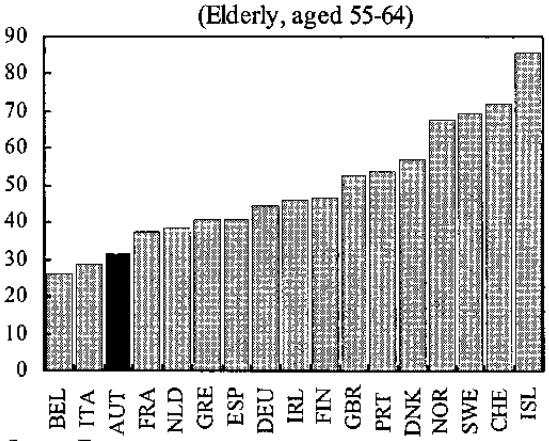
Table 1. Austria: Average Retirement Age in the Private Sector Scheme

	Men			Women		
	1970	1980	1999	1970	1980	1999
Old-age and early	64.2	62.5	60.6	61.5	59.5	58.0
Disability	56.6	53.9	50.4	56.6	55.1	48.3
All	61.9	59.2	58.4	60.4	58.3	56.7

Source: Bundesministerium für Soziale Sicherheit und Generationen (BMSG).

Early retirement and disability pensions have gained ground over time due to relatively easy access and generous benefits. In 1999, only around 15 percent of new pensions were regular old-age pensions, about half the share in 1970. The remaining 85 percent was early retirement, disability, and survivor pensions, with shares of 45, 13, and 27 percent, respectively. As a result of the popularity of early retirement and disability pensions, the effective retirement age is significantly below the statutory pension age in both the private and public sectors. In 1999, the average retirement age was 57.6 years (58.4 for men and 56.7 for women) in the private sector schemes (Table 1) and 59 years for federal civil servants. Compared to other countries, the labor market participation rate of elderly in Austria is consequently low (Figure 1).

Figure 1. Austria: Participation Rates
(Elderly, aged 55-64)



Source: Eurostat

Pension benefits in Austria are generous by international standards. Total spending on pensions in 2000 was around 14.5 percent of GDP, which is significantly higher than the EU average (Table 2). In the private sector pension schemes, the maximum replacement rate is 80 percent, while benefits for civil servants are not subjected to a maximum level.[2] [3] Average replacement rates in 1998 for old-age, early retirement, and disability pensions under the ASVG scheme amounted to 63.5 percent on a gross basis and 78 percent on a net basis (benefits are subject to income tax and health care contributions). The benefit level depends on the retirement age, years of contribution, and the level of income determined as the average of the best 15 income years.

Table 2. Austria: Public Pension Spending in EU in 2000
(In percent of GDP)

Austria	14.5
Italy	13.8
Greece	12.6
France	12.1
Germany	11.8
Finland	11.3
Denmark	10.5
Belgium	10.0
Portugal	9.8
Spain	9.4
Sweden	9.0
Netherlands	7.9
Luxembourg	7.4
United Kingdom	5.5
Ireland	4.6
EU	10.4

Source: EU Economic Policy Committee.

[2] The replacement rate is the ratio of pensioner's initial benefit to his/her last wage.

[3] Civil servant pensioners are, however, subject to a so-called "pension security contribution" levied on gross pension benefits and amounting to 2.3 percent of benefits. This contribution is to be phased out, and replaced by a benefit assessment period of 15-18 years.

Adjustment of pension benefits is intended to secure that average pensions increase in line with average wages (net of contributions). The indexation factor is annually determined and proposed for government approval by the Minister of Social Affairs on the basis of recommendations made by representative bodies of the insured. Given that new retirees normally receive a higher pension than old pensioners, there is a structural upward drift in average pensions. Taking this into consideration, the adjustment of pension benefits is designed to ensure that the sum of the adjustment factor and the structural drift element add up to the average increase in net wages.

Contributions are insufficient to cover the total spending on pensions. Contribution rates differ between the different pension schemes and range between 10-15 percent of gross wages for both employees and employers (Table 3). In addition to contributions, pension spending is financed through budget transfers aimed at covering the deficit of the pension system. The federal government is obliged to cover up to one third of the deficit in the private sector pension system. The deficit in the private sector pension schemes is currently equivalent to around 2½ percent of GDP, whereas the deficit in the civil servant schemes is about 3 percent of GDP. Of course, there is no a priori resason for a public pay-as-you-go system to be balanced at all times. Deficits covered by general taxation are in principle consistent with the concept of solidarity among generations underlying the Austrian pension system.

Table 3. Austria: Gross Wage Contribution Rates

	Employee	Employer
Private employees	10.25	12.55
Self-employed	...	15.00
Farmers	...	14.50
Civil servants	...	12.55

Source: BMSG.

B. Health Care System

Delivering health care services to the population is primarily a public task in Austria. The Austrian Constitution stipulates that the responsibility for almost all areas of health care lies with the federal government. The most important exception concerns hospitals, where the federal government is only responsible for determining the basic legal framework and applying sanitary standards, while all other legislation and management is the responsibility of the nine Länder (provinces).

Public health insurance is compulsory and practically all Austrians are covered. People do not have the option to choose their own insurance scheme, but are assigned according to their professional background. Like pension schemes, public health insurance schemes can be divided into three main groups for (1) dependent employees, (2) self-employed and farmers, and (3) civil servants. Around 80 percent of the insured belong to the first group, and each of the other two covers around 10 percent of the insured. Health insurance covers against illness, inability to work due to illness or pregnancy, and preventive health care services. Benefits are primarily in kind, but there are also a number of cash benefits.

Public health care spending in Austria is comparable to that in other industrialized countries. In 2000, spending was around 5 percent of GDP (excluding long-term care spending), which is close to the EU average (Table 4). Health insurance contributions and general tax revenues finance the bulk of spending, but private households also provide some copayments, user fees, etc. Contribution rates to the different health insurance funds vary with the professions, and range from around 6-7 percent of gross earnings for white-collar workers and farmers (both employer and employee contributions) to around 9 percent for the self-employed. The contribution rates are determined by law and take into account the finances of the individual funds.

