The Austrian Pension System – How Recent Reforms Have Changed Fiscal Sustainability and Pension Benefits

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This article discusses the most recent pension reforms in Austria, which were mainly triggered by the need to alleviate the budgetary pressure stemming from the age structure of the Austrian population. Using synthetic indicators, derived from the government's budget constraint, the paper assesses fiscal sustainability before and after the major pension reforms. Austria's fiscal sustainability was clearly improved by the reforms. The two main factors behind this improvement are a projected increase in the average effective retirement age and a projected reduction in the generosity of the mandatory state pension system. Based on available data, the paper assesses the current and prospective level of Austrian public pension benefits and puts them into an international perspective.

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1 Introduction

The twofold demographic challenge – increasing life expectancy and low fertility rates – has put most pension systems under budgetary pressure. Over the last decade this has led to massive requests for reforms throughout Europe. In Austria the sequence of legal changes has been particularly rapid with – overall substantial – pension reforms in 2000, 2003 and 2004. At the same time, a number of international organizations have taken up the before mentioned issues by publishing extensive surveys and proposals. Important studies in this area have, e.g., been provided by the World Bank (Holzmann and Hinz, 2005), the OECD (2005a, 2005b) and the EU's Economic Policy Committee (EPC, 2001, 2006). Given the implications of the demographic challenge for pension systems and, by extension, for public finances, many publications have put particular emphasis on the ensuing effects on fiscal sustainability and on the maintenance of sustainable public finances. This article also considers the main factors behind the improvement in the Austrian fiscal situation and looks in particular at the projected development of pension benefits.

Section 2 gives an overview of the Austrian pension system, followed by a description of the three pension reforms implemented in Austria since 2000 in section 3. Section 4 assesses the effects of the reforms on fiscal sustainability based on the most recent projections of old-age-related expenditures, using inter alia indicators proposed by the European Commission. Section 5 discusses the projected changes in the generosity of the pension system. The focus is both on the current Austrian situation and on the projected future development implied by the pension reforms. Section 6 offers concluding remarks.

2 An Overview of the Austrian Pension System

2.1 Key Facts

Being a "Bismarckian" system, Austria's pension system is dominated by

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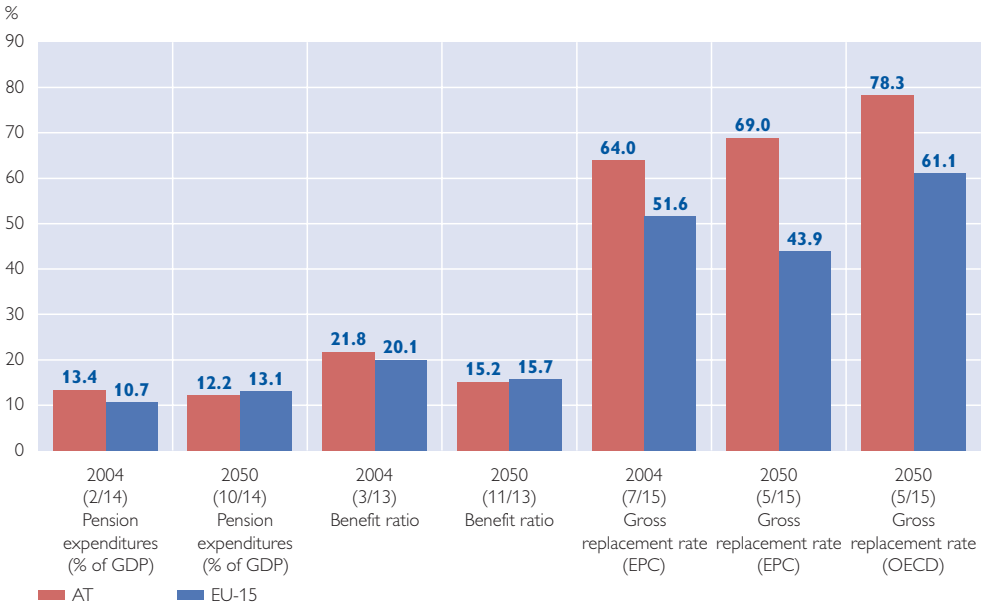
Chart 1

Indicators on the Generosity of Pension Systems for Austria and the EU-15 (2004 and 2050)



Source: OeNB calculations based on EPC (2006, tables 3.3, 3.11 and 2.2 (Annex)) and OECD (2005a, table 4.1).

Note: The figures in parenthesis give the rank of the Austrian value among the EU-15 Member States. The OECD calculations show the pension entitlements of a worker who enters the system in 2005 at the age of 20 and retires at the standard pension-eligibility age. Thus, the first year of retirement might vary between 2045 (if the standard eligibility age is 60) and 2050 (if it is 65).

the first pillar: the public pay-as-you-go (PAYG) scheme, which is mandatory and benefit oriented. The public pension system provides for direct old age and invalidity pensions as well as for indirect benefits such as survivors' and orphans' pensions. If required, these benefits are supplemented from general tax revenues by a means-tested payment, which is provided to guarantee minimum income in retirement, i.e. to cover the poverty risk of the elderly.

Up to 2005, the first pillar consisted of different schemes for different occupational groups, which reflected the historical development of the pension system. The pension harmonization law of 2004 was the first effort aimed at introducing a uniform pension system for all occupational categories with uniform contribution rates and benefit entitlements.[2] As roughly 93%[3] of the labor force are covered by the rather generous public pension system,[4] the second (occupational pension scheme) and third pillars (individual pension provision) used to play a minor, albeit increasing role. The occupational pension scheme gained in importance when a new severance pay scheme was introduced in 2002. Under the new scheme, employers are required to contribute 1.53% of the gross monthly pay for each of their employees, who

[2] *Exceptions apply to civil servants working for the regional and local authorities (who are not in the new system) and to the self-employed and to farmers (who pay lower contributions).*

[3] *See Felderer et al. (2006).*

[4] *The public pension system does not cover a certain category of the self-employed (liberal professions) and employees with very low earnings; the initial gross replacement rate is 64% (see chart 1).*

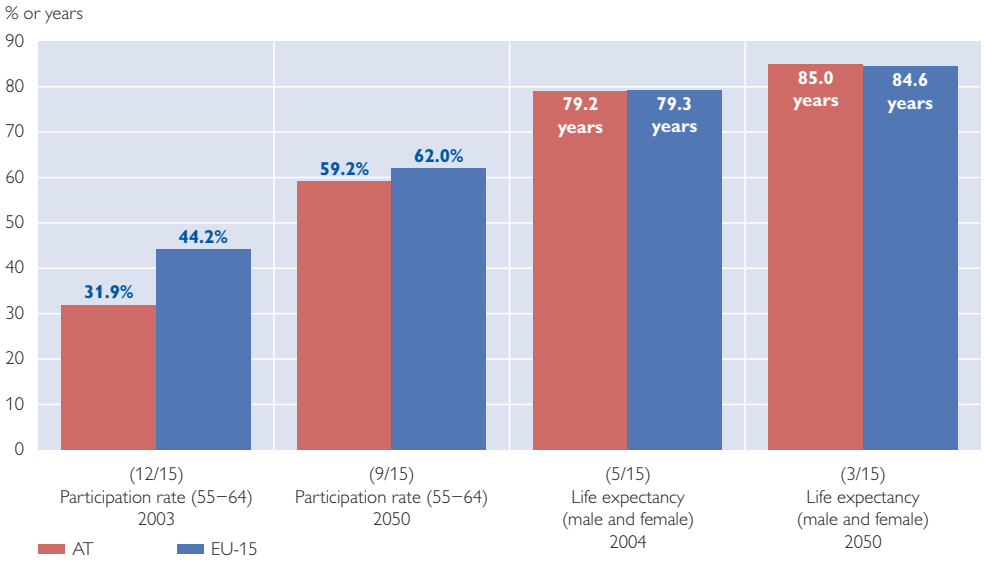
may opt for a lump-sum payout or a lifelong pension at the time of retirement. Similarly, the launch of a state-subsidized private pension scheme ("Zukunftsvorsorge") in 2003, which aimed at encouraging people to also save for retirement themselves, resulted in an increased importance of the third pillar.[5]

Spending on first-pillar pensions is primarily financed by the contributions of economically active people. Their contributions – as a rule 22.8% of the given contributory wage[6] – cover roughly two-thirds of the pension payout. In addition, direct contributions are supplemented by contributions of central government funds to finance entitlements for periods of paid unemployment, military service/community service and child-raising, while general tax revenues are used to cover remaining pension scheme imbalances.

