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**KEEPING SLOVENIAN PUBLIC FINANCES ON A SUSTAINABLE PATH**

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**By Pierre Beynet and Willi Leibfritz**

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## ABSTRACT/RÉSUMÉ

### Keeping Slovenian public finances on a sustainable path

This paper examines various aspects of fiscal policy in Slovenia, in particular fiscal consolidation, pension reform, efficiency of government spending and the tax system. It finds that Slovenia belongs to the group of new EU member countries, which have given in the past a high priority to fiscal prudence. This both stabilised the economy and paved the way for entry to the EU in 2004 and adoption of the euro in 2007. It also created room to counteract the current weakening of the economy. But fiscal policy has to cope with four main challenges: i) ensuring a return to fiscal consolidation after the current economic downturn; ii) achieving longer-term fiscal sustainability by continuing pension reform; iii) limiting growth of public spending and improving its quality; and iv) making the tax system less distorting for job creation and growth. This Working Paper relates to the 2009 OECD Economic Survey of the Slovenia ([www.oecd.org/eco/surveys/slovenia](http://www.oecd.org/eco/surveys/slovenia)).

*JEL classification:* H21; H50; H55; H60; H62; H63.

*Keywords:* Slovenia, fiscal policy, fiscal sustainability, pension reform, generational accounting, public spending, taxation.

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### Assurer la viabilité des finances publiques slovènes

Cet article examine différents aspects de la politique budgétaire de la Slovénie, en particulier l'assainissement budgétaire, la réforme des retraites, l'efficacité des dépenses publiques et la fiscalité. La Slovénie peut ainsi disposer d'une marge pour contrecarrer l'affaiblissement actuel de son économie. Mais la politique budgétaire se trouve confrontée à quatre problèmes majeurs : i) faciliter le retour à l'assainissement budgétaire après le ralentissement économique actuel ; ii) assurer la viabilité budgétaire à plus long terme en poursuivant la réforme des retraites ; iii) freiner la croissance des dépenses publiques et améliorer la qualité de ces dépenses ; et iv) faire en sorte que le système fiscal fausse moins la création d'emplois et la croissance. Ce Document de travail se rapporte à l'Étude économique de l'OCDE de la Slovénie 2009 ([www.oecd.org/eco/études/slovénie](http://www.oecd.org/eco/études/slovénie)).

*Classification :* H21; H50; H55; H60 ; H62 ; H63.

*Mots clés:* Slovénie ; politique budgétaire; viabilité des finances publiques, réforme des retraites, comptabilité générationnelle, dépenses publiques ; fiscalité.

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## TABLE OF CONTENTS

KEEPING SLOVENIAN PUBLIC FINANCES ON A SUSTAINABLE PATH .....	5
Introduction .....	5
Fiscal consolidation has paid off .....	5
... but is exposed to several risks .....	7
First, part of the improvement in the structural balance was due to exceptional increases in revenues	7
Second, spending risks are increasing .....	7
Third, a contingent liability is emerging in the construction sector, adding to the major pension liability .....	8
Fourth, some aspects of the fiscal package adopted to mitigate the current slowdown may undermine fiscal sustainability .....	8
A new pension reform is needed to ensure long-term fiscal sustainability .....	9
Pre-funding age-related spending by reducing the level of government debt in anticipation of future spending pressures .....	13
Structural reform of the pension system .....	15
Enhancing private retirement savings so that it plays a bigger part in the overall retirement system	16
Overcoming political economy constraints .....	17
Restraining public spending .....	17
... and improving its efficiency .....	19
Making the tax system less distorting for growth .....	22
The tax burden is relatively high .....	23
... and mainly levied on consumption and labour .....	24
Challenges for future tax reforms .....	27
BIBLIOGRAPHY .....	29
ANNEX A1. THE CONVERGENCE AND STABILITY PROGRAMMES OF SLOVENIA AND ACTUAL FISCAL DEVELOPMENTS .....	31
ANNEX A2. GENERATIONAL ACCOUNTING: AN ILLUSTRATIVE SIMULATION OF THE WEALTH IMPACT OF AGEING PRE-FUNDING ON YOUNGER AND OLDER GENERATIONS ....	34
BIBLIOGRAPHY .....	36
ANNEX A3. MAIN TAX REFORMS .....	37

### Boxes

1.	The impact of favourable tax elasticity in recent fiscal improvement .....	7
2.	Fiscal stimulus package .....	9
3.	The state pension system .....	11
4.	The design of expenditure ceilings in some OECD countries .....	19
5.	Policy recommendations for keeping public finances on a sustainable path and improving efficiency .....	28

A1.1.	Underlying factors explaining the gap between the forecasted and actual balance.....	32
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## Tables

1.	Health care resources in international comparison: practicing physicians and hospital beds .....	21
2.	Implicit tax rates on consumption .....	25
3.	Development of labour tax wedges for single earners at different wage levels .....	26
4.	Labour tax wedges for single earners in international comparison .....	26
5.	Implicit tax rates on labour.....	27
A2.1.	Ageing projection assumptions .....	34

## Figures

1.	Development of the fiscal balance .....	6
2.	Actual fiscal balance and fiscal projections laid out in the Pre-accession, Convergence and Stability Programmes.....	6
3.	Deviation between the actual and the projected change of the fiscal balance and the main causes of the deviation.....	8
4.	Periods relevant for determining pension eligibility and benefits .....	11
5.	Calculation of pension benefits .....	12
6.	Age-related public spending is projected to rise sharply in most EU member states.....	13
7.	Development of the fiscal balance and the debt level with and without adjustment to ensure fiscal sustainability .....	14
8.	Sensitivity scenarios on change in old-age expenditure .....	15
9.	Life expectancy and retirement age in selected OECD countries .....	16
10.	The relationship between the ratio of government expenditure to GDP and per capita incomes: an international comparison .....	18
11.	Public expenditure in selected new EU member countries .....	19
12.	International comparison of public expenditure by type of spending .....	20
13.	The relationship between the ratio of tax to GDP and per capita incomes: an international comparison .....	23
14.	Structure of tax revenue.....	24
15.	Effectiveness of value added taxes as measured by the VAT revenue ratio .....	25
A1.1.	Deviation between the actual and the projected change of the fiscal balance and the main causes of the deviation.....	33
A2.1.	Impact on generation's net wealth of maintaining fiscal sustainability .....	35

## KEEPING SLOVENIAN PUBLIC FINANCES ON A SUSTAINABLE PATH

by  
Pierre Beynet and Willi Leibfritz<sup>1</sup>

### Introduction

1. Fiscal consolidation in recent years has enabled Slovenia to counter the current economic downturn by expansionary fiscal policy. The revised budget submitted to Parliament end-February 2009 incorporates a stimulus package which aims to reduce the impact of the crisis on enterprises and safeguard jobs. The package includes new measures, building on earlier ones which are now taking effect, and should help mitigate the downturn and strengthen medium-term growth. This paper examines the underlying strength and the short and longer-term risks of Slovenia's fiscal system. It finds that Slovenia has in the past followed a relatively prudent fiscal policy, which has stabilised the economy and helped entering the EU in 2004 and adopting the euro in 2007. Nonetheless, the fiscal system is exposed to several risks which have to be addressed in the coming years to ensure fiscal sustainability. There is a need for strengthening the control of government spending and continuing with structural reforms, notably of public pensions. Without stricter spending controls and additional pension reform Slovenia's tax burden will have to increase further from an already relatively high level, in particular on labour. The policy conclusions are summarised in Box 6 at the end of this paper.

### Fiscal consolidation has paid off...

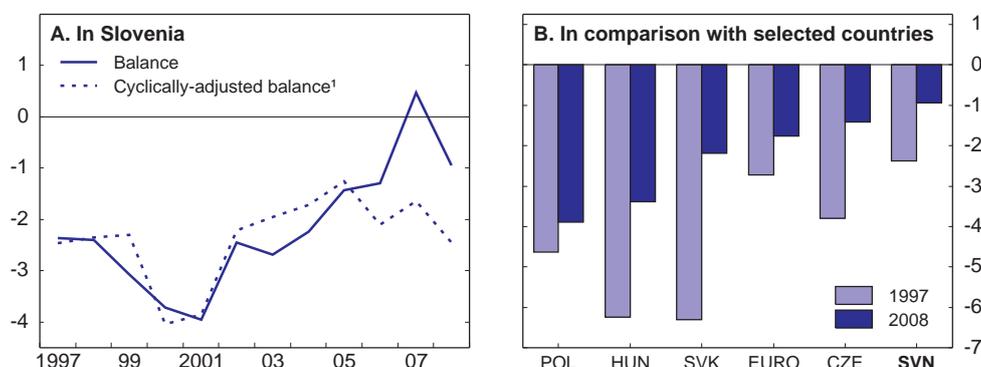
2. Slovenia has followed prudent fiscal policies through most of the past years. After a short period with an exceptionally high deficit of around 4% in 2000-01, the general government budget steadily improved toward a surplus in 2007, before deteriorating again in 2008; this was the best budgetary performance since independence in 1991, better than in most other Central European countries and better also than the euro area average (Figure 1). The deficit targets of the medium-term Convergence and Stability Programme have been exceeded or at least met in recent years<sup>2</sup> (Figure 2). The level of debt is only around 23% of gross domestic product (GDP) so that Slovenia also benefits from a low debt service.

- 
1. The authors are, respectively, Head of Division in the Country Studies Branch of the OECD Economics Department and consultant (and formerly Head of Division in the OECD Economics Department). This paper was originally produced for the OECD Economic Survey of Slovenia, published in June 2009 under the responsibility of the Secretary-General of the OECD. The authors would like to thank Andrew Dean, Robert Ford and other colleagues at the OECD, for their helpful comments, as well as Isabell Koske who provided the Box on the pension system and Jean-François Ouvrard who gave valuable advice for the generational accounting simulation. The paper also benefited from discussion with Slovenian experts in the private sector and government agencies. Special thanks go to Desney Erb for her excellent statistical and technical assistance.
  2. Pre-accession Economic Programmes were released in August each year. The first Convergence Programme was issued in May 2004 and updated in December 2004, while the others have been published in December each year.

This overall prudent fiscal policy contributed to macro stability, which helped Slovenia enter the EU in 2004 and join the euro area in 2007.

Figure 1. **Development of the fiscal balance**

General government financial balance, in per cent of GDP

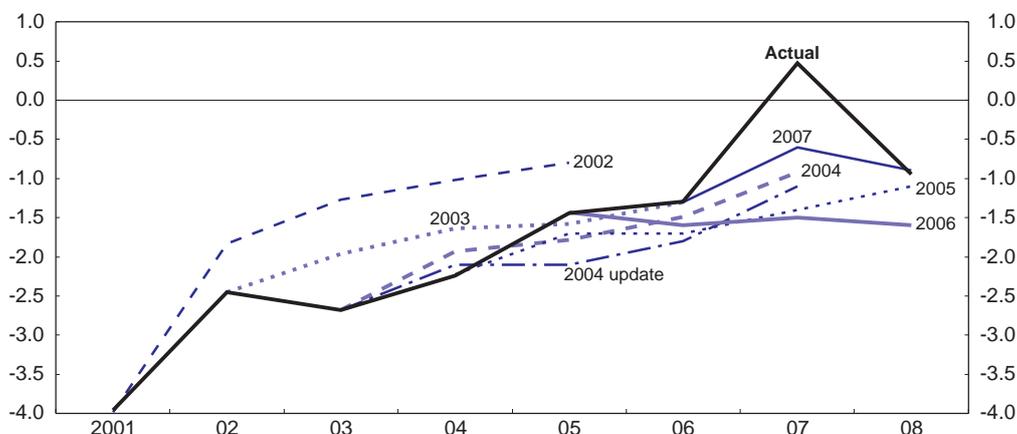


1. In per cent of potential GDP.

Source: OECD (2009), "OECD Economic Outlook, Interim Forecast", March and European Commission (2009), Economic and Financial Affairs, AMECO database, April.

Figure 2. **Actual fiscal balance and fiscal projections laid out in the Pre-accession, Convergence and Stability Programmes**

Per cent of GDP



Source: Republic of Slovenia (2002-07), *Pre-accession Economic Programmes, Convergence Programmes and Stability Programmes*, available at [www.mf.gov.si/angl/tekjib/konvergenčni\\_programi.htm](http://www.mf.gov.si/angl/tekjib/konvergenčni_programi.htm).

3. The fiscal improvement in recent years was mostly of a structural nature: the cyclically-adjusted deficit declined to ½ per cent of GDP in 2007 after a peak of around 4% in 2000. Both the deterioration of the fiscal balance between 1997 and 2001 and its improvement after 2001 were mainly caused by changes in spending. Between 1997 and 2001, the expenditure-to-GDP ratio had increased by more than 2 percentage points (from 45.4% in 1997 to 47.6% in 2001), but from 2002 onwards, it declined by more than 5 percentage points to 42.4% in 2007, before increasing again to 43.6% in 2008. Experience in other countries has shown that if fiscal consolidation is achieved through expenditure restraint, it is more sustainable than if reached through higher tax revenues (Guichard, 2007). From that perspective, one could be optimistic that Slovenia has achieved a sustained consolidation.

### ... but is exposed to several risks

4. Several factors point, however, to risks for the future development of public finances.

*First, part of the improvement in the structural balance was due to exceptional increases in revenues*

5. The improvement in the fiscal balance benefited from a buoyancy in tax revenues mostly related to an exceptional increase in the tax elasticity. However, this will not be sustained in the coming years as the tax elasticity will likely fall below its long-term average during the economic downturn and eventually return to a more standard level. In 2007, the improvement in the structural balance of 0.6% of GDP (as estimated by the European Commission) was almost completely explained by high tax elasticities, as efforts by the government to control expenditures (owing to two-year budgeting) only served to compensate for the negative impact on the structural balance of significant tax reductions resulting from tax reforms (see Box 1).