Table 4. Austria: Public Health Care Spending in EU in 2000
(In percent of GDP)

France	6.2
Finland	6.2
Sweden	6.0
Ireland	5.9
Germany	5.7
Portugal	5.4
Belgium	5.3
Austria	5.1
Denmark	5.1
Spain	5.0
Italy	4.9
Greece	4.8
Netherlands	4.7
United Kingdom	4.6
EU (weighted average)	5.3

Source: EU Economic Policy Committee.

C. Long-Term Care System

Long-term care in Austria is less institutionalized than in many other comparable countries. Families play a relatively larger role in caring for their elderly relatives and a significant share of the elderly receiving long-term care live at home. The central and local governments are responsible for the provision of transfers or services to ensure that the elderly and others in need can receive the necessary care.

All citizens have a right to long-term care if they are considered in need of basic care or domestic help, regardless of their age and without being subject to a qualifying period. Long-term care consists of both cash benefits and benefits in kind provided by public and private suppliers. Cash benefits are determined by the extent of care needed, and are intended to provide the recipients with the necessary means to buy social assistance, but are not earmarked, means-tested, or subject to income tax. Benefits in kind comprise home care services, semi-stationary care in care facilities (i.e., day centers), and inpatient care in nursing homes, etc. Around 4 percent of the population is currently in need of in-kind assistance (care) and qualify for cash benefit care allowances.

Compared to other industrialized countries, spending on long-term care in Austria is relatively low. Spending on long-term care is financed by taxation and as a share of GDP was around 0.7 percent in 2002, which compares to a weighted average of 1.3 percent for a selected group of EU countries (Table 5). However, given that some long-term care is provided through the health system and is consequently included in health care spending, the official figure for long-term care likely underestimates actual spending.

Table 5. Austria: Public Long-Term Care Spending in EU in 2000
(In percent of GDP)

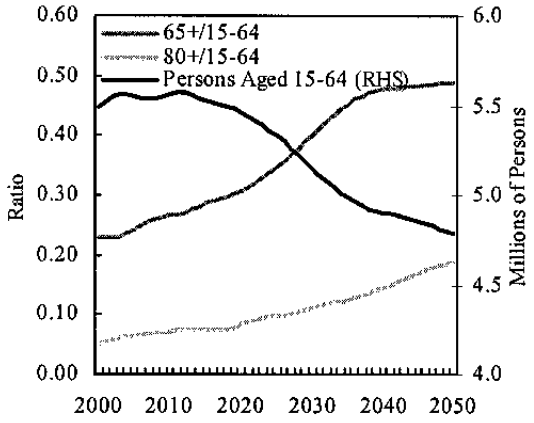
Denmark	3.0
Sweden	2.8
Netherlands	2.5
United Kingdom	1.7
Finland	1.6
Belgium	0.8
France	0.7
Ireland	0.7
Austria	0.7
Italy	0.6
EU (weighted average)	1.3

Source: EU Economic Policy Committee.

III. The Effect of Aging on Pension, Health, and Long-Term Care Spending

Like other industrialized countries, Austria faces a significant demographic shift over the next 50 years. A strong decline in fertility and mortality rates since the 1960s will result in an increase in the number of elderly and a fall in the number of working-age people over the next five decades. The demographic shift in Austria will be more severe than in many other industrialized countries. According to the latest projections by Statistik Austria, the ratio of elderly (> 64 years of age) to working age people (15-64 years of age) will rise from 0.23 today to around 0.50 in 2050. In addition, the share of very old people (> 79 years of age) will rise by even more (Figures 2 and 3).

