Session 1

PUBLIC EXPENDITURE TRENDS

CHARACTERIZING THE EXPENDITURE UNCERTAINTIES OF INDUSTRIAL COUNTRIES IN THE 21ST CENTURY

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A number of uncertainties about long-term expenditure commitments in industrial countries are examined: (i) the assumptions underlying the projections, (ii) the potential to further reduce non-age-related expenditures, (iii) the implicitly assumed absence of "shocks," and (iv) the potential for raising revenue. This paper concludes that (i) there is scope, but within narrow limits, to reduce non-age-related expenditures; (ii) fiscal policy frameworks tend to understate risks; and (iii) prevailing tax rates leave little room for increasing taxation in the countries facing the strongest aging pressures. In sum, governments will have to adopt a much more ambitious fiscal policy stance to cope with aging populations.

1. Introduction

Virtually all industrial countries will confront significant aging of their populations over the next several decades. With few exceptions, pressures for rising spending on the elderly – for pensions, health care, and long-term care – are expected to strain government budgets that, in most cases, are *already* burdened with significant levels of government debt. The challenge of addressing these demographically induced pressures thus looms large on the policy agendas of most governments. Strategies for reconciling these budgetary pressures tend to be a blend of policies that encompass fiscal discipline with respect to spending programs that will be relatively unaffected by demographic trends, revenue increases, and reduced generosity in government commitments for aging-related programs. The first policies are particularly important, both because they directly allow increased fiscal space for higher spending on pensions and health care and, by facilitating a falling share in government debt ratios, indirectly create fiscal space by reducing outlays on debt service.

Yet much of the focus of analysis in the face of these demographic trends has been on the likely implications of aging populations for government spending on pensions, health care, education, and long-term care. Fiscal sustainability projections then assess how much *further* fiscal adjustment – in the form of up-front and

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sustained tax or other expenditure adjustments – may be needed in the face of these aging population-related pressures to hold current debt ratios constant. Increasingly, attention is also focused on the scope and potential shape of reforms to pension and health care systems to reduce the extent of government expenditure commitments over the long term. Four sets of policy issues typically remain relatively unexplored:

- the *uncertainty* associated with the *assumptions underlying the projections,* whether with respect to demographics (longevity and fertility), productivity growth, labor force participation rates, health care inflation, or interest rates;
- the *uncertainty* about the *potential* for governments *to reduce spending* further on *non-age*-related expenditure categories, consistent with a government's responsibilities for the provision of public goods;
- the appropriateness of the *implicit assumption of an absence of "shocks"* to the budget, or the economy more generally, in the face of the message of both independent "futures" scenarios exercises and past history, both of which suggest the likelihood of such shocks; and finally,
- the *extent* to which government revenue shares can be augmented in the face of aging-related pressures.

This paper provides some empirical illumination of these issues. Several broad conclusions will follow. First, there is scope, but within only narrow limits, for most governments to obtain further savings from some non-age-related expenditure categories. But two key factors suggest that this may be of limited comfort in creating fiscal space to finance age-related expenditures. Specifically, efforts since the early Nineties to consolidate budgets (e.g., in the context of the Maastricht Treaty and the Stability and Growth Pact) have narrowed significantly the potential for further cutbacks in the most obvious expenditure categories. Moreover, and well recognized, burgeoning spending pressures in medical care that have arisen from *nondemographic* factors may swamp any such savings. Second, the underlying approach to setting the fiscal policy framework tends to understate the risks arising from the uncertainty of the policy environment facing governments. The potential cost of responding to these risks needs to be considered in assessing the scope for savings in non-age-related spending areas. Third, on the revenue side, prevailing tax rates seem to leave only little upward room in those countries facing the greatest age-related expenditure pressures. Together, these observations suggest that most governments will have to adopt both a more ambitious fiscal policy stance and introduce pension and health care policy reforms in order to cope with aging populations.

In what follows, Section 2 will expand further on the implications of recent fiscal sustainability assessments for the structure of needed fiscal policy adjustments. It will also illustrate the sensitivity of fiscal sustainability frameworks to variability in the underlying baseline assumptions. Section 3 will then examine how much scope there is in terms of non-age-related expenditures for further rationalization to accommodate aging-related expenditure pressures. It will also briefly examine the prospects for higher revenue shares. Section 4 will offer some qualitative arguments as to the types of "shocks" which are typically excluded from

fiscal sustainability assessments. Finally, Section 5 will offer some concluding observations on the challenges facing government policymakers in squaring the long-term fiscal policy circle.

2. Fiscal sustainability frameworks

In its recent report on *Public Finances in EMU, 2004*, the European Commission (EC) succinctly lays out the long-term fiscal position of the EU-15[1] member countries. Several measures of sustainability are provided in Tables 1.27 and 1.28 of that report, some of which are included in Table 1 overleaf. Column 1 of Table 1 indicates the change in the tax ratio (or equivalently, primary balance ratio) that would be required, upfront and sustained through 2050, *relative to the 2003 budget position,* that would ensure a debt level in 2050 as resulting from a balanced budget position over the projection period. Explicit in this calculation is that in addition to projecting forward the underlying budget balance of 2003, the *only* additional expenditures that are changing are the increased expenditures on pensions, health care, education, and other age-related expenditures *arising from changes in the size of the elderly and youth populations*.[2] All non-age-related expenditure categories which are *not* a function of the size of the elderly population as well as revenue are assumed to remain constant as a share of GDP for the whole projection period.

Column 2 of Table 1 provides a similar estimate, under the more optimistic assumption that governments achieve, for the period 2005-07, their stated targets for their Stability and Convergence Programmes (SCP). Given that some further rationalization of government budgets was anticipated in the SCPs, the needed further fiscal adjustment is thus less in column 2. Column 3 indicates general government debt levels in 2003. Columns 4-6 (7-9) illustrate the projected evolution of public debt levels through 2050, using the 2003 budget (SCP) scenario exercise, in the absence of any further sustained tax or primary expenditure adjustment, and taking account of age-related expenditure pressures.[3]

This table encapsulates very clearly the fiscal policy challenges facing many of the EU-15 countries. The issues confronting most other industrial countries are analogous. First, a number of the EU-15 countries – Germany, Greece, France, Ireland, Netherlands, and the United Kingdom – confront the prospect of dramatically higher public debt levels by mid-century as a consequence of aging

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1 The EU membership before the accession of ten Central and Eastern European countries in May 2004.

2 In other words, changes in health expenditure reflect *only* the increase in the *size* of different demographic groups, and not any factors relating to demand or cost pressures in the health sector. Thus, policy reforms that might reduce the magnitude of the government's obligations in relation to health care for the elderly might only capture one element of the factors that may explain spending on the elderly (and other groups as well).

3 No endogeneity is assumed in these latter columns in terms of higher risk premia on government interest associated with rising public debt levels.

Table 1

European Commission: Fiscal Sustainability Assessment, 2003-50
(percent of GDP)

Country	Primary Adjustment Required with Budget 2003 Scenario	Primary Adjustment Required with Stability and Growth Programme Scenario	Government Debt to GDP Ratios (2003)	Projected Evolution of Debt Levels Up to 2050					
				2003 Budget Scenario			Stability and Growth Programme Scenario		
				2010	2030	2050	2010	2030	2050
Belgium	–5.1	–0.3	102	67	–36	–114	75	12	–5
Denmark	–2.0	–0.6	43	6	–66	–132	25	–20	–35
Germany	4.4	2.2	64	74	157	337	62	87	176
Greece	2.3	1.9	102	72	52	181	75	42	151
Spain	–0.3	0.4	52	32	–21	–12	36	–2	37
France	3.6	0.7	61	72	142	288	56	52	72
Ireland	2.2	1.6	33	27	50	138	27	36	105
Italy	1.1	–0.7	106	92	83	108	87	29	–28
Luxemburg	–1.2	0.0	5	–4	–36	–48	–1	–9	1
Netherlands	2.6	2.0	54	54	89	186	49	68	140
Austria	0.2	0.1	66	55	26	18	54	24	16
Portugal	1.6	–0.8	60	61	72	128	48	5	–42
Finland	–1.1	0.2	–5	–53	–80	–89	–33	–30	6
Sweden	1.4	0.6	33	15	20	98	16	-	47
United Kingdom	2.8	2.2	39	45	90	178	43	72	139

Source: European Commission (2004), pp. 45-46.

populations under existing fiscal policy frameworks. The EC's fiscal sustainability analysis would suggest that preventing this outcome would require upfront and sustained primary balance adjustments of up to 4 per cent of GDP in some cases (e.g., Germany) but generally within a range of 2-3 per cent of GDP. Such adjustments would require either higher tax ratios or cutbacks in non-age-related expenditures (in the absence of reform of pension or health care policy frameworks). Implicit in the assumption of the fiscal sustainability framework is that fiscal adjustments that strengthen the fiscal balance can slow the growth or even reduce public debt levels relative to GDP, thus reducing interest payments by government, and freeing room for spending on age-related expenditures. For a country whose debt level is at 60 per cent of GDP, eliminating debt can yield roughly 2-3 per cent of GDP in freed up fiscal space.

Note that both the estimates of projected debt in the absence of fiscal adjustment and the presumed required fiscal adjustment rates *assume the absence of any other expenditure pressures – non-age-related health care spending pressures, the possibility of higher welfare costs, outlays related to geopolitical shocks, incidents of terrorism, climate change, etc.* Thus, squaring the fiscal circle requires that, in the absence of revenue increases and adjustments in policy frameworks related to benefits or eligibility of the elderly for health and pension benefits, all other expenditure categories must be reduced as a share of GDP by at least 2-4 percentage points *but possibly even more to the extent that other unanticipated non-age-related expenditures are taken into account.*

Also to be noted is the *deterministic* nature of the sustainability assessments and debt projections. On the aging front, what would be the consequence of greater or lesser longevity or fertility rates than currently assumed by government actuaries? Fifty years hence, errors in the assumed fertility rate can make a substantial difference in the size of the labor force, and the overall potential growth rate. Errors in the assumed prospects for longevity will be particularly relevant for estimates of the size of age-related pressures on government outlays. Assumptions on the real interest rate and the real growth rate would also influence the presumed change in debt ratios as well as the magnitude of required fiscal adjustment.

It is illuminating to examine the sensitivity of the EC projections on government debt and fiscal sustainability to the assumed underlying macroeconomic variables. Projecting the debt ratio for the EU-15 forward, based on the assumptions made by the Commission and in the latest SCPs of the individual countries, results in a median debt ratio of –26.5 per cent.[4] Putting aside the plausibility of government debt becoming negative, as also projected by the Commission (2004) for some countries, one can observe the sensitivity of these projections (see Figure 1). Suppose, for instance that higher-than-projected age-related expenditures emerge gradually over time, building up to a deviation from the baseline of 1 per cent of GDP by 2050. Given the uncertainties about age-related expenditures, a deviation from the original projections of this magnitude could be considered small.[5]

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[4] The debt ratio b is projected as:

$$b_t = \frac{1+i_t}{(1+g_t)(1+d_t)} b_{t-1} + p_t,$$

where i is the interest rate on government debt, g and d are the growth rates of real GDP and the GDP deflator, respectively, and p is the primary balance in percent of GDP. The 2003 debt ratios, the 2004 primary balances, and the 2004 and 2005 GDP growth rates are from European Commission (2004). The 2005–2050 primary balances are from the latest SCPs, with the value of the last available year held constant until 2050, as in European Commission (2004). Also as there, real GDP growth for 2006-50 is from Economic Policy Committee (2001), and the GDP deflator is assumed to be 2 per cent and the nominal interest rate is assumed to be 6 per cent for all countries. However, given that we lack detail about some additional assumptions made in EC (2004), our projections here turn out somewhat differently than there.

[5] Simply note the recent revision in the estimate of the cost of the U.S. Medicare Drug Benefit. The current budget projects costs of $345 billion for the period 2005-10, whereas in late 2003, the bill was said to cost $400 billion for the period from 2006-13. Even in January 2004, the cost estimate for the same period had

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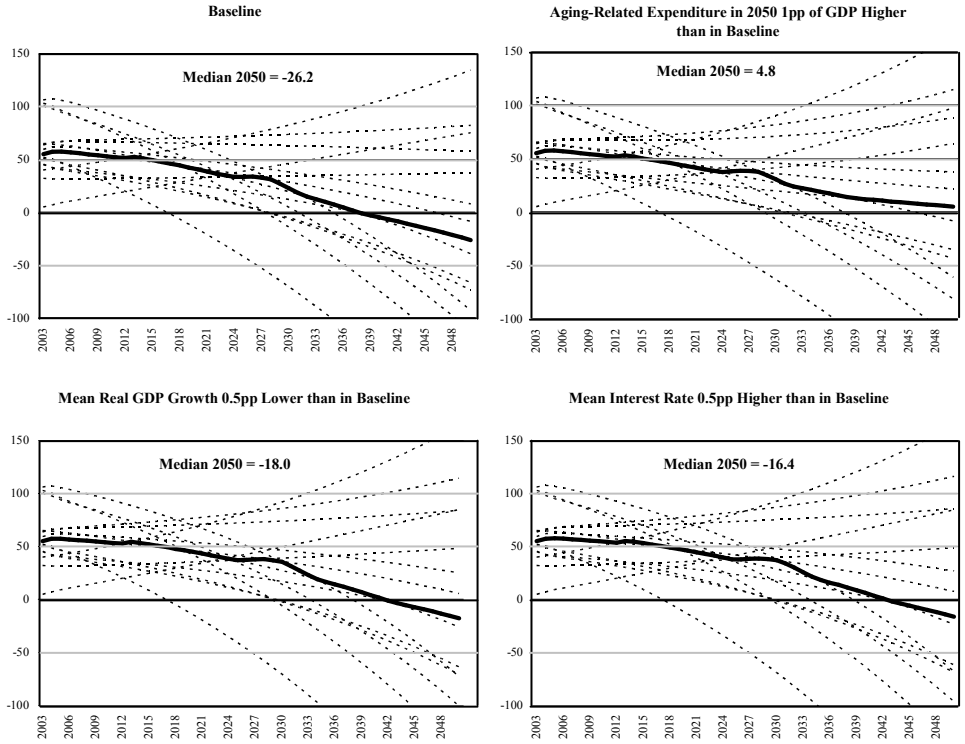
Figure 1

Debt Ratio Projections for EU-15



Source: Authors' calculations, based on Economic Policy Committee (2001), European Commission (2004).

All else equal, this deviation from the baseline results in a median debt ratio of almost 5 per cent of GDP in 2050, not less than 31 percentage points worse than in the baseline!