The statutory old age retirement age is still 65 years for men and 60 years for women. Until 2000, early retirement was possible at 60 years for men and 55 years for women. Following a ruling by the Constitutional Court on the principle of equal treatment, women's statutory retirement age will be gradually adjusted to that of men.[7] These legal provisions notwithstanding, employees currently start to draw direct pensions at the average age of 57.7 years, which is mirrored in the very low share (27%) of "ordinary" old-age pensions. Another mirror image is the low partici-

Chart 2

Participation Rates of Older Workers (55-64) and Life Expectancy



Source: OeNB calculations based on EPC (2006, tables 2.2, 2.5 and 2.6).

Note: Life expectancy (at birth) is measured as the average of the value for men and women. The figures in parenthesis below the data again give the rank of the Austrian value among the EU-15 Member States.

[5] *See Url (2003), Eckert and Prammer (2003).*

[6] *For employees, 10.25% is paid by the employee and 12.55% is paid by the employer.*

[7] *For early retirement the adjustment period is 2019–2028 and for statutory retirement the adjustment period is 2024–2033.*

pation rate[8] in the age group 55–64 years, amounting to 31.9% in 2003. While Austria's participation rate among the prime-age workers (25–54) is well above the EU average with 87.4%, it is the third-lowest among EU-15 countries in the group aged 55–64 (see chart 2).[9]

2.2 Key Parameters

The individual initial pension level is calculated as follows:[10]

Initial pension = accrual rate x pension assessment base

For each insurance year, an accrual rate is attributed, adding up to a maximum of 80% of the assessment base. Before the reforms, the accrual rate was 2% per year, implying that the maximum amount was reached after 40 years.

The assessment base is derived from average annual earnings over the assessment period, which equals the number of insurance years used to calculate the entitlements. Past earnings are transferred into current purchasing power units by a series of revaluation factors. Up to 2004 these factors were determined by the Ministry of Social Affairs and ex post turned out to follow broadly consumer price inflation.

Current pensions are adjusted as follows:

Pension = pension of the previous period x adjustment factor

Previously, the adjustment factor was determined by the Ministry of Social Affairs according to the principle that average pensions should grow at the same speed as average wages (both net of social security contributions). Due to the ongoing changes in the structure of pension beneficiaries,[11] pension adjustments turned out to broadly follow consumer price inflation.[12]

3 Pension Reforms since 2000

Comparing EU-15 expenditure rates, Austria's total public pension expenditure was the second-highest among the EU-15 in 2004 at 13.4% of GDP. Given the twofold demographic challenge, which is particularly unfavorable for Austria, the EPC (2001) had expected pension expenditure to surge to 18.7% in 2035 and to drop thereafter to still 17.0% of GDP in 2050[13] – thereby building up substantial budgetary pressure.

As the public pension system implies large implicit liabilities whose amount is related to the age structure of the population, Austria's pension reforms were thus mainly triggered by the need to alleviate the budgetary pressure stemming from the increasing number of pensioners in absolute terms and relative to the working-age population. While in 2005 the old-age dependency ratio[14] was 25%, it is projected to double by 2050. This indicates that the current support ratio

[8] *The participation rate is the ratio of the labor force to the working-age population, i.e. the portion of the population aged between 15 and 64 that is either employed or actively seeking employment.*

[9] *For a more detailed description of the Austrian pay-as-you-go pension system see Stefanits, Obermayr and Wörister (2004), Holzmann and Heitzmann (2002), Wöss (2000).*

[10] *Compare Knell (2004).*

[11] *Structural changes are the result of the entrance of new pensioners into the system, which are usually entitled to higher benefits than those leaving the system (dying). Hence the average pension increases automatically.*

[12] *See Knell (2004), Mayrhuber and Url (2000).*

[13] *In the case of Austria, projections were provided by the Austrian Ministry of Finance.*

[14] *The number of people aged 65 years and above relative to those between 15 and 64.*

of four people of working age for every elderly citizen moves to a ratio of only two people of working age for every elderly citizen. The additional tax increase required to finance expected expenditure increases has become a primary concern of economic policy.

Hence, the pension reforms in 2000, 2003 and 2004 were aimed at improving the sustainability and, in addition, the actuarial fairness of the Austrian PAYG pension system. While the pension reform in 2000 mainly focused on increasing the effective retirement age, a comprehensive reform, changing various parameters which influence pension benefits, was implemented in the following two reform phases.

3.1 Reform of 2000

The aim of the pension reform in 2000 was twofold: First, it was designed to contribute to short-run fiscal consolidation. Second, a Pension Reform Committee ("Kommission zur längerfristigen Pensionssicherung") was appointed to deal with the long-term sustainability of the Austrian pension system on a regular basis, which influenced the discussion on the following pension reforms.

The reform comprised the following measures:

– Abolition of early retirement due to reduced capacity to work. However, to avoid socially unwarranted hardship, entry conditions to retirement due to invalidity were eased.
– The early retirement age for the remaining early retirement schemes[15] was gradually increased by 18 months in total from October 2000 onward up to 61.5 years for men and 56.5 years for women.[16]
– Actuarial fairness was increased by raising early retirement discounts and by increasing late retirement credits. The early retirement discount amounts to 3 accrual points per year but is capped at a maximum of 10.5 accrual points or a loss of 15% of pension entitlements. As with the rise in early retirement age, transition periods were introduced to avoid hardships. People working beyond the statutory retirement age were granted a credit of 4% of the assessment base per year of later retirement.
– Eligibility criteria for survivors' pensions were tightened. While the surviving spouse used to be entitled to between 40% and 60% of the deceased spouse's pension benefits, this entitlement was cut to between 0% and 60%, depending on the survivor's own income/pension benefits.

3.2 Reform of 2003

The pension reform adopted in June 2003, which entered into force as of January 1, 2004, changed the key parameters of the Austrian pension system:

– The assessment period (i.e. the averaging period used for calculating the assessment base) will be increased to the best 40 years of earnings for which contributions were paid (from the best 15 years, or the best 18 years in case of early retirement). The averaging

[15] *Early retirement on account of long insurance histories and early retirement due to long-term unemployment, as well as phased retirement.*

[16] *The early retirement age was increased by two months at the beginning of every quarter.*

period will be expanded by 12 months every year; thus the extension will be fully phased in by 2028. Periods of unpaid leave granted to care for terminally ill relatives ("Familienhospiz") as well as extended child care periods[17] will be taken into consideration in the averaging period.

– The annual accrual rate will be reduced from 2 to 1.78 by 2009,[18] such that the maximum replacement rate of 80% of the assessment base will be reached after an insurance history of 45 years (instead of 40 years).
– Early retirement on account of unemployment was fully abolished. The minimum age (61.5 for men and 56.5 for women) for early retirement on account of long-term insurance contributions will be increased in steps until 2017 to the statutory retirement age of 65 for men and 60 for women.
– To reduce incentives for early retirement, the benefit discount for every year of earlier retirement was increased from 3 accrual points to 4.2% of the assessment base, up to a maximum of 15% of the pension entitlement. The premium for later retirement was increased from 4% to 4.2% of the assessment base capped by a maximum.
– Regarding the pensions of tenured civil servants, the reform mirrors the private sector scheme: extension of the averaging period for the assessment base to 40 years (with a transition period until 2028); reduction in the annual accrual rate; stepwise increase in the statutory retirement age to 65 years (for civil servants with long tenure, early retirement at age 61.5 is only possible in exchange for an early retirement discount); increase of pension contributions by 1 percentage point.

Exceptions from the rules on the accrual rate as well as on the retirement age apply to long-term insured persons (45 contribution years), and workers performing heavy physical work. Furthermore, until 2032, entitlement cuts resulting from the pension reform will be capped at 10%. However, this cap does not apply to pension losses due to changes in the early retirement provision.