#### Box 1. The impact of favourable tax elasticity in recent fiscal improvement

An improvement in the structural balance owing to a cyclical increase in the tax elasticity leads to a misinterpretation if the progress is attributed to government efforts when it is in fact out of the government control. This problem stems from the construction of the structural balance, which is generally computed as the “residual” between the actual balance and the so-called “cyclically-adjusted” balance, although the latter does not include short-term fluctuations in the tax elasticity. Based on the approach suggested by Duchêne and Levy (2003),\* the improvement in the structural balance in 2007 has been decomposed and the part related to the government efforts (control of expenditure or new tax measures) has been disentangled from the part resulting from events out of the direct government control (mainly changes in tax elasticities). This analysis suggests that the improvement of 0.6% of GDP in the structural balance in 2007 was almost fully explained by the positive impact of higher tax elasticities (about 0.5% in GDP) as the positive efforts to control expenditure amounting to 1.1% of GDP were fully offset by an identical negative impact of new tax measures related to significant reductions in the income and payroll taxes (and to a lesser extent to a reduction in the corporate income tax, while some excise taxes had been raised). As a result, the purely discretionary effort of the government to improve the structural deficit was *de facto* nil in 2007.

\* Duchêne, S. and D. Levy (2003) “‘Solde structurel’ et ‘effort structurel’ : un essai d’évaluation de la composante ‘discrétionnaire’ de la politique budgétaire”, *Analyses Économiques*, No. 18, Direction de la Prévision et de l’Analyse Économique du ministère français de l’Économie, des Finances et de l’Industrie, Paris.

*Second, spending risks are increasing*

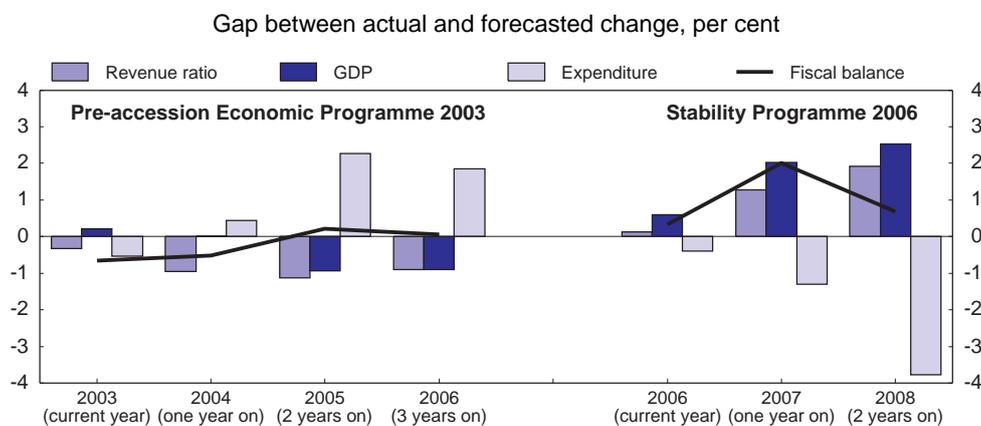
6. A closer look at the underlying factors explaining the divergence between forecast and actual fiscal balances in recent Stability Programmes shows that the revenue gains due to the high tax elasticity, together with exceptionally high nominal GDP growth, were the main reasons why the deficit targets of the Stability Programmes were exceeded. Conversely, the analysis reveals that actual expenditure growth has become higher than projected in recent Stability Programmes, which suggests that spending controls have weakened in contrast to pre-accession Convergence and Stability Programmes of the first half of the current decade when actual expenditure growth remained lower than forecast (Figure 3 and Annex A1).

7. Furthermore, during 2004-07 public wage growth was limited to only half of forecast inflation, with the intention to ease qualification for European Monetary Union (EMU) but with the promise that this restraint would be compensated later.<sup>3</sup> As a result, public wages are now catching-up, with a first increase in September 2008, a second one in January 2009, and a social agreement to proceed to two more increases depending on the economic situation. The expected cumulated increase in public wage is more than 25% in

3. A specific fund was created for this purpose but it can only cover the 2008 wage increase.

nominal terms. Furthermore, as promised during the election campaign, basic pensions will also be raised significantly.

Figure 3. Deviation between the actual and the projected change of the fiscal balance and the main causes of the deviation<sup>1</sup>



1. Cumulative data from the reference year, *i.e.* the year before the programme.

Source: Republic of Slovenia (2003), *Pre-accession Economic Programme* and Republic of Slovenia (2006), *Stability Programme*, available at [www.mf.gov.si/angl/tekgib/konvergenčni\\_programi.htm](http://www.mf.gov.si/angl/tekgib/konvergenčni_programi.htm).

*Third, a contingent liability is emerging in the construction sector, adding to the major pension liability*

8. In 2004, the government transformed the status of DARS, a state-owned company responsible for constructing and maintaining motorways, into a commercial company, thus enabling it to finance its investment through borrowing instead of receiving capital transfers from the government budget. Between 1994 and 2008, more than half of the funds for motorway construction were on average raised by DARS through the capital market. If instead these funds had been raised by the government, its annual deficit would have been on average around 1% of GDP higher. In autumn 2008, the debt level of DARS amounted to almost EUR 3 billion or about 8% of GDP. While this kind of road financing reduced the deficit of the general government sector, the government will most likely have to continue subsidising DARS, as borrowing by DARS is backed by state guarantees and revenues from tolls will probably not be sufficient to cover debt servicing and other costs. This may eventually lead to a reintegration of DARS into government accounts. If DARS expenditures were consolidated into government accounts, the structural fiscal balance would not have improved in 2007; and if the positive cyclical impact of high tax elasticity were taken into account, the structural balance, so measured, would have deteriorated. Another and much higher contingent liability of the general government sector emerges from unfunded liabilities of the pension system, which is discussed in more detail below.

*Fourth, some aspects of the fiscal package adopted to mitigate the current slowdown may undermine fiscal sustainability*

9. Due to weaker growth and expansionary measures, the government revised its 2009 forecast of the central budget deficit down from 0.33% to 2.9% of GDP. It now expects a general government deficit of 3.4% and does not rule out that it could reach 4% or more. In fact, the government estimated the impact of automatic stabilisers on the budget at 1% of GDP in December last year, but the impact is most likely to reach 2% of GDP as economic prospects have further deteriorated and the tax elasticity may fall more than anticipated by the government. Following the worsening of the financial crisis, the government has adopted new fiscal measures amounting to 1.2% of GDP and submitted it to Parliament end-

February 2009; last year's agreement (July 2008) to significantly increase public wages end-2008 and in 2009 add to the loosening of the fiscal stance by about 0.3% of GDP (Box 2).

#### Box 2. Fiscal stimulus package

The Slovenian government has implemented a fiscal stimulus package amounting to EUR 800 million, or 2.1% of GDP. The measures have been classified according to three categories: *i)* slowing down the impact of the economic crisis on enterprises (0.2% of GDP); *ii)* enhancing enterprise financial liquidity and safeguarding existing jobs (1.7% of GDP); and *iii)* increasing expenditure in research and education to improve the growth potential of the economy and its resilience (0.2% of GDP).

However, only 1.2 percentage points of this package represent new measures. The principal new measure is a subsidy per employee to firms that need to reduce their working hours (EUR 60 per employee when working time is reduced to 36 hours a week, EUR 120 if reduced to 32 hours). The total expected cost of this measure is EUR 230 million or 0.7% of GDP. The subsidy will be granted for six months with the possibility for a one-year extension, but the companies involved will have to promise not to lay off staff and not to pay out management bonuses. Another significant measure is a recapitalisation of the state-owned development and export bank (SID) to support lending (EUR 160 million). The fiscal package also includes diverse tax measures to support investment of small firms (about EUR 100 million) and reductions of tax pre-payments in order to increase liquidity of firms (around EUR 50 million). Furthermore, the disbursement of EU funds is accelerated by giving priority to those projects of ministries which are closer to implementation.

The stimulus package also includes several measures, which had been adopted earlier and are not crisis-related, such as the last step of the phasing out of the payroll tax (2009 revenue shortfall 0.6% of GDP), the reduction of the corporate income tax (2009 revenue shortfall 0.1% of GDP) and the increase in public wages (about 0.3% of GDP in 2009; the expected total fiscal cost of planned increases is about EUR 400 million, *i.e.* 1% of GDP).

In order to limit budgetary costs of the fiscal package, excise duties on gasoline and oil derivatives are increased (2009 additional revenue 0.7% of GDP). Furthermore, in accordance with the trade unions, expenditure on public salaries should be lower than originally planned.

10. The expansionary course of fiscal policy is justified by the economic situation and, thanks to past fiscal prudence, there is room for discretionary policies. However, the government should not lose sight of the medium and longer term budgetary risks as mentioned above and should ensure that the fiscal measures do not lead to permanent fiscal costs. In this respect, increases in public wages pose a significant threat to fiscal sustainability, compounded by a significant increase in the number of public employees during the period. After the current weakening of the economy, fiscal policy needs to return to a strict course of consolidation.

#### **A new pension reform is needed to ensure long-term fiscal sustainability**

11. With the transition from the communist command-and-control system to a market-based economy, the fiscal system needed fundamental reform. While in the old system, social protection was largely provided by employment in state-owned enterprises and subsidised prices of basic goods and services, with the transition to a market-based economy, a contribution-based social security system was established including health, unemployment and pension insurance. Overall, it appears that Slovenia has coped relatively well with the social problems arising from transition and the increase in poverty and inequity has remained subdued (Fox, 2003). Income inequality and the risk-of-poverty rate are also lower than in the EU average, although both indicators for social cohesion increased somewhat between 2000 and 2006 (IMAD, 2008).

12. However, Slovenia's labour market problems, which emerged during the early stage of transition, were "solved" by mass early retirement, which shifted the costs to the pension system. The choice to use the pension system rather than more targeted measures for the poor – as a welfare cushion – may also have

been influenced by political economy considerations. By providing relatively generous early retirement pensions, this policy supported a larger portion of the electorate, which reduced political resistance to continuing with structural reform.<sup>4</sup> However, it turned out to be very costly: the share of pensions in GDP increased by around 5 percentage points in the first half of the 1990s and the (joint employer and employee) pension contribution rate had to be raised by more than 8 percentage points, to 31%, in 1995. In 1996, the employer contribution rate was lowered (from 15.5% to 8.85%) in order to increase competitiveness of the Slovenian economy. This led to a deficit in the pension fund, which was covered by additional funding from the government budget.

13. In light of the rising pension expenditures, a second reform of the Slovenian pension system was enacted at the end of 1999 that became applicable in 2000 (Box 3). The new system is rather complex, not least due to protracted negotiations within the government coalition and even more between the government and the social partners (Stanovnik, 2002). The conditions for acquiring the right to old-age pension are confusing due to the existence of several pensionable ages and different periods relevant for qualifying for pensions. Furthermore, the calculation of pension benefits is complex owing to various adjustment mechanisms meant to ensure horizontal and vertical equity of the system. The pension system should be made more transparent in order to enable insured persons to make an informed decision about whether to retire or remain active.

14. The net replacement rate declined (largely) as a consequence of pension reform, from 75.3% in 2000 to 67.1% in 2007 (IMAD, 2008). But pensions remain indexed to wages rather than to prices as in many other countries. The statutory pension age has only gradually increased (from 58 to 63 for men in 2008 and from 53 to 61 for women in 2023). The pension is reduced if workers retire before they reach the statutory retirement age and is increased if workers retire later, but the additional pension received is less than proportional to the extra time worked. Thus, the pension system provides only weak incentives to continue working and many people still choose to retire early (Egoumé-Bossogo and Tuladhar, 2006; Ahčan and Polanec, 2008).<sup>5</sup> The pension system is redistributive as pension contributions are proportional to wages while pension benefits are capped at four times the minimum pension; furthermore, workers receive a minimum pension (set in 2000 at 62.5% of the average net wage) after a qualifying period of 15 years of service.

15. The state pension system is supplemented by a voluntary private funded system (second pillar) and by individual private retirement savings through life insurance (third pillar).<sup>6</sup> The second pillar is gaining importance and by 2006 over half of the active working population was included in voluntary pension insurance, with the majority covered through collective insurance. The individual pension saving segment (the third pillar) remains marginal (Majcen and Verbič, 2008). However, for many of the insured persons in the funded scheme (including civil servants) only the minimum premium is paid so that there remains a large gap between the actually paid premium for supplementary pension insurance and the target premium value that would compensate the effects of the lowering of the replacement rate in the first pillar.

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4. This political economy argument of shifting the transition costs to the social insurance system was suggested for Poland by Keane and Prasad (2000), but was probably also relevant for other of the new EU member countries including Slovenia.

5. According to Eurostat estimates, the average age of retirement of all workers was 59.8 years in 2006 as compared with 61.2 years on average in the EU. According to the Pension and Disability Insurance Institute, men retire at 60 years and 4 months on average, while women at 57 years and 2 months. From 2000 to 2004, the average age of new old-age pension recipients increased steadily under the general rules but the rise stopped in 2005 and 2006.

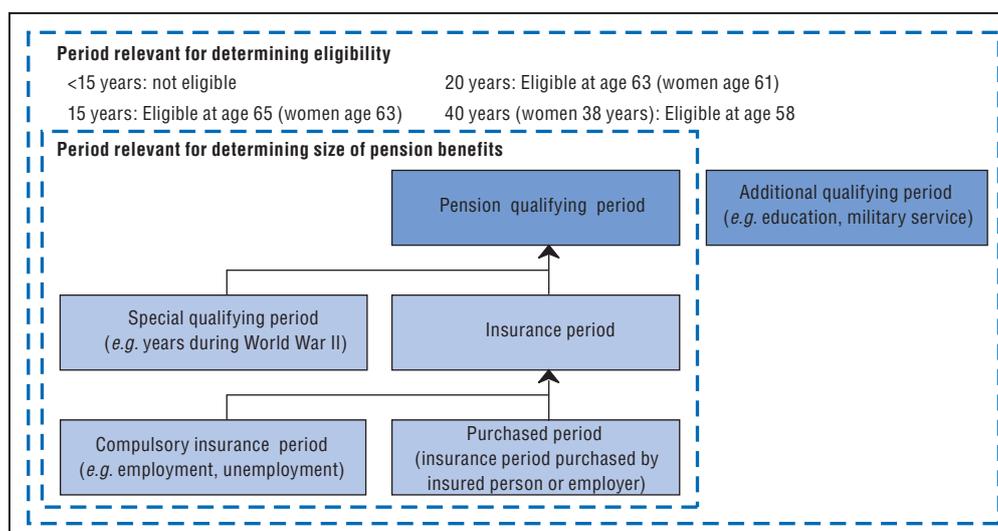
6. The private funded pension is only obligatory for certain occupations, where employment until full retirement age is unlikely, but is voluntary for other workers.