Getting the real GDP growth rate or the interest rate wrong also results in major departures from baseline debt. A lower mean real GDP growth rate or higher mean interest rate of 0.5 percentage points over the projection period results in the debt ratio being 8 and 10 percentage points of GDP, respectively, *higher* than in the baseline.

Taking account of such uncertainties is certainly warranted, given how little confidence we can have in long-term macro forecasts. For example, with respect to

risen to $534 billion. Estimates for the period 2006-15 are now said to reach $720 billion. *New York Times*, Feb. 9, 2005: "New White House Estimate Lifts Drug Benefit Cost to $720 Billion".

long-term growth forecasts, the Philadelphia Federal Reserve Bank semi-annually polls professional forecasters for their 10-year real GDP and CPI projections for the U.S. economy. One would expect these forecasts to reflect some volatility on the short end, but to be ultimately dominated by a relatively stable perspective on long-term trends. However, as Figure 2 shows, forecasters, while being recently quite confident about their inflation forecast, seem to have a hard time making up their minds about trend growth. Even during the relatively "stable" period following a step increase during the New Economy hype, ten-year average forecasts have fluctuated between 3.2 and 3.5 per cent. Now remember how much difference 0.3 percentage points in trend growth can make for debt projections.

Similarly, other factors loom large in terms of uncertainties on the potential growth rate. Besides uncertainties on the likely growth of the labor force (reflecting uncertainty both with respect to the likely labor force participation rate and fertility rates), productivity assumptions in the context of an aging population remain highly problematic. Similarly, assumptions about energy prices will potentially impact the potential real growth rate.

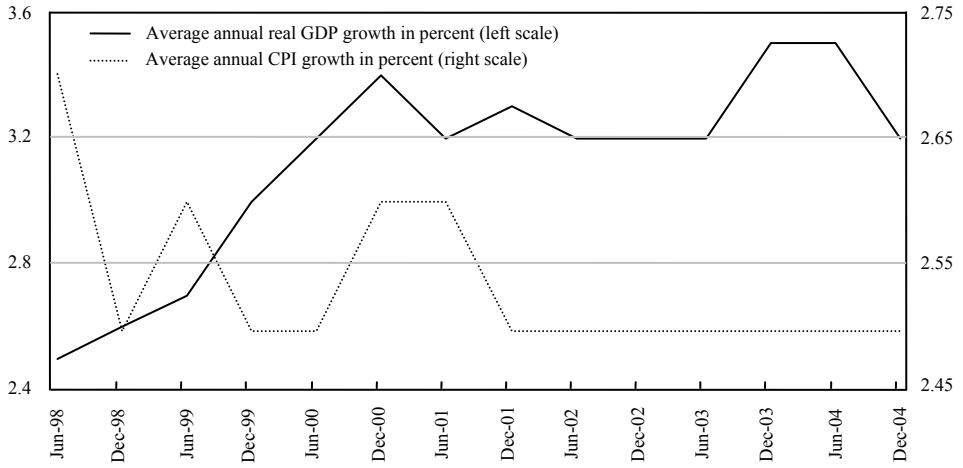
In 2004, the assumptions of six respected institutions about crude oil prices per barrel varied between US$19.3 and US$27.7 for 2010 and US$15.1 and US$33.4 for 2020 at one point in time (Table 2). Briefly, this means that there is no way anyone can incorporate a sufficiently reliable assumption on the price of the world's most important commodity in a long-term economic model.

Furthermore, there still remains some uncertainty about the magnitude of demographic change and its repercussions for the fiscal balance in general, and expenditures in particular. In a study on the United Kingdom, for example, Sefton and Weale (2005) run numerous simulations based on different demographic assumptions. They find that the span between the lower and the upper quartiles of the results of their simulations on government expenditure reaches 2 per cent of GDP in 2027 and 4 per cent in 2044. Now note that in the above exercise on the sensitivity of debt projections for the United Kingdom, age-related expenditure 1 per cent of GDP higher than projected in 2050 (emerging gradually over time) would entail a 2050 debt ratio 30 per cent of GDP higher than in the baseline. But Sefton and Weale are talking about a span of 4 per cent of GDP only between the two middle quartiles of their projections – let alone worst case scenarios!

Finally (in a still incomplete list), there is uncertainty about the impact of aging on interest rates. Theoretically, we might think that we know at least the direction – upwards, due to dissaving by retiring generations, rising government borrowing, and rising optimal capital/labor ratios as the work force declines. But empirically, we are less certain again. Savings rates do not necessarily decline with age in many industrial countries, particularly those with generous public old age pensions, such as France, Germany, and Italy. Global capital market factors – reflecting the different time sequencing of aging populations in Asia particularly, will influence the real interest rates in financial markets. And even if aging populations should really drive up interest rates through this multitude of channels, there is no way to know by how much.

Figure 2

Ten-year Forecast for the U.S. Economy by a Panel of Professional Forecasters



Source: Federal Reserve Bank of Philadelphia.

Table 2

Comparison of Long-term Oil Price Assumptions
(in year-2000 dollars per barrel)

Source	2010	2020	2030
IEA	22	26	29
EIA	23.3	25.1	
EC	27.7	33.4	40.3
OPEC	19.3	19.3	
IEEJ	24.0	27.0	
CGES	20.5	15.1	

Source: International Energy Association (2004).

In sum, in using the analytical sustainability framework as a basis for choosing the appropriate fiscal policy stance, it is important to assess the potential uncertainties associated with projections of the expenditure impact of aging populations; the size of the variance associated with the key underlying macroeconomic policy variables (growth, interest rate, and demographic variables); the prospects for other fiscal policy shocks; and the realism of the scope for securing further fiscal adjustments either from increased revenue or from non-age-related expenditure categories. The next section will deal with the last issue.

3. Uncertainties about long-term expenditure trends

Policy-makers have quite appropriately focused on the implications of aging populations for fiscal policy. The dense nature of social insurance commitments, particularly in the spheres of pensions, disabilities, and survivors benefits justifiably has fueled attention on the ramifications of an increasing share of the elderly dependent on a relatively smaller share of the population of working age, at current legislated retirement ages. The importance of state financing of medical care, combined with statistics indicating higher outlays on medical outlays for the over-65 age group, has also suggested the likelihood of rising expenditure shares on medical care with the aging of the population, even taking account of the possibility that increased longevity may be accompanied by longer periods of good health. Greater longevity also exposes citizens to the risks of long-term chronic care. Although there is far less formal insurance among governments for long-term care, governments are well aware of the various back-door routes, through welfare or medical insurance, through which governments may be exposed to the risk of absorbing some of these costs. Conversely, population aging also will result in smaller cohorts of the school-age population, providing scope for possible savings on outlays of education.

Thus, both the EC and the OECD have worked closely with governments to estimate the expected fiscal burdens associated with aging populations. As noted earlier, these underlay the fiscal sustainability assessments of the EC (2004). The projections in OECD (2001), in particular, have been referenced in numerous papers. They suggest a net total increase of age-related expenditures (comprising old-age pensions, early retirement programs, health, and education) from 2000 up to the peak year (mostly 2050) of an average 5.5 per cent of GDP for 17 industrial countries, with the higher numbers close to 10 per cent of GDP. Many writers, including Heller (2003), CBO (2001), Lee (2000) have also emphasized the uncertainty associated with projections of spending on pensions, medical care, and long-term care, even when the focus is strictly on the implications of demographic trends.

But the purpose of this section is to redirect the focus toward what might be termed non-age- related expenditures and to determine the prospects for creating more fiscal space for age-related expenditures by rationalizing/reducing the share of non-age-related outlays in total government expenditure and relative to total output. Conventionally, age-related spending, in the common functional classification, relates to spending on the education, health, and social protection sectors, and the rest of a government's outlays, mainly general public services, interest, defense, and economic affairs, housing and community amenities, recreation, culture and religion, are treated as non-age-related. However, to complicate things further, *there are also non-age-related drivers at work in age-related expenditures*. We will look at this issue first, because it qualifies whatever conclusions can be drawn about non-age-related expenditures.

One final caveat is needed. The analysis in this paper is ultimately severely hampered by the continuing weak comparability across countries in the database on

functional expenditures at the *general* government level before 1990. It is possible to obtain series on such expenditures at the central government level, but differences across countries in the relative balance of expenditure functions at the central as opposed to state and local level make *cross*-country comparisons of functional or economic expenditure shares more difficult.

Table 3

Clarifying Concepts of Aging-related Expenditure Pressures

Aging-related Functional Expenditure Categories	Non-aging-related Factors in Age-related Functional Expenditure Categories	Non-aging-related Functional Expenditure Categories
• Health • Social protection • Education	• Technological progress and price inflation in health care • Unemployment rates • Disability rates	• General public services • Interest • Defense • Economic Affairs • Environmental Protection • Housing and community affairs • Recreation, culture, and religion

Source: Authors.

A. Non-age factors influencing age-related expenditures

The dichotomy of age- and non-age-related expenditures disregards that age-related spending can be very much driven by factors which are *independent* of shifts in the age composition of the population. The most obvious of course relates to the pressures for rising outlays in the medical sector, which many argue to be largely technology-driven. But one could also mention the impact of unemployment rates in social protection, or the factors that might be inducing higher disability rates. Thus, in judging the impact of an aging population on the key social sectors, it becomes critical to provide estimates of the expenditure pressures that independently arise from demographic factors (see Table 3), recognizing that there may be a synergistic effect from the fact of a higher share of the elderly in terms of these spending pressures.[6]

[6] Thus, technology development which may, on balance, prove cost-enhancing, are likely to be directed toward disease and infirmity issues of the elderly, such that higher costs of treatment for health problems

(continues)

Table 4

Drivers of Public Health Expenditure in the G-7 Countries, 1980-99

Country	R-Square	Share of Population Aged 65+		Share of Deaths of Persons 65+		Health Price Index	
		Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Canada	0.96	–3.03	0.0	–0.04	0.6	0.07	0.0
France	0.90	0.35	0.1	–0.09	0.5	0.01	0.0
Germany	0.88	0.89	0.0	–0.19	0.4	0.03	0.0
Italy	0.60	0.84	0.0	–0.59	0.0	0.00	0.5
Japan	0.92	0.62	0.0	–0.31	0.0	–0.02	0.0
UK	0.68	–1.41	0.1	–0.04	0.9	0.02	0.1
US	0.96	0.07	0.8	–0.28	0.0	0.02	0.0

Note: The share of general government health spending in GDP was regressed on the three explanatory variables and a constant. Shaded values are significant at least at the 10 percent level and have the expected sign.

Sources: OECD, WHO, and authors' calculations.

Figure 3 illustrates that health care inflation has so far been at least as much of a driver of public health spending as aging. Most impressively, this can be seen for the United States, with its largely mixed public/private health care system. But the same factors underlying rising health care costs and technology-driven demand pressures seem to be operative in most other countries as well. Only in Japan does the aging of the population seem to "outperform" the health price index. In Table 4, a simple equation seeking to explain the public health expenditure of general government suggests the powerful independent force of the health price index for the G-7 countries. While aging is clearly a driver in the countries most affected by it, health care inflation is a driver in all countries except Japan (little health price inflation) and Italy (little increase in government health expenditure).[7]

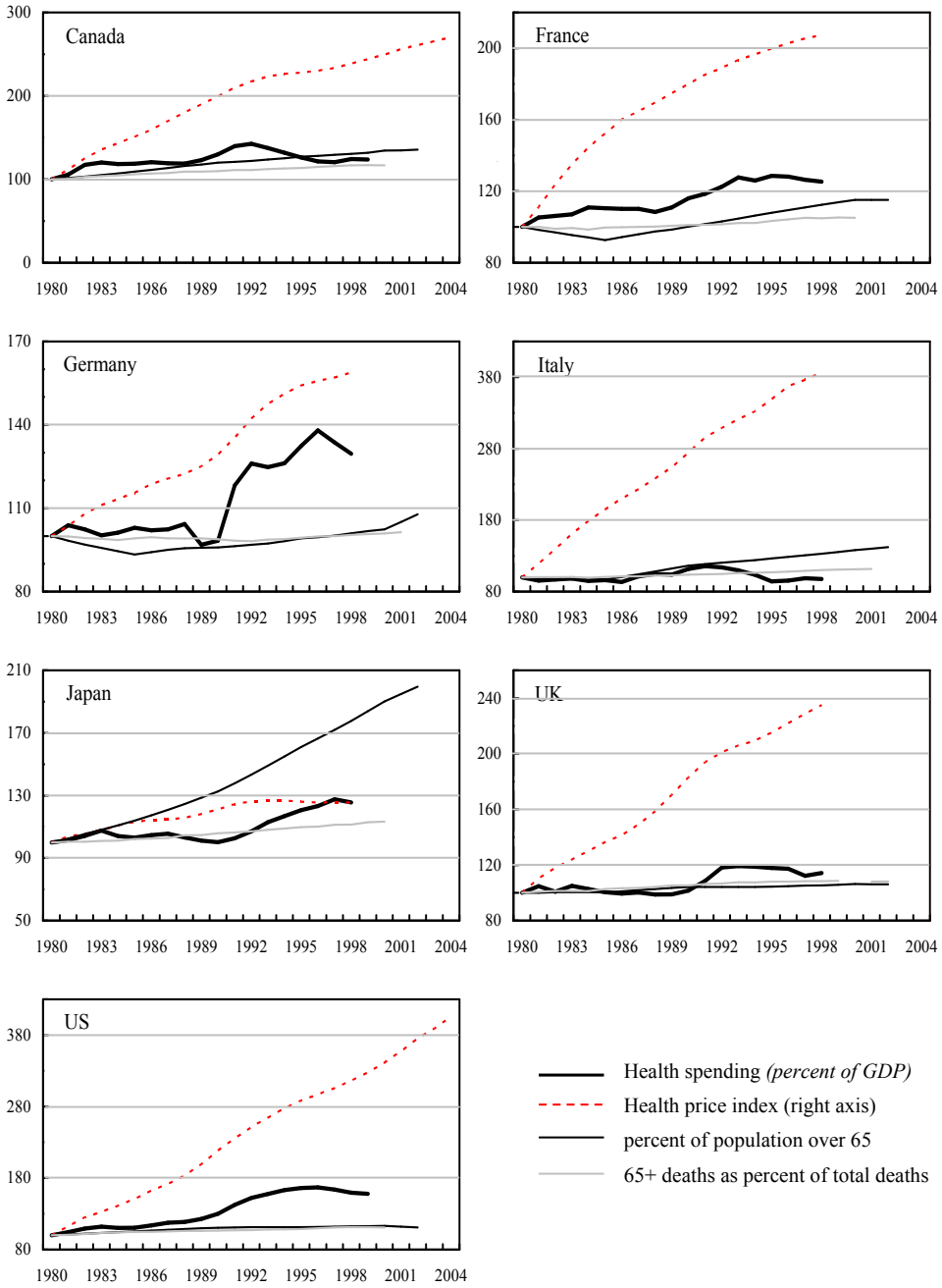
Thus, it is not surprising that the Aging Working Group of the EC and OECD, in the context of their new projections during 2005, are considering how to take account of non-aging related medical cost pressures. In the United States, such a concern emerges forcefully from a report of the Congressional Budget Office (2003) on the Long-term Budget Outlook. The substantial cost pressures over the next several decades from Medicare and Medicaid largely arise far less from the aging of the population than from the assumed medical cost inflation factor.

related to the elderly may receive a higher weight as a consequence of the larger number of elderly who will be demanding such treatments.