3.3 Reform of 2004

The two cornerstones of this pension reform were the introduction of a uniform pension law for most occupational schemes and the establishment of individual defined benefit pension accounts within the PAYG system for those born after January 1, 1955.[19] In the course of this reform several adjustments to the existing pension provisions were made:

[17] *A maximum period of 24 months per child (instead of 18 months before) will be credited for paid child care periods.*

[18] *The following accrual rates will apply: 1.96 in 2004; 1.92 in 2005; 1.88 in 2006; 1.84 in 2007 and 1.80 in 2008.*

[19] *Sometimes this framework is referred to as a "notional defined benefit" system. This, however, is an oxymoronic expression since financial accounts are organized on a defined contribution basis, and a true imitation of financial accounts within the PAYG structure has to use the "notional defined contribution" (NDC) approach. In fact, the new Austrian system is much closer to the German point system than to the Swedish NDC framework as explained in Knell (2005). Similar to the NDC systems, however, the new Austrian system will involve personal accounts that capture all paid-in contributions and the accrued interest, and as from 2007, the pension insurance system must send an account statement on the insured person's request.*

– The guiding formula 45/65/80 indicates the pension entitlement according to the new system, i.e. the first pillar guarantees a pension benefit of 80% of the assessment base after 45 insurance years at the standard retirement age of 65 years. Hence, the accrual rate implicitly remains unchanged at 1.78, the level established with the reform of 2003.
– Given the new guiding formula, the assessment period is extended to lifetime earnings (maybe >40 years).
– The possibility of early retirement has been reintroduced through the establishment of a pension corridor. Retirement between 62 and 68 years is either discouraged by pension discounts in case of early retirement or rewarded by pension credits when retirement is postponed – both amounting to 4.2% of the assessment base per annum (up to a maximum amount of 15% of pension benefits for discounts and 12.6% of pension benefits for credits). Entitlement is restricted to persons with at least 37.5 years of pensionable service.
– Past contributions are transferred into current purchasing power using average gross growth rates of earnings[20] as the revaluation factor.
– Existing pensions are indexed to consumer price inflation, implying that the adjustment factor is now also de iure equal to the inflation rate without using overly complicated adjustment methods.
– The cap on pension losses was further reduced to 5% and will only gradually (by 2024) be increased to 10% and thus partly offsets the cost savings achieved with the reform of 2003.
– Contribution rates were harmonized to 22.8%; for self-employed and farmers, the personal contribution is supported by a copayment financed out of general tax revenues.
– A sustainability factor was introduced, which will trigger an adjustment process in case central demographic factors deviate from their projections. However, the adjustment of key parameters of the pension system is subject to a political process rather than an automatic trigger.[21]

To maintain trust in the Austrian PAYG scheme, the new regulations of the pension harmonization are only fully applied to those who had not acquired any pension entitlements before January 1, 2005. For those younger than 50 on that date, pension entitlements are calculated as a mix of old and new provisions on a *pro rata temporis* basis, while those older than 50 are exempt from the new system.

Even though the introduction of personal accounts is designed to increase the transparency and the actuarial fairness of the pension system, long transition periods contravene this aim.

4 Fiscal Sustainability of the Austrian Pension System

4.1 Long-term Pension Projections

The budgetary pressure of population aging was given prominence by the EPC in its reports on budgetary impacts posed by aging populations in 2001 and 2006. While the challenges of population aging are similar among

[20] *More precisely: yearly change in the average contribution base.*

[21] *For an assessment of the Austrian sustainability factor see Knell (2005).*

the EU-15, the implied consequences and costs with respect to pension expenditure and other age-related expenditure vary considerably. Using common assumptions on the development of main macroeconomic variables, EU Member States provided projections of their public pension expenditures, while the European Commission covered other age-related expenditure (spending on education, unemployment, health care and long-term care) up to 2050. With its earnings-related first pillar, Austria topped the EU-15 pension expenditure ranking with a rate 14.5% of GDP in 2000.[22] On that basis (EPC, 2001), Austria's pension expenditure was projected to continuously increase and peak at 18.7% of GDP in 2035. The projected subsequent fall to 17% of GDP in 2050 still was comparably high relative to the EU-15.[23] This high and increasing pension expenditure would have put considerable strain on fiscal sustainability. Given the already high tax burden, increasing openness as well as international tax competition, tax increases to finance projected pension expenditure increases were not considered feasible.

In contrast to the 2001 EPC report, the latest EPC report on the "Impact of ageing populations on public spending" (2006) draws a much brighter picture of Austria's pension expenditure developments, reflecting the projected favorable effects of the three pension reforms on fiscal sustainability. Starting in 2004 at a level of 13.4% of GDP – still the third-highest among the EU-25 – the Austrian authorities now project pension expenditure to decrease by 1.2 percentage points to 12.2% of GDP in 2050. Even though model assumptions and demographic projections have changed as a result of which dependency ratios are slightly less unfavorable than before,[24] a good part of the improvement in pension projections is attributable to the pension reforms. The intended increase in the effective retirement age and the adjustment of pension payments to an actuarially fair system are both expected to reduce the pressure on pension expenditure and to improve the sustainability of Austria's public finances. Hence, Austria is now projected to be the only country among the EU-25 that shows a considerable decrease of pension expenditure as a share of GDP without having resorted to switching part of the public old-age pension scheme to a private funded scheme.

4.2 Definition of Sustainable Public Finances

Sustainability is a complex concept for which various definitions exist. Intuitively, fiscal policies are sustainable if they can be continued indefinitely; unsustainable policies will ultimately have to be modified. Thus, assessing fiscal sustainability answers the question whether the current course of fiscal policy can be sustained indefinitely without causing the debt ratio to explode; or whether the government would have to increase taxes and/or decrease spend-

[22] *Associated administrative expenditure is included in the EPC (2001) projections but excluded in the EPC (2006) projections.*

[23] *The evolvement of the pension expenditures over time is mainly the result of "baby boomers" entering and exiting the pension system.*

[24] *The dependency ratio was estimated to be 54% in 2050 in the EPC 2001 projections, while it was projected to be only 52% in the EPC 2006 projections.*

ing to avoid repudiation. Basically, public finances can be considered to be unsustainable if the debt-to-GDP ratio reaches a level beyond which a country faces difficulties issuing new debt. However, this maximum level of debt is not measurable ex ante. Therefore sustainability is assessed by looking at the dynamics of the debt ratio over time, given no policy change, in particular with a view to determining whether the debt ratio is stable, declining or increasing.

Above all, the analytical definition of fiscal sustainability is not straightforward (see Balassone and Franco, 2000). The literature offers at least three main definitions of sustainability. The interpretation given by Domar (1944) requires the public debt ratio to converge to a finite value in order to avoid a continuously growing tax ratio. A second definition, advocated by Buiter (1985), Blanchard (1990) and Blanchard et al. (1990), requires the debt ratio to converge back to its initial level. Finally, a definition proposed by Blanchard (1990) and Blanchard et al. (1990) stipulates that the present discounted value of all future primary surpluses should be equal to the initial level of debt, implying that the discounted debt ratio should converge to zero.[25] Thus, while there is no unique theoretical benchmark of sustainability, all three definitions do imply that an ever-increasing debt ratio is not sustainable. At the same time, the fact that sustainability is a forward-looking concept creates the operational challenge that the assessment must be based on long-term projections, which are subject to wide margins of error.[26] Additional difficulties arise with regard to the statistical definition of the main variables to be used for the assessment of sustainability. One prominent example is public debt. Theoretically, the correct variable would be net debt, i.e. government liabilities minus government assets. However, since very few data are available on government assets, gross debt is used as a proxy.

To assess the pressure on public finances from aging populations, several synthetic sustainability indicators, such as the indicators S1 and S2 used by the European Commission, have been developed. On the basis of long-term projections of deficit-debt dynamics, these indicators highlight adjustment efforts required to reach a certain sustainable debt ratio at a given point in the distant future.