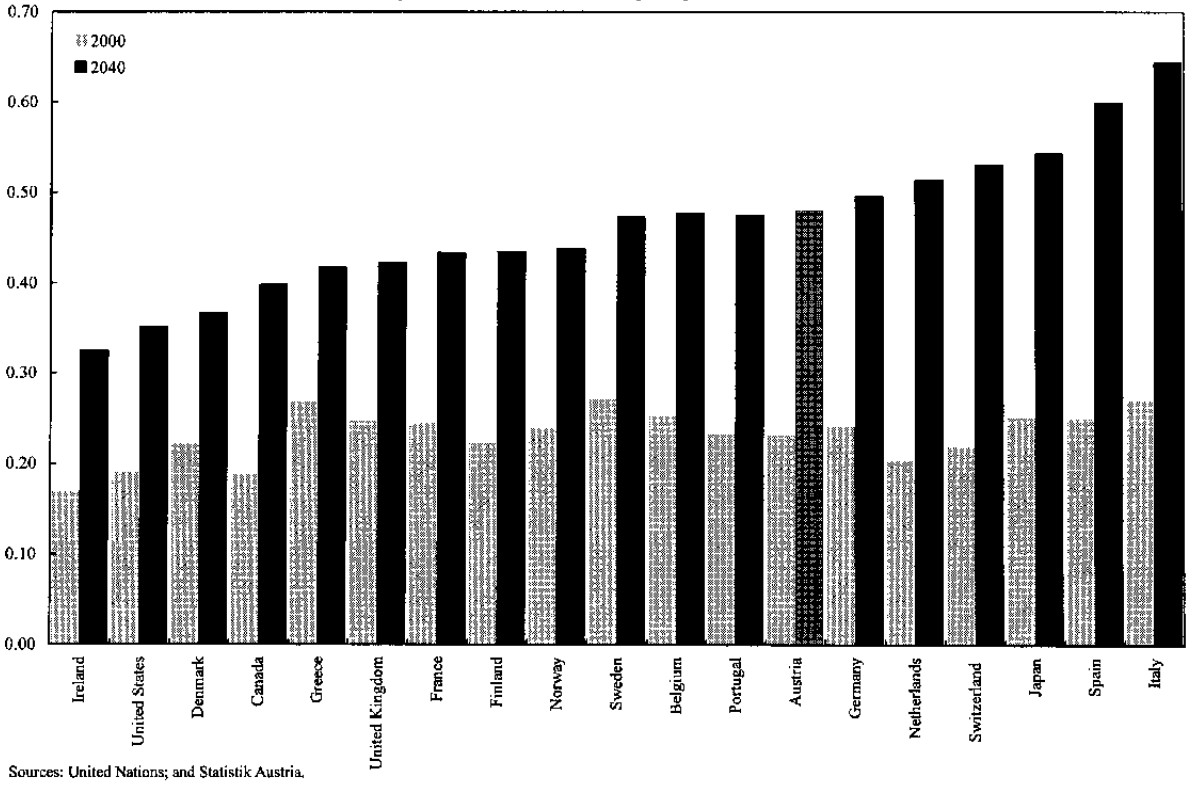
Figure 2. Austria: Demographic Trends



Source: Statistik Austria

The aging of the population creates a distributional challenge, since the number of contributors to the Austrian welfare system will fall relative to the number of welfare recipients. The increasing number of elderly will lead to higher age-related expenditures on pensions, health, and long-term care. At the same time, the decline in the labor force will erode the tax and social security contribution base. Absent reforms, these trends will widen the deficit of the system, necessitating increasing transfers from general tax revenues. This, in turn, will challenge the solidarity among generations underlying the current welfare system.

Figure 3. Austria: Ratio of People Aged 65+ to 15-64



Sources: United Nations; and Statistik Austria.

Rising outlays on pensions will be the main driver of age-related spending pressures. In addition to demographics, developments in employment and the generosity of the pension benefit system—both with respect to eligibility and to the benefit level—will have effects on the outcome. Thus, the increase in pension spending will depend on the development of four factors (Box 2):

- the relative number of elderly (*aging effect*)
- the share of working-age people in employment (*employment effect*)
- the share of elderly receiving pensions (*eligibility effect*)
- the pension level of recipients (*benefit effect).*

Both labor market and pension reforms aimed at increasing the labor force participation rate of the elderly and others (including women), as well as tightening eligibility for—and lowering the level of—benefits (pension, unemployment, etc.) will thus be important to accommodate the spending pressures. On the other hand, pension spending is not very sensitive to the age structure of pensioners, and the rising share of very old people will therefore not have an effect on outlays.

Box 2. Decomposition of Pension Spending

The evolution of pension spending as a share of GDP depends on the development in the age structure of the population, pension generosity and eligibility, and the productivity of the employed. Thus, the pension share to GDP can be written as

$$(1) \quad \frac{Pension\ \ Spending}{GDP} = \left(\frac{Number\ \ of\ \ Pension\ \ Recipients}{Employment}\right) * \left(\frac{Average\ \ Pension\ \ Benefit}{Average\ \ Productivity}\right)$$

The ratio of pensioners to employed can be decomposed further into the product of three ratios: (i) the dependency ratio; (ii) the inverse of the employment ratio; and (iii) the eligibility ratio (Dang, Antolin, and Oxley, 2001). This gives

$$(2) \quad \frac{Pension\ \ Spending}{GDP} = \underbrace{\left(\frac{Population\ \ \geq 55}{15 \leq Population\ \ \leq 64}\right)}_{1} * \underbrace{\left(\frac{15 \leq Population\ \ \leq 64}{Employment}\right)}_{2} * \underbrace{\left(\frac{Recipients}{Population\ \ \geq 55}\right)}_{3} * \underbrace{\left(\frac{Average\ \ Pension\ \ Benefit}{Average\ \ Productivity}\right)}_{4}$$

The first three ratios on the right-hand side are the dependency, inverse employment, and eligibility ratios, respectively. This shows that pension spending as a share of GDP increases with the dependency and eligibility ratios and with the generosity of pensions to average productivity, and decreases with the employment ratio.

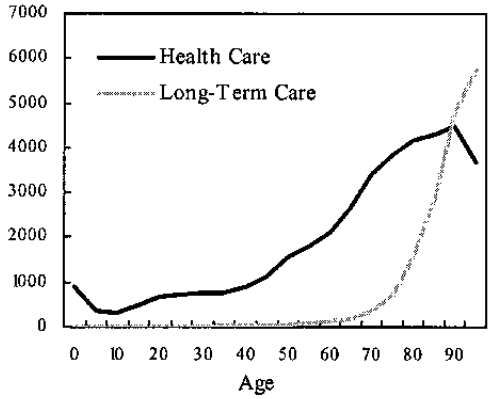
The contribution of each of these four ratios to the change in the overall share of pension spending to GDP can be approximated by the linear decomposition

$$(3) \quad \frac{\partial\left(\frac{Pension\ \ Spending}{GDP}\right)}{\partial t} \cong \left(\frac{\partial\ log(1)}{\partial t} * ps_{t=0} + \frac{\partial\ log(2)}{\partial t} * ps_{t=0} + \frac{\partial\ log(3)}{\partial t} * ps_{t=0} + \frac{\partial\ log(4)}{\partial t} * ps_{t=0}\right) + \varepsilon$$

where $ps_{t=0}$ is current pension spending as a share of GDP and ε is the residual from the log linearization. To minimize the significant residuals normally following from a linearization of a nonlinear function with large changes over long periods, one can calculate (3) for shorter subperiods and add them. This procedure was followed when calculating the results presented in the next section (Figures 5 and 6) by calculating (3) for consecutive five-year periods.

Consumption of health and long-term care services is also very sensitive to the aging of the population. Spending on health and long-term care services generally increases with the age of the recipient (Figure 4). In 2000, average spending per person on acute health care for people aged 55 and above amounted to around € 2,900, while average spending on people younger than 54 only averaged around € 800. For long-term care the average spending per person for the two age groups was around € 500 and € 20, respectively. The rising age profile of spending reflects the fact that health diminishes with age. This means that spending on these

Figure 4. Austria: Age Profile for Spending
(Average amount per person, in Euros)



Source: IHS.

categories will not only rise because the share of the elderly rises, but also because the share of the very old (> 80 years of age) is projected to increase reflecting higher longevity. There is thus a "double aging" effect on health and long-term care spending resulting from both the aging itself and the structure of aging.