[7] The regression also included the share of deaths for persons over age 65, which is often cited as a potential further driver of health expenditure. The variable, however, did not turn out as significant for any of the countries.

Figure 3

G-7 – Drivers of General Government Health Expenditure
(Indexed, 1980=100)



Sources: WHO, OECD and authors' calculations.

But this phenomenon is not limited strictly to the medical sector. Other areas of social protection expenditure (which, in the functional expenditure classification, is used as a surrogate for some age-related expenditure) are also not exclusively driven by aging. As Figure 4 shows, unemployment benefits (including labor-market programs) in the G-7 countries have seen the most marked changes of the three major components of social spending. This reflects less cyclicality and more changes in programs and unemployment rates. While unemployment benefits are much smaller than old-age-related spending, they are bigger than family benefits in most countries. And their relationship with long-term structural change in the economy makes them a significant driver of overall social spending that could go both ways: it could either alleviate aging-related pressures if unemployment declines due to a shrinking work force and structural labor market reforms, or it could create additional pressures if technological change should put more people out of work.

Moreover, and as noted above, the problems of a larger share of the elderly in the population may create independent demands for government outlays which are not presently implied by existing social insurance legislation. This would give rise to expenditures that are not captured under current exercises that take account of *existing* government commitments with respect to the elderly. The costs of long-term care or the problems of the elderly indigent may force increases in welfare outlays, either as part of a coherent policy reform or on a discretionary basis.

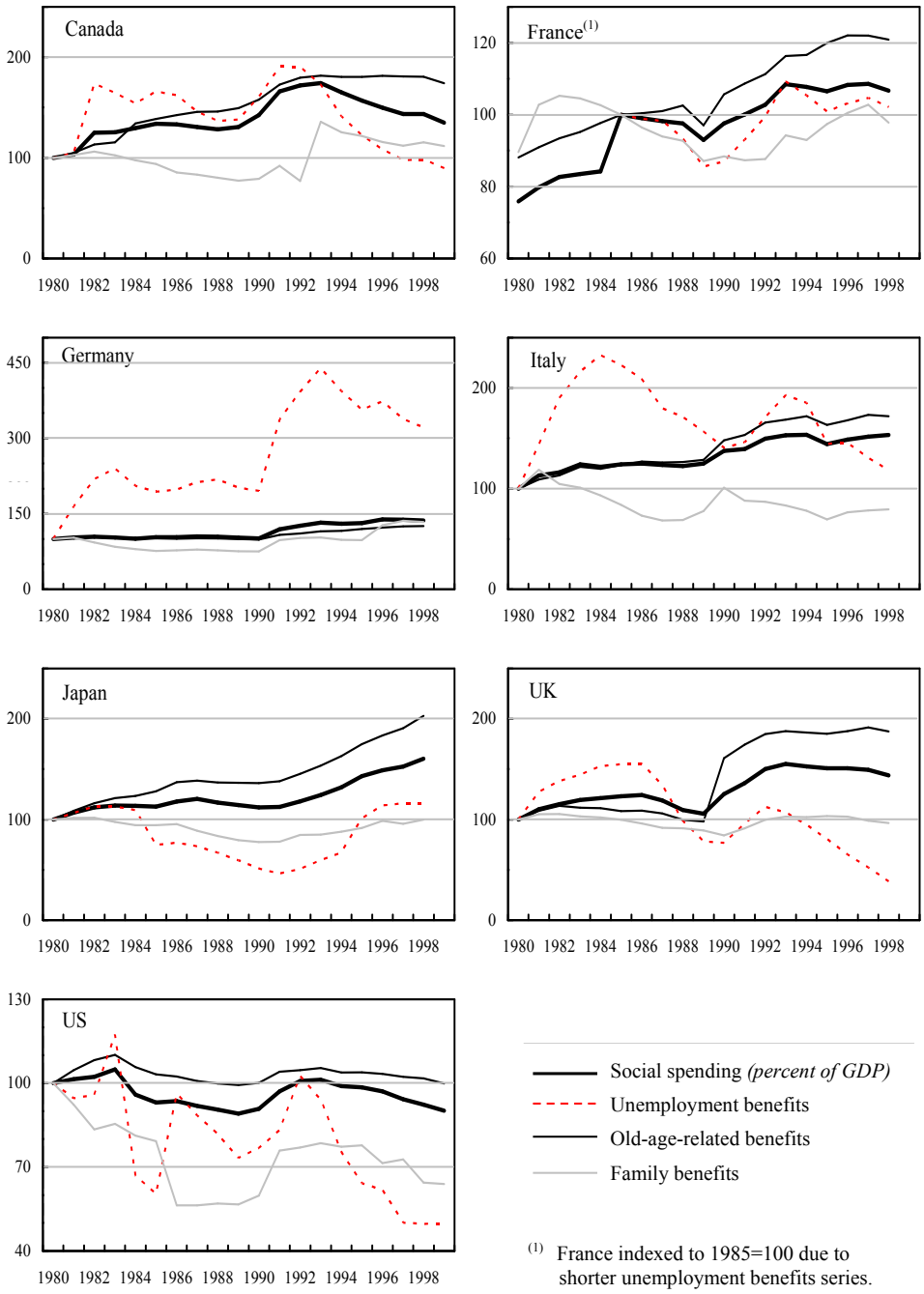
B. Non-age-related expenditures

Non-age-related expenditures also seem to receive too little attention. This is surprising. Even if all education, health, and social protection spending is generously treated as age-related, what is left still amounts to about 40 per cent of total central government expenditure and about 30 per cent of total general government expenditure in the median OECD member country.

Most studies simply assume that non-age-related expenditure will grow with GDP, thus holding their share in GDP constant, but this assumption is far from obvious. In fact, the EC (2004, p. 177) found that for the growth in EU countries' expenditures by function, GDP growth was a significant explanatory variable only for education and health. Tanzi and Schuknecht (2000, p. 23) note that most of the increase in public spending in recent decades was not due to the provision of government services, but cash transfers. "Most of this increase resulted from explicit policy decisions […]. In other words, there was nothing automatic or inevitable about it that could not have been prevented by determined governments." Picking up this point, Hauner (2005) asks how total future expenditure would turn out under alternative assumptions on long-term non-age-related expenditure growth and finds that they lead to vastly different conclusions about fiscal sustainability. He argues that the belt-tightening required to maintain fiscal sustainability under aging-related pressures could be less painful than commonly thought (though this analysis does not factor in the pressures of non-age-related factors influencing age-related expenditures).

Figure 4

G7 – Drivers of General Government Social Protection Expenditure



(1) France indexed to 1985=100 due to shorter unemployment benefits series.

Sources: OECD and authors' calculations.

What does the data tell us about long-term expenditure trends? Figure 5 provides data on the medians[8] of the major functional spending categories of seventeen industrial countries, both relative to GDP and total expenditure. Several conclusions can be drawn. Social protection, after its rapid increase during the Seventies and Eighties, has stabilized during the Nineties. Health, however, has continued a strong upward trend, only slowed somewhat at the end of the last decade. Education, the last of the age-related categories, has been declining slowly since the Eighties. On the non-age-related side, interest payments have reversed their steep increase in the mid-Nineties to an equally steep decline, reflecting both the decline in real interest rates and efforts to restrain the growth of government debt ratios in GDP. Similarly, an upward trend in general public services was markedly reversed at the beginning of the Nineties. Less markedly, but clearly visible, defense and economic affairs have been trending downward over most of the past 30 years. It is worth noting that none of these spending categories has stayed constant relative to GDP for longer periods;[9] education has been relatively the most stable. The shares of the different expenditure categories in total expenditure largely reflect the trends in the GDP ratios.[10]

Charting the median changes in the expenditure categories by decade (Figure 6) confirms that there is little evidence that nominal GDP would necessarily be the main driver of expenditure. All expenditure categories except education show large changes in their median GDP ratios over the three last decades – in either direction. In the Seventies and Eighties, rapid growth of the state in the median OECD member country was driven nearly exclusively by interest payments and social protection. Since 1990, the size of the state has remained virtually unchanged, as growth in health and social protection has been offset by cuts in interest payments, defense, and economic affairs.

The changes in expenditure shares vividly demonstrate the restructuring of budgets over the past decades. Broadly speaking, over thirty years, it was defense and economic affairs that were to give and it was social protection that was to take. Interest, while also a "taker" in the Seventies and Eighties, became a "giver" in the Nineties, compensating for a slowdown in the cuts in defense and a large increase in health in the last decade.

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[8] We use medians instead of means for aggregation to dampen the effect of outliers. The expenditure categories shown do not add up to the total due to the exclusion of smaller expenditure categories. For long-term trends, we have to look at central government data, as general government series are too short. This could introduce errors to the extent that expenditures could have been shifted between government levels.

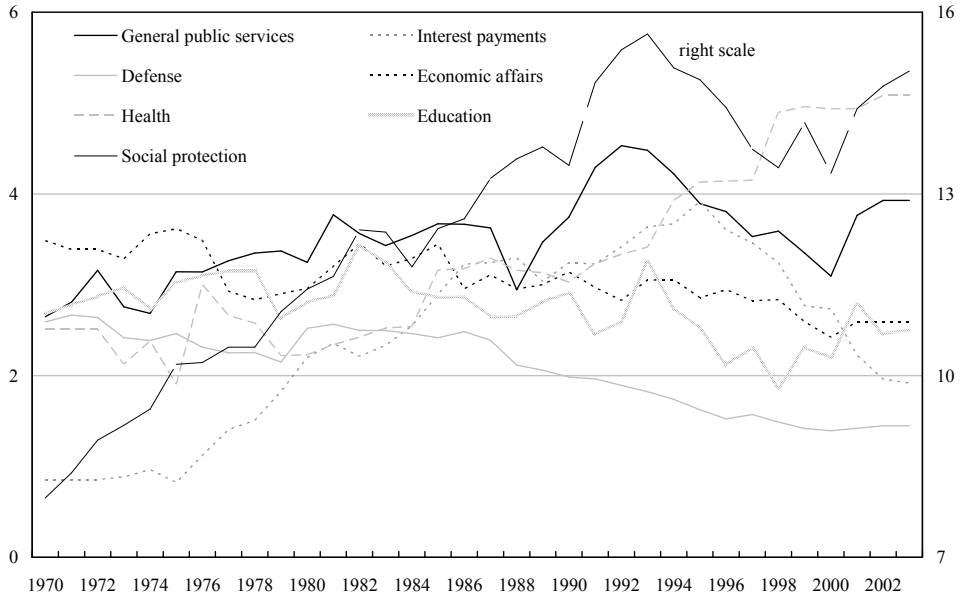
[9] Switzerland is an interesting exception as most central government expenditure categories have been fairly stable relative to GDP for the past 30 years.

[10] The marked increase in general public services in the Nineties is due to decentralization reforms in some countries that implied a significant increase in transfers to other government levels included in this category.

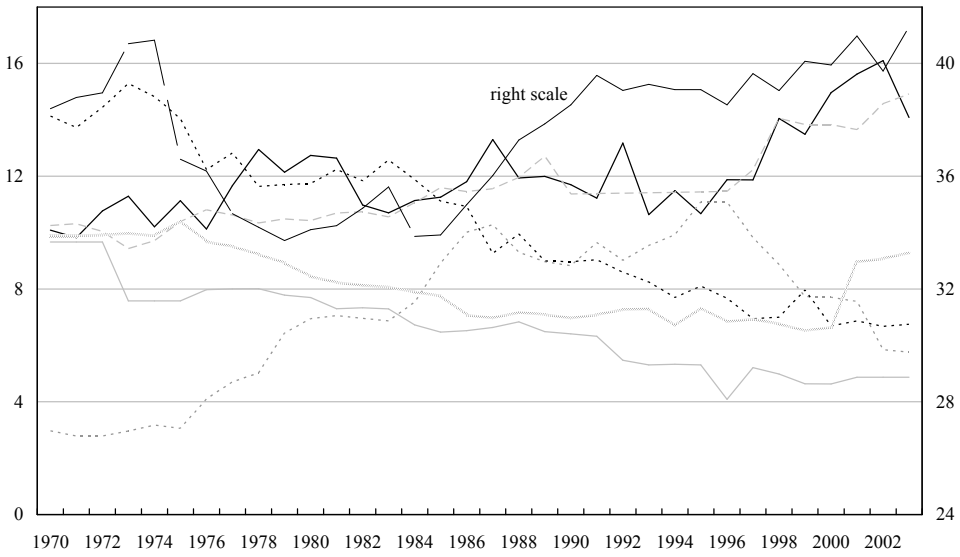
Figure 5

Central Government Expenditure by Function in 17 OECD Countries, 1970-2003 (1)

(percent of GDP)



(percent of total expenditure)



(1) Japan is not included as the series are too short.

Source: IMF Government Finance Statistics and authors' calculations.

In real terms and real per capita terms,[11] only general public services, education, health, and social protection have grown since 1990 (Figure 6), while other expenditure has virtually stagnated. The increase in general public services, as mentioned before, is partly due to decentralization reforms. Education, health, and social protection have grown at a real rate of about 3-4 per cent per year, translating into real per capita growth of about 2.5-3.5 per cent. The other expenditure categories have grown only at a real rate of about 0-1 per cent per year, translating into real per capita growth per year of 0.5 per cent in defense, but even negative for economic affairs.

Also from the perspective of the economic classification of expenditures (Figure 7), the stagnation in the size of the median government since 1990 was principally attributable to a declining interest bill. However, cuts in subsidies, gross fixed capital formation, wages, and social benefits (excluding transfers, which explain the drop despite the observed increase in social protection) also contributed to combined savings of about 2 per cent of GDP. Remarkably, at the median, all economic expenditure categories declined relative to the growth of social benefits in both the Eighties and the Nineties (except for interest outlays in the Eighties).

Moving forward, what do past expenditure trends suggest for the ability of governments to make room for age-related spending hikes by reducing non-age-related spending? Two optimistic and two pessimistic arguments come to mind.