The **first indicator, S1,** derived from the government intertemporal budget constraint in its finite horizon form, measures the difference between the current tax ratio and the constant tax ratio that would be required to generate a given debt ratio (for instance 60% of GDP) at the end of a given period. In the case at hand, S1 indicates the difference between Austria's current tax ratio and the constant tax ratio it would need to apply to reach a debt ratio of 60% of GDP in 2050, given a primary expenditure ratio that evolves according to the long-term projections for all age-

[25] *For the relation between the different concepts see Balassone and Franco (2000).*

[26] *In practice the assessment of long-term sustainability in the context of ageing is characterized by a high degree of uncertainty. The results depend on the assumptions on future trends of demographic developments, macroeconomic developments (productivity and output growth), and budgetary developments of age-related expenditures. In addition, sustainability is influenced by structural reforms that may affect either potential growth or the budgetary profile of certain expenditure categories.*

related[27] spending items while all non-age-related items are held constant as a share of GDP. A positive value of S1 signals an unsustainable policy insofar as, on the basis of the current fiscal policy, the government would not be able to ensure the 60% of GDP target in 2050. Thus, an improvement of the primary balance is needed to restore sustainability.[28] However, even closing the tax gap, i.e. immediately increasing the current tax ratio to the level suggested by the indicator, only ensures that the 60% target debt level will be reached at the end of the period; it does not restrict debt dynamics after that date in any way. Hence, even a negative S1 value can be consistent with unsustainable public finances in the very long run, as the debt ratio might be on an explosive path after the end of the period (see Langenus, 2006).[29]

The **second indicator, S2,** is based on the infinite horizon approach of the government intertemporal budget constraint. It measures the change in the tax ratio required to equalize the present discounted value of all future primary balances with the current stock of public debt;[30] again based on the assumption that the primary expenditure ratio evolves according to the long-term projection of age-related spending items while all non-age-related items are held constant as a share of GDP. The value of S2 depends on the differential between the interest rate and the growth rate, on the discount factor – as well as on the level and the profile of age- and non-age-related expenditure, the current stock of gross debt and the current tax-to-GDP ratio. While S2 avoids the risk of unfavorable debt dynamics at the end of the period due to its infinite time horizon, in practice it narrows down fiscal sustainability to convergence to a relatively low – or even to a zero – debt ratio. This, however, might be considered as being rather restrictive.

According to the European Commission (2005), both S1 and S2 are only rough approximations of the sustainability gap. Attention should focus on the sign of the indicators and their magnitude, not on the exact value, as the latter is highly sensitive to underlying debt projections (which are derived from mechanical partial equilibrium analyses) and, in the case of S2, to the applied discount factor. Thus, these indicators signal "only" whether fiscal adjustment is required (evident from the sign of the indicators) and feasible without large structural reforms (evident from the magnitude of the indicators). With respect to the exact value, in particular, alternative assumptions regarding the primary balances at the beginning of the projection period can substantially change the projected behavior of the debt ratio. Therefore the projected evolution of debt levels is not a forecast of possible or even likely out-

[27] *Age-related spending comprises pension payments as well as spending on health care, long-term care, education and unemployment.*

[28] *The primary balance may be improved by both revenue and expenditure measures.*

[29] *Actually, any information on the future evolution of the primary balance beyond the target year is ignored in the calculation. At the same time, choosing the calculation horizon involves a tradeoff in that the period should be long enough to capture all major future developments which might impact on the primary balance but also short enough to minimize the degree of uncertainty.*

[30] *The European Commission uses a third indicator, the so-called required primary balance (RPR), which derives a required primary balance from S2. This third indicator, however, is not used in our paper.*

comes. Instead, the indicators are only a tool to structure policy debate and at best provide an indication of the timing and scale of emerging budgetary challenges that could occur on the basis of "no policy change" (Giammarioli et al., 2006, p. 19).

4.3 Effect of the Austrian Pension Reforms on Fiscal Sustainability

In our assessment of the sustainability of public finances, we use age-related expenditure – comprising pension payments as well as spending on health care, long-term care, education and unemployment – as given by the EPC reports of 2001 and 2006.[31] The Austrian pension expenditure projections cover all public pension expenditure except for the "Ausgleichszulage," which is a means-tested payment supplementing very low pensions currently amounting to roughly 0.4% of GDP, and except for administrative expenditure in the 2006 projections.

Our baseline scenario (see table 1, *pension projections EPC (2006) scenario*) assumes that, starting from the fiscal situation (deficit and debt ratio) in 2005, revenues and non-age-related expenditure are kept constant (all as a share of GDP) at the 2005 level for the entire projection horizon. Age-related expenditure develops according to the projections presented in EPC (2006).[32]

Based on these assumptions, the debt extrapolation shown in table 1 gives an indication of the sustainability of public finances with respect to age-related expenditure, assuming no policy change.

According to the baseline scenario, the debt-to-GDP ratio, which stood at 62.9% in 2005, is projected to decrease over the coming two decades, before it starts rising when the "baby boomers" retire. At roughly 50% of GDP in 2050, the debt ratio is of no particular concern judging from the chosen definition of fiscal sustainability (reaching a debt-to-GDP ratio of 60% in 2050).

This is in stark contrast to the situation prior to the pension reforms. Using the pension expenditure projections provided in EPC (2001), but leaving all other variables unchanged from the 2005 scenario indicates that the debt dynamics were on an explosive path (see table 1, *pension projections EPC (2001) scenario*). Assuming no change in non-age-related expenditure or revenues compared to the baseline scenario, the high projected pension expenditures would have raised the debt ratio to 285.7% of GDP in 2050 (see chart 3 and table 1).

Further scenarios in table 1 show the debt dynamics for different assumptions on nominal interest rates, namely the effects of an interest rate

[31] *All age-related expenditure except for pension expenditure was projected by the European Commission. Pension expenditure projections were provided by and prepared under the responsibility of the Member States – in the case of Austria projections were provided by the Austrian Ministry of Finance – and peer reviewed by the Ageing Working Group of the EPC.*

[32] *In particular data underlying tables 3.3, 4.13, 5.18, 6.9 and 7.2 of the EPC (2006) report were used. This information is also comprised in the Austrian country table of the statistical annex to the EPC report. Assumptions on macroeconomic developments such as GDP growth and interest rates are taken from the EPC report, in particular from the Austrian country table of the statistical annex to the report. Nominal interest rates are kept constant at 5% over the entire projection period, while GDP growth rates vary according to employment and productivity projections over the projection period. In case yearly data are not available, we generate yearly data by interpolating five year data.*

Table 1

Debt Developments for Various Scenarios

Gross debt

in % of GDP

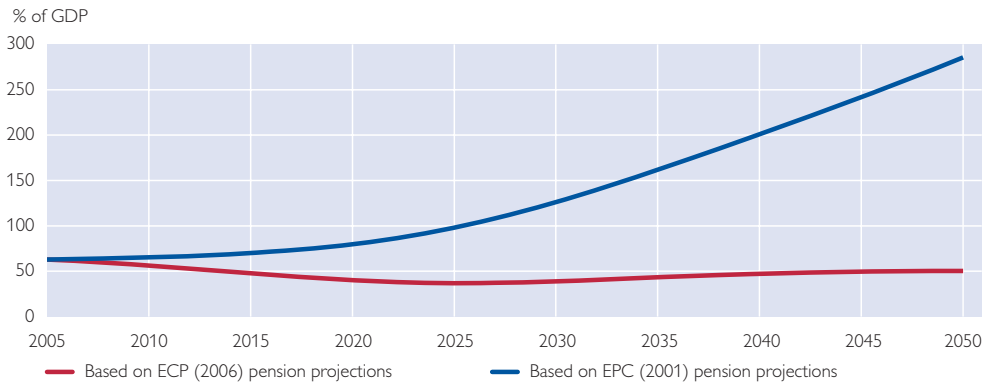
	2005	2008	2010	2020	2030	2040	2050
2005 Scenario							
Baseline (EPC (2006) pension projections)	**62.9**	**59.6**	**56.3**	**40.1**	**38.8**	**47.2**	**50.4**
interest rate +1 pp	62.9	61.4	59.3	48.9	54.4	72.2	88.2
interest rate −1 pp	62.9	57.8	53.5	32.6	26.8	30.1	27.1
EPC (2001) pension projections	62.9	64.3	65.2	79.6	126.1	201.0	285.7
Varying contributions	62.9	59.7	56.5	40.1	41.4	55.2	65.3
2008 Scenario							
Baseline (EPC (2006) pension projections)	×	59.5	54.0	25.3	8.6	−0.9	−19.1
Varying contributions	×	59.5	53.9	24.6	9.8	5.0	−7.3

Source: Statistics Austria, Austrian Stability Programme of November 2005; OeNB calculations based on EPC (2001, table 3.5), EPC (2006, tables 3.3, 3.24, 4.13, 5.18, 6.9, 7.6, and the Austrian country table of the statistical annex).