Finally, the demographic shift will also reduce the number of contributors to the welfare state. The shrinkage in the number of working-age people and, therefore, the labor force resulting from aging will reduce the number of wage earners paying taxes and social contributions. Absent tax increases or hikes in social security contribution rates, this will result in lower revenues. Although pensions are taxable and pensioners pay some social contributions, these will be insufficient to counter the reduction in revenues resulting from the lower number of people working.

IV. Scenario Analysis: Impact of Age-Related Spending on Public Finances

Long-term projections of age-related spending and its effect on general government finances are very sensitive to the underlying assumptions. Thus, assumptions about demographic changes and about the impact of labor market policies and pension reforms have large effects on the path of age-related spending. In addition, aging-induced demand for health and long-term care services can significantly increase public spending on these services and add to the age-related spending increase. Furthermore, when age-related spending is measured relative to the size of the economy, the assumptions about economic growth, interest rates, and other macroeconomic variables also play an important role for the outcome of the projections. Combined, these assumptions determine how much the rise in pension, health, and long-term care expenditures will impact public finances.

The sensitivity of age-related spending and thus public finances to the economic outlook and to the effect of structural reforms is illustrated in a number of different scenarios. The scenarios are divided into three groups that explore the outlook for age-related spending and the public finances in a "high case" of solid growth and very successful outcomes of the structural reforms already taken; a "low case" of lower growth and more moderate success of structural reforms; and a case in which additional pension reform measures are implemented.

"High case"

Scenario 1: Assuming that the pension and active labor market policy reforms already underway are very successful, in line with the authorities' expectations,[4] the growth of spending on pensions will be contained through a higher employment ratio (*employment effect)*, later retirement (*eligibility effect*), and potentially an increase in productivity growth to above average pension growth (*benefit effect*).[5] However, this

[4] See Ministry of Finance (2000).

[5] Specifically, the authorities' assumption is that total participation rates of elderly aged 55-59, 60-64, and 65 and above will increase by 54, 380, and 295 percent from 2000-2050,

will be insufficient to counter the impact of the rise in the dependency ratio (*aging effect*), and pension spending (as a share of GDP) is still projected to rise by 3.2 percentage points from 2000-2050 (Figure 5). Together with a projected rise of 2.9 percentage points in spending on health and long-term care, total age-related spending will put public finances under pressure. Absent compensating measures, this would lead to a rise in the debt-to-GDP ratio of around 36 percentage points relative to the current level. This scenario broadly corresponds to the authorities' current baseline.

Scenario 2: This scenario explores the impact of higher productivity than in scenario 1, which raises real GDP growth to 2.0 percent per annum during 2008-2050. However, this increase in productivity would also lead to higher wage growth and thus adjustments in the average pension level, leaving the *benefit effect* unchanged from scenario 1. Overall age related spending as a share of GDP falls, as pension spending is projected to reach around the same level as in scenario 1, while health and long-term care spending is lower due to the higher GDP level. This has positive dynamic effects on public finances, and the debt-to-GDP ratio is consequently projected to rise slightly less than in scenario 1 (Figure 5).

"Low case"

Scenario 3: The increase in participation rates assumed in scenario 1 would be very difficult to reach under current policies. This scenario explores the outlook under the assumption of a more modest impact of the pension reforms and active labor market policies compared to scenarios 1 and 2.[6] This assumption makes a considerable difference. Pension spending increases by close to 6 percentage points from 2000-2050, as employment develops more negatively (*employment effect*), people retire

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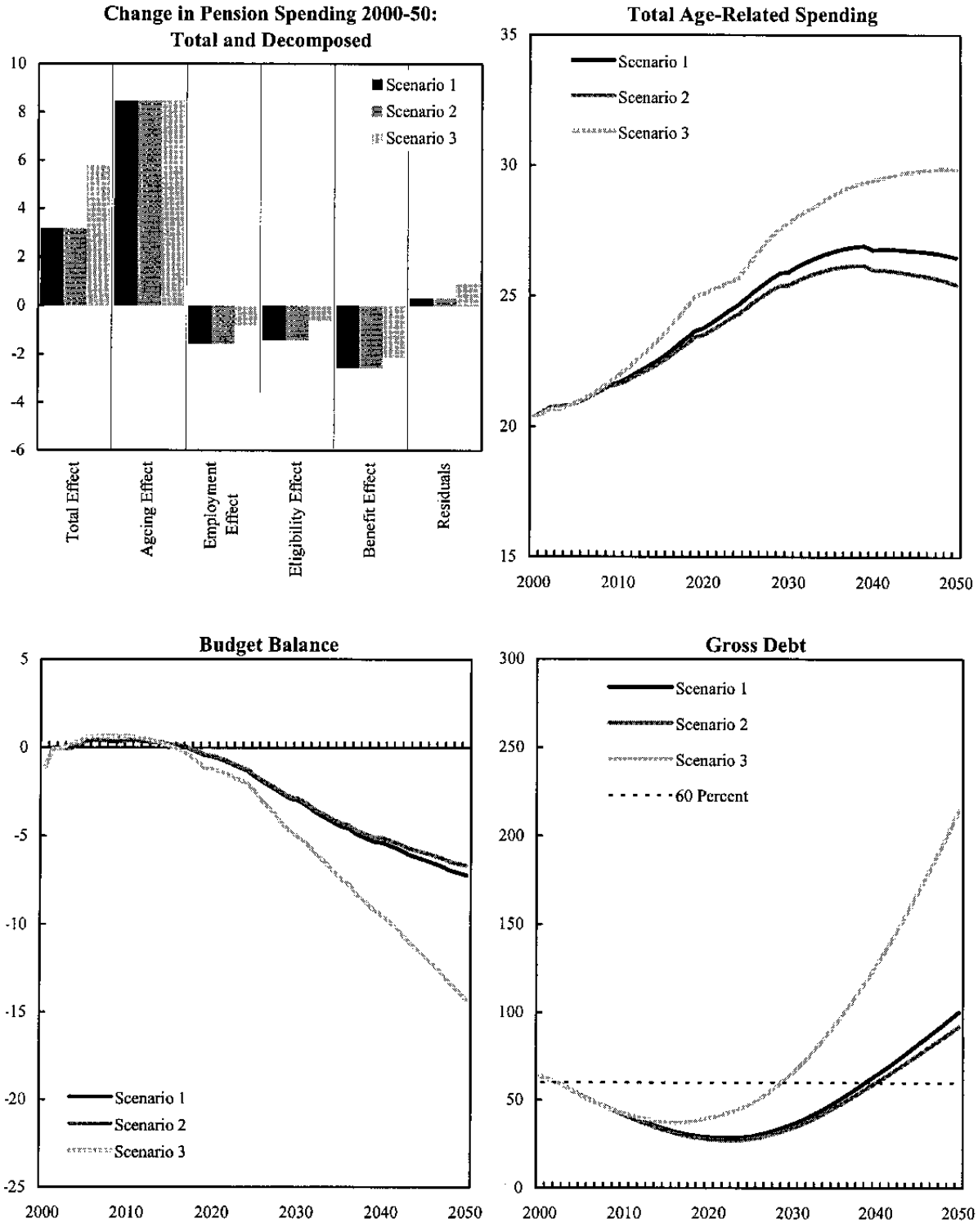
respectively (with the rates for women in these age groups increasing, 128, 800, and 400 percent, respectively). Employment is expected to fall on average 0.1 percent annually over the period due to the shrinkage in the effective labor supply despite the higher participation rates, while the unemployment rate will drop to around 4 percent. Annual real GDP growth equals IMF WEO projections for 2000-2007, and is assumed on average to fall to about 1.7 percent thereafter. This implies average productivity growth of around 1.8 percent, which is in line with the experience of recent years. Average pension benefits are set to increase annually by 1.4 percent (real), in line with average net wages.