### Box 3. The state pension system

The new *Pension and Disability Insurance Act* (PDIA) which was adopted in 1999 brought about a major reform of the Slovenian pension system. Implementation of the new rules started in 2000, but due to long transition periods some of them are not fully in place yet. The Act has been amended several times since 1999, though its main provisions remained unchanged. This box briefly lays out the main features of the new pension system envisaged in the 1999 PDIA and its amendments. The focus is on the first pillar of the pension scheme (defined-benefit scheme) whilst the second and third pillars (both defined-contribution schemes) are discussed below.

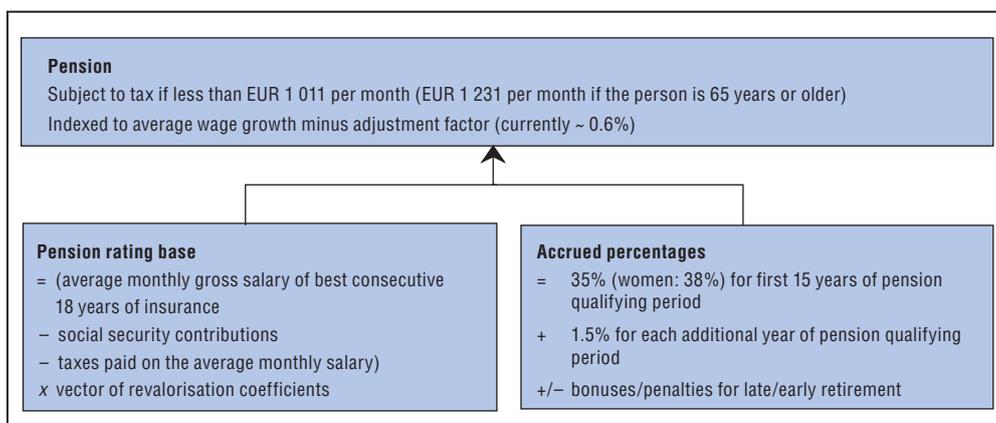
The new PDIA specifies three different pensionable ages at which an insured person acquires the right to old-age pension, depending on the length of the pension qualifying period (Figure 4). *First*, insured persons acquire the right to old-age pension when they attain 58 years of age – henceforth the minimum pensionable age – if they have completed a pension qualifying period of 40 years (men) or 38 years (women). *Second*, they acquire the right to old-age pension at 63 years of age (men) and 61 years of age (women) if they have completed a pension qualifying period of 20 years. This is the so-called full pensionable age.<sup>1</sup> *Third*, insured persons acquire the right to old-age pension at 65 years of age (men) and 63 years of age (women), if they have completed a pension qualifying period of 15 years.<sup>2</sup> The pension qualifying period consists of the special qualifying period (years that are credited such as those spent in World War II) plus the insurance period, where the latter consists of the period during which a person was actually insured and the purchased period (an insurance period that was purchased either by the insured person himself or his employer). For the assessment of the eligibility criteria (but not for the calculation of pension benefits) the so-called additional qualifying period is also taken into account (such periods include, for example, years of university education [up to the number of years necessary to obtain a degree] as well as military service).

Figure 4. Periods relevant for determining pension eligibility and benefits



The scheme pays 35% of the so-called pension rating base for men and 38% for women once they have completed a pension qualifying period of 15 years (Figure 5). Thereafter, the accrual rate is 1.5% per year of completed pension qualifying period (2% for every year completed before the year 2000), implying that men obtain a replacement rate of 72.5% when having a pension qualifying period of 40 years and women when having a pension qualifying period of 38 years. The pension rating base is the average monthly gross salary during the best consecutive 18 years of insurance, reduced by social security contributions and taxes paid on the average monthly salary in Slovenia and revalued using a vector of revalorisation coefficients that are fixed every year (the revalorisation coefficients are an instrument to obtain equity between existing and new pensioners and are obtained by dividing the average salary of October 1990<sup>3</sup> by the average salary in the year that is taken into account for calculating the pension rating base). As the use of the average personal income tax for the calculation of the net pension rating base favours higher income earners, pensions that exceed an upper limit of EUR 1 011 per month (EUR 1 231 per month if the person is 65 years or older) are subject to a tax.

Figure 5. Calculation of pension benefits



Staying active once the criteria for retirement are fulfilled is rewarded by bonuses whilst early retirement is penalised by *maluses*. If individuals who have completed the pension qualifying period of 40 years (38 years for women) postpone retirement beyond the age of 58, additional years of work up until the full pensionable age attract a higher accrual rate of 3% for the first year, 2.6% for the second year, 2.2% for the third year and 1.8% for the fourth year (instead of the normal accrual rate of 1.5% per year). Individuals deferring their pension claim after the full pensionable age receive a bonus which amounts to 0.3% per month during the first year, 0.2% per month during the second year and 0.1% per month during the third year (in addition to the normal accrual rate that applies to that person). If an insured person retires before the full pensionable age without having completed a pension qualifying period of 40 years (men) or 38 years (women) the pension is assessed based on the length of the completed pension qualifying period (*i.e.* the pension rating base is lower than 72.5% by the number of missing years multiplied by 1.5%), reduced for each missing month of age by a penalty which amounts to 0.1% per month if the person retires at the age of 62 (only relevant for men), 0.15% per month if the person retires at the age of 61 (only relevant for men), 0.20% if the person retires at the age of 60, 0.25% if he/she retires at the age of 59 and 0.3% if he/she retires at the age of 58.<sup>4</sup> Any reduction or increase in pension benefits is of permanent nature.

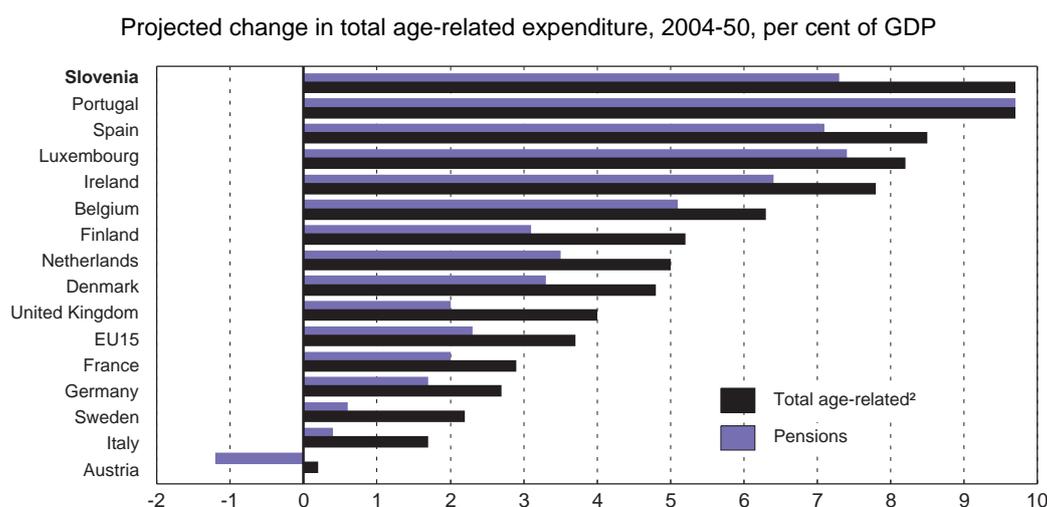
The 1999 PDIA puts great emphasis on the principle of solidarity. The ratio between two comparable pensions (comparable pensions exist when two pensioners have the same insurance period) cannot exceed the ratio of 4:1. The pension system includes a minimum pension base and a maximum pension base which is equal to four times the minimum pension base. Social security contributions are not capped, implying that any contributions that would lead to a pension base in excess of the maximum pension base act as a tax. Pensions are in principle indexed to wages. However, wage growth is reduced by an adjustment factor (currently about 0.6%) in order to ensure that a person who was born at a later point in time and thus retires later does not suffer more from the reduction in the accrual rate from 2% to 1.5% than a person who was born at an earlier point in time and thus retires earlier.<sup>5</sup>

1. The new full pensionable age was a compromise between the government and the social partners with the trade unions opposing the increase to 65 years for men and 63 years for women proposed by the government in its draft of the Act. The compromise was proposed by the United League of Social Democrats (ZLSD). After opinion polls in March 1999 showed that 81% of the population were against the government's proposal of a statutory pension age of 65 for men and 63 for women, but that more than half were in favour of the compromise value, the government backed their proposal and the *Social Agreement on the Reform of Pension and Disability Insurance in Slovenia* was signed in April 1999.
2. If a person has not completed a pension qualifying period of 15 years when reaching the age of 65 (63 for women), he/she has to work beyond that age until meeting the 15-year condition in order to be eligible for pension benefits.
3. Adjusted for changes in pensions made in accordance with the pre-2000 pension regulation.
4. Due to the parallel increase in the full pensionable age and the minimum pensionable age, the early retirement penalties will not enter into effect for women before 2014.
5. But this adjustment does not ensure intergenerational equity, as lifetime income is less reduced for older generations than for younger generations. As replacement rates are likely to be further reduced in order to limit the increase in pension payments (or contribution rates would have to be raised accordingly), adhering to the current interpretation of "equal rights for new and old pensioners" would burden younger generations more than older generations (Sambt, 2008). The minimum (full) pensionable age may be reduced to 55 years (58 years) at most.

16. The 2000 pension reform has not been sufficient to make the pension system sustainable over the longer run. According to projections by the European Commission (2005), in the absence of additional measures, pension payments will increase between 2004 and 2050 by 7.3 percentage points of GDP and total public age-related spending (including health care, long-term care and education) by 9.7 percentage points of GDP. This is equivalent to almost a quarter of the current level of the general government budget. Slovenia belongs to the group of EU countries with the largest increase in age-related spending and has therefore been classified by the European Commission as a “high-risk” country with respect to long-term sustainability of public finances (Figure 6). In an updated scenario, the European Commission (2009) projects an even higher increase in pension expenditure: from 2007 to 2060 pension expenditure is projected (in the baseline scenario) to increase by 8.8 percentage points of GDP (and total ageing costs by about 13 points of GDP, the third most important increase within the EU). These projections illustrate the unsustainability of the pension system and the urgent need for reform.

17. While many countries have to cope with pressures from ageing populations, several of them have taken decisive actions, which have significantly improved their long-term budgetary perspectives. For Slovenia, a desirable policy would consist of an appropriate mix of: *i*) pre-funding the future pressures on government spending by reducing government debt; *ii*) reforming the state pension system; and *iii*) enhancing private retirement savings.

Figure 6. **Age-related public spending is projected to rise sharply in most EU member states**<sup>1</sup>



1. EU members before enlargement in May 2004. Data for Greece is not available.

2. Excludes long-term care for France and Portugal.

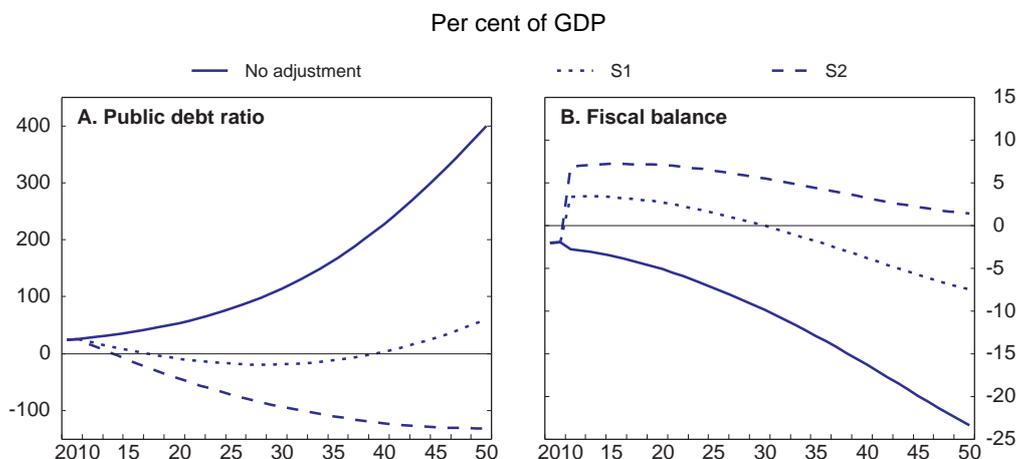
Source: European Commission (2006), “The Impact of Ageing on Public Expenditure: Projections for the EU25 Member States on Pensions, Health Care, Long-term Care, Education and Unemployment Transfers (2004-2050)”, *European Economy, Special Report*, No. 1.

*Pre-funding age-related spending by reducing the level of government debt in anticipation of future spending pressures*

18. Increasing government savings in anticipation of age-related spending smoothes tax rates over time. However, if Slovenia were to reach a sustainable fiscal position only by pre-funding it would need a very large improvement in its fiscal balance. This can be seen from the sustainability gap measures S1 and S2 as calculated by the European Commission. The first indicator is the difference between the current primary balance (as a per cent of GDP) and the primary balance needed to reach a gross debt level of 60%

of GDP in 2050; this would require in Slovenia an immediate (up from 2011) and permanent increase of above 5% of GDP in the primary balance. The second indicator ensures fiscal sustainability over the infinite time horizon and would require an increase of around 8½ per cent of GDP in the primary balance.<sup>7</sup> Figure 7 illustrates the development of the financial balance and the debt level with and without adjustment (following the presentation in Giammarioli *et al.*, 2007). It shows that without adjustment the deficit ratio and the debt ratio explode. With an S1 adjustment, which limits the debt ratio to 60% of GDP in 2050 (but not beyond), public debt will become negative in 2017, amounting to around –20% of GDP towards the end of 2020, and become positive again in 2040 before rising to 60% of GDP in 2050. With an S2 adjustment (which ensures infinite sustainability) government debt will become negative in 2014 and negative debt (a net asset position) will increase to 130% of GDP by 2050.

Figure 7. **Development of the fiscal balance and the debt level with and without adjustment to ensure fiscal sustainability<sup>1</sup>**



1. S1 and S2 are synthetic indicators computed from debt projections (January 2009 forecast scenario) to gauge the size of a fiscal adjustment necessary to attain a specific debt target in the future. The S1 indicator is the difference between the ratio of the constant primary balance to GDP that is required to reach a gross debt ratio of 60% of GDP in 2050 and the current primary balance ratio. The S2 indicator shows the change in the ratio of the primary balance to GDP that would be needed to equate the present discounted value of future primary balances over the infinite horizon with the current level of debt.