Note: 2005 Scenario: The baseline scenario projects non-age-related expenditure and revenues to remain constant as shares of GDP at their 2005 levels, while age-related expenditure follows the projections of EPC (2006). Interest rate ±1 pp assumes an increase or a decrease by 1 percentage point in the interest rate level compared with the baseline scenario. EPC (2001) pension projections are based on the pension projections provided by the EPC in 2001. Varying contributions use the contribution projections provided by EPC (2006) instead of the constant revenue rate assumption. All 2005 scenarios are based on the budgetary data realized in 2005. 2008 Scenario: The underlying budgetary data are the forecasts for 2008 drawn from the update of the Austrian Stability Programme of November 2005.

Chart 3

Debt Dynamics



Source: Statistics Austria; OeNB calculations based on EPC (2006) and EPC (2001).

level of 4% and 6%, respectively; i.e. a change by 1 percentage point compared with the baseline scenario *(interest rate ±1 pp scenario)*. The *varying contributions scenario*, finally, assumes that revenues are not held constant, but that social security contributions evolve as projected in EPC (2006)[33] (while the remaining assumptions coincide with those from the baseline scenario). In this scenario not only expenditure, but also revenue evolves in line with demographic projections and allows for structural changes.[34] Thus, it probably gives the most realistic picture in this highly stylised exercise, since it incorporates the impact of aging on both revenues

[33] *Compare table 3.24 of the EPC report and the Austrian country table of the statistical annex to the EPC report.*

[34] *Over the projection horizon, the number of public employees is expected to decrease. However, before the recent pension reforms, public employees' social security contributions were not capped by an upper bound. Hence their contributions were higher than those of the rest of the labor force.*

Table 2

Synthetic Sustainability Indicators of the European Commission

	S1	S2
2005 Scenario		
Baseline (EPC (2006) pension projections)	**–0.1**	**0.0**
interest rate +1 pp	0.3	0.5
interest rate –1 pp	–0.6	–0.5
EPC (2001) pension projections	3.4	4.2
Varying contributions	0.1	0.4
2008 Scenario		
Baseline (EPC (2006) pension projections)	–1.3	–1.1
Varying contributions	–1.1	–0.8

Source: OeNB calculations based on EPC (2001, 2006) projections of age-related expenditure and revenue ratios, using the debt dynamics presented in table 1.

Note: S1 shows the sustainability gap that evolves when targeting a debt ratio of 60% of GDP in 2050. S2 indicates adjustment needs arising from the requirement to respect the intertemporal budget constraint. Positive values signal fiscal nonsustainability, while zero or negative values signal fiscal sustainability. For the assumptions underlying the various scenarios please refer to the notes to table 1.

and expenditures. While the debt ratio in 2050 at 27.1% of GDP is well below the reference value of 60% of GDP in the *interest rate –1 pp scenario*, it overshoots the debt limit in the two other scenarios *(interest rate –1 pp scenario* and *varying contributions scenario)*.

The two 2008 scenarios assume that non-age-related revenues and non-age-related expenditure are held constant at the GDP ratio projected for 2008 in the latest update of the Stability Programme of November 2005. Assumptions on the interest-growth differential and on age-related expenditure are the same as those used for the 2005 baseline scenario, but the start date was moved to 2008. As the 2008 scenarios assume a balanced budget position in line with the Stability Programme, the starting point for the debt projections is more favorable than under the other scenarios and hence the debt ratio is projected to even turn negative. This result illustrates the hypothetical model character of these long-term projections. In practice, such outcomes are highly unlikely, as non-age-related expenditure ratios and revenues would not be held constant in case of a huge budget surplus and a rapidly decreasing debt ratio.

In the following, fiscal sustainability is assessed by way of calculating the indicators S1 and S2 (table 2). As already displayed by the debt dynamics, Austria's public finances were on an unsustainable path before the recent pension reforms *(pension projections EPC (2001) scenario)*. The positive figures derived for both S1 and S2 point to a sustainability (or tax) gap of similar magnitude: Sustainability could only have been achieved by a permanent increase in revenues or an immediate permanent reduction in expenditures of at least 3.4% of GDP (S1). By contrast, according to the baseline scenario 2005, using the projected pension expenditure path given by EPC (2006), the estimated future impact of aging is comparably low, reflecting the cost-saving reforms of the pension system implemented since 2000. Indeed, the positive sustainability gaps are eliminated under the baseline scenario 2005 *(pension projections EPC (2006) scenario)*. In other words, given the assumptions applied, the baseline scenario does not reveal any further needs for adjustment. This holds even

more under the assumption of lower interest rates *(interest rate –1 pp scenario)*. However, under less favorable financing conditions *(interest rate +1 pp scenario)* the sign of S1 and S2 points to further adjustment needs (of roughly 0.5 percentage point). The sustainability indicators also signal a need for adjustment when the EPC assumptions on demographic developments and structural changes are incorporated into the contribution projections: The S2 indicator projected according to the *varying contributions scenario* amounts to 0.4.

As already indicated by the projected debt developments, the risk to public finance sustainability can also be dealt with by sticking to the medium-term consolidation plans laid down in Austria's update of the Stability Programme of November 2005. Starting off from a balanced budget position in 2008, the two 2008 scenarios produce negative figures for S1 and S2, even in the *varying contributions scenario*.

Given the estimates of old-age-related expenditure in EPC (2006) – whose pension expenditure is projected by the Austrian authorities – and judging from the sustainability gap indicators derived on this basis, the recent Austrian pension reforms successfully reduced the budget burden stemming from aging and the associated risks to public finance sustainability. However, these findings are subject to considerable uncertainty, in particular since demographic forecasts are rather unreliable once one looks beyond 20 to 30 years ahead. Furthermore, as pointed out above, the underlying projected pension expenditures do not include means-tested top-up benefits.

5 Main Factors behind the Improvement in Fiscal Sustainability

The EPC has undertaken a decomposition to determine the main factors behind the changes in pension expenditures. The results of this exercise are summarized in table 3. The data indicate that, everything else equal, the demographic changes would induce an increase in the Austrian dependency ratio by 84.5%. The effects of the pension reforms and expected behavioral changes will, however, counteract this cost-increasing trend. The EPC predicts considerable changes in the take-up ratio (–43.3%) and the benefit ratio (–32.3%)[35] that – together with an increase in the employment rate – are enough to more than neutralize the increase in the dependency ratio. For the average EU-15 country these two counteracting effects – increases in the retirement age and decreases in pension payments – are also present, although considerably smaller in size.

The baseline projection assumes that the participation rate of older workers (55–64) will increase in Austria from 32% to almost 60%, slightly below the expected EU-15 average (see chart 2). This increase does not seem to be unrealistic considering the fact that the implied average retirement age in 2050 will be around 61.5 – basically the value that could be observed at the beginning of the 1970s. At the same time one has to admit that these forecasts are certainly characterized by a high degree of uncertainty. Given the available data we are not able to say more about the main factors underlying the drop in the take-up ratio, e.g. whether it is due to a general increase in the retire-

[35] *For definitions of the take-up and the benefit ratio see table 3 and box 1.*

Table 3

Decomposition of the Change in Pension Expenditures between 2005 and 2050

%

	Pension expenditures		Due to growth in			
	2005	% change 2005 to 2050	Dependency ratio	Employment rate	Take-up ratio	Benefit ratio
Austria	13.2	−7.5	84.5	−10.1	−43.3	−32.3
EU-15	10.5	22.1	72.1	−9.3	−14.9	−24.1

Source: EPC (2006, table 3.13).