[6] Thus, the participation rates of elderly are assumed not to increase much beyond the direct effect from the already decided increase in the minimum ages for early and old-age retirement. Employment is projected on average to fall by 0.2 percent annually, and the consequent lower level of employment leads to reduced annual real GDP growth compared to scenarios 1 and 2 which is assumed to average 1.5 percent during 2008-2050, 0.2 percent lower than in scenarios 1 and 2.

Figure 5. Austria: Public Finances Under Scenarios 1-3
(In percent of GDP)



Source: Author's projections.

earlier (*eligibility effect*), and average pensions develop more in line with the slower growing GDP (*benefit effect*). Health and long-term care spending increase by around 3.5 percentage points due to lower GDP growth, raising total age-related spending as a share of GDP by more than 9 percentage points (Figures 5 and 6). This puts the gross debt ratio on an explosive path, reaching around 215 percent of GDP by 2050. In what follows, this more conservative scenario is used as the baseline.

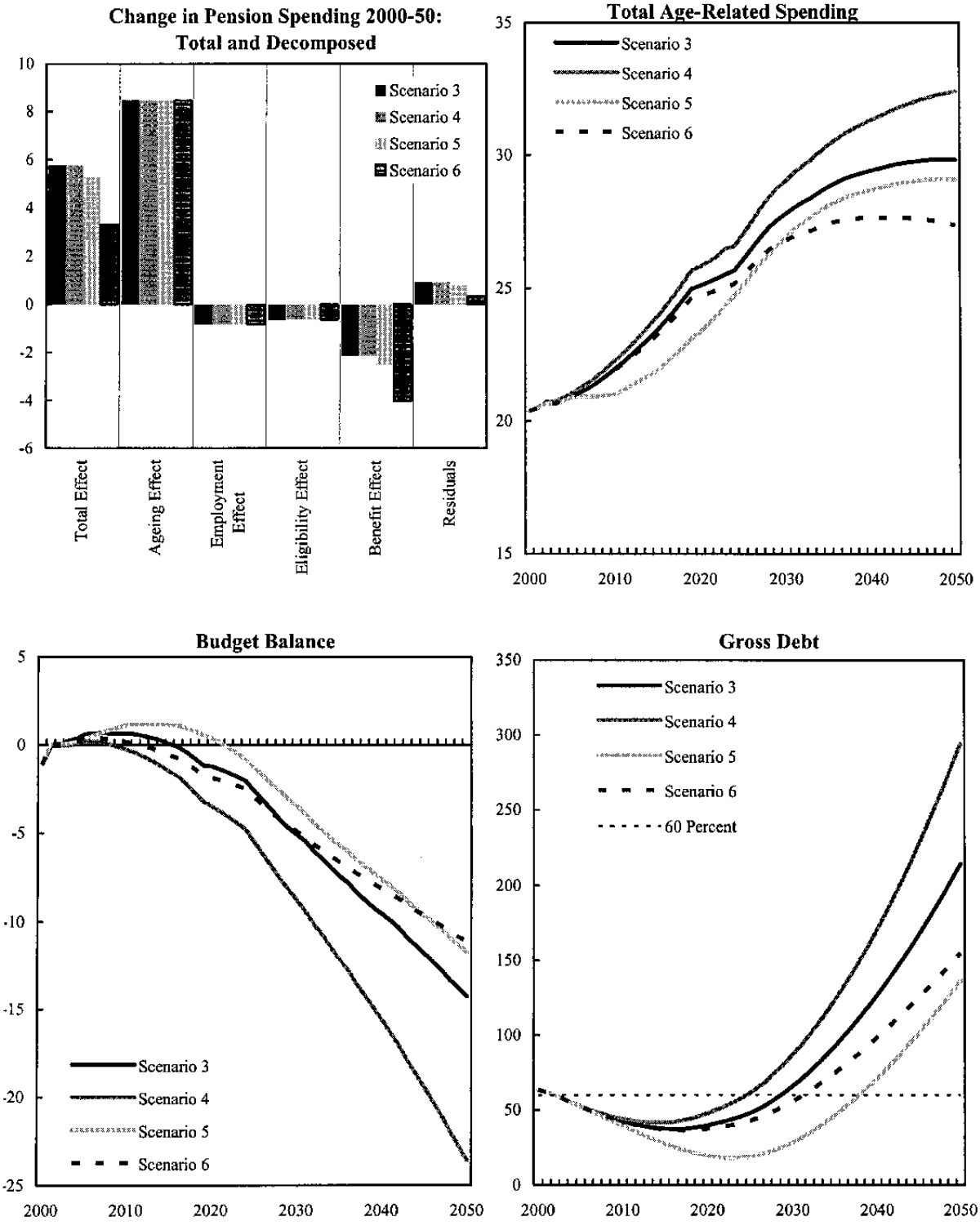
Scenario 4: In addition to the difficulties of reaching the higher participation rates envisaged by the authorities under current policies, there is the risk that the cost of health and long-term care services could rise even further than contemplated in scenarios 1-3.Current supply constraints on health and long-term care, combined with rising demand for these services as the population ages, could lead to higher cost inflation than assumed in the other scenarios. Assuming an additional annual nominal cost inflation of 0.5 percent for these services relative to scenario 3 doubles the share of health and long-term care spending to GDP. Together with the rise in pension spending, public finances deteriorate even further, and the debt ratio is projected to fall just shy of 300 percent of GDP by the end of the forecasting horizon (Figure 6).