Source: European Commission.

19. It is clear from these scenarios that the S2 adjustment is unrealistic. Even the S1 adjustment would require a large improvement in the primary balance. Given the internationally high tax level (see below), much of the adjustment would have to be made on the spending side. Such large spending cuts would be difficult to achieve and could be at the cost of infrastructure spending, which is needed for the development of the economy. Last but not least, with the government running high budget surpluses during the next fifteen years, political pressure could increase to use them for other purposes before the pressure from ageing arises.

20. These considerations suggest that a complete pre-funding of age-related spending is neither desirable nor feasible. However, partial pre-funding may be desirable to offset part of the future costs and assure better intergenerational equity, especially if the pre-funding is realised sooner than later (see below and Annex 2.A2). An objective for partial pre-funding could be to run a balanced budget as soon as the

7. The sustainability gaps S1 and S2 have increased recently due to the deterioration of the cyclically-adjusted primary balance. In its earlier calculations which were based on the fiscal starting position of 2006, the S1 gap for Slovenia was 3.5% of GDP and the S2 gap was 7.0% (European Commission, 2008).

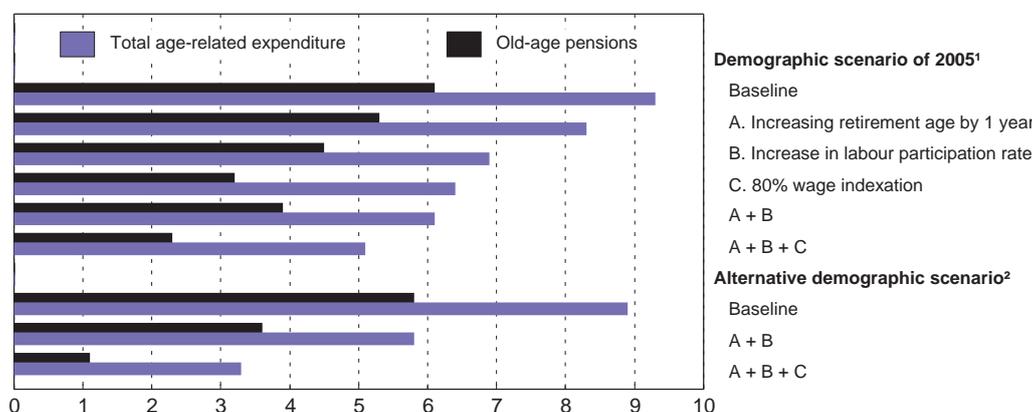
crisis subsidies. A balanced budget during 10 years with sustained real growth of 3%<sup>8</sup> (and nominal GDP growth at around 5½ per cent) would reduce the debt-GDP ratio to around 12% by 2020. With such partial pre-funding, *i.e.* halving the debt-GDP ratio before the pressure from ageing arises, the main focus would have to be on structural reform of the pension system.

### *Structural reform of the pension system*

21. Further raising the retirement age and lowering the replacement rate would limit the growth of pension payments (Figure 8). The replacement rate could be reduced by reducing indexation of pensions (*e.g.* moving from wage indexation to price indexation or a combination of price and wage indexation, as it exists in many OECD countries) or extending the contribution period to obtain a full pension. The retirement age has already been raised by the past reform but there is room for a further increase. The retirement age (the age at which persons can retire once they have completed a pension qualifying period of 20 years) has been raised from 58 years to 63 years for men and from 53 years to 61 years for women. While the increase was implemented rather quickly for men at a rate of 6 months per year, the increase proceeds at just 4 months per year for women.<sup>9</sup> This implies that the envisaged retirement age of 61 years will not be reached before 2023. The age limits for retirement with a pension qualifying period of respectively 38 years (58 years of age) and 15 years (65 years of age) are also raised by a mere 4 months per year. Several countries from Central and Eastern Europe, that had similarly low retirement ages for women before they reformed their pension systems, implemented the changes at a much faster pace. For example, Bulgaria, Estonia, Hungary and Latvia opted for an increase of 6 months per year (12 months every second year in the case of Hungary) and in the Slovak Republic the retirement age is even raised at a rate of 9 months per year. In light of the negative effects of the rapid ageing of the Slovenian population on public finances, as well as potential economic growth, the increase in the pensionable age for women should be phased-in faster.

Figure 8. Sensitivity scenarios on change in old-age expenditure

Increase in expenditure in per cent of GDP, 2006-50



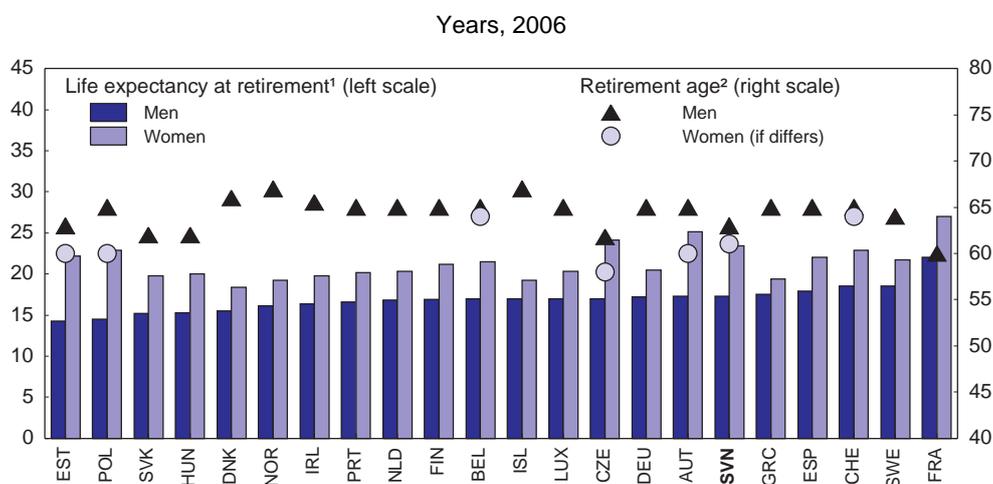
1. Eurostat projections from 2005 assumed an average fertility rate of one child per woman.
2. Taking into account higher actual fertility rates for 2004-06.

Source: Republic of Slovenia (2007), *Stability Programme - 2007 Update*, December.

8. A conservative assumption, as Slovenia's sustainable growth was estimated at about 4% by the European Commission during the last decade.
9. The very gradual increase in the retirement age for women is typical of Slovenia's consensus based policy approach which requires the agreement of the social partners on any legislative changes within the *Economic and Social Council*.

22. Even after the 1999 pension reform is fully phased-in, the pensionable age is low by OECD standards (Figure 9). The majority of OECD countries currently have a retirement age of 65 years for both genders and many of them are planning further increases along with gains in life expectancy. As life expectancy in Slovenia is similar to other OECD countries, the lower retirement age implies a higher life expectancy at retirement (particularly for women), putting strong pressure on pension costs on the one hand and depriving the labour market of valuable resources on the other. The authorities should therefore further increase the pensionable age for both genders. The above simulations suggest that an increase in the retirement age by one year will reduce future pension expenditures by around one percentage point of GDP. Once the increase has been phased-in and life expectancy at the full pensionable age has reached a suitable level, additional increases in the pensionable age should be linked to gains in life expectancy. The length of the pension qualifying period necessary to retire at the minimum pensionable age should be raised accordingly. Moreover, the conditions for women should be lined up over time with those for men.

Figure 9. Life expectancy and retirement age in selected OECD countries



1. The mean number of years still to be lived by a person, if subjected throughout the rest of his or her life to the current mortality conditions.
2. Legal retirement age for a standard pension. Where the retirement age is variable (e.g. depending on date of birth, number of children raised, etc.), an average has been used. For the Slovak Republic, the retirement age of 62 will be reached in 2015 and for Slovenia, the retirement age of 61 for women will be reached in 2023.

Source: Eurostat database (2009), Population and social conditions, January; and European Commission, MISSOC Tables 2007, available at [http://ec.europa.eu/employment\\_social/spsi/missoc\\_tables\\_en.htm](http://ec.europa.eu/employment_social/spsi/missoc_tables_en.htm).

23. A more far-reaching reform would be to transform the current defined benefit scheme into a notional defined contribution (NDC) scheme, as several countries (including Italy, Latvia, Poland and Sweden) have done. The NDC scheme ties a notional rate of return to overall wage growth, while individual benefits are based on actual contributions during the whole working life. NDC schemes automatically adjust pension benefits to life expectancy as the “notional capital” which is accumulated until retirement is transformed into an annuity payment, which is lower the longer the expected time on pension (Oksanen, 2001; Williamson, 2001). As pure NDC schemes are not redistributive, all countries with such schemes have introduced minimum pensions to protect very low-wage workers whose contributions are too low to survive at old age; such a basic pension already exists in Slovenia.

#### *Enhancing private retirement savings so that it plays a bigger part in the overall retirement system*

24. Another measure to adjust the pension system to the future demographic change is to strengthen the private pillar(s). However, shifting from public to private pensions is no panacea for reducing fiscal costs. Without going into a detailed discussion of the pros and cons of funding, it is clear that shifting to

second and third pillars while cutting down first pillar pensions involves transition costs as contributions have to be paid both for the fund and for the first pillar pensions of current pensioners. The size of transition costs depends on the degree of the transition across the pillars, and care is needed to prevent the costs from becoming excessive for the younger generations. Some additional burden on the younger generations can be justified as they have a higher life expectancy and therefore need more retirement savings, they also have fewer children and therefore save on child education and they are also likely to be richer. The relevant question for intergenerational equity is therefore not to achieve an equal burden sharing across generations but rather a burden sharing, which is perceived as fair (Oksanen, 2001; Sinn, 2000).<sup>10</sup> From that perspective, there seems to be some room in Slovenia to increase the private pillar(s). This could be done by making a certain amount of contributions to the private pension fund mandatory or by including all workers into the funded system but allowing them to opt-out if they do not wish to supplement their pay-as-you-go pension. However, the state pension should remain the main pillar because of otherwise high costs of transition as mentioned above. Furthermore, if the private pillar(s) did not work out as expected, the government would probably have to step in anyway to prevent poverty at old age.

#### *Overcoming political economy constraints*

25. While pension reform is urgent it seems to be politically difficult to implement it and with more and more voters approaching retirement age and becoming pensioners, this could become even more difficult. However, delaying reforms to accommodate ageing – a combination of both pre-funding and pension reform – is costly as well as unfair since it would lead to excessive costs for younger generations. As shown by a simulation of generational accounting for Slovenia (Annex A2), pre-funding clearly favours younger generations compared to a delayed adjustment. While it is mainly illustrative and to be interpreted with caution, this simulation estimates that the pre-funding strategy will provide the new-born generation with net wealth gains of about EUR 35 000 per individual. The simulation also shows that people older than 21 today have a financial interest in delaying the adjustment. Given that they account for the overwhelming majority of voters, the simulation highlights political difficulties of implementing reforms to tackle ageing. The government must therefore find ways and means to convince the public that a fundamental pension reform is urgently needed. The reluctance of the public to such reform may also be caused by a lack of information. The relatively low public sector deficits and debt levels in recent years may also have created an illusion that fiscal sustainability has been attained and even that there is room for more redistribution in favour of pensioners. However, while the explicit public debt is low, the implicit debt by contingent pension liabilities is high. Informing the public about this implicit debt and its adverse effects on the pension system, on the whole fiscal system and on intergenerational equity could help to raise awareness of the need for reform. It is laudable that the government includes in its official budget publications the projections of pension expenditure based on current policies (as a baseline) and of alternative policies; this information policy should be continued and further strengthened. Furthermore, introducing in the pension system automatic adjustments to demographic change as discussed above (such as introducing a NDC pension system, or in the defined benefit system linking the retirement age to life expectancy), makes subsequent and politically difficult amendments to pension law unnecessary and facilitates adjustment.

#### **Restraining public spending...**

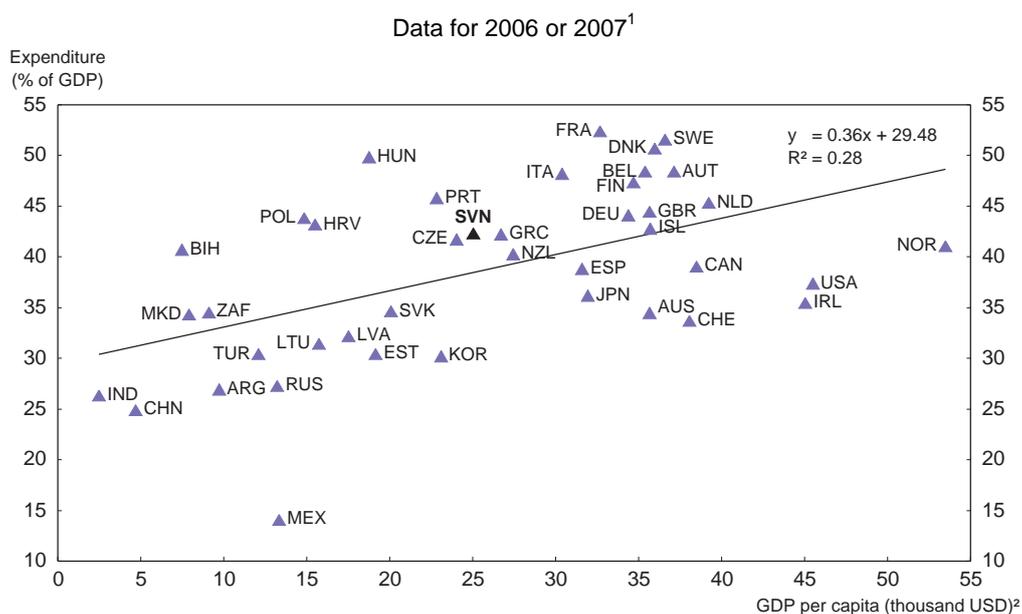
26. A major issue for fiscal policy in Slovenia is to determine the proper size and pattern of government spending. The level of general government spending is relatively high as compared to countries with similar living standards (Figure 10). Over the last ten years, primary spending has declined

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10. Intergenerational equity or actuarial neutrality across generations is achieved if the burden of initial explicit and implicit public debt is shared equally between the current and future generations and each generation covers the actuarial value of its future pensions by contributions (Beetsma and Oksanen, 2008).

somewhat as a percentage of GDP but remains higher than in some other new EU member states with the exception of Hungary where the spending level is higher and the Czech Republic which has a similar spending level (Figure 11). In its Stability Programme the government plans to reduce general government spending by 4 percentage points of GDP between 2006 and 2010, but this target will probably be missed due to the new fiscal stimulus package and lower growth. Slovenian authorities have so far not set a ceiling on expenditure growth but there is discussion to limit the growth rate of nominal expenditure to the growth of potential real GDP plus the euro area inflation forecast; as inflation in the euro area tends to be lower than in Slovenia (due to the Balassa-Samuelson effect) this would imply a gradual decline of the share of public expenditure in nominal GDP.