Note: The dependency ratio is defined as the ratio of the old population (65+) to the population between 15 and 64. The employment rate reflects the relationship between the population between 15 and 64 and the number of employed persons. The take-up ratio is the share of pensioners relative to the old population (65+). The figures do not sum exactly to zero due to interaction effects.

ment age or whether the increase is projected to be concentrated on certain groups (disability pensions, public sector pensions etc.). In any case, a number of political measures could be helpful or even necessary in order to increase the supply of and demand for old age workers, as documented at length in OECD (2005b). The pension reforms have certainly been important steps in this direction as they provide better incentives for longer working careers and later retirement.

In this article, we want to focus on the second factor that is mainly responsible for large reductions in pension expenditures: the decrease in the benefit ratio. This allows us to present and sort out differences in frequently used (and sometimes confused) indicators for the generosity of pension systems. Furthermore, it also allows us look at the pension system under the perspective of whether it is able to guarantee adequate incomes for the retired population. The importance of adequacy was stressed in the publications by the World Bank (Holzmann and Hinz, 2005), the OECD (2005a) and the EPC (2006).[36]

5.1 Generosity of the Austrian Pension System – Changes from 2004 to 2050

In order to understand the dynamics of the projected developments in pension benefits it is important to distinguish between different concepts and indicators that can be used for this purpose. Box 1 describes some commonly used indicators.

Chart 1 summarizes indicators on the generosity of pension systems and their development over time.[37] Based on these data we can make a number of observations.

– The *benefit ratio is projected to decrease until 2050*. In 2004, Austria was among the EU-15 countries with the highest benefit ratio (rank 3/13) and with the highest pension expenditure (2/14). Over the next 45 years the Austrian benefit ratio is expected to de-

[36] *The OECD (2005a), e.g., describes the two main objectives of pension systems as: (1) redistributing income toward low-income pensioners; (2) helping workers maintain living standards. Similarly, Barr (2000) summarized the genuine functions of old-age income support as follows: poverty relief, consumption smoothing and insurance.*

[37] *In addition we also have data on net replacement rates (both by the EPC and the OECD), on gross replacement rates of all pensions (not only public pensions as in chart 1) and on pension wealth (a variable constructed by the OECD that takes the whole retirement period into account). In order not to clutter the picture we have, however, chosen to confine ourselves to the representative sample of indicators reported in chart 1.*

Box 1

Commonly Used Indicators to Assess the Generosity and Adequacy of Pension Systems

Replacement rates *specify the value of pension benefits as a share of individual earnings (lifetime average or last-period earnings). The replacement rate can be interpreted as a measure of the insurance role of a pension system, since it indicates to what extent pension systems are able to preserve an employee's standard of living in retirement. The OECD's figures (2005a) reflect the assumption that the parameters of the pension system prevailing in 2002 stay unchanged*[1] *and refer to a worker who enters the system at the age of 20 and retires after a full career at the standard pension eligibility age (which varies between countries, typically ranging from 60 to 65). The figures reported in EPC (2006) are based on the hypothetical career of a person who retires at the age of 65 after 40 years of full-time work at average earnings. The replacement rates can be stated on a gross or on a net basis (excluding taxes and social security contributions of workers and pensioners).*

The (relative) ***pension level*** *specifies the value of pension benefits as a share of average economy-wide earnings. The pension level is an appropriate measure for the adequacy of a pension system, since it indicates the relative position of a pensioner compared to the average wage earner. The OECD (2005a) calculates the pension levels by taking the estimations for the benefits of full career workers and dividing them by average earnings. The EPC (2006, p. 82) also provides a related measure, the benefit ratio, which is defined as average pension relative to output per worker (as a proxy for the average wage). The indicator is thus not derived from individual calculations for pension entitlements but uses the aggregate figure.*

[1] *For Austria, the measures apparently broadly mimic the system after the reform of 2004 since they assume a 40-year assessment period and a revaluation with the growth rate of earnings (OECD, 2005a, p. 92).*

crease by 6.6 percentage points, which is the largest drop among all EU-15 members and will relegate Austria to rank 11.

– As regards Austrian *gross replacement rates*, the EPC predicts an *increase both in absolute terms* (from 64% to 69%) *and in relative terms* (an improvement from rank 7 to rank 5). The projections of the OECD are similar, although slightly higher (78.3%). The main reason for these differences seems to be that the EPC assumes 40 years of contributions while the OECD uses 45 years for most countries. Furthermore the EPC measure is based on a comparison with last-period income while the OECD calculation is related to lifetime average earnings.
– As far as the *size of the replacement rates* is concerned, both the EPC and the OECD predict figures above the EU-15 average. In terms of net replacement rates (not shown in chart 1), both the EPC and the OECD predict a rise from about 80% (2004) to about 95% (2050).
– By contrast, the *size of the benefit ratio* is quite *low*. In 2004, for Austria (EU-15) it was calculated as 21.8% (20.1%) while the replacement rates were about three times larger. This seeming discrepancy will be addressed in the following.

5.2 Low Benefit Ratios – High Replacement Rates? The "Standard Pensioner" is Not Representative

How can we square the low benefit ratio (21.8%) with replacement rates of 64% and above? First, the benefit

ratios calculated by the EPC are biased downwards since output per employed worker is *not* a good proxy for the average wage. In fact, under the marginal productivity theory of distribution (and the assumption of a Cobb-Douglas production function) the wage would be given by output per employed worker (average productivity) multiplied by the labor share. In other words, the EPC understates the true benefit ratio.[38] For Austria, output per worker in 2004 was around EUR 61,000 while average gross income of employed persons amounted to EUR 25,300. Using the latter number increases the benefit ratio from 21.8% to 52.5%. This measure is clearer and politically more meaningful and it should be considered for future publications by the EPC. In this section we will use the (revised) figure as our benchmark level for the benefit ratio. Even this figure, however, is considerably lower than the replacement rates reported for the standard pensioners.

This brings us to a second reason behind the divergence of the two variables. The "standard pensioners" (retiring at the age of 65 after a full career of 40 to 45 years of average earnings) on which the calculations of the replacement rates are based are not representative of the retired population as a whole. This follows from the fact that the initial gross replacement rate of the average full-career earner neglects four factors:

– **Intragenerational Earnings Differences**
  The replacement rates reported in chart 1 do not measure a country's average replacement rate but rather the replacement rate of the average person. The average wage earner might not be representative of the general earnings distribution and the general pension system. The Austrian system, however, is rather "Bismarckian," i.e. shows a high correspondence between contributions and benefits. This is reflected in small intragenerational variations in initial replacement rates. The OECD (2005a), e.g., reports identical replacement rates (78.3%) for a large class of earners and lower rates only for persons above the contribution ceiling. Overall, earnings differences are not the main factor behind the discrepancy between the benefit ratio and replacement rates.

– **Early Retirement and Disability Pensions**
  The assumption of a full-career worker retiring at the statutory age of 65 is not an accurate reflection of the current situation. Austria is among the countries with the lowest retirement age (in 2004 it was 58.5 for men and 56.9 for women). Table 4 collects information on the heterogeneous pension levels of new retirees. The average initial pension level for men and women is 56.2%, which is considerably below the 80% benchmark but still somewhat above the (revised estimate of the) benefit ratio. This low value is due to the influence of shorter contribution periods (especially for women), the existence of early pensions and the high proportion of disability pensions

[38] *To see this, assume a normal Cobb-Douglas production function with* $Y = L^{\alpha}K^{1-\alpha}$. *The competitive wage is thus given by* $w = \alpha(Y/L)$. *The EPC calculates the benefit ratio as the average pension divided by output per worker* (Y/L). *Using the wage* w *in the denominator thus increases the benefit ratio by* $(1/\alpha)$.

Table 4

The Pension Level of New Entrants

%

	Male		Female		Male and female	
	Pension level	% of all pensions	Pension level	% of all pensions	Pension level	% of all pensions
All (private sector) pensions	68.9	100.0	43.5	100.0	56.2	100.0
Old-age and early pensions	76.9	56.3	46.2	76.0	59.0	65.9
Disability pensions	58.5	43.7	33.7	24.0	50.4	34.1
All (private sector) pensions (excluding cross-national pensions)	80.0	×	47.2	×	62.8	×

Source: The figures are OeNB calculations based on data from Stefanits, Obermayr and Wörister (2004), Wörister (2005) and Statistics Austria (2006).