Additional pension reform measures

The last two scenarios start with the baseline (scenario 3) and estimate the effect of additional pension reform measures on public finances. Two such measures are examined: an increase in working life (scenario 5) and a lower rate of growth of benefits (scenario 6). While the specific measures assumed in each scenario are by no means the only reform options available to the authorities, they were chosen because they illustrate the two fundamental alternatives open to policymakers.

Scenario 5: The basic assumptions are the same as in scenario 3, except that the harmonization of the female and male retirement age is moved forward from 2019-2033 to 2005-2015. Also, GDP growth is expected to increase relative to scenario 3 during the period when female retirement ages are increased. The increase of pension spending under these assumptions is somewhat smaller than in scenario 3 due to the higher GDP growth during the interim period (*benefit effect*), and total age-related spending is projected to increase by slightly less than 9 percent (Figure 6). However, moving forward the harmonization has a large impact on public finances due both to the higher GDP growth and to the positive debt dynamics resulting from realizing earlier the savings from the higher female retirement age. Therefore, the debt-ratio is projected to fall by around 80 percentage points relative to scenario 3 and reach around 135 percent in 2050, 70 percentage points above the current level (Figure 6).

Figure 6. Austria: Public Finances Under Scenarios 3-6
(In percent of GDP)



Source: Author's projections.

Scenario 6: The underlying assumptions are again the same as in scenario 3, but here pension benefit growth is slower.[7] This reduces the growth of pension spending as a share of GDP, which increases by just about 3 percentage points over the entire period, close to the level obtained in scenario 1. The result is driven by the reduction in benefit generosity (*benefit effect*), which relative to scenario 1 outweighs the less positive effects from lower employment (*employment effect*) and earlier retirement (*eligibility effect*). Including health and long-term care spending, total age-related spending still increases by 7 percentage points and the debt ratio by close to 90 percentage points by 2050 (Figure 6).

These scenarios illustrate a number of points. *First*, even if the pension and labor market reforms already under way turn out to be very successful in significantly containing the inflow to retirement and increasing the labor force participation rates (especially of the elderly), the fiscal pressures associated with the aging of the population would still rise significantly. A better growth performance could have some positive dynamic effects on public finances, but would still not alleviate the problem. *Second*, under less optimistic assumptions about the effects of reforms, the fiscal outlook would deteriorate materially and quickly. This would be even more pronounced if the cost of health and long-term care increased faster than currently foreseen. *Third*, additional pension measures could maintain public finance sustainability, but the timing is crucial. For example, bringing forward the harmonization of male and female retirement ages will have important dynamic effects as savings are realized earlier. Combined with a decrease in the rate of real growth of benefits, this could secure long-term sustainability. The same effect could be achieved through other measures, such as increasing the minimum early retirement ages further, strengthening the financial incentives for staying longer in the labor market, and lengthening the wage assessment period for measurement of benefit entitlement. Measures could also be taken to avoid the escalation of health and long-term care spending, such as introducing more user fees, tightening eligibility to certain services and benefits by strengthening means-testing, and increasing the specialization of hospitals.

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[7] In this example, it is assumed that the indexation of pensions moves towards direct price indexation. Due to the large difference between the average pension of old and new pensioners and the associated element of drift in average pensions over time, the indexation of individual pensions is currently assumed to be in line with inflation. As the difference between old and new pensions diminishes over time, individual pensions can be indexed by a factor higher than inflation, while still matching total average pension growth to that of average net wages. A move towards price indexation of *individual* pensions will therefore result in marginal but increasing savings on *average* pensions. With this in mind, it is assumed in this scenario that *average* pension indexation relative to the preceding scenarios is reduced by 0.2 percentage points from 2010-2024 and by an additional 0.2 percentage points from 2025-2050.

V. Ensuring Long-Term Public Finance Sustainability

Pension and health care reform is not the only answer to accommodate the projected buldge in age-related spending. As the discussion in the previous section illustrated, the problem of growing age-related spending in a public pay-as-you-go system based on solidarity among generations should not be thought of as simply an actuarial problem. The sustainability of such a system should be analyzed in the broader context of fiscal sustainability. This section looks at the theoretical concept of fiscal sustainability, its practical application, and presents calculations illustrating a time profile for the primary balance improvement necessary in Austria to maintain long-term sustainability under the different scenarios.