Optimistic Argument 1: there seems to be some scope for more expenditure reductions. Ultimately, however, the extent of possible cuts will depend on what is acceptable to the electorate. Two main questions emerge in the analysis of what might be acceptable in a given country.

First, what has proven acceptable in other countries? Table 5 shows the general government expenditure-to-GDP ratios and the differences to the 15-country median; the shaded areas highlight "excess" spending relative to the median. They thus provide a snapshot picture of "where the money is." The functional classification does not clarify what spending categories are discretionary or nondiscretionary, but clearly if one is focused on where there is scope, among non-age-related spending, for significant reductions, only interest outlays can be readily assumed as a spending category that can be reduced to zero or even negative, through policies that reduce or eliminate public debt or build up surpluses. For other non-age-related spending (*i.e.,* excluding education, health, and social protection categories), the prospects for reducing spending levels further reflects complex issues related to the role and responsibilities of governments, taking account of both

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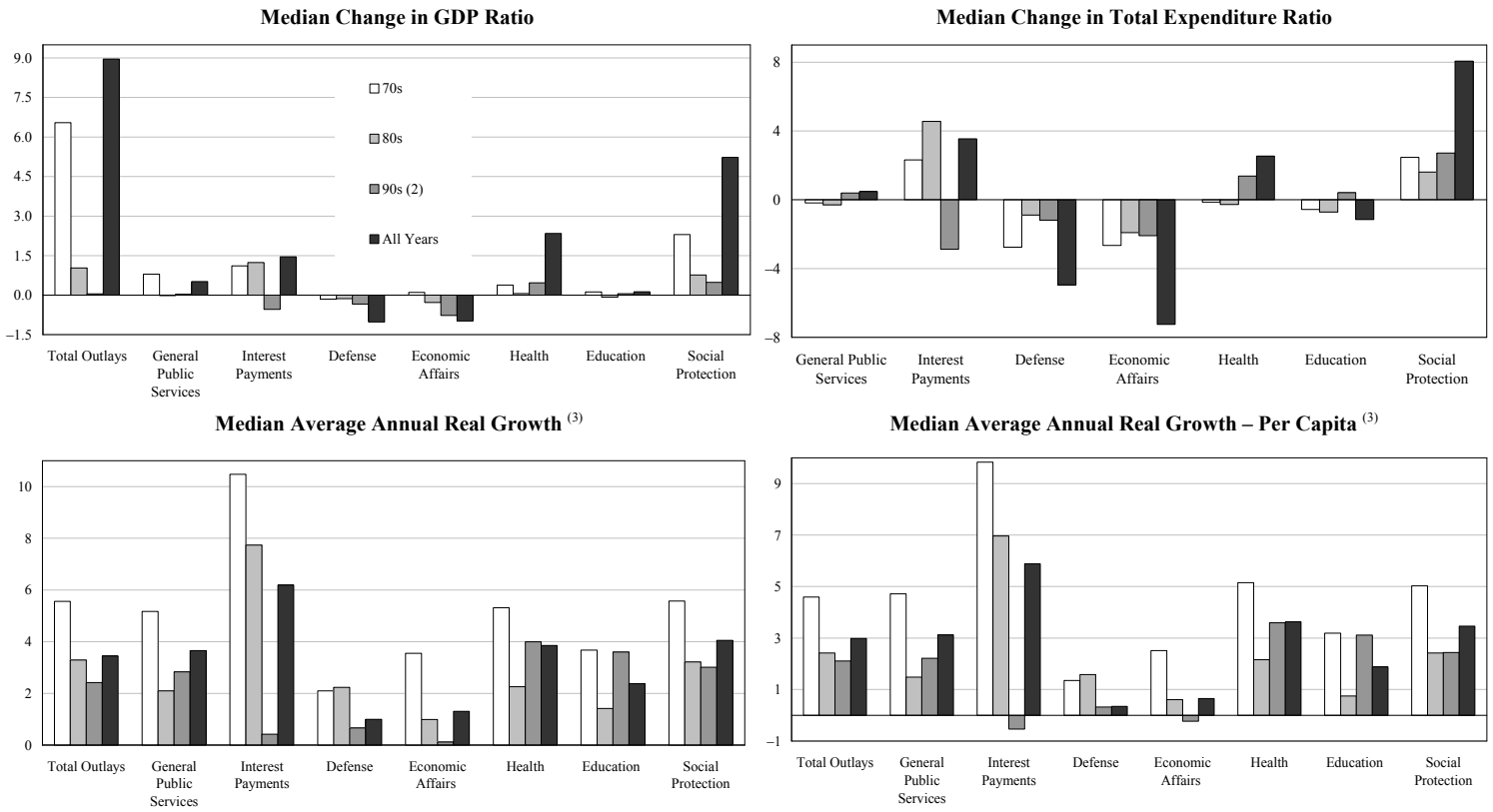
[11] Removing general price increases, as done here due to the lack of sufficient input price data, lets changes in relative prices show up in the real changes. Changes in relative prices are, however, likely to be much smaller than general price increases (Levitt and Joyce, 1987, p. 21).

Figure 6

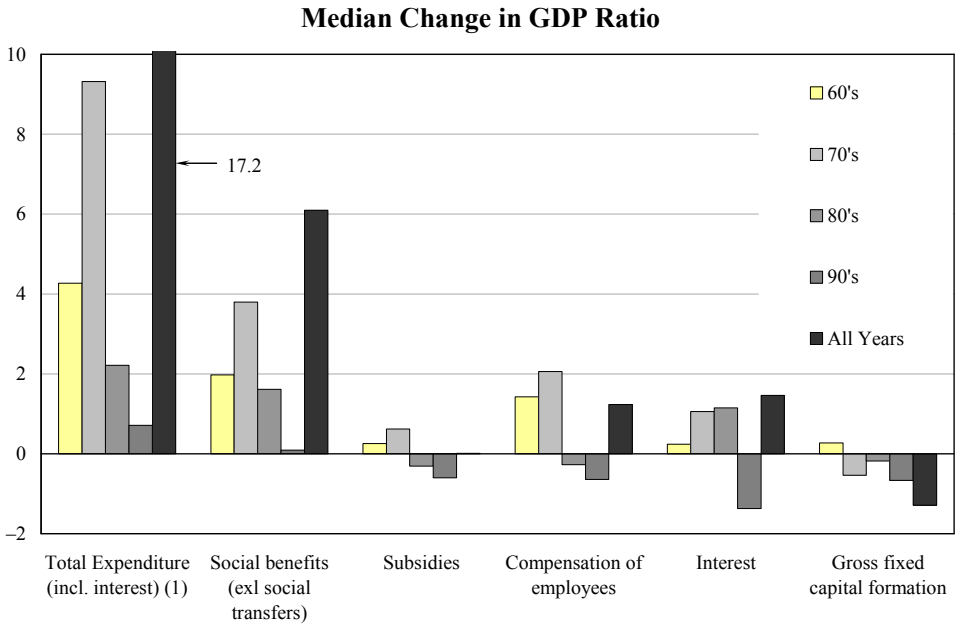
Changes in Central Government Expenditures by Function and Decade in 17 OECD Countries(1)

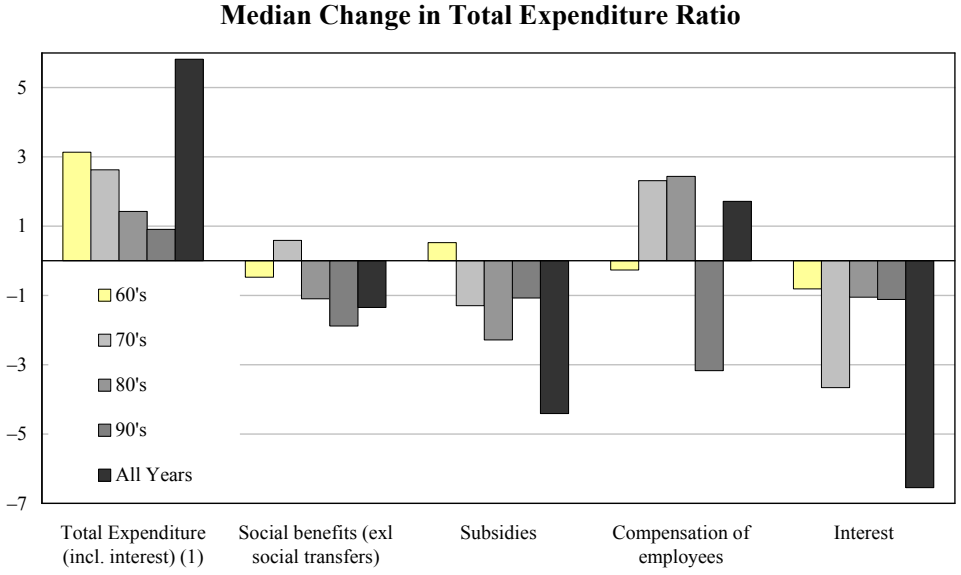


(1) Japan excluded as series are too short – (2) Including available years after 1999 – (3) Price-adjusted with the GDP deflator.

Figure 7

Changes in General Government Expenditure by Decade in 18 OECD Countries
(economic classification)





(1) Components do not add up to total expenditure.

Sources: ECB and authors' calculations.

Table 5a

General Government Expenditure, 2003

(percent of GDP)

	Australia (1)	Austria	Belgium	Canada (2)	Denmark	Finland	France (3)	Germany	Italy	Japan (3)	Norway (3)	Spain (3)	Sweden (2)	UK (1)	US
Functional classification															
Total expenditure	35.7	51.2	51.4	40.2	56.1	51.2	53.4	48.7	48.5	34.3	47.5	39.9	57.1	39.7	36.4
General public services	2.2	4.2	4.0	2.0	4.8	4.1	4.0	3.1	3.6	-	3.5	2.5	5.6	2.2	2.2
Interest	2.0	3.3	5.6	3.9	3.3	2.0	3.2	3.1	5.3	2.6	1.9	2.8	3.2	2.0	2.7
Defense	1.7	0.9	1.2	1.1	1.6	1.6	2.4	1.2	1.3	1.0	2.0	1.2	2.2	2.5	4.0
Public order and safety	1.7	1.4	1.7	1.9	1.0	1.5	1.0	1.6	2.0	1.4	1.1	2.1	1.4	2.1	2.1
Economic affairs	4.4	5.2	4.9	3.6	3.7	5.1	4.8	3.9	3.8	4.5	4.8	4.5	4.5	2.4	3.7
Environment Protection	0.5	0.4	0.7	0.6	-	0.3	1.2	0.6	0.8	1.6	0.6	1.0	0.3	0.6	-
Housing and community amenities	0.8	0.8	0.3	0.8	0.9	0.4	1.0	1.2	0.7	0.8	0.4	1.1	1.0	0.5	0.7
Health	6.1	6.6	7.1	7.4	5.7	6.6	8.4	6.5	6.5	6.7	7.8	5.4	6.8	6.4	7.2
Recreation, culture and religion	0.9	1.0	1.2	1.0	1.7	1.2	0.8	0.7	0.9	0.2	1.1	1.4	1.1	0.5	0.3
Education	5.3	5.9	6.3	5.6	8.4	6.7	6.0	4.1	5.0	4.1	6.2	4.4	7.3	5.0	6.2
Social protection	9.9	21.3	18.2	12.3	25.1	21.8	20.6	22.7	18.4	11.7	17.9	13.5	23.8	15.7	7.2
Economic classification (4)															
Social benefits (excl. social transfe	9.1	19.0	16.7	10.7	18.2	17.0	18.5	19.7	17.2	11.3	15.4	12.3	19.1	13.6	12.2
Subsidies	1.1	3.0	1.7	1.5	2.2	1.3	1.2	1.4	1.1	0.6	2.6	1.1	1.5	0.7	0.4
Compensation of employees	-	9.6	11.8	11.2	17.7	13.8	13.9	7.9	11.0	-	14.7	10.3	16.4	8.2	9.7
Interest	2.1	3.3	5.6	6.7	2.8	2.0	3.1	3.1	5.4	3.0	1.8	2.5	2.4	2.0	2.9
Gross fixed capital formation	2.5	1.2	1.6	2.4	1.6	3.0	3.2	1.5	2.6	5.4	2.8	3.5	3.1	1.5	2.6

(1) 2000 (economic classification) – (2) 2001 (only functional classification, except Canada) – (3) 2002 (functional classification) – (4) Components do not add up to total.

Source: IMF Government Finance Statistics, ECB, and authors' calculations.

Table 5b

General Government Expenditure – Difference to 15-Country Median, 2003

(percent of GDP)

	Australia (1)	Austria	Belgium	Canada (2)	Denmark	Finland	France (3)	Germany	Italy	Japan (3)	Norway (3)	Spain (3)	Sweden (2)	UK (1)	US
Functional Classification															
Total expenditure	–12.3	3.2	3.4	–7.8	8.1	3.2	5.4	0.6	0.5	–13.7	–0.5	–8.1	9.1	–8.3	–11.7
General public services	–1.3	0.7	0.5	–1.5	1.2	0.6	0.5	–0.4	0.0	-	–0.0	–1.0	2.1	–1.3	–1.4
Interest	–0.9	0.3	2.7	0.9	0.3	–0.9	0.2	0.1	2.4	–0.3	–1.1	–0.1	0.2	–1.0	–0.3
Defense	0.2	–0.7	–0.4	–0.5	0.0	0.0	0.9	–0.4	–0.3	–0.6	0.5	–0.3	0.6	0.9	2.4
Public order and safety	0.1	–0.2	0.1	0.3	–0.6	–0.1	–0.6	0.0	0.4	–0.2	–0.5	0.5	–0.2	0.5	0.5
Economic affairs	–0.0	0.8	0.5	–0.9	–0.8	0.6	0.3	–0.6	–0.6	0.0	0.4	0.0	0.0	–2.1	–0.8
Environment Protection	–0.1	–0.2	0.1	0.0	-	–0.3	0.6	–0.0	0.2	1.0	0.0	0.4	–0.3	–0.0	-
Housing and community amenities	0.0	0.0	–0.5	0.0	0.1	–0.4	0.2	0.3	–0.1	–0.0	–0.4	0.3	0.2	–0.3	–0.1
Health	–0.5	0.0	0.4	0.7	–0.9	–0.1	1.7	–0.2	–0.2	0.0	1.2	–1.3	0.1	–0.3	0.6
Recreation, culture and religion	–0.1	0.1	0.2	0.0	0.7	0.3	–0.2	–0.3	–0.1	–0.8	0.1	0.4	0.1	–0.5	–0.7
Education	–0.6	0.0	0.5	–0.2	2.6	0.8	0.1	–1.8	–0.8	–1.8	0.3	–1.5	1.4	–0.9	0.4
Social protection	–8.3	3.0	0.0	–5.9	6.8	3.5	2.4	4.5	0.2	–6.6	–0.3	–4.7	5.5	–2.5	–11.0
Memorandum items:															
Potential savings from lowering "excess" spending to 15-country median	0.3	4.6	2.3	1.0	11.4	5.8	6.7	4.9	0.9	1.0	2.5	1.6	10.1	1.4	3.8
of which: non-age-related categories	0.0	1.5	1.4	0.3	2.0	1.4	2.5	0.3	0.7	0.0	1.0	1.6	3.0	1.4	2.9
Economic classification (4)															
Social benefits (excl. social transfers)	–5.4	4.4	2.2	–3.8	3.6	2.5	4.0	5.2	2.7	–3.2	0.9	–2.3	4.5	–0.9	–2.3
Subsidies	–0.2	1.8	0.4	0.2	1.0	0.1	–0.1	0.1	–0.1	–0.6	1.4	–0.2	0.3	–0.6	–0.8
Compensation of employees	-	–1.1	1.2	0.5	7.1	3.1	3.3	–2.8	0.3	...	4.0	–0.3	5.7	–2.5	–1.0
Interest	–0.7	0.5	2.8	3.8	–0.1	–0.8	0.2	0.3	2.5	0.1	–1.0	–0.3	–0.5	–0.8	0.0
Gross fixed capital formation	–0.1	–1.4	–1.0	–0.2	–0.9	0.4	0.6	–1.1	0.1	2.8	0.2	0.9	0.5	–1.1	0.0

(1) 2000 (economic classification) – (2) 2001 (only functional classification, except Canada) – (3) 2002 (functional classification) – (4) Components do not add up to total.