Note: Figures refer to the years 2002 and 2003 and include all private sector social security pensions (i.e. public sector pensions are excluded). The pension level is defined as the respective pension divided by the average gross income of all employed persons (Statistics Austria (2006, table 9.02); excluding the self-employed). In 2002 the number of new entrants was 71,387, and the share of cross-national pensions was around 18%.

(43.7% for men) that have a much lower average pension level (58.5% for men).[39]

– **Pension Adjustment**
The replacement rates reported in chart 1 and the pension levels in table 4 refer only to the *initial* pensions. The initial values might, however, give a misleading picture of the true generosity of a country's pensions system since they neglect the issues of life expectancy, retirement age and the indexation (adjustment) of pension benefits. If pensions are, e.g., adjusted annually with the rate of inflation then the pension *level* (i.e. pension benefits relative to average economy-wide earnings) will decrease constantly as long as real wages grow at a positive rate. This will lower the average benefit ratio.

To estimate the approximate size of this effect let us look at an average earner who retires at the age of 65 with a remaining life expectancy of 15 years (the value for Austria in 2004, see chart 2).[40] Furthermore, assume that (in accordance with the new Austrian pension system) her/his initial replacement rate (and pension level) is 80%.

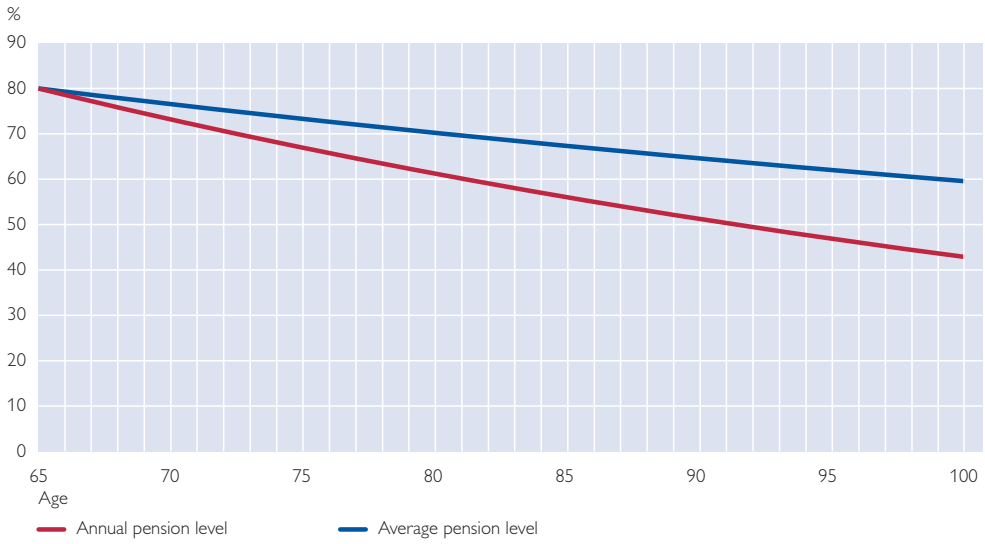
In chart 4 we illustrate the consequences of an indexation with the rate of inflation under the assumption that labor productivity and real wages grow at an annual rate of 1.8% (as in the EPC simulations). This assumption implies a drop in the annual pension level to 61% by the age of 80 or to 70% on average over the whole retirement period. In other words, at the age of 80 the pension level will on average be 12.5% (= (80–70)/80) lower than the pension level of new entrants. Given the early retirement age over the last decades, in Austria this effect could even be somewhat higher. A simple back-of-the-enve-

[39] *On the issue of disability pensions and the reasons behind the low benefits see Stefanits, Obermayr and Wörister (2004). In passing, note that the figures in table 4 also include cross-national benefits that are often very low and reduce the average accordingly. For the question of adequacy it is reasonable to exclude these cross-national payments since they refer to foreign pensioners that are furthermore likely to have additional sources of old-age income (cf. Wörister, 2005). Doing this increases the average pension level of male initial retirees to 80% (see table 4).*

[40] *In fact, the remaining life expectancy at the age of 65 is even higher (16 years) and forecast to increase to 22 years by 2050.*

Chart 4

Effect of Indexing Pensions with the Inflation Rate on Annual and Average Pension Levels



Source: OeNB calculations.

Note: The chart shows the annual and average pension level of a worker who retires at the age of 65 with a pension level of 80%. Underlying assumptions: Pensions are adjusted with the rate of inflation, and real wages grow at a rate of 1.8% p.a.

lope calculation confirms this rough estimation. In table 5 we report that in 2003 the average (private sector) pension level across all cohorts was 44.5%, which is 21% below the average pension level of new entrants (56.2%) (table 4).

The low average pension level of 44.5% is, however, not solely due to the pension indexation effect. It also reflects the effect of survivors' pensions, which are typically pretty low (28.1%). As indicated in table 5, the level of all existing direct pensions (i.e. old-age and disability pensions together) averaged 50.2% in 2003, thus falling 11.4% short of the initial pension level of 56.2% – which ties in neatly with our rough estimation of the indexation effect. Survivors' pensions are also the main reason why the number of *pensions* (on which most Austrian statistics and the EPC report are based) are not equal to the number of *pensioners*. As documented in table 5, about 13.8% of all pensioners received two or more pension payments in 2003. Thus the pension level of the average *pensioner* is likely to be higher than the stated 44.5%. And the pension level of the average *Austrian* pensioner will even be higher than that due to the influence of cross-national pensions.[41]

– **Public Sector Pensioners**
A last factor to be considered when comparing the benefit ratio with the replacement rates is the role of public sector pensioners. As shown in table 5 the average pension level for a public sector retiree in 2003 was 142.4%. This high level is partly due to the more generous pension regulation and the absence of pension (and contribution) ceilings (before the re-

[41] *Excluding cross-national pensions increases the level of the average (private sector) pension from 44.5% to 54.7%.*

Table 5

The Pension Level across All Cohorts

%

	Male and female	
	Pension level	% of all (private sector) pensions
All (private sector) pensions	44.5	100.0
All (direct) pensions	50.2	74.1
Old-age and early pensions	52.5	74.0
Disability pensions	43.6	26.0
Survivors pensions	28.1	25.9
All (private sector) pensions (excluding cross-national pensions)	54.7	x
Average pension of public sector employees	142.4	x
Share of persons with more than one pension	13.8	

Source: The figures are OeNB calculations based on data from Hauptverband (2004) and Statistics Austria (2006).

Note: Figures refer to the year 2003. The pension level is defined as explained in table 4. The number of public sector pensions stems from Statistics Austria (2006, table 8.15); they amount to about 9.5% of all (private and public) pensions. For the calculation of the public sector pension level we used the information in Statistics Austria (2006, table 9.26). The share of cross-national pensions was around 11%. The data for the number of multiple pensions is from Haydn (2006).

form of 2004) and partly due to higher average educational patterns of public sector employees that are reflected in higher incomes and pension benefits. Taking into account their share in total employment (about 9.5%), we can again make a back-of-the-envelope calculation. Using the data in table 5 the average pension level of *all* pensions (male and female, private and public sector employees) should amount to: $44.5\% \times (1-0.095) + 142.4\% \times 0.095 = 53{,}7\%$. This number is fairly close to the (revised) benefit ratio of 52.5%.

Summing up, the discrepancy between the benefit ratios and the considerably higher replacement rate figures can be explained by the influence of pension adjustments, early retirement, disability and survivor's pensions and the distinction between private and public sector pensions.

5.3 Factors Underlying the Reduction in the Benefit Ratio until 2050?

Chart 1 shows that the forecasts about the benefit ratio and the replacement rates point into opposite directions. The benefit ratio is predicted to *decline* from 21.8% to 15.2% until 2050 while the (initial) replacement rate (for full-career pensioners) is predicted to *increase* from 64% to 69%. Even if (as argued above) the EPC's calculation of the *level* of the benefit ratio is not completely accurate, this should not impair its informative value for the evolution over time. How will the predicted large drop in pension benefits be accomplished and why does it deviate so much from the development of the initial full-career pensions?