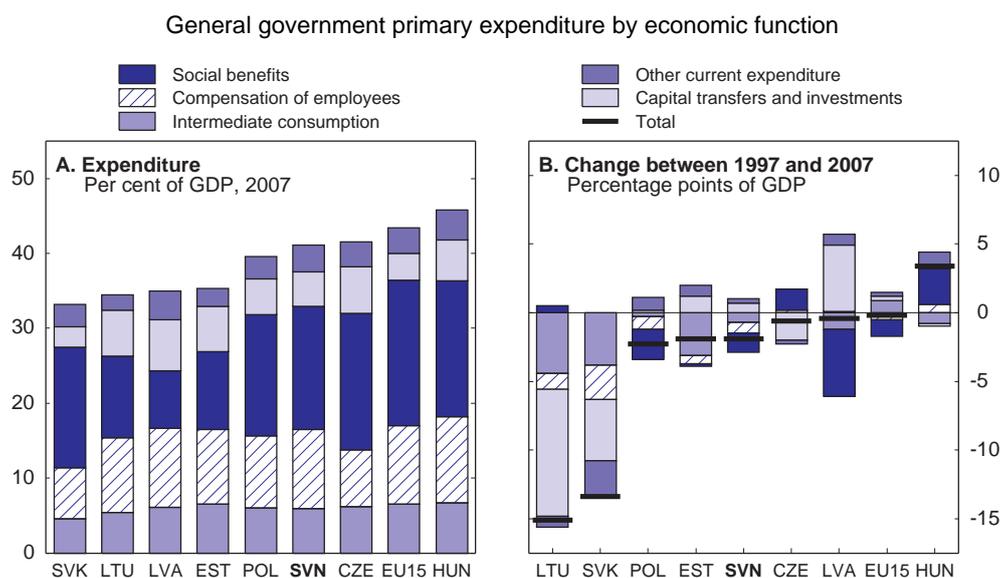
Figure 10. The relationship between the ratio of government expenditure to GDP and per capita incomes: an international comparison



1. 2004 for Argentina.
2. Calculated using current purchasing power parities.

Source: OECD (2009), *National Accounts of OECD Countries - online database*, February; IMF (2008), *Government Finance Statistics*, International Monetary Fund, December; World Bank (2009), *World Development Indicators - online database*, February; World Bank (2008), *FYR Macedonia - Public Expenditure Review*, Report No. 42155-MK, February; Indian Ministry of Finance (2008), *Indian Public Finance Statistics 2007-2008*; CEIC database for China.

27. Setting a ceiling for expenditure growth is desirable; with such ceiling in place (and enforced) spending control would have been even better, thus improving the starting position for the current economic downturn. However, the effectiveness of an expenditure ceiling also depends on its design. Several OECD countries, notably the Netherlands, Sweden and Finland have in the past been quite successful with setting expenditure ceilings. While the design differs somewhat between the countries, a common feature is the political consensus to consolidate the budget by limiting growth of public expenditure (Box 4). Given these considerations, the design of the expenditure ceiling as currently discussed in Slovenia, could perhaps be improved. It would be desirable that: *i*) the ceiling for spending growth refers not only to the central government but also to other government units who should also adopt consistent expenditure ceilings; *ii*) transparency is increased by making the ceiling for growth of real spending explicit, for example by setting it in relation to the expected potential output growth and then calculating nominal expenditure by using the expected inflation rate of Slovenia (GDP deflator or a price index for government expenditure) rather than the inflation rate of the euro area; and *iii*) the political consensus-building is strengthened by a parliamentary vote on the expenditure ceiling.

Figure 11. **Public expenditure in selected new EU member countries**

Source: Eurostat database (2009), Economy and Finance, March.

#### Box 4. The design of expenditure ceilings in some OECD countries

When designing a cap on growth of public spending governments have to decide in particular on: *i)* the coverage of levels of government; *ii)* the coverage of spending items; *iii)* nominal or real spending; *iv)* what level of (maximum) spending growth and over which period; and *v)* how to ensure compliance with the rule. In the following we briefly describe the expenditure ceilings in the Netherlands, Sweden and Finland, which have been successful in limiting growth of government spending.\*

In 1994, the Netherlands introduced a cap on spending growth which is voted by Parliament at the beginning of a new parliamentary term for the whole government period (four years). The cap is set in real terms for different government units (core government sector, social security and labour market, health care). The real ceiling is converted into a nominal ceiling by using the national income deflator. In the past, interest payments were included in the ceiling but the new ceiling for 2008-11 excludes interest payments, *i.e.* refers to primary spending.

Sweden adopted a spending cap in 1997 which is decided each year by Parliament on a rolling three-years-ahead basis. The cap is set in nominal terms for primary spending of the central government.

Finland introduced a four-year spending cap in 2003; prior to this it had annual expenditure limits. The cap is set in real terms on non-cyclical primary spending of the central government. The nominal expenditure growth is determined by using a deflator for central government expenditure.

\* For more details on their experiences and the general design of spending rules see Ljungman, 2008; Bouthevillain *et al.* 2007; Wierds, 2007; Bos, 2007; Roseveare, 2002.

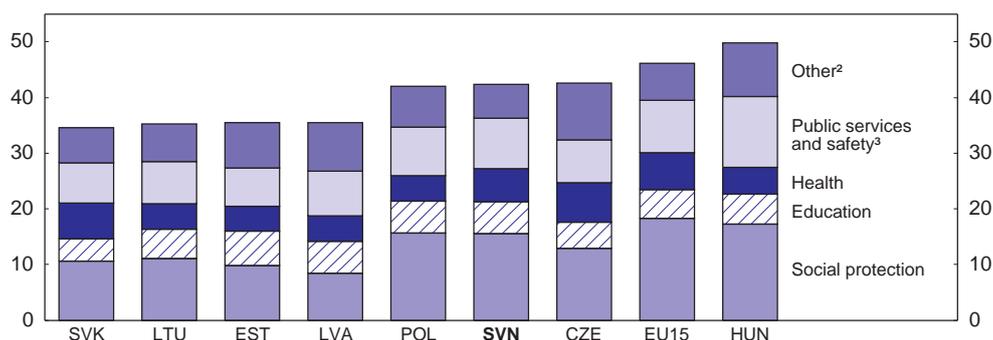
#### ... and improving its efficiency

28. If efficiency of government spending could be raised, it would be possible to reduce spending as a percentage of GDP without sacrificing outcomes. A main measure to this end is better linking spending performance to budgeting. Over the past ten years, Slovenia has reduced public consumption and transfers and increased capital investment as a per cent of GDP, but some of the other new EU member countries have gone further in restructuring spending patterns. Slovenia spends more (as a percentage of GDP) on public consumption (intermediate consumption and public wages) and on subsidies than the average euro

area country and spends also more on social benefits than several other new EU member countries. The relatively high spending on social benefits is the main reason why Slovenia does not belong to the group of new EU countries with the lowest overall spending levels (Slovak Republic and the Baltic States) (Figure 12). One reason for the high social spending may be that in Slovenia the goal of social protection is given a particularly high preference. However, if transfers were better targeted to those in need, social benefits could probably be reduced without violating the goal of social protection. More detailed analysis of public expenditure also suggests that Slovenia has much scope for improving spending efficiency (Mattina and Gunnarsson, 2007).<sup>11</sup>

Figure 12. **International comparison of public expenditure by type of spending**

General government expenditure in per cent of GDP, 2007<sup>1</sup>



1. Provisional data for the Slovak Republic and the European Union.
2. Economic affairs; environment protection; housing and community amenities; recreation, culture and religion.
3. General public services, defence, public order and safety.

Source: Eurostat database (2009), Economy and Finance, April.

29. In the *health sector*, Slovenia has maintained universal coverage with relatively generous benefits, and consumers in general appear to be satisfied with the provision of health services<sup>12</sup> (Fox, 2003). In the contribution-based public health insurance, co-payments have been introduced which shifted part of the financial burden to private households. This has stabilised the financing of the health sector. Co-payments also aim at containing costs, although this effect is limited, as most consumers have purchased private insurance to cover co-payments. In recent years more funds have been provided to shorten waiting times, but thanks to streamlining measures and helped by the moderate growth of public sector wages, health care spending has not changed much as a share of GDP (IMAD, 2008). Total health care spending is around 8% of GDP and public health care spending is slightly below 6% of GDP, which is among the highest in the new EU member countries but somewhat lower than the EU15 average. The level of health

11. Mattina and Gunnarsson (2007) have made an attempt to measure the efficiency of government spending in Slovenia in the areas of health, social protection and education. They applied Data Envelope Analysis (DEA), a technique that compares public spending (input) and outcomes across countries and uses best-performers at the various input levels (countries at the frontier) as reference. They found that in all three areas the outcomes in Slovenia are far less than in the best-performing countries with similar spending levels.
12. According to a public opinion poll in 1999, a significant majority of the population was satisfied with their general practitioners and their pharmacists, but they were slightly less satisfied with the specialist outpatient and dental services. The causes for dissatisfaction involved primarily waiting times and complicated administrative procedures. People generally thought that introducing private practice will improve the quality of health care, and those treated by private practitioners demonstrated a higher level of satisfaction than those treated by publicly employed physicians (Jakubowski, 2002).

spending per capita (in US dollars at purchasing power parities) is also relatively high in international comparison.

30. Slovenia has been successful in reducing the oversupply of hospital infrastructure, which was a legacy of the old communist system. While there may still be some excess capacity and room for cost-saving in hospitals, the number of hospital beds (in relation to the population) is less than in the other new EU member states and the number of practicing physicians is also below average (Table 2.1). The health sector has to cope with continued wage pressures of medical workers and, over the longer-term, also with spending pressures due to the ageing of the population. It is therefore desirable to tap the full potential for improving the efficiency of health spending. This could be done, for example, by better monitoring quality and safety of hospital services and replacing financing of actual costs in hospitals by a system of Diagnosis-Related Groups (DRG) financing, with collectively negotiated compensation rates for expected costs, establishing reference price lists for “mutually interchangeable” drugs and centralising pharmaceutical and medical equipment procurement, and by reviewing the interplay of the system of compulsory public insurance by the Health Insurance Institute of Slovenia (HIIS) and the voluntary health insurers (VHIs) (Mattina and Gunnarsson, 2007).

Table 1. **Health care resources in international comparison: practicing physicians and hospital beds**

	Per 100 000 inhabitants			
	Hospital beds		Practising physicians	
	1997	2006	1998 <sup>1</sup>	2006
<b>Slovenia</b>	<b>565</b>	<b>478</b>	<b>219</b>	<b>236</b>
Bulgaria	1 031	621	346	366
Czech Republic	867	817	303	356
Estonia	775	565	306	329
Hungary	818	792	309	304
Latvia	975	759	273	292
Lithuania	1 023	801	374	365
Poland	757	648	233	218
Romania	739	659	188	216
Slovak Republic	815	671	296	316
EU15	669	571	..	..

1. 1999 for Romania.

Source : Eurostat database (2009), Population and Social Conditions, March.

31. The *education sector* has traditionally been a high priority in Slovenian policy and impressive progress has been made in attaining a relatively high level of education for the whole population. Slovenian children spend as many years in formal education as those in developed OECD countries. Looking at the share of expenditure to GDP, there seems to be no general shortage of resources with total government spending on education slightly below 6% in 2007, which is among the highest of the new EU member states and above the EU15 average of around 5% of GDP; the relatively high spending on education is partly caused by a relatively high wage bill. The government provides the bulk of education spending while private spending is very low and stems mainly from tuition fees for some university programmes. Despite the achievements of education policy, there appears to be room for improving spending efficiency, notably by: *i*) better monitoring outcome indicators (such such as graduation, drop-out rates, academic results and scores in tests) and linking them at the individual school level to the budget process; *ii*) shifting the funding of primary and secondary schools more to per-capita based formulae, linked to the expected cost of service delivery; *iii*) responding to the expected decline of primary and secondary school-age populations by encouraging schools to jointly hire and share new teachers; *iv*) trimming the number of primary school teachers, which is relatively high, through natural attrition and

(selective) hiring freezes, and implement the plan to merge small primary schools; and v) pursuing university tuition, introducing student loans and targeting scholarships to lower-income students to insulate them from the impact of higher tuition fees (Mattina and Gunnarsson, 2007).

32. In the area of *social protection* Slovenia has achieved much progress. A major factor was the favourable development of the labour market with unemployment declining from its peak of around 9% in the first half of the 1990s to around 4.5% 2008, which is the lowest among the new EU countries and among the lowest in the EU (see Chapter 3). As a result, the poverty risk after social transfers is relatively low in international comparison. Nonetheless, as shown above, spending on social protection is relatively high in Slovenia. It has been shown that the relatively high transfers (excluding pensions) do relatively little to improve income inequality and reduce poverty. However, efficiency of transfers could be improved by better targeting so that overall spending could decline without increasing inequality and poverty (Mattina and Gunnarsson, 2007).

### **Making the tax system less distorting for growth**

33. Slovenia has come a long way in establishing a modern tax system although it has followed a more gradualist approach than some of the other new EU countries, such as the Baltic States and the Slovak Republic. After independence in 1991 and the transition from a centrally planned to a market economy, a new tax system and tax administration had to be created. The reforms in the 1990s brought Slovenia's fiscal system closer to the systems in western countries and prepared Slovenia's entry into the EU, which was achieved in 2004. The more recent measures aim at:

- ***Favouring investment, especially foreign, by lowering the corporate income tax.*** The corporate tax rate has been gradually reduced from 25% in 2005 to 23% in 2007, 22% in 2008, and 21% in 2009 and will be further reduced to 20% in 2010. Measures were also taken to broaden the tax base, although tax incentives for investment were introduced which narrow the tax base (such as the 2006 incentives for research and development investment, and in 2008, 30% of the invested amount can be deducted from the tax base, up to EUR 30 000).
- ***Increasing labour supply by lowering the personal income tax.*** Past reforms of the personal income tax led to a reduction in the number of tax brackets and tax rates.<sup>13</sup> Furthermore, in 2006 the synthetic income tax was transformed into a dual income tax with flat rates for capital income while progressive taxation was maintained for active income (from employment and unincorporated business).<sup>14</sup> In 2008, additional general personal income tax allowances were introduced, which reduce the tax burden, in particular for low incomes, and special allowances were reduced and simplified. Personal income tax on employment is deducted at source and only if workers, who do not agree with the scheduled tax liability, are asked to make a tax declaration.
- ***Increasing labour demand by reducing labour costs.*** The payroll tax, which had been introduced in 1996, has been gradually phased out between 2006 and 2009.
- ***Reducing pollution.*** Environmental taxes were strengthened.