Source: IMF Government Finance Statistics, ECB, and authors' calculations.

distributional, allocational, national security, and global responsibilities of a country.[12]

While classification issues might be behind some of the country-specific peculiarities, some functional expenditure categories seem to stand out as high in some countries, such as economic affairs in Austria or environmental protection in Japan. Adding up the shaded areas yields potential savings of 5 per cent of GDP and more in most Continental European countries (mainly in social protection), but far less for Japan and the Anglo-saxon countries except the United States. This comparison is relevant in making an argument about the level of expenditures, *including* age-related expenditures.

If one would, however, only look at *non*-age-related expenditures, potential savings come down to a maximum of 3 per cent of GDP in Sweden and the US, but *close to nil* in many other countries. Little opportunities would appear likely for spending cutbacks in Australia, Canada, Germany, and Japan. However, the aggregation is a bit deceiving since some countries, such as Japan, benefit from low defense spending. In the area of defense (and excluding the one global superpower), there is at most 0.5-1.0 per cent of GDP of savings which might be realized in a few countries in terms of potential cutbacks (*i.e.*, in France, Sweden, and the UK). Some scope also exists for savings on general public services (again typically on the order of 0.5-1.0 per cent of GDP – in France, Finland, Denmark, Austria, Belgium, and Sweden), and economic affairs (on the order of about 0.5-0.8 per cent of GDP).

The economic classification provides further hints to potential savings: for example, subsidies in Austria, Denmark, and Sweden are still at 1 per cent of GDP and more above the median. The government wage bill varies considerably. Gross fixed capital formation can also be cutback potentially in a few countries (Japan still being above the median by 2.8 per cent of GDP, and Spain being above the median by 0.9 per cent of GDP). But the preoccupation of many governments with the need for improving infrastructure suggests, if anything, that for most, there is still a gap between desirable and current levels of infrastructural spending.

Second, what was acceptable in the past? Table 6a compares a country's sectoral expenditure-to-GDP ratios, at the *central government* level in 2003, to its 1970-2003 minimum. Shaded entries suggest where governments could choose to cut in non-age-related categories.[13] It thus answers the question of whether, within the historical bounds of a country's own perspective on a sector, there is room to

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[12] Also worth noting is that the data presented relates to *general government*. Typically, central governments may have influence (through transfers) over subfederal spending levels, but institutionally, subfederal governments are not bound by central government decisions in this regard and can choose to opt for own-financed spending.

[13] Shaded areas show non-age-related expenditures except interest (non-discretionary) whose GDP ratio in 2003 was higher than the historic minimum. In a time-bound perspective, it does not make sense to look at the age-related categories, as they will invariably go up in net terms. Japan had to be omitted as the series were too short.

Table 6a

Difference Expenditure to 1970-2003 Minimum

(percent of GDP)[1]

	Australia (2)	Austria (3)	Belgium (3) (4)	Canada	Denmark	Finland (3)	France (3)	Germany	Italy (2)	Japan (4)	Korea (3)	New Zealand (5)	Norway	Spain (3)	Sweden (3)	Switzerland (3)	U. Kingdom (3)	United States (3)	Median
Central Government by Functional Classification																			
Total outlays	8.2	12.3	6.6	0.8	6.7	13.6	16.8	9.9	16.9	12.2	7.7	7.3	8.3	15.0	13.2	11.1	6.2	1.5	8.3
General public services	1.4	1.5	8.2	1.2	3.4	0.8	2.3	0.5	1.7	0.9	1.4	0.0	3.4	4.4	3.2	1.3	-	1.1	1.5
Interest	0.2	2.8	2.9	0.5	2.9	1.9	2.3	1.5	4.6	-	0.8	0.1	0.5	2.4	1.9	0.6	-	0.7	1.7
Defense	0.2	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.6	0.0	0.2	0.4	0.1
Public order and safety	0.2	0.3	0.2	0.0	0.9	1.1	0.3	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.2	0.0	1.5	0.2	0.2
Economic affairs	0.5	0.7	0.1	0.0	0.3	0.1	2.3	0.1	0.2	0.1	2.2	0.7	0.0	0.4	0.8	0.6	1.1	0.2	0.4
Environment Protection	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	-	0.0	0.1	0.2	-	-	-	0.0
Housing and community amenities	0.0	0.4	-	0.1	0.1	0.0	0.0	0.3	0.5	1.5	0.4	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Health	2.6	2.4	5.9	0.4	0.1	1.9	-	2.5	3.2	0.1	0.0	1.5	5.1	4.8	1.0	3.8	2.3	2.9	2.4
Recreation, culture and religion	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.0	0.9	0.0	0.1	0.7	0.4	0.2	0.1	0.1	0.5	0.1	0.1
Education	1.8	1.5	0.1	0.0	1.2	1.0	1.8	0.0	1.6	0.1	1.6	2.9	1.0	0.0	0.6	0.1	3.9	0.1	1.0
Social protection	5.6	5.3	0.6	2.6	2.8	10.9	-	7.3	7.2	0.8	2.2	6.1	5.8	5.1	8.2	5.5	8.6	0.4	5.5
Potential savings in non-age-related categories (6)	*2.3*	*3.1*	*8.5*	*1.4*	*5.1*	*2.5*	*5.2*	*0.8*	*3.5*	*1.6*	*4.2*	*2.1*	*4.3*	*5.6*	*5.1*	*2.1*	*3.2*	*2.0*	*3.2*
General Government by Economic Classification																			
Total Expenditure (7)	10.3	13.2	10.7	5.7	16.7	20.7	18.0	11.2	16.4	20.5	15.2	0.6	12.6	18.8	17.2	3.8	6.0	3.6	12.6
Social benefits (excl. social transfers)	5.4	4.1	1.4	4.1	7.3	9.0	4.2	6.9	5.7	6.5	4.0	0.9	4.7	5.2	8.0	3.2	5.7	5.2	5.2
Subsidies	0.1	1.4	0.3	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.3	0.1	0.5	0.2	0.2	0.1
Compensation of employees	-	0.0	2.1	0.0	4.4	3.7	3.5	0.0	1.4	-	1.8	0.0	5.0	4.1	2.5	0.7	1.1	0.5	1.6
Interest	0.0	2.4	2.6	5.6	1.6	1.4	2.3	2.2	3.7	2.4	-	0.0	0.3	2.1	0.6	0.4	0.0	0.7	1.5
Gross fixed capital formation	0.2	0.0	0.0	0.2	0.1	0.4	0.3	0.0	0.8	0.0	2.9	0.7	0.2	1.7	0.2	0.0	0.4	0.3	0.2

(1) Japan is not included as the series are too short – (2) 2000 (Australia: General government) – (3) 2001 (Switzerland: Central government) – (4) The numbers for Belgium are biased by a shift of social and education spending from the federal to the provincial level – (5) 1997 (General government) – (6) Excluding interest, which is essentially non-discretionary – (7) Categories do not add up to total expenditure.

Source: IMF Government Finance Statistics, ECB, and authors' calculations.

Table 6b

Difference Expenditure to 1970-2003 Maximum

(percent of GDP)[1]

	Australia (2)	Austria (3)	Belgium (3) (4)	Canada	Denmark	Finland (3)	France (3)	Germany	Italy (2)	Japan (4)	Korea (3)	New Zealand (5)	Norway	Spain (3)	Sweden (3)	Switzerland (3)	U. Kingdom (3)	United States (3)	Median
Central Government by Functional Classification																			
Total outlays	–1.2	–1.6	–11.6	–8.9	–7.0	–8.2	0.0	–0.9	–6.2	0.0	0.0	–11.6	–4.2	–5.4	–10.8	–3.5	–5.1	–3.7	–5.1
General public services	–1.6	–0.7	–1.1	–0.3	–2.1	–0.5	–1.5	–1.9	-	–0.1	–0.6	–5.3	–4.7	–2.6	–2.3	0.0	-	0.0	–1.5
Interest	–1.4	–0.5	–4.8	–3.4	–4.3	–3.0	–0.1	–0.6	–5.4	-	–0.0	–6.3	–1.9	–1.8	–5.6	–0.1	-	–1.8	–1.8
Defense	–1.4	–0.4	–1.7	–0.9	–0.9	–0.4	–0.7	–1.9	–0.7	–0.0	–3.1	–1.2	–1.3	–0.9	–1.2	–1.0	–2.8	–2.7	–1.2
Public order and safety	–0.0	–0.1	–0.0	–0.2	0.0	0.0	0.0	0.0	–0.0	0.0	–0.1	–0.2	–0.0	–0.0	–0.1	0.0	0.0	–0.2	–0.0
Economic affairs	–1.1	–2.4	–6.8	–3.2	–2.0	–4.7	–0.2	–0.8	–3.9	0.0	–0.6	–5.1	–4.6	–1.6	–4.3	–0.6	–2.3	–1.2	–2.3
Environment Protection	–0.0	–0.1	–0.0	–0.0	-	–0.0	0.0	–0.0	0.0	-	-	-	–0.0	0.0	–0.9	-	-	-	–0.0
Housing and community amenities	–0.3	–0.9	-	–0.4	–0.5	–1.1	–1.0	0.0	–0.0	0.0	–0.0	–0.6	–3.8	–0.4	–2.6	–0.1	–1.1	–0.4	–0.4
Health	0.0	–0.5	0.0	–1.2	–2.9	–0.4	-	0.0	0.0	0.0	–0.2	–0.2	0.0	–0.0	–0.0	–0.4	0.0	0.0	–0.0
Recreation, culture and religion	–0.1	–0.0	–0.8	–0.1	–0.0	–0.2	0.0	–0.1	–0.1	0.0	–0.0	0.0	–0.3	0.0	–0.1	–0.0	0.0	–0.0	–0.0
Education	0.0	–0.0	-	–0.6	–0.7	–1.0	–0.1	–0.2	–0.2	0.0	0.0	0.0	–0.7	–1.5	–1.9	–0.2	0.0	–0.3	–0.2
Social protection	–0.5	–0.1	-	–3.7	–3.5	–3.1	-	0.0	–0.5	0.0	–0.3	–2.5	0.0	–6.3	–5.2	–3.2	0.0	–2.2	–2.2
Cutbacks made in non-age-related categories (6)	*–4.6*	*–4.5*	*–10.5*	*–5.1*	*–5.5*	*–6.9*	*–3.5*	*–4.6*	*–4.6*	*0.0*	*–4.3*	*–12.6*	*–14.7*	*–5.5*	*–11.4*	*–1.6*	*–6.1*	*–4.5*	*–5.1*
Cutbacks made in age-related categories	*–0.5*	*–0.7*	*0.0*	*–5.5*	*–7.0*	*–4.5*	*–0.1*	*–0.2*	*–0.6*		*–0.6*	*–2.7*	*–0.7*	*–7.9*	*–7.2*	*–3.4*	*0.0*	*–2.5*	*–0.7*
General Government by Economic Classification																			
Total Expenditure (7)	–3.0	–6.1	–9.4	–11.1	–4.4	–9.8	–0.6	–1.4	–8.2	–3.3	0.0	–14.7	–5.6	–8.1	–8.9	–1.4	–2.5	–2.7	–5.6
Social benefits (excl. social transfers)	0.0	–2.7	–9.2	–3.8	–3.5	–7.7	–4.7	0.0	–2.5	–0.9	0.0	–2.8	–1.5	–4.0	–4.6	–0.4	–1.7	0.0	–2.7
Subsidies	–0.7	–0.1	–2.5	–1.3	–1.7	–2.4	–1.9	–1.1	–2.7	–1.0	–1.5	–0.2	–3.8	–2.0	–4.0	–0.5	–3.0	–0.2	–1.7
Compensation of employees	-	–3.1	–2.1	–4.3	–1.7	–3.5	–0.5	–3.2	–1.6	-	–0.1	–3.4	0.0	–1.4	–3.7	–0.2	–5.8	–2.0	–2.1
Interest	–3.3	–1.1	–5.2	–3.0	–6.8	–3.0	–0.9	–0.6	–6.6	–1.4	-	–6.8	–2.1	–2.8	–5.7	–0.3	–3.0	–2.4	–3.0
Gross fixed capital formation	–2.3	–4.3	–3.4	–1.9	–2.6	–1.0	–0.6	–1.5	–0.9	–4.4	0.0	0.0	–2.0	–1.6	–4.7	–1.2	–3.7	–0.6	–1.6

(1) Japan is not included as the series are too short – (2) 2000 (Australia: General government) – (3) 2001 (Switzerland: Central government) – (4) The numbers for Belgium are biased by a shift of social and education spending from the federal to the provincial level – (5) 1997 (General government) – (6) Excluding interest, which is essentially non-discretionary – (7) Categories do not add up to total expenditure.