Table 6 summarizes information about the importance of the three main categories of pensions that can be found in EPC (2006) and the accompanying country material: private sector pensions, public sector pensions and survivors' pensions (from both the private and public sector). Unfortunately, this is the finest categorization available, preventing consideration of further subcategories (like pension of new entrants, disability and corridor pensions etc.). The decrease in the benefit ratio is quite unevenly distributed across

Table 6

Main Factors Behind the Change in the Benefit Ratio (2004–2050)

	Change in benefit ratio (2004 to 2050) %	Share of all pensions (2004)	Share of all pensions (2050)	Contribution to the 30.2% reduction in the benefit ratio percentage points
Private sector pensions (old-age, early and disability)	−14.7	65.1	73.9	−8.9
Public sector pensions (old-age, early and disability)	−52.0	9.0	4.4	−11.8
Survivors' pensions	−60.6	25.9	21.7	−9.9
All pensions	−30.2	100.0	100.0	×

Source: The table contains OeNB calculations based on EPC projections for the Austrian pension system.

Note: Survivors' pensions include private and public sector survivors. We only report the change in the benefit ratio between 2004 and 2050 since this variable is not affected by our reservations concerning its level. The last column is calculated as the product of the change in the benefit ratio (first column) times the "importance" of this group (i.e. the share of total pension expenditure that went to this group in 2004). The residual of the decomposition (due to interaction effects) is 0.4 percentage point.

the three groups. While survivors' pensions and public pensions are predicted to fall by more than 50%, the expected decrease in the average private sector benefit ratio (or pension level) is 15%. To calculate the contribution of each of the three groups to the total reduction in the average benefit ratio of 30.2% (or 6.6 percentage points) we have to take into account the initial benefit ratios in 2004 and the relative size of the three groups. The results of this decomposition are reported in the last column of table 6.

The largest contribution (–11.8 percentage points) to the 30.2% reduction is projected to come from the relatively small group of civil servants. Not only is their size predicted to shrink from 9% to 4.4%, but they will also face a drop in the benefit ratio (–52%). However, this decline happens from rather high starting levels. One goal of the pension harmonization has in fact been to align public and private pensions. Even in 2050 the average public sector pension is predicted to be more than 50% higher than the average private sector pension (down from 170% in 2004). Since in 2050 all initial pensions will be calculated using the harmonized system, this remaining difference can only be due to the influence of old pensions and to different educational patterns and income histories in the two sectors.

The contribution of the survivors' pensions to the total reduction is also considerable (–9.9 percentage points). Without further knowledge about the assumptions that underlie this change it is, however, hard to assess the consequences of this development. A reduction in survivors' pension might, e.g., simply indicate that more people receive sufficient direct pensions. This is basically the interpretation that can be found in the Austrian country fiche of the EPC report where the reduction is attributed to increases in female labor supply, changing family structures and a slow convergence of male and female life expectancy.

Note that the private sector pensions, which account for 65% of all pensions in 2004 (increasing to 74% in 2050), will make the smallest contribution (–8.9 percentage points) to reducing benefit ratios. In the country fiche it is, e.g., stated that the reduction in the benefit ratio (by 14.7%) reflects a combination of higher deductions for early retirement, lower accrual rates, the longer (lifetime) assessment periods and the pension adjustment with the rate of inflation. The relative importance of each of

these factors is, however, not quantified. Our guess is that the reduction is mainly due to two factors: higher deductions for early retirement and pension indexation. Even though the EPC projects an increase in the employment rate of older workers (see chart 2), as many as about 1/3 of all people in the labor force are assumed to retire before the age of 65 even in 2050. This will be reflected in deductions for early retirement. These deductions are, however, not unavoidable since people can choose to retire later and earn higher benefits. In fact, one goal of the introduction of a pension corridor with actuarially fair deductions was to give people more choice along this dimension. This, however, makes predictions about the future retirement age even more difficult. The latter will depend on the attractiveness and take-up of corridor pensions and also on future claims and regulations of the disability (and heavy worker) pension. An important issue in this respect is whether individuals can in fact decide freely on their retirement age or whether they are constrained by labor market conditions. In any case, for the system as a whole there exists a "tradeoff" between shorter working lives (higher take-up ratio) and smaller pensions (lower benefit ratio). The ultimate adequacy of the pension system will therefore also depend on the success of the various policies that try to increase the retirement age (OECD, 2005b).

Regarding the second factor, pension indexation, the increase in life expectancy *per se* has a significant cost-dampening effect on average pension levels. Chart 4 illustrates this point. Until 2050, average life expectancy in Austria is expected to increase from 79 to 85 years (see chart 2). This increase alone will reduce the average benefit ratio (or pension level) by 5%. The constant decrease in the relative pension level due to indexation with inflation might reach considerable dimensions for long-lived individuals. According to chart 4, for instance, a standard pensioner who reaches an age of 100 will earn a pension benefit that amounts to only 43% of average wages. Indexation with inflation certainly reduces the fiscal burden of a pension system. One might discuss, however, whether the combination of high initial replacement rates with price indexation is preferable to an alternative combination of low initial replacement rates and wage indexation. The former provides less insurance against longevity and is less conducive to preventing old age poverty (cf. Diamond, 2004).[42]

Given the available data it is difficult to draw firm conclusions about the future adequacy of the Austrian pension system. The aggregate pension data include cross-national pen-

[42] *This is also recognized by the EPC:"The projected fall in the 'benefit ratio' is partly due to reforms, which index pension benefits to prices instead of wages thus reducing the generosity of public pensions over time. While resulting in budgetary savings, the adequacy of pensions, including for mixed funded systems, should be kept under review, as it may lead to future pressure for policy changes"(EPC, 2006, p. 14). On the other hand one could argue that inflation indexation is meant as a redistributional measure if life expectancy and income are positively correlated.*

sion payments and multiple pensions and do not reveal much about the size and adequacy of future individual (or household) pension benefits.[43] In any case, the evolution of pension benefits over time should be monitored closely, to detect possible conflict with the goal of adequacy early on.

6 Conclusions

The recent Austrian pension reforms were triggered by the need to alleviate budgetary pressure stemming from the age structure of the Austrian population. The reforms considerably improved the sustainability of the Austrian pension system and of public finances in general. At the same time they reduce the generosity of the Austrian pension system.

Regarding fiscal sustainability, two main findings emerge:

- Given the estimations of old-age-related expenditure as provided by the EPC and the Austrian authorities, the calculated sustainability gap indicators suggest that Austria will be able to meet the challenge of an aging population. Hence the pension reforms were successful in reducing the risks to public finance sustainability.
- Forecasts on pension expenditure do not include expenditures for the "Ausgleichszulage." This might entail unforeseen increases in pension expenditure. Furthermore, the figures do not include expenditures on public subsidies to the voluntary, private funded pillar ("Zukunftsvorsorge").

As regards the generosity of the Austrian pension system, the following conclusions emerge:

- The two main factors behind the expected decrease in Austrian pension expenditures are the projected increase in the average retirement age and the projected decrease in the benefit ratio. Both effects are broadly in line with the trend in other EU-15 countries, although of a larger magnitude.
- The development between the initial replacement rate for full-career workers and the benefit ratio (or pension level) is decoupled since the latter includes the effects of early, disability and survivors' pensions and of pension indexation with the rate of inflation.
- The predicted decrease in the pension level until 2050 is shared by three groups: private sector pensioners, public sector pensioners and survivors. The reductions for the private sector will be close to 15% and are presumably the consequence of two effects. First, the increase in life expectancy (by 6 years) together with the indexation to inflation and, second, the deductions due to early retirement. The exact magnitude of the latter effect is hard to predict as it will depend on the success of various measures to increase the average retirement age.
- It is difficult to draw firm conclusions from the aggregate data about the impact of the changes in the pension levels on the individual adequacy of the pension system. First, the aggregate data include cross-country pension payments and multiple pensions.

[43] *For the sake of comparability we want to give also a revised figure for the benefit ratio in 2050. Assuming that the revision factor for the benefit ratio 2004 stays constant over time at 2.41 (= 52.5% / 21.8%) this would suggest a (revised) benefit ratio in 2050 of 36.6% (= 15.8% × 2.41).*

Second, in order to assess the adequacy of the pension system it would be necessary to make projections of the level and distribution of individual (or household) pension payments.

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