A. Sustainability in Theory and Practice

Theoretical discussion of fiscal sustainability is typically based on the assumption that the government must satisfy both a static and intertemporal budget constraint (Chalk and Hemming, 2000). Assuming a closed-economy representative agent model and abstracting from monetary conditions, the static budget constraint or every-period condition is

$$B_{t+1} = (1+r_t) * B_t + PD_t \tag{1}$$

where B_t and B_{t+1} are the initial and subsequent-period nominal government debt levels, respectively, $1+r_t$ is the nominal discount factor between the two periods, and PD_t is the nominal fiscal primary deficit. To derive the intertemporal budget constraint, (1) needs to be solved forward to give

$$B_t = -\sum_{i=0}^{\infty} D(t,t+i)^{-1} * PD_{t+i} + \lim_{T\to\infty} D(t,t+T)^{-1} * B_{t+T+1} \tag{2}$$

where $D(t,t+i) = \prod_{k=0}^{i} (1+r_{t+k})$ is the discount factor between periods t and $t+i$.

According to the intertemporal budget constraint, fiscal sustainability is secured if the present value of future primary balances exceeds the difference between the present value of the terminal and the initial debt level. If the level of outstanding debt grows at a rate less than r, then the present discounted value of the terminal debt converges to zero over time.

$$\lim_{T\to\infty} D(t,t+T)^{-1} * B_{t+T+1} = 0 \tag{3}$$

Therefore, assuming (3) is fulfilled, the government's intertemporal budget constraint holds if the excess of primary surpluses over primary deficits, in present value terms, matches the outstanding value of initial debt. This gives what is usually referred to as the government's present value budget constraint

$$B_t = -\sum_{i=0}^{\infty} D(t,t+i)^{-1} * PD_{t+I} \tag{4}$$

Putting it more simply, (4) says that a government that has outstanding debt must anticipate sooner or later to run primary budget surpluses, and those surpluses have to be large enough to satisfy (4).

This theoretical concept of sustainability is, however, difficult to apply due to the assumption of an infinite time horizon. Practical applications of the concept of sustainability are based on finite horizons, which also means that the present value of the terminal debt level will normally be larger than zero and (3) will consequently not hold. Sustainability, as a result, boils down to preferences/targets for the end-horizon debt level, typically measured relative to output.

A number of indicators have been developed as tools to assess public finance sustainability. Buiter (1985) argued that a sustainable fiscal policy should maintain the ratio of public sector net worth to output at its current level. To assess fiscal sustainability, Buiter suggested an indicator comparing the current primary deficit to the deficit ensuring the stabilization of net worth. However, despite its intuitive appeal, Buiter's indicator has the problem that it is difficult to obtain accurate information on the net worth of the government. Blanchard (1990) circumvented this problem by looking at the primary deficit or tax rate necessary to maintain the current debt ratio. Blanchard's *primary gap* indicator is calculated as

$$\overline{pd} - pd_t = (g_t - r_t)^* b_t - pd_t \tag{5}$$

where $b_t = \frac{B_t}{Y_t}$ is the debt-to-output ratio. A positive value of the *primary gap* indicator suggests that the current primary deficit is sufficiently small (or the surplus sufficiently large) to stabilize the debt ratio, while the opposite is true for a negative value.

B. Long-Term Sustainability Indicator for Austria

The indicator developed in this paper to gauge the long-term sustainability of Austria's public finances is built on the *primary gap* indicator suggested by Blanchard. Specifically, the indicator compares the average annual primary deficit $\overline{pd}^I$ implied by the projected debt ratio in 2050 b_{50}^p with the average annual primary deficit $\overline{pd}$ necessary to maintain the debt ratio at the current or targeted level. The average primary deficit implied by the projected debt ratio is given by

$$\sum_{t=s}^{50}\left(\frac{1+\bar{r}}{1+g_a}\right)^{-t} * \overline{pd}^{I} = -b_s + b_{50}^{p} * \left(\frac{1+\bar{r}}{1+g_a}\right)^{-(50-s)}$$

(6) $\Downarrow$

$$\overline{pd}^{I} = \frac{-b_s + b_{50}^{p} * \left(\frac{1+\bar{r}}{1+g_a}\right)^{-(50-s)}}{\sum_{t=s}^{50}\left(\frac{1+\bar{r}}{1+g_a}\right)^{-t}}$$

where g_a is the average annual growth rate for the entire forecasting period, and b_s and $\bar{r}$, respectively, are the debt ratio at time s ($1 \leq s \leq 50$) and the fixed interest rate. The equation says that the present value of the average implied primary deficit (discounted by GDP growth) equals the difference between the initial debt ratio and the present value of the terminal debt ratio (discounted by GDP growth). The implied deficit increases with the relative size of the terminal debt level and—for given initial and terminal debt levels—decreases with the spread between the interest and growth rate.

The primary deficit necessary to maintain the debt ratio at the current or some "target" level is given by

$$\sum_{t=s}^{50}\left(\frac{1+\bar{r}}{1+g_a}\right)^{-t} * \overline{pd} = -b_s + b_{50} * \left(\frac{1+\bar{r}}{1+g_a}\right)^{-(50-s)} \quad ; b_{50} = b_s$$

(7) $\Downarrow$

$$\overline{pd} = \frac{-b_s * \left(1 - \left(\frac{1+\bar{r}}{1+g_a}\right)^{-(50-s)}\right)}{\sum_{t=s}^{50}\left(\frac{1+\bar{r}}{1+g_a}\right)^{-t}}$$

Combining (6) and (7) and rearranging gives the *long-term primary gap* indicator developed in this exercise for Austria:

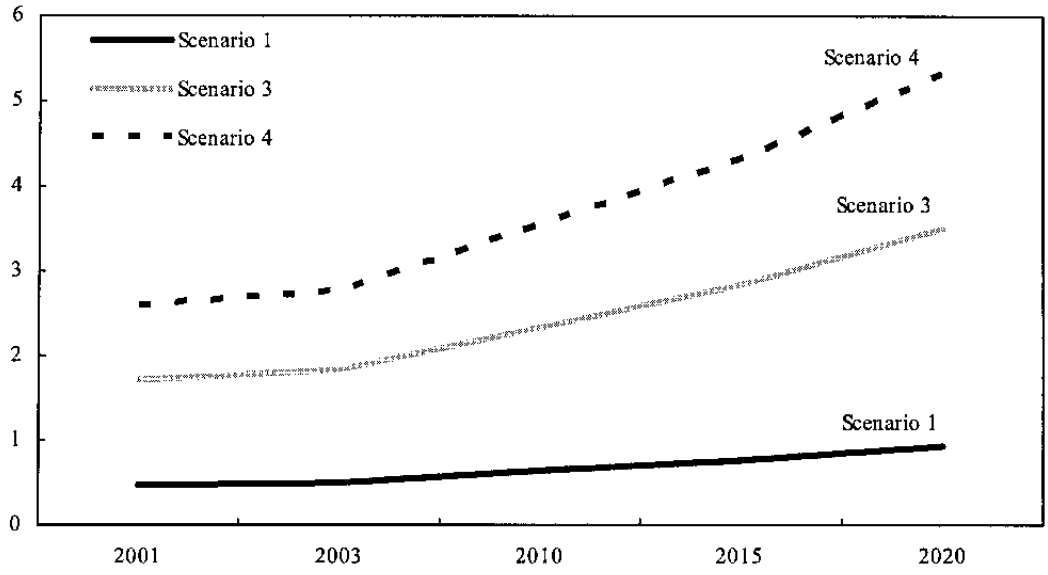
$$\overline{pd} - \overline{pd}^{I} = \frac{(b_s - b_{50}^{p}) * \left(\frac{1+\bar{r}}{1+g_a}\right)^{-(50-s)}}{\sum_{t=s}^{50}\left(\frac{1+\bar{r}}{1+g_t}\right)^{-t}} \quad (8)$$

A positive value indicates that the long-term projected fiscal policy is on a sustainable path, while a negative value indicates that projected primary balances are insufficient to keep the

terminal debt ratio on target. The absolute size of the gap shows how much the primary balance at time $t=s$ would need to be permanently adjusted to maintain the terminal debt ratio below the current ratio or some other "sustainable" debt ratio target.

Calculations of the *long-term primary gap* for Austria are carried out for the scenarios presented earlier and under different assumptions about the timing of the adjustment (see below). The calculations show at different points in time the primary balance improvement necessary to keep the debt ratio in 2050 less than or equal to a 60 percent level, assuming that the total required adjustment is undertaken *once-and-for-all* at the given point in time. This, of course, is not the only possible policy option. There is an infinite number of primary balance time profiles that could achieve the terminal debt level target in each scenario. The objective could for example be reached by initially adjusting the primary balance by less than suggested by the *long-term primary gap indicator* and later adjust it further. But in this case, the cumulative adjustment over the long term would need to be greater than an immediate once-and-for-all adjustment. For this reason, although the long-term primary gap indicator does not have an immediate prescriptive value, it is useful indicator of the cumulative effort required over the period to reach the target terminal debt level.

Figure 7. Austria: Required Permanent Primary Adjustment with Different Timings for Adjustment
(In percent of GDP)



Source: Author's calculations.

The calculations highlight the need for an immediate improvement in the primary fiscal balance. They show (Figure 7) that the size of the required primary adjustment depends heavily on the assumption about the success of reforms already underway, as well as on the timing of the adjustment. Even under fairly optimistic assumptions about reform success (scenario 1), the primary balance still needs to be raised permanently from next year onward by around 0.5 percentage point of GDP. If action is delayed to 2020, the required permanent

adjustment rises to 1 percentage point. In the staff's baseline scenario (scenario 3), the primary balance needs to be raised permanently by around 2 percent of GDP if the entire adjustment was undertaken in 2003 to achieve a debt ratio of 60 percent in 2050. Delaying the adjustment to 2015 increases the required improvement to 3 percentage points. In the event health and long-term care costs increase by more than expected (scenario 4), the required adjustment is even higher.

The analysis underscores the need for time consistency in fiscal policy. The calculations presented above assume that the authorities keep to the new primary balance path for the rest of the period. Deviations from this path could seriously worsen the outlook and increase further the primary adjustment required to ensure achievement of the terminal debt ratio and, hence, public finance sustainability. This emphasizes the importance of adhering to the chosen fiscal path over the long term. Finally, it should be pointed out that the primary adjustment requirement calculated for all the scenarios only ensures that the terminal debt ratio is equal to 60 percent in 2050. This, however, is not sufficient to guarantee that the debt ratio is not increasing at an unsustainable rate at that time. Depending on the specific primary balance path during 2003-2050, additional adjustment may, therefore, be necessary to ensure debt sustainability after 2050.

VI. Concluding Remarks

Austria faces a major fiscal challenge from the aging of the population over the next 50 years, requiring early and sustained fiscal policy action to tackle it. Age-related spending is projected to increase strongly, undermining the political economy of Austria's welfare system and jeopardizing the sustainability of public finances. Bold measures are needed, and their timing is crucial for two reasons. First, the demographic effects will start setting in around 2010, leaving a window of opportunity during the current decade to design and implement the necessary structural reforms to the pension and labor market system. Second, realizing early savings will have considerable dynamic effects and thereby reduce the cost of the total required primary improvement.

Given the already high level of taxation and the stated policy objective to lower it, measures should focus on savings on the spending side. To bring about the necessary primary improvement, the authorities have a number of options. One is additional pension reforms, such as bringing forward the harmonization of female and male retirement ages; increasing the effective retirement age by narrowing eligibility and strengthening disincentives to early retirement; and reducing benefit generosity, for example by moving towards price indexation of individual pensions and lengthening the benefit assessment period. Since the problem of Austria's public pay-as-you-go solidarity-oriented pension system can also be solved in the wider context of public finances, other options include savings on non-pension spending. Thus, if pension measures are not sufficient to ensure actuarial sustainability of the pension system, the authorities would need to take measures to reduce spending on a wider front. Finally, it will be important for the government to adhere to fiscal discipline over the long term. Even relatively modest deviations from the primary balance requirement to ensure sustainability may have large dynamic effects in the long term. In this context, adopting a

more formalized medium-term fiscal framework could help ensure time consistency of fiscal policy.

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