Source: IMF Government Finance Statistics, ECB, and authors' calculations.

retrench to an historically earlier spending regime. The sum of spending on non-age-related functional expenditure categories by central governments, as shown in Table 6a, suggests that there might be scope for cutbacks in a number of countries, with orders of magnitude of 2-5 per cent of GDP for many countries. From a functional perspective, the largest bounty is again in general public services (excluding interest) and economic affairs, where the median difference between 2003 and the 1970-2003 minimum was 1.5 per cent and 0.4 per cent of GDP, respectively.[14]

A number of countries seem to have already hit the historic bottom in some of the expenditure categories – mostly and unsurprisingly – in defence, but also in public order and safety. Again adding up the shaded areas yields potential savings of up to about 3 per cent of GDP, although the numbers for many countries are much lower, and the median comes out at 3.2 per cent of GDP. To cross-reference general government data, for which a long-term functional classification is not available, Table 6a also shows the economic classification for general government. While less informative than the functional view, it does show that most countries have already trimmed subsidies (except Austria) and gross fixed capital formation (except Korea and Spain) to (close to) a historic minimum.

Optimistic Argument 2: Rising GDP could help countries to "grow out of the problem" if non-age-related expenditure growth can be kept around the rates of the Nineties. As usual in the debate, the arguments made above on the feasibility of expenditure cuts were based on GDP ratios. However, as discussed before, GDP ratios have historically not been very reliable guideposts for any of the functional expenditure categories except education.

Looking instead at real growth numbers yields more sanguine conclusions: Hauner (2005) calculates that a rule to freeze the ratio of total expenditure to GDP would still allow real non-age-related expenditure growth of about 1 per cent per year from 2000 to the peak year of age-related expenditure in the median OECD country, despite age-related expenditure hikes. This is more growth than in the Nineties, as we just saw in Figure 6. Hauner also shows that the future real per capita spending possible under a constant total expenditure-to-GDP ratio is likely to compare even more favorably to historical values if population growth will indeed be slowing as expected. This could have a benign effect in some population-related (as opposed to age-related) areas, such as unemployment benefits and labor market services, or some parts of the public administration. However, health care inflation (which is, remember, not wholly age-related) could eat away much of the leeway for non-age-related expenditure growth.[15]

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[14] The increase in general public services could be a misleading indicator to the extent that it derives from shifting spending from the central to lower government levels, which would increase intergovernmental transfers included in this category. However, double-checking with the general government public sector wage bill in the same table suggests that this seems only to be a relevant issue in Belgium and Canada.

[15] The calculation of the real expenditure growth consistent with a constant ratio of total expenditure to GDP assumes that the growth rates of the public expenditure deflator and the GDP deflator will be the same. At the same time, projections of age-related expenditure increases (as in OECD, 2001, underlying the

(continues)

Pessimistic Argument 1: governments have a weak record in implementing their consolidation plans, particularly on the expenditure side. We have seen that governments indeed managed to get some of their expenditure ratios down over the Nineties. And there are examples of successful radical reforms, such as Sweden, which reduced both social protection by 3 per cent and economic affairs by 5 per cent of GDP during the second half of the Nineties. But most governments had planned to do much more than they actually achieved. Indeed, statistical tests suggest that many governments consistently failed to stick to their expenditure plans. Mühleisen and others (2005) find that five of eleven OECD countries exceeded on average their budgeted expenditure to GDP ratio over 1995-2003, although expenditure overshooting proved statistically significant only in one country. Even more disconcerting for the long run, governments have clearly lacked success in implementing their medium-term consolidation plans on the expenditure side. The SCPs of the EU-15 countries for 2002 and 2003, for example, overestimated the fiscal consolidations that were then actually achieved by a median of not less than 1.6 per cent of GDP for just two years ahead, and even more on a longer horizon (see Box 1).

Pessimistic Argument 2: the knife could soon reach the bone, for two main reasons. First, governments have already cut a lot. Table 6b compares the difference between the central government expenditure-to-GDP ratios in 2003 to the respective 1970-2003 peak. Shaded entries show reductions relative to the peak. The median country has cut already 5.1 per cent of GDP in non-age-related and 0.7 per cent in age-related expenditure categories, mostly in economic affairs, social protection, general public services, and defense. One large and important set of countries has focused almost exclusively on cuts in non-age-related sectors, with only negligible cutbacks in education, pensions, and health. These include Australia, Austria, Belgium, France, Germany, Italy, Korea, the United Kingdom, and the United States to a lesser degree (recognizing that some of these countries have made cutbacks in age-related expenditure policy regimes whose impact only will appear in future decades). In contrast, a few countries (notably Canada, Denmark, Finland, Spain, and Sweden) have made reasonably substantial cutbacks in *both* spheres of expenditure. Only Switzerland seems to have cut back more on age-related than non-age related expenditures. Most countries have already made cutbacks in most categories relative to the peak; only public order and safety, environmental protection, and health have remained mostly untouched. Second, a large share of past cuts was thanks to the end of the Cold War, a secular decline in interest rates since the Eighties, and the abandonment of subsidies to inefficient industries – factors that are as unlikely to be repeated as the motivation provided by the Maastricht criteria for EMU participation. And as the economic classification suggests, subsidies are mostly at historic lows (as mentioned before), and the

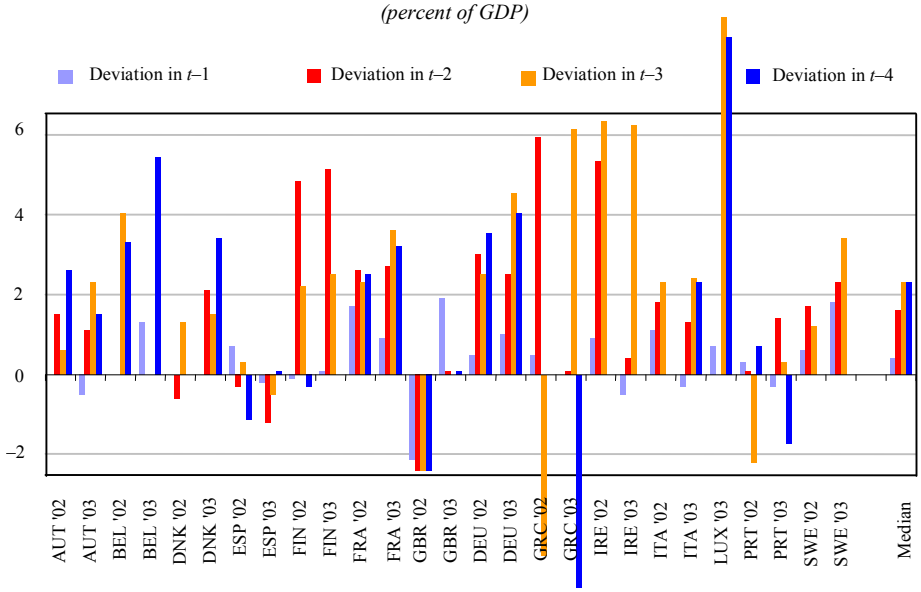
simulations in Hauner, 2005) typically disregard health care inflation. Thus, any difference between these deflators, for example due to high health care inflation, will affect the possible real growth rate of age-related spending.

Box 1
Expenditure Reduction
Ambitions and Achievements under the EU Stability and Convergence Programmes

The EU Stability and Convergence Programmes (SCPs) are useful to compare fiscal plans and outcomes over the medium term, because they provide a relatively consistent set of multi-year fiscal forecasts for a number of countries. To assess the success EU governments had in the implementation of their expenditure reductions, we compare the projections of the total expenditure-to-GDP ratios over the stability programs starting in 1998. The figure shows the difference between the last SCP projection of the 2002 and 2003 outturn and the projections published approximately (publications dates of the programs vary) one, two, three, and four years earlier. (We use the last projection instead of outcomes to ensure consistency in the definition of the expenditure ratio).

As the figure shows, the original ambitions regarding expenditure reduction had to be scaled down substantially over time for most observations. Measured by the median of the deviations, the last program projected an expenditure ratio 0.4 per cent of GDP higher than one year before, 1.6 per cent of GDP higher than two years before, and 2.3 per cent of GDP higher than three and four years before.

Expenditure Reduction
(percent of GDP)



Sources: Stability programs and authors' calculations.

Statistical tests confirm that the earlier program projections deviate significantly from the last projection: as the table shows, almost all tests for all series reject the null of no deviation at least at the 5 per cent significance level. The size of the coefficients is smallest for the one-year-ahead projection (0.38 per cent of GDP) and highest for the three-year-ahead projection (2.2 per cent of GDP). While deviations in the GDP projections are not accounted for, this does not affect the main conclusion here: governments find it very hard to stick to their often ambitious expenditure consolidation programs.

P-values of Tests of Null = No Difference Between Last Projection and SCP … Years Before

	1	2	3	4
Mean test (1)	0.03 (0.38)	0.00 (1.72)	0.00 (2.20)	0.04 (1.59)
Median tests				
Binomial sign (2)	0.13	0.00	0.00	0.06
Wilcoxon signed rank (3)	0.02	0.00	0.00	0.03
van der Waerden (4)	0.02	0.00	0.00	0.03

(1) Checks whether a constant in a regression is different from zero. Size in parentheses.
(2) Checks whether the sample is split evenly above and below zero.
(3) Checks whether the sum of the ranks of the absolute value of the difference between each observation and the mean is similar for the samples above and below the median.
(4) Variant of the van der Waerden test, but with smoothed ranks.

Source: Stability Programs and authors' calculations.

compensation of employees suggests that many countries have already squeezed their public servants quite a bit.

In sum, while non-age spending could be cut more, it is doubtful that this will be enough to buffer age-related pressures, or whether governments will be determined enough to do it. Even if the more realistic of the above back-of-the-envelope estimates of potential savings were indeed realized, they would not suffice to accommodate an average increase of 5.5 per cent of GDP in age-related expenditure as projected in OECD (2001), let alone the increase in health care spending due to non-age-related factors. It is also not clear whether governments will have the resolve to do it, even if the "pleasant arithmetic" of growing GDP and stagnating or declining populations (Hauner, 2005) could help a lot.

What about higher taxes? The revenue side is unlikely to provide much consolation to those governments most pressed on the expenditure side. Naturally, what one observes is that countries with least scope to raise taxes are the ones with the most potential for reducing expenditure, as the memo items in Table 7 show. But while raising taxes has in the past been politically less painful in many countries than cutting spending – particularly social spending – tax rates cannot go up much more, particularly in the Continental European countries where they are high already, and tax competition is increasing. Thus, governments in high-tax, high-(age-related-)expenditure countries, concentrated in Continental Europe, will face the toughest choices. Globalization pressures that put pressure on high tax rate countries, particularly with respect to the taxation of capital incomes, are likely to add to the difficulties faced by these countries in securing a fiscally sustainable position. In contrast, countries with low tax and expenditure shares have much more room to finance upward expenditure pressures by raising tax rates. Thus, but for

Table 7

General Government Tax Revenue, 2002
(percent of GDP)

	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Italy	Japan	Korea	New Zealand	Norway	Spain	Sweden	Switzerland	U.K.	United States
Total tax revenue	31.5	44.0	46.4	33.9	48.9	45.9	44.0	36.0	42.6	25.8	24.4	34.9	43.5	35.6	50.2	30.3	35.8	26.4
Income & Profits	17.4	13.0	18.3	15.7	28.9	18.6	10.5	10.1	13.8	7.9	6.2	20.6	19.0	10.4	17.7	13.1	13.5	11.8
Social Security	-	14.7	14.7	5.2	1.7	12.2	16.3	14.5	12.5	9.9	4.6	-	9.9	12.6	15.1	7.8	6.1	6.9
Payroll	1.7	2.7	-	0.7	0.2	-	1.1	-	-	-	0.1	0.3	-	-	2.4	-	-	-
Property	2.8	0.6	1.5	3.3	1.7	1.1	3.3	0.8	2.2	2.8	3.1	1.8	1.0	2.4	1.6	2.6	4.3	3.2
Goods & Services	9.5	12.4	11.4	8.9	16.2	13.9	11.2	10.5	11.4	5.2	9.5	12.3	13.6	10.2	13.3	6.9	11.7	4.6
Other	-	0.5	0.0	0.2	0.0	0.0	1.6	0.0	2.6	0.1	0.9	-	0.0	0.1	0.2	0.0	-	-
Memorandum items																		
Potential new revenue by raising total tax rate to median	6.3	0.0	0.0	3.9	0.0	0.0	0.0	1.8	0.0	12.0	13.4	2.9	0.0	2.2	0.0	7.5	2.0	11.4
Potential expenditure savings according to Table 5b	0.3	4.6	2.3	1.0	11.4	5.8	6.7	4.9	0.9	1.0	0.0	0.0	2.5	1.6	10.1	0.0	1.4	3.8
o/w: non-age-related categ.	0.0	1.5	1.4	0.3	2.0	1.4	2.5	0.3	0.7	0.0	0.0	0.0	1.0	1.6	3.0	0.0	1.4	2.9

Source: OECD and authors' calculations.

political economy reasons, one would have to argue that there is room in the United States, Japan, Australia, and even the United Kingdom for some increase in the tax burden in order to meet the burden of aging populations.

4. Potential additional upside risks

In addition to the uncertainties about the slope of long-term expenditure trends, there are numerous potential upward shifts to the trend that are difficult to integrate in fiscal planning. Budget technocrats, in carrying out long-term projections, are often constrained in a number of ways. Policymakers may dictate that revenue and expenditure projections should only be based on current legislation, thus incorporating policies that may be recognized as unsustainable or unlikely in the future. Efforts to incorporate uncertainty on the many factors that may influence key revenue or expenditure variables can quickly escalate into a multiplicity of projections and scenarios that can dwarf any effort to distill the key policy issues that will confront a government. Stochastic or VaR analytic techniques are available to weight projections according to their probability of occurrence, but these also rest on much uncertainty in terms of the choice of the underlying parameters. One can thus understand why such technocrats, in carrying out long-term projections, focus only on the few key variables that are likely to influence critically the major fiscal policy aggregates (e.g., the EC exercise, which limits its focus to the impact of aging on the fiscal position over the long term, holding non-age-related variables constant as a share of GDP).

Yet in thinking about the appropriate fiscal policy framework for the future, it is difficult to turn a blind eye to other "futures" exercises carried out by governments and corporate strategists that seek to explore possible trends and developments that will shape the world of the future. The Shell Scenario frameworks and the periodic projections carried out by the U.S. Government's National Intelligence Council (the most recent being the *Mapping the Global Future* (NIC (2004)) are illustrative. What are some of the difficult "imponderables" most talked about as influencing the shape of the future economic and political landscape?