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13. 1991: five income brackets, rates between 19-45%; 1994: six brackets, rates between 17-50%; 2005: five brackets, rates between 16-50%; 2007: three brackets, rates 16%, 27% and 41%.

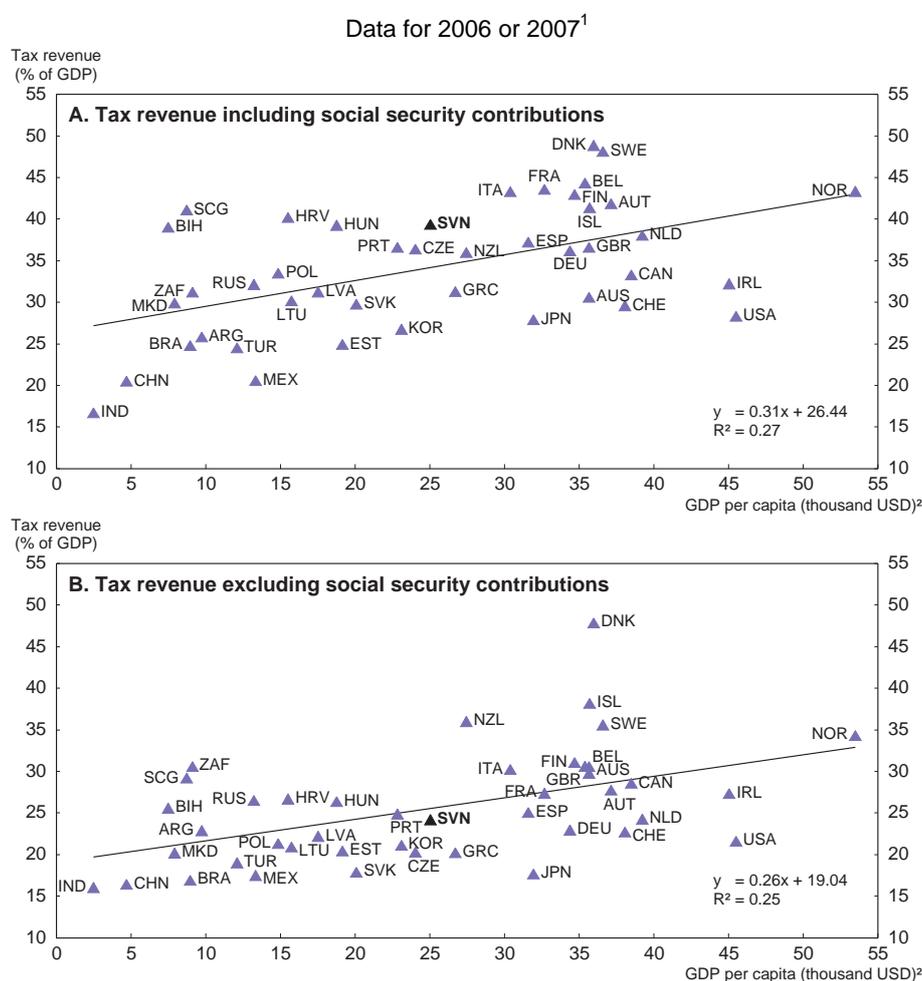
14. The main objective of the dual income tax is promoting investment and preventing capital from flowing abroad. Capital income (dividends, interest, and capital gains) is taxed at a single rate of 20%. Interest income, under the Savings Directive and paid to individuals with residence in another EU country, are not taxed and interest income on bank deposits of domestic individuals are not taxed up to EUR 1 000.

34. Past and recent tax measures are summarised in Annex 2.A3. This section briefly describes Slovenia's tax system and tries to identify areas where further reform would be desirable. The main consideration is that the overall tax burden should be further reduced, in particular the burden on labour, and that the tax mix should be shifted more onto real property and possibly also to indirect taxes.

### *The tax burden is relatively high...*

35. Taxes can affect the economy through different channels. In the case of a catching-up country like Slovenia, a key issue is how to develop the tax system and collect taxes efficiently without reducing economic growth and aggravating the divide between the formal and the informal economy. The overall tax burden (of slightly below 40% of GDP) is relatively high by international comparison, considering Slovenia's stage of development (Figure 13). Slovenian authorities also perceive the tax burden as too high and are planning to gradually reduce it over the medium term.

Figure 13. **The relationship between the ratio of tax to GDP and per capita incomes: an international comparison**



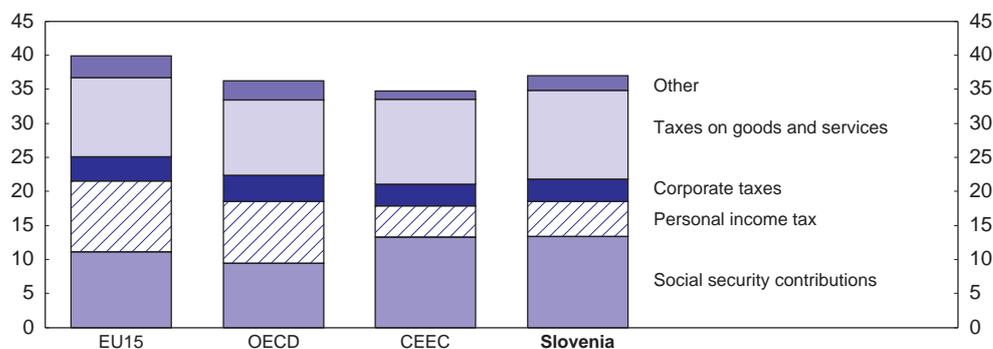
1. 2004 for Argentina, and Serbia and Montenegro.
2. Calculated using current purchasing power parities.

Source: OECD (2009), *National Accounts of OECD Countries – online database*, February; IMF (2008), *Government Finance Statistics*, International Monetary Fund, December; World Bank (2009), *World Development Indicators – online database*, February; World Bank (2008), *FYR Macedonia – Public Expenditure Review*, Report No. 42155-MK, February; Indian Ministry of Finance (2008), *Indian Public Finance Statistics 2007-2008*; CEIC database for China.

... and mainly levied on consumption and labour

36. Slovenia relies to a large extent on the taxation of labour and consumption while capital is relatively lightly taxed; in 2007 more than 70% of tax revenues were collected from social security contributions and from taxes on goods and services while revenues from personal income tax amounted to about 14% and from corporate income to less than 9% (Figure 14). This tax mix is similar to many other countries that have established extensive social security systems, financed by income-dependent contributions on labour. At the same time, the relatively light taxation of capital aims at attracting business investment, in particular foreign direct investment, in order to accelerate the catching-up of the economy. However, taxes on property are also relatively low although property taxation is less distortive for growth than capital income taxation<sup>15</sup> (Johansson *et al.*, 2008); the revenue from property tax is only 0.6% of GDP and revenue from immovable property is 0.4% of GDP, while OECD countries collect on average 2% of GDP from property tax. As revenues from income and property taxes remain low, relatively high consumption taxes are needed to finance government spending. The implicit tax on consumption is around 24%, which is slightly higher than the EU25 average, and is also higher than in the Czech Republic, Poland and Slovak Republic, although lower than in Hungary (Table 2). Slovenia introduced value added tax (VAT) in July 1999 at a rate of 19% (and a reduced rate of 8%) and increased the rates in 2002 to 20% and 8.5% respectively. Slovenia achieves a relatively high efficiency in collecting revenues from VAT (Figure 15).<sup>16</sup> Revenues from environmental taxes amounted to 3.1% of GDP in 2006, which was above the EU average of 2.6%. The share of these taxes in GDP increased from 3% in 2000 to 3.4% in 2003 but has declined in recent years, also because these taxes are generally based on quantities so that their share declines with rising prices. It is therefore necessary to regularly adjust these taxes, as has been done with the recent increase (see above). Slovenia should further improve the effectiveness of these taxes aimed at achieving environmental objectives by linking these taxes, including those on transportation, more closely to emissions.

Figure 14. Structure of tax revenue  
In per cent of GDP, 2007<sup>1</sup>



1. The zone aggregates are unweighted averages calculated using 2006 data for countries where 2007 data is not available (Australia, Greece, Japan, Mexico and Poland). CEEC covers Central and East European countries that are members of the OECD (Czech Republic, Hungary, Poland and Slovak Republic).

Source: OECD (2008), *Revenue Statistics - online database* and Ministry of Finance.

15. In Slovenia, the taxation of real property affects only large residential property and secondary houses.
16. The VAT revenue ratio as used here, is, however, a very crude proxy for the efficiency of VAT collection as it does not only reflect the efficiency of tax administration but is also affected by tax exemptions, reduced rates and other special regimes.

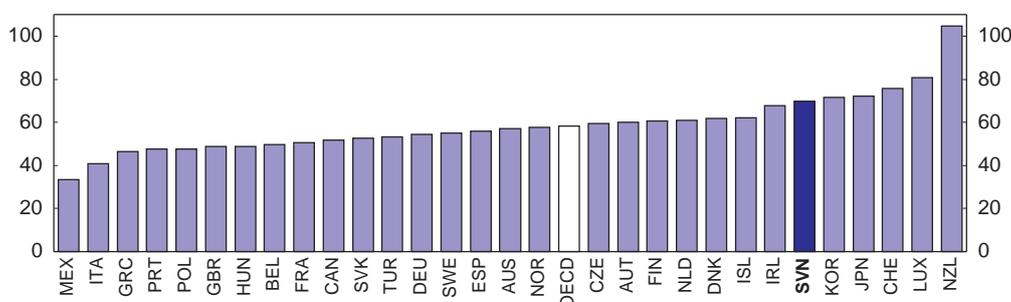
Table 2. **Implicit tax rates on consumption**

	Per cent		
	1995-99	2000-04	2005-06
<b>Slovenia</b>	<b>24.8</b>	<b>24.3</b>	<b>24.2</b>
Czech Republic	20.2	19.8	21.7
Hungary	28.6	26.4	26.1
Poland	20.3	17.9	19.9
Slovak Republic	23.4	20.3	21.2
EU25	21.3	21.2	22.1

1. The implicit tax rate is calculated by dividing revenues of taxes on consumption by the macroeconomic tax base.

Source: EU Commission.

Figure 15. **Effectiveness of value added taxes as measured by the VAT revenue ratio<sup>1</sup>**  
2005<sup>2</sup>



1. The VAT revenue ratio (VRR) is defined as the ratio between the actual value added tax (VAT) revenue collected and the revenue that would theoretically be raised if VAT was applied at the standard rate to all final consumption. This ratio gives an indication of the efficiency of the VAT regime in a country compared to a standard norm. The calculation for Canada is for federal VAT only and the OECD aggregate is an unweighted average of data for the countries shown.
2. 2007 for Slovenia.

Source: OECD (2008), *Consumption Tax Trends* and Ministry of Finance.

37. The **tax on labour** is relatively high due to high social security contributions while the personal income tax is relatively low. The labour tax wedge for a single worker earning an average wage is currently 42.5% of labour costs; it declined by around 3½ percentage points since 2001, mainly due to the phasing-out of the payroll tax. The progressive income tax and the fact that social contributions are not capped at higher income levels makes the labour tax wedge highly progressive, with rates ranging from around 40% for wages at two-thirds of the average wage to around 56% for wages which are five times higher than the average wage. Prior to the elimination of the payroll tax, the degree of progressiveness of the labour tax wedge was even higher as the payroll tax was also progressive; its elimination thus benefited in particular high-income workers (Table 3). High labour tax wedges are not unusual in central Europe and in the EU as a whole. Slovenia's labour tax is above the OECD average and similar to the EU15 average; it is also similar to that in the Czech Republic and lower than in Hungary but higher than in the Slovak Republic (Table 4). The relatively high tax burden on labour is also illustrated by the implicit tax rate on labour which remained during the past 10 years at around 38% and above the EU25 average (Table 5).

Table 3. **Development of labour tax wedges for single earners at different wage levels**

Per cent					
Wage levels (% of average)	67%	Average	167%	300%	500%
<b>Labour tax wedge<sup>1</sup></b>					
2001	43.5	46.2	50.9	56.6	62.6
2005	41.8	45.6	52.3	59.0	62.1
2008	40.2	42.7	48.0	54.7	57.5
2009	39.9	42.5	47.6	53.3	56.1
Change 2001-09 (% points)	-3.6	-3.7	-3.3	-3.3	-6.5
<b>Components of tax wedge</b>					
Personal income tax					
2001	8.5	11.1	15.9	19.4	22.2
2005	6.8	10.5	15.1	18.5	21.6
2008	6.7	9.2	13.8	19.3	22.2
2009	7.0	9.6	14.7	20.4	23.2
Employee contributions to social security					
2001	18.4	18.4	18.4	17.8	16.9
2005	18.4	18.4	17.8	16.9	16.9
2008	18.9	18.9	18.7	18.3	18.3
2009	19.0	19.0	19.0	19.0	19.0
Employer contribution to social security					
2001	13.3	13.3	13.3	12.8	11.5
2005	13.4	13.4	13.0	12.3	12.3
2008	13.7	13.7	13.6	13.4	13.4
2009	13.9	13.9	13.9	13.9	13.9
Payroll tax					
2001	3.3	3.3	3.3	6.5	12.2
2005	3.2	3.2	6.3	11.3	11.3
2008	0.9	0.9	1.9	3.7	3.7
2009	0.0	0.0	0.0	0.0	0.0

1. As a percentage of labour costs.

Source: Ministry of Finance.

Table 4. **Labour tax wedges for single earners in international comparison**

In per cent of labour costs, 2007			
Wage levels (% of average)	67%	Average	167%
<b>Slovenia (2009)</b>	<b>39.9</b>	<b>42.5</b>	<b>47.6</b>
Czech Republic	40.5	42.9	46.7
Hungary	45.9	54.4	58.6
Poland	41.6	42.8	43.8
Slovak Republic	35.6	38.5	40.5
OECD average	33.8	37.7	42.1
EU15 average	38.0	42.5	47.7

Source: OECD (2007), *Taxing Wages, 2006-2007* and Ministry of Finance.

Table 5. **Implicit tax rates on labour**

	Per cent <sup>1</sup>		
	1995-99	2000-04	2005-06
<b>Slovenia</b>	<b>37.9</b>	<b>37.6</b>	<b>37.6</b>
Czech Republic	40.3	41.1	41.4
Hungary	43.0	40.0	38.4
Poland	36.1	32.9	33.8
Slovak Republic	38.3	36.2	31.6
EU25	35.9	35.6	34.9

1. The implicit tax rate is calculated by dividing labour tax revenue by the macroeconomic tax base.

Source: EU Commission.

38. The tax wedge on low wages increases labour costs for low-skilled workers and for young people who want to enter the labour market, thus tending to reduce their employment opportunities. Indeed, labour participation is relatively low in younger and also in older age groups, and these groups appear to be more vulnerable to labour taxes than workers at prime-age. For example, working students get a special allowance, which reduces their labour tax burden considerably, but after finishing studies they are faced with the same labour tax wedge as other workers and often have difficulty finding a job in the formal sector. High labour taxes also have adverse effects on labour participation of older workers and add to the early retirement incentives of the pension system. While labour participation of prime-age workers is high in Slovenia, there is also anecdotal evidence that labour taxes lead to evasion by informal work in second jobs. The relatively high labour tax wedge on high wage earners also bears the risk of brain drain of highly qualified workers. Furthermore, as the labour tax is much higher than the tax on dividends, it provides incentives for tax evasion by transforming wages into distributed capital income.

### *Challenges for future tax reforms*

39. A key challenge for tax policy is to further reduce tax distortions in the labour market while at the same time creating enough revenues for social security. A way to achieve this objective is to make government spending more efficient so that the labour tax burden and the tax-to-GDP ratio can be reduced without putting fiscal consolidation and public service provision at risk. Tax policies should focus on reducing employer contributions to social security. To compensate revenue losses, the government should: *i*) examine tax provisions to determine if and how base broadening could be achieved; *ii*) raise property taxation;<sup>17</sup> *iii*) (possibly) raise the tax on dividends (which would also reduce incentives to transform labour income into capital income); and if this is not sufficient *iv*) finance remaining revenue shortfalls by raising indirect taxes. However, an increase in VAT should only be considered after the economy has strengthened again, and domestic demand is resilient enough to cope with such a measure. Tax reforms should also improve the design of environmental taxes by strengthening the link to pollution.

17. Establishing a broader based real property tax should be accompanied by reducing transfers to municipalities. Such a reform will meet political resistance which could, however, be overcome by making the property tax progressive. The system of municipality financing was, however, only reformed in 2007 and municipalities no longer receive part of personal income tax as this has favoured the city of Ljubljana.

**Box 5. Policy recommendations for keeping public finances on a sustainable path and improving efficiency**

**Fiscal policy during the current downturn**

- The low debt-level provides room for temporary discretionary fiscal policy in 2009 along the lines of the EU coordinated strategy. But, Slovenia should prioritise measures that help foster its potential growth in the following years (e.g. public investment or expenditures in human capital; tax deductions supporting investment, research and development, etc.) and avoid the ones that could have a negative impact on long-term sustainability.
- The authorities should ensure that, as the recovery takes hold, fiscal policy returns to a strict course of consolidation.

**Controlling spending and making it more efficient**

- The control of government spending should be strengthened by setting a ceiling for multi-annual expenditure growth. The expenditure ceiling should be transparent and as broad as possible and it should be voted in Parliament.
- The government should be improved by better linking spending performance to budgeting.
- The efficiency of social transfers should be improved by better targeting so that transfers could decline without increasing inequality and poverty.

**Ensuring long-term sustainability of the fiscal system**

- The strategy of partially pre-funding ageing costs – among the highest in the EU – should be resumed as soon as the crisis subsides by running a balanced budget over the medium term.
- The pension system should be made more transparent.
- The increase in pensionable ages for women foreseen in the 1999 Pension and Disability Insurance Act should be accelerated.
- The pensionable age should be further increased for both genders, possibly taking into account advice from an expert commission when deciding about the size of the necessary increase. Once the increase has been phased in, and life expectancy at the full pensionable age has reached a suitable level, additional increases in the pensionable age should be linked to gains in life expectancy and the length of the pension qualifying period should be raised accordingly. The retirement conditions for women should be aligned with those for men.
- Lowering the replacement rate, e.g. by shifting the indexation of pensions from wages to prices or extending the contribution period to receive a full pension
- Consideration should be given to transforming the current defined benefit scheme into a notional defined contribution scheme.

**Making taxes less distorting for employment and growth**

- If government spending is made more efficient, the tax-to-GDP ratio can be reduced without putting fiscal consolidation and public service provision at risk.
- The tax structure should evolve toward lower taxation on labour and higher taxation on real property and indirect taxes. However, an increase in the value added tax should only be considered after the economy has strengthened again and domestic demand is resilient enough to cope with such a measure.

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## ANNEX A1.

### THE CONVERGENCE AND STABILITY PROGRAMMES OF SLOVENIA AND ACTUAL FISCAL DEVELOPMENTS

1. As outlined above, the fiscal balance has improved more than planned in the medium-term programmes. To understand the underlying factors for the over-performance of recent fiscal projections, we have analysed the annual programmes from 2002 to 2006 by dividing the difference between forecasted and actual change in fiscal balance into three determinants, namely the differences in: the revenue-to-GDP ratio, GDP growth, and nominal expenditures. The first factor (the difference between projected and actual changes in the revenue-to-GDP ratio) is affected by changes in tax elasticity and by new fiscal measures. The two last factors divide the difference between projected and actual changes in the expenditure-to-revenue ratio into the difference between projected and actual nominal GDP growth, and the difference between projected and actual expenditure. The main findings are:

- The better-than-expected fiscal balance is mainly attributable to higher-than-projected nominal GDP growth in the 2004, 2005 and 2006 programmes.
- Higher-than-expected revenues (relative GDP), caused by higher tax elasticity or new fiscal measures, have also contributed to the improvement of the fiscal position in the more recent programmes.
- By contrast, actual expenditure growth has been higher than projected, which shows a lack of expenditure control in 2006 and 2007. By contrast in the programmes of 2002 and 2003 actual expenditure growth was lower than projected which suggests that expenditure controls have been weakened more recently.

2. Our analysis of the programmes focuses on the difference between the projected and the actual changes in the fiscal balance for individual years. To neutralise the impact of data revision for the year of reference (usually the current year of a given programme), we compare not the difference in the deficit level but the difference between the projected and actual change in the deficit. This difference is divided into three factors (see Box A1.1 for details; for a similar study, see Moulin, L. and P. Wierds, [2006], "How Credible are Multiannual Budgetary Plans in the EU?", *Fiscal Indicators*, Bank of Italy, Proceedings from the Public Finance Workshop, Perugia, 30 March-1 April):

- The first factor relates to the difference between projected and actual nominal GDP growth. If actual growth is higher than projected, government revenues tend to be higher (with unchanged revenue-to-GDP ratio) and the expenditure-to-GDP ratio tends to be lower (with unchanged nominal expenditures) so that the fiscal deficit is lower than expected.
- The second factor relates to the difference between projected and actual nominal expenditure growth.
- The third factor relates to the difference between the projected and the actual revenue-to-GDP ratio. This difference can be caused by a change in the tax elasticity (as compared with the projection) and/or by new revenue measures.

**Box A1.1. Underlying factors explaining the gap between the forecasted and actual balance**

We unbundle the gap between the forecasted and the actual change in fiscal balance between a given future year and the reference one. First, this can be analysed through the change in two factors: the revenue-to-GDP and expenditure-to-GDP factor. The second factor can be unbundled once again to separate the impact of the gap between forecasted and actual GDP growth from the gap between forecasted and actual nominal expenditure growth.

Let us define  $D_0^F$  the forecasted expenditure-to-GDP ratio of the reference year of a given programme (for example 2005 in the 2005 programme);  $D^F$  the forecasted expenditure-to-GDP ratio in the future year (for example 2006 in the 2005 programme);  $D_0^A$  the actual expenditure-to-GDP ratio for the reference year (using Eurostat figures) and  $D^A$  the actual expenditure ratio for the future year (*i.e.* 2005 in our example). We use the same conventions for GDP ( $Y$ ).

The factor to unbundle is the gap between the forecasted change in the expenditure-to-GDP ratio and the actual one:

$$\Delta = \left( \frac{D^F}{Y^F} - \frac{D_0^F}{Y_0^F} \right) - \left( \frac{D^A}{Y^A} - \frac{D_0^A}{Y_0^A} \right)$$

This can be rewritten as:

$$\Delta = \frac{D^F}{Y^F} - \frac{D^A}{Y^A} + \frac{D_0^A}{Y_0^A} - \frac{D_0^F}{Y_0^F}$$

Or:

$$\Delta = \frac{D^F - D^A}{Y^F} - \frac{D^A}{Y^A} \left( 1 - \frac{Y^A}{Y^F} \right) - \frac{D_0^F - D_0^A}{Y_0^F} + \frac{D_0^A}{Y_0^A} \left( 1 - \frac{Y_0^A}{Y_0^F} \right)$$

Or:

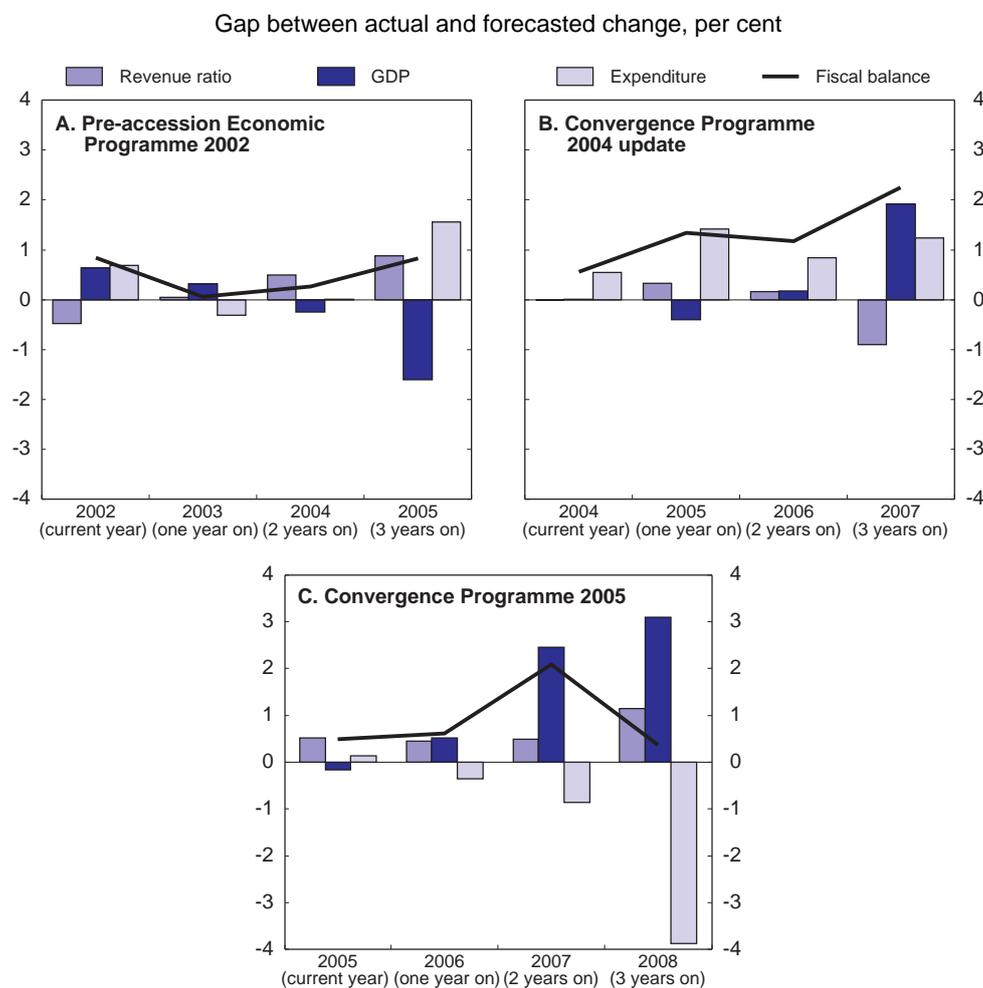
$$\Delta = \frac{D^F - D^A}{Y^F} - \frac{D_0^F - D_0^A}{Y_0^F} + \frac{D_0^A}{Y_0^A} \left( 1 - \frac{Y_0^A}{Y_0^F} \right) - \frac{D^A}{Y^A} \left( 1 - \frac{Y^A}{Y^F} \right)$$

In the former, the first term relates to the error in forecasting *changes in nominal expenditures* accurately. It implicitly compares forecasted growth of expenditure with the actual one for both years. The second term relates to the impact on the expenditure-to-GDP ratio of the error in forecasting the GDP growth accurately. We assimilate this to the impact of automatic stabilisers.

3. Figures 3 and A1.1 show the results for the Convergence and Stability Programmes 2002 to 2006. In all programmes, the fiscal balance improved more than projected; this is illustrated by the solid line in the figures, which was always positive, with the exception of the first two years of the 2003 programme and the third year of the 2004 programme. While in the programmes of 2002 and 2003 the assumption about nominal GDP growth was too optimistic, in the programmes 2004, 2005 and 2006 actual growth was higher than projected. In the programme of 2002 both a higher-than-projected revenue-to-GDP ratio and lower-than-projected expenditure growth contributed to the improvement in the fiscal balance while in the programme of 2003 the lower-than-projected expenditure growth was the only source for the improvement of the fiscal balance (as compared with the projection); this improvement was, however, very small as the revenue ratio and GDP growth were lower than projected. The development was quite different in the last three programmes (2004, 2005 and 2006) as actual expenditure growth in 2006 and

2007 turned out to be higher than projected for these years in the programmes. This was, however, compensated by the stronger GDP growth and by a higher-than-projected revenue ratio.