Natural disasters/climate change: the cost of natural disasters has risen substantially over the Nineties. Some argue that these are related to climate change (Figure 8), which is likely to force higher government spending on adaptation and mitigation measures in coming decades. Adaptation outlays will be directed at addressing the adverse effects of climate change on key economic sectors and dealing with the impact of a higher incidence of extreme weather events, changing precipitation patterns, and a rising sea level. The costs of mitigation may be reflected in higher R&D outlays, infrastructure investments associated with alternative fuel sources (nuclear energy), and approaches to carbon sequestration. The small possibility of abrupt climate change looms as a contingent fiscal risk.

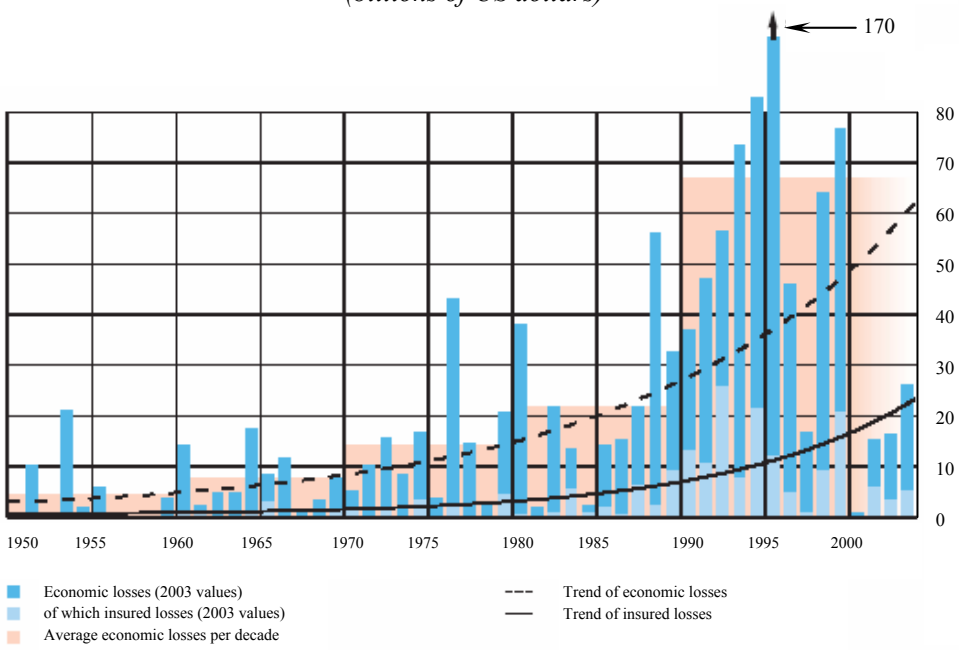
The rise of China: the prospect of further rapid economic growth in China for the next several decades and the nature of that growth – both in manufacturing

Figure 8

The Economic Cost of Natural Disasters

(the chart presents the economic losses and insured losses, adjusted to present values. The trend curves verify the increase in catastrophe losses since 1950)

(billions of US dollars)



Source: Munich Re (2004).

and in the services sector (especially in the knowledge economy) may reduce the real growth prospects for some industrial economies. Conversely, the pattern of China's growth has already provided benefits to government and industrial country consumers in the form of lower prices for many products, a trend which may continue for many years. The latter factor may alleviate some cost pressures facing governments.

Terrorism: experts on weapons of mass destruction (WMD) are almost universally pessimistic on the prospects that industrial countries will be able to avoid a serious terrorist incident in the next decade. This could involve a low grade nuclear device set off in a major city. Equally plausible is the prospect of a bioterrorist incident, given the wide availability of multi-use laboratories and facilities that have the capacity to produce toxic biological agents. Cyber attacks could do critical damage to the financial sector. The effect of a WMD incident on the individual country in which it occurs or on the global economy is not easy to calculate, but

cannot be ignored as a downside risk affecting economies in general and the public sector more specifically. Even in the absence of an incident, governments are likely to require sustained spending on preventive actions.

Pandemics: epidemiologists are equally concerned that it is not a question of if, but when there is a crossover virus, most likely from an avian source, that would engender a serious viral epidemic of global proportions. While there is heightened vigilance by international health authorities on the risks of such an outbreak, most serious experts would contend that the world's capacity to respond quickly remains extremely limited.

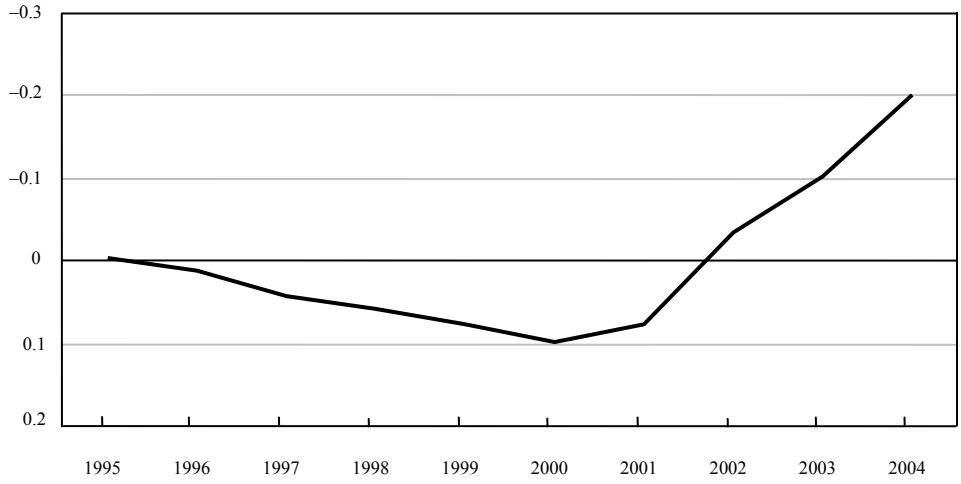
National security concerns: recent history suggests that this factor seems to concern the United States and the United Kingdom more than other OECD countries. However, Australia has also gotten involved in major military operations in recent years. Europe was engaged in the first Persian Gulf War and has periodically provided some engagement in regional conflicts in Africa. The North Korean situation continues to be a source of significant strategic disquiet in Asia. If they occur, military interventions or wars can be very costly. Of the more recent examples, the 1990/91 Iraq War cost the US about 1 per cent of US' GDP; the 2003 Iraq War again cost about 1 per cent of GDP up to the end of the fiscal year 2004, according to the CBO, with costs likely to remain at this level for at least another year or so. Fragile states continue to be a source of concern in the international community, with uncertain costs to be borne by either neighboring states or by the international community.

ODA: world concern over the slow progress of meeting the Millennium Development Goals (MDGs) has made 2005 a pivotal year for mobilizing ODA resources to meet the MDGs. Initiatives such as the International financing Facility, debt relief, and global tax proposals, not to mention efforts to raise ODA levels to 0.7 per cent of industrial country GDP, are high on the policy agenda. While the prospects of these initiatives all bearing fruit may be limited, it would be difficult to envisage that the global community will be able to reduce the scale of its support for ODA (one component of general public services) for at least two decades.

Government contingent liabilities in the pension and welfare area: in the few countries with substantial funded defined benefit pension schemes, the risk of corporations unable to cover the costs of their pension or medical care liabilities, presents the risk of government bailouts of these schemes. This has become particularly apparent recently in the United States, where the Pension Benefit Guaranty Corporation has broken its deficit record in each of the last couple of years; in 2004, its deficit reached approximately 0.2 per cent of GDP (Figure 9). And there is no improvement in sight: actuaries at Towers Perrin estimate that the deferred pension cost for the 81 biggest defined benefit pension schemes in the United States grew to $252 billion in 2004 (FT 1/8/05). Private pension funds would get into further trouble if those observers predicting prospectively lower equity risk premia, such as Dimson and others (2002) or Fama and French (2002), turn out to be accurate.

Figure 9

Deficit of the U.S. Pension Benefit Guaranty Corporation
(percent of GDP)



Source: United States, Pension Benefit Guaranty Corporation and authors' calculations.

But these risks extend further. Recent developments in the United Kingdom suggest that the inadequacy of the basic state pension will lead many elderly with inadequate private pension savings to go on the government's welfare scheme instead. In the United States, commentators on the Bush administration's recent Social Security reform proposals warn of the risk that adverse investment performance may leave many households more exposed to poverty than under Social Security. While this may force expanded government coverage under welfare for the elderly, it may also have an indirect impact on government obligations under Medicaid. Chile's much vaunted scheme of defined contributions nevertheless has not limited the government's obligations for households, whose pension accumulations have fallen below the minimum income guarantee. Rather than see a reduction over time in the government's pension payments under the previous pay-as-you-go scheme, government pension outlays have remained stubbornly constant as a share of GDP.

Other contingent risks: recent IMF studies have highlighted the extent of a government's potential contingent risks in the area of public/private partnerships and in the financial sector.

In conclusion, the purpose of outlining these "risk factors" is not to argue for specific inclusion of any one "uncertain" expenditure risk in fiscal projections. Rather, it is to underscore that these risks caution against projections which suggest easy scope for significant reductions in many categories of government expenditure.

It also argues for a more conservative stance in terms of targets for government debt reduction. This, in turn, would require a more disciplined approach to long-term structural expenditure reduction. There is no other way to square the fiscal circle.

5. Concluding observations

Three broad conclusions follow from the discussion in this paper. First, the underlying approach to setting the fiscal policy framework tends to understate the downside risks arising from the uncertainty of the policy environment facing governments. This suggests that governments need to provide far more leeway on the expenditure and/or revenue sides for unexpected departures from the baseline. Second, while the level of expenditure in the long run is primarily a political issue, the data reviewed in this paper suggest that there is only narrow scope for most governments to obtain further savings from non-age-related expenditure categories. Efforts since the early Nineties to consolidate budgets (e.g., in the context of the Maastricht criteria and the Stability and Growth Pact) have narrowed significantly the potential for further cutbacks in the most obvious expenditure categories.

Third, on the revenue side, only a few countries would appear to have room to augment tax shares in response to potential expenditure pressures; most governments, in contrast, may find that globalization pressures may force cutbacks in their tax shares that will only add to the challenges associated with containing government expenditure pressures.

Together, this means that most governments will have to adopt a more ambitious fiscal policy stance cum policy reform framework aiming at a rebalancing of the role of the state and the private sector in the face of aging populations. With little scope left for tinkering with the existing expenditure framework, the focus must now be on long-term structural reform programs that achieve a steady and sustainable decline in expenditure commitments arising from aging populations and in the extent of the state's obligations in the medical care sphere.

The challenges associated with rationalizing such programs go far beyond the scope of this paper, which focuses more on the overall fiscal structure and the way in which governments take account of uncertainty in assessing their long-term fiscal position. Current medium-term fiscal projections, including those in the EU Stability Programs, are often weakened by overly optimistic underlying assumptions. This suggests that, as a first step, governments of countries facing severe fiscal challenges from aging should be attuned to potential vulnerabilities in making long-term expenditure forecasts of economic and functional expenditure categories. Such vulnerabilities should be reflected in some way in the framing of annual budgets. Certainly, long-term projections should be informed by scenario analyses. Most importantly, such scenario analyses can serve to focus the public debate on the key long term policy challenges and provide a continuous reality check of current expenditure trends relative to the long-term goals.

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EXPENDITURE COMPOSITION AND INSTITUTIONAL REFORM IN EUROPE: A POLICY PERSPECTIVE

Peter Wierts[*]

1. Introduction

As part of the Lisbon strategy, EU Member States have agreed on the recommendation to enhance the contribution of the public sector to growth by:[1]

- "redirecting, *i.e.* while respecting overall budgetary constraints, public expenditure towards growth-enhancing cost-effective investment in physical and human capital and knowledge…"; and by
- "increasing the efficiency of the public sector, inter alia, by introducing mechanisms to assess the relationship between public funds and policy objectives and to help control spending"

The purpose of this paper is to evaluate actual developments in EU Member States from the perspective of these agreed policy recommendations. Section 2 puts the discussion into perspective, by briefly reviewing the literature on the link between public expenditure and long-term growth. Sections 3 and 4 then evaluate developments in the composition of public expenditure. In doing so, Section 3 investigates the long-term trends while section 4 takes a detailed look at changes in the composition of public expenditure since the start of the Lisbon strategy in 2000. In discussing policy options, Section 5 then stresses the importance of budgetary institutions. It maintains that, although it would be difficult to establish a direct link between institutional reform and the degree to which expenditure has been directed towards productive items, the data indicate that all countries that have been at the forefront of institutional reform also managed to redirect their public expenditure towards public investment (as a proxy for physical capital) and education (as a proxy for human capital).

2. Fiscal policy and long-term growth: A brief review of the literature

2.1 Conceptual issues

Most studies on the link between fiscal policy and long term growth start from Solow's neoclassical growth model that implies that in the long run steady state growth rate is constant and driven by exogenous factors of population growth

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[1] European Commission (2003b).

and technological change. Fiscal policy can only affect the level of output in the steady state and the adjustment path through its impact on savings. For example, lower taxes on capital can lead to increased savings and to a higher growth rate until a new steady state has been reached. The transitional dynamics can not be ignored, however, given that it may take a long time for the economy to adjust to a new steady state.[2]

One of the criticisms of the neoclassical growth model points out that it is difficult to find reasons in these models why the government might intervene at all. Endogenous growth models therefore allow the possibility of government intervention for correcting market failures when there are externalities. This leads to the conclusion that investment in human and physical capital may affect the steady-state growth rate. This point can be illustrated on the basis of the following production function (see Gerson, 1998, for an extensive description):[3]

$$Y_t = f\left[A_t K_t, B_t L_t\right] \tag{1}$$

where t is time, Y is output, K and L are capital and labour and A_t and B_t represent the quality of the stock of labour and capital. This equation states that total output at any moment in time depends on the volume and productivity of capital and labour.

In the neoclassical model, the production function inhibits decreasing returns to both capital and labour and A_t and B_t are exogenous. Consequently, the economy will tend to a constant capital/labour ratio, where the return from additional investment equals its cost. When, by contrast, endogenously determined increases in A_t and B_t ensure that the marginal product of physical capital does not tend to zero when the amount of capital per worker increases, policies that affect the incentives to invest in either physical or human capital can have permanent effects on the long-run growth rate.

The basic message for fiscal policy is summarised in Table 1 where productive expenditure is defined as expenditure with a positive effect on the marginal productivity of capital and/or labour (A_t and B_t in equation (1)), while distortionary taxes are taxes that distort the decision to invest in capital or labour and – hence – might have negative growth effects.

2.2 Empirical issues

2.2.1 Fiscal policy and results from growth regressions

Before concentrating on empirical research that has investigated the link between fiscal policy and long-term growth, it should be recognised that fiscal policy is only one of many variables that may be related to long-term growth.