Figure A1.1. Deviation between the actual and the projected change of the fiscal balance and the main causes of the deviation<sup>1</sup>



1. Cumulative data from the reference year, *i.e.* the year before the programme.

Source: Republic of Slovenia (2002), *Pre-accession Economic Programme*; Republic of Slovenia (2004), *Convergence Programme – Update* and Republic of Slovenia (2005), *Convergence Programme*.

4. For example, in the programme published at end-2006 (Figure 3), the fiscal deficit was expected to reach  $-1.6\%$  of GDP in 2008 from a deficit of  $-1.4\%$  in 2005 (provisional data in the reference year). The 2006 programme was therefore projecting a small fiscal deterioration of 0.2 percentage point from 2005 to 2008. The actual deficit turned out to be identical to provisional data in the reference year 2005 ( $-1.4\%$  of GDP), but better than expected in 2008 ( $-0.9\%$  of GDP), an improvement by 0.5 percentage point, rather than the projected deterioration by 0.2 percentage point, which implies an improvement of 0.7 percentage point ( $=0.5+0.2$ ) as compared with the programme; this is illustrated by the solid line in Figure 3. The better-than-expected GDP growth (“automatic stabilisers”) improved the fiscal balance (as compared with the projection) by 2.5 percentage points and the higher revenue-to-GDP ratio by 1.9 percentage points, while the higher-than-projected expenditure growth contributed to a deterioration of the fiscal balance by 3.8 percentage points of GDP.

## ANNEX A2.

**GENERATIONAL ACCOUNTING: AN ILLUSTRATIVE SIMULATION OF THE WEALTH  
IMPACT OF AGEING PRE-FUNDING ON YOUNGER AND OLDER GENERATIONS**

1. Using a generational accounting framework (drawing on a framework applied to France by J-F. Ouyard, 2007, and drawing from Auerbach *et al.*, 1994 and 1999, and Langenus, 2006), this annex aims at illustrating the impact on generations' net wealth of maintaining fiscal sustainability despite rising ageing costs through two alternative options. The first option seeks to ensure sustainability through an immediate and permanent increase in taxes while the second option tries to achieve this goal through a gradual and yearly adjustment of tax level. By simulating these two scenarios, we can analyse the resulting fiscal balance and debt path for each scenario over the simulation period and compare them to the baseline scenario (no adjustment made to ensure fiscal sustainability). Based on assumptions about how each generation benefits from public expenditure and contributes to fiscal revenues, projected fiscal balance paths help us derive generation net wealth for each scenario. By comparing these results we can identify which generations will have net losses or gains depending on the scenario.

2. More specifically, assumptions made for the baseline scenario (*i.e.* spontaneous evolution of debt and fiscal balance resulting from macroeconomic projections and ageing) are the following:

- Macroeconomic projections from the European Commission Economic Policy Committee working group on Ageing Populations (AWG) for 2007-60.
- Demographic projections adopted by the AWG (2007-60).
- Provisional expenditure projections related to ageing (pensions, health, long-term care, unemployment and education) from AWG for 2007-60. Beyond 2060, ageing expenditures are assumed to stabilise. Other primary expenditures are assumed to be constant as a share of GDP. Interest expenditures are linked to the debt level with an interest rate assumption of 5%. Ageing projection assumptions are summarised in Table A2.1.
- Pension and long-term care expenditures are assumed to benefit only those aged over 62 and education expenditure only those aged under 23. Both are equally attributed among people of these age groups. Unemployment expenditures are equally attributed to those aged between 23 and 63. Health expenditures follow a more complex age profile as assumed for the AWG. Other primary expenditures are equally attributed to all age groups. The combined public expenditure benefiting individuals of a specific age group is summarised in panel A of Figure A2.1.

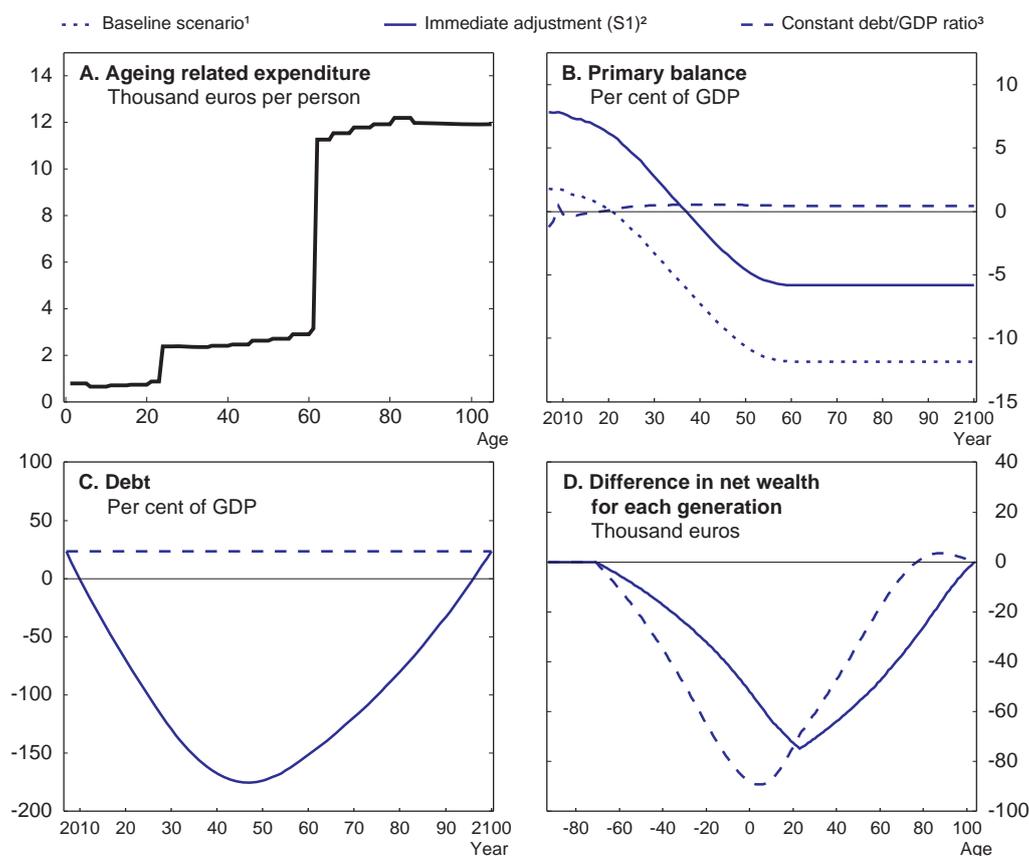
Table A2.1. **Ageing projection assumptions**<sup>1</sup>

Expenditure in per cent of GDP, 2007-60

Pension	Health	Long-term care	Unemployment	Education
+8.7	+3.5	+1.2	0.0	+0.2

1. Provisional.

Figure A2.1. Impact on generation's net wealth of maintaining fiscal sustainability



1. Unchanged policies.
2. Targeting the primary balance that would lead to a debt/GDP ratio of 23.4% in 2100.
3. Targeting the primary balance that would keep the debt at 23.4% every year.

3. The two policy scenarios share the assumptions of the baseline scenario. But, to ensure fiscal sustainability, taxes (and hence the fiscal balance and the debt level) are further adjusted using two different kinds of assumptions. For the first scenario, the full pre-funding of ageing costs is achieved through improving tax revenues permanently by an amount equivalent to the European commission “S1” tax gap indicator. The S1 indicator is estimated by targeting a specific debt target at the end of the simulation horizon which is long enough (2100) to be able to better compare some generations (but the limited time-horizon makes it impossible to compare all). For the sake of simplicity, this debt target is set identical to the debt level of the first year of the simulation (2007), namely 23.4% of GDP (an alternative simulation base on a target of 60% of GDP does not change the main conclusions). This option requires that the tax level increases once and for all by an amount identical to the tax gap estimate. The second option aims at keeping the debt level ratio identical to 23.4% of GDP throughout the projection period. Consequently, the tax level is adjusted every year so that the fiscal balance is always the debt stabilising balance.

4. The simulation result for the baseline scenario shows that the fiscal primary balance turns negative from a surplus of 1.8% of GDP into a deficit as soon as 2021 and from there keeps deteriorating to reach a deficit of 11.8% of GDP from 2060 onwards (Panel B). This deterioration stems from the increase in ageing related expenditure totalling 13.6% of GDP by 2060. In the baseline scenario, the debt level reaches 386% of GDP in 2060 and 1500% in 2100, assuming that no structural reform is

implemented during this period to reduce aging costs. This scenario is not meant to be realistic but just to serve as a reference for the two alternative scenarios. In the first one, the target of a debt level of 23.4% of GDP in 2100 is achieved through an immediate pre-funding of the ageing costs, amounting to an increase in taxes of 6% of GDP (tax gap estimate). This leads to a primary fiscal surplus of 7.8% in 2007 that turns into a deficit in 2037 and stabilises at -5.8% from 2060 (Panel B). As a consequence, the debt level becomes negative in 2010 and leads to an accumulation of net assets peaking at 175% of GDP in 2047. From there, net assets progressively decrease and the debt reaches again 23.7% of GDP in 2100 (Panel C). The second alternative scenario seeks to keep the debt level constant at 23.4% throughout the period (Panel C). This results in a roughly balanced primary balance during the period (Panel B).

5. By attributing the yearly amount of expenditure and taxes to each individual based on his or her age group, it is possible to estimate the net contribution of each individual to the fiscal balance each year for each scenario. Not surprisingly, for all scenarios, people aged above 62 are net beneficiaries owing to the pension and health expenditure received. Individuals aged below 23 are also net beneficiaries since they receive education expenditure and pay no taxes. Generations between the age of 23 and 62 are net contributors. Using these yearly net contributions, life net wealth can be estimated (using the 5% interest rate assumption as the actuarial rate, and based on demographic assumptions). It is then straightforward to examine how this net wealth evolves for each generation depending on the alternative scenarios and compare them to the baseline scenario. Panel D shows the difference in the net wealth for each generation based on each alternative scenario (negative ages represent generations still to be born). We can see that all generations are worse off under the scenario without adjustment, which is normal since this baseline scenario implicitly assumes that all ageing costs are passed on to the next generations. This simulation partially allows for comparing generation wealth. The comparison is only partial since it is impossible to simulate the full life profile of generations to be born. Still, we can see that for younger generations, the strategy of full pre-funding leads to an increase in net wealth while it has the opposite effect for older generations (in Panel C, generations benefiting from no pre-funding are those aged 21 and older in 2007). For example, for the generation born in 2007 (age 0 in Panel D), the net gain from full pre-funding compared to a gradual adjustment is about EUR 35 000. This illustrates the fact that pre-funding ageing cost is shifting part of the burden of financing ageing from the younger to the older generations. Consequently, adopting a partial pre-funding of ageing costs is a way to ensure a more equitable burden sharing among generations.

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## ANNEX A3.

## MAIN TAX REFORMS

<b>Personal income tax</b>	
1991	Introduction of a synthetic personal income tax. It has five tax brackets with marginal tax rates of 19%, 28%, 35%, 40% and 45%. The main exemptions are: different transfer income, interest on bank deposits, capital gains on the sale of shares and other securities, including investment coupons. There is no general allowance but there are several other allowances (such as for families, students and older workers).
1994	Introduction of six tax brackets with marginal tax rates of: 17%, 35%, 37%, 40%, 45% and 50%; introduction of a general allowance and maintaining of allowances for families students and older workers.
2005	Introduction of five brackets with marginal tax rates of: 16%, 33%, 37%, 41% and 50% (for 2005 16%, 33%, 38%, 42% and 50%).
2006	Implementation of the dual income approach with active income (mainly from employment and business) taxed at progressive rates and passive income (capital income) taxed at proportionate rates (interest: 20%, 15% in 2006 and 2007; dividends: 20%; capital gains are taxed from 20% to 5%, depending on the period of holding; full exemption from taxes after 20 years).
2007	Introduction of three tax brackets with marginal tax rates of: 16%, 27% and 41%.
2008	Increase of the general and special allowances. New investment incentives for business income.
<b>Corporate income tax</b>	
1991	Tax rate 30%; withholding tax on dividends: 15%; income from interest and royalties is exempt from withholding tax; investment reserve 10% of the tax base.
1994	Increase of tax rate on dividends for residents to 25% (15% for non residents).
1995	Reduction of tax rate to 25%.
2003	Broadening of tax base by reducing investment and depreciation allowances.
2005	Withholding tax on dividends, interests and royalties 25%; implementation of EU Directives (Parent-Subsidiary, Merger, and Interest and Royalties); general employment relief, general investment relief, relief applicable to voluntary supplementary pension insurance schemes, relief applicable to donations.
2006	Introduction of new incentive for research and development; adoption of International Accounting Standards principles.
2007	Gradual reduction of tax rate: 2007 23%, 2008 22%, 2009 21%, 2010 and beyond 20%.
<b>Payroll tax</b>	
1996	Introduction of payroll tax with rates of: 0%, 1%, 2%, 3%, 4% and 10%, depending on the level of an individual wage.
2006	Gradual elimination of payroll tax: maximum rates 11.6% in 2006, 8.9% in 2007, 4.4% in 2008 and abolished in 2009.
<b>Social contributions</b>	
1991	Social security rates for employees, altogether 22.7% and for employers altogether 23.3%.
1996	Reduction of rates for employees to 22.1% and for employers to 15.9%.
<b>Indirect taxes</b>	
1992	Retail sales tax (standard rates: sale of goods 20%, sale of services 5%).
1992-04	Introduction of special consumption taxes for mineral oil and gas, tobacco products, alcohol and gambling.
1996	Introduction of CO <sub>2</sub> tax (under Environment Protection Act from 1994).
1999	Introduction of value added tax (VAT, based on EU directives) with a standard rate of 19% and a reduced rate of 8%. Reform of special consumption taxes (based on EU directives).
2002	Increase of VAT to 20% and 8.5% respectively.
2004-07	Introduction of new taxes for environment protection (water abstraction tax, landfill tax, tax on generation of waste, electronic and electrical equipment tax on used end-of-life vehicles, CO <sub>2</sub> tax, tax on lubricant oils, tax on generation of packaging waste, tax on generation of waste pneumatic tyres, tax on use of volatile compounds).

Source: Based on information provided by the Ministry of Finance.

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