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[2] See Barro and Sala-i-Martín (1995): "convergence speeds that are consistent with the empirical evidence imply that the time required for substantial convergence is typically on the order of several generations".

[3] The literature on endogenous-growth models starts with Romer (1986).

Table 1

Fiscal Policy Aggregates and Long-term Economic Growth

Budgetery Aggregates	Classification	Theory: Effect on Growth	Possible Examples
Expenditure	Productive	Positive effect on marginal productivity of capital and labour	Investment in transport and communication, education, R&D, health care
	Unproductive	Effect on marginal productivity zero or negative	Expenditure on economic services, recreation
Taxation	Distortionary	Distorting supply or demand of capital and labour	Taxation on income and profit
	Non-distortionary	No distortion of supply or demand of capital and labour	Proportional tax on consumption

Source: adapted on the basis of Gemmell and Kneller (2003) and Gerson (1998).

Levine and Renelt (1992) and Sala-i-Martín (1997) have identified more than 50 variables that are significantly correlated to growth in at least some study. When conducting a systematic sensitivity analysis of a number of these partial growth correlations, they find that most of the correlations are fragile, as it is nearly always possible to find alternative explanatory variables that cause the partial correlation as identified previously to disappear. This includes the partial correlations for government spending (including public investment). Easterly and Rebelo (1993) make a similar point: the link between most fiscal variables and growth turns out to be statistically fragile since it depends heavily on what other control variables are included in the regression.[4] Hence, it should be admitted from the start that the uncertainty surrounding the partial correlations between fiscal policy variables and growth remains large and that our understanding of the variables that cause economic growth is very limited. From a policy point of view, a broad perspective is therefore needed to identify policies that could raise low structural growth rates within the EU.[5]

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[4] Nevertheless, the share of pubic investment in transport and communication and the government's budget surplus are consistently correlated with growth in their cross section of countries. Furthermore, government's revenue-to-GDP ratio rises with per capita income (Wagner's law) in both the cross-section and the historical data sets.

[5] See for example the Sapir report (2003), which identifies a six point agenda for improving the growth potential of the EU economy It calls on the EU and its members: (1) to make the Single Market more dynamic; (2) to boost investment in knowledge; (3) to improve the macroeconomic policy framework for EMU; (4) to redesign policies for convergence and restructuring; (5) to achieve more effectiveness in decision-taking and regulation; and (6) to refocus the EU budget.

2.2.2 Empirical support for endogenous growth theory

When focusing specifically on endogenous growth through fiscal policy, it turns out that the empirical evidence in support of it remains mixed. Jones (1995) presents evidence against the endogenous growth hypothesis on the basis of time series data for the US that indicate a lack of persistent change in growth rates. By contrast, several recent empirical studies have also attempted to estimate the combined impact of productive expenditure and distortionary taxation (as well as several "control" variables in some cases) on growth (Kocherlakoty and Yi, 1997, Kneller *et al.,* 1999 and 2001, Romero de Avila and Strauch, 2003). The basic argument is that both sides of the budget (revenues and expenditures) should be taken into account in estimating the effects of fiscal policy on long run growth. Indeed, these studies typically find that results are not statistically significant when only the revenue or expenditure side is included in the growth regression given that positive effects of productive spending and negative effects of distortionary taxation could be offsetting. Results become statistically significant, however, and coefficients have the theoretically predicted sign when both the expenditure and revenue side are included in the regression. These results support the notion that the composition of expenditure and revenues matter for long-term growth and that policies to improve the composition of both expenditure and revenue could have positive effects on long term growth.

Research has also attempted to measure the productive effects on individual expenditure categories. EC (2002a) reviews the literature and finds that public infrastructure investment, education and R&D are positively correlated to growth, even if the magnitude of the impact is uncertain and the effects are non-linear. For similar conclusions, see Colombier (2004).

In sum, the literature points out that the transmission linkages between the composition of public expenditure and long-term growth that operate through the effects of public expenditure on the marginal productivity of capital and labour (e.g. through a well-educated population, better infrastructure, spill-overs from technological innovation, etc.). These transmission mechanisms can be expected to depend crucially on the needs of individual countries, such as the level of development and the quality of its infrastructure and education systems, and on how efficiently the money is spent. A mechanical approach on the question of identifying productive expenditure should therefore be avoided and it seems more appropriate to start from the needs of individual countries instead. At the same time, partial analyses can also improve understanding of the linkages between public expenditure and growth. The remainder of this paper performs such analysis with respect to the composition of public expenditure and the impact of the institutional process in steering the composition of public expenditure.

3. Trends in public expenditure: 1970-2004

3.1 The economic classification of public expenditure: 1970-2004

Figures 1 and 2 show the dynamics of the main components of public expenditure since 1970 for EU15 countries,[6] both as a percentage of GDP and as a percentage of total expenditure. Figure 1 shows how total expenditure rose quickly during the Seventies, reached a peak in the early Nineties, and by 2004 had fallen to the level of the early Eighties. Over the period of 1970 to 2002 as a whole, the largest increase is recorded in the category of *transfers*[7] (+5.7 percentage points, both as a percentage of GDP and total expenditure). The category of *interest payments* also shows strong dynamics, increasing sharply up to 1992 (+3.7 p.p. of GDP and +6.0 p.p. in total expenditure), and then declining strongly, while still showing and increase over the period 1970-2004 as a whole (+1.8 p.p. of GDP and +1.3 p.p. in total expenditure). Final government *consumption* also increased as a percentage of GDP (+4.4 p.p.), but saw its share in total expenditure declining (–0.3 p.p) given the rise in total expenditure since 1970. The biggest decline is recorded for the category of *public investment* (–1.8 p.p. of GDP and –6.2 p.p. in total expenditure), reaching a low of 4.6 per cent of GDP in 1997 and then slightly increasing to 5.0 per cent of GDP in 2004. Finally, the category of subsidies also declined both as a percentage of GDP (–0.3 p.p.) and as a percentage of total expenditure (–1.5 p.p.). Overall, these data show that the composition of public expenditure has shifted from public investment and subsidies to transfers and interest payments over the period 1970-2004.

Regarding the explanatory factors of these changes, the major factor that has put total expenditure upwards during the Sixties and Seventies has been the establishment of the welfare state, including expenditure on public pensions, income support, health care and education. See, e.g., Tanzi and Schuknecht (2003): most spending growth has been absorbed by expanding social programmes and has often taken the form of cash *transfers*. As for the dynamics in the other components, the development in *interest payments* is, of course, related to the build-up of debt and the subsequent improvement in fiscal discipline and convergence of interest rates in the run-up to EMU during the Nineties. The long-term decline in *public investment* since the Seventies is analysed in detail in EC (2003a).

It points to factors such as economic development and structural change (with developed countries already having acquired a high stock of physical capital) and the changing boundaries between public and private investment, which are in part linked to processes of privatisation. Expenditure on public investment is also of a more discretionary nature than other items that reflect a high degree of past-related

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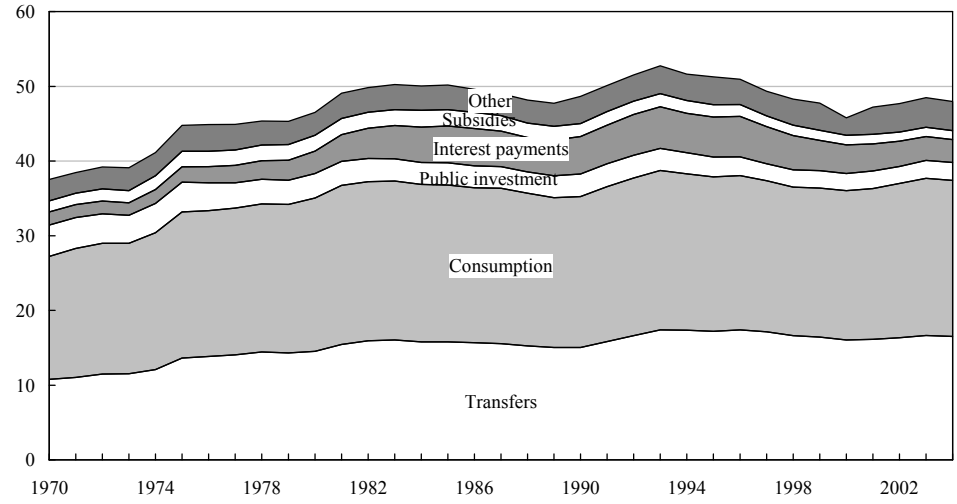
[6] 1970 was chosen for reasons of data availability. For an evaluation of the public spending over a longer time frame, see Tanzi and Schuknecht (2000).

[7] In terms of ESA95, transfers is social benefits other than social transfers in kind; public investment is gross fixed capital formation; consumption is final consumption expenditure.

Figure 1

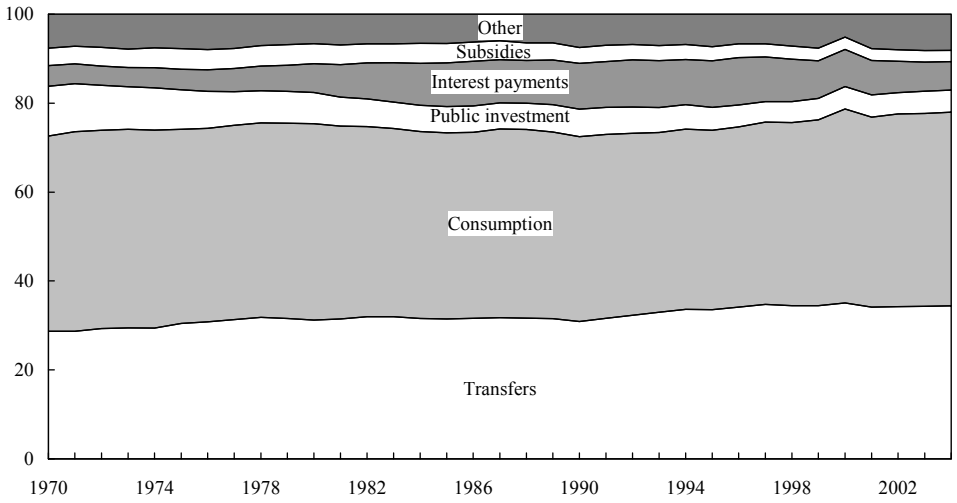
Economic Classification of Public Expenditure
(percent of GDP)



Source: Commission services.
Countries included are BE, DK, DE, EL, ES, FR, IE, IT, LU, NL, AT, PT, FI, SE and UK.

Figure 2

Economic Classification of Public Expenditure
(percent of total expenditure)



Source: Commission services.
Countries included are BE, DK, DE, EL, ES, FR, IE, IT, LU, NL, AT, PT, FI, SE and UK.

commitments, and some of the decline in public investment also appears to be related to efforts to consolidate public finances.[8]

3.2 The functional classification of public expenditure: 1991-2002

Figures 3 and 4 show the development of the main items of the functional classification of public expenditure over time, for a subset of eight Member States for which data are available since 1991 (BE, DK, DE, EL, IT, LU, PT, UK). Over the period 1991-2002 as a whole, the biggest increase was recorded in *social protection* (+1.7 p.p. of GDP and +6 p.p. in total expenditure). Expenditure on social protection increased the most during the early Nineties, reaching a high in 1996 and then declining slightly. However, the share of expenditure on social protection in total expenditure continued to increase until 2000 given that total public expenditure declined. *Health* care expenditure also increased, by +0.5 p.p. of GDP and +1.9 p.p. in total expenditure. Expenditure on education remained stable at 4.8 per cent of GDP and thus increased its share in total expenditure (+0.6 p.p.). The biggest decrease in expenditure was recorded for the category of *general public services* (–2.4 p.p. of GDP and –4.1 p.p. in total expenditure), followed by *economic affairs* (–1.3 p.p. of GDP and –2.4 p.p. in total expenditure). Overall, at the aggregate level, these data show that the composition of public expenditure has shifted mainly from general public services and economic affairs towards social protection and health over the period 1991-2002.

Apart from the fact that these functional data show no overall decline in the welfare state in recent years (see also Lindert, 2004), the rise in *health* care expenditure is another remarkable feature of expenditure developments. In this respect, the literature has pointed to factors such as technological progress (See Jones, 2004: "*medical advances allow diseases to be cured today, at a cost, that could not be cured at any price in the past"*), social preferences about longevity and the consumption of non-health goods and services (see Hall and Jones (2004): "*the account that emerges is that the marginal utility of non-health consumption diminishes faster than the marginal utility of health spending. As a result, the composition of total spending shifts towards health")*, and ageing populations (EPC, 2003). Regarding expenditure on *education*, EPC (2003) draws attention to the fact that expenditure did not decrease its share in GDP despite the sharp fall in the number of young persons in most countries. This is attributed to policy measures to improve the quality of education via a lowering of the pupil/teacher ratio, to inefficiencies in expenditure, or to the labour intensive nature of education provision, which may result in faster cost increases than in the economy as a whole. The decline in expenditure on *general public services* – which includes interest payments and other expenses related to debt, expenses related to executive and

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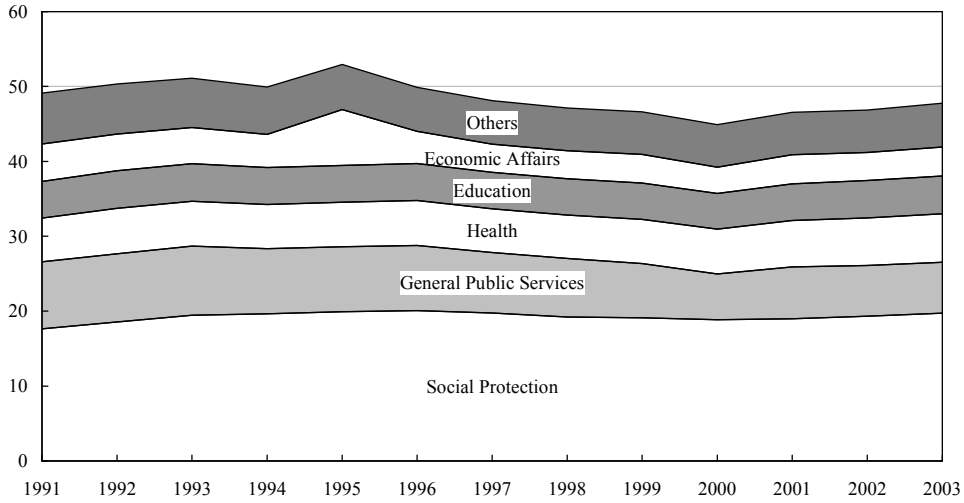
[8] In addition, the European Commission (2003a) finds no clear-cut link between changes in investment ratios and the provisions of the EU framework for fiscal surveillance.

Figure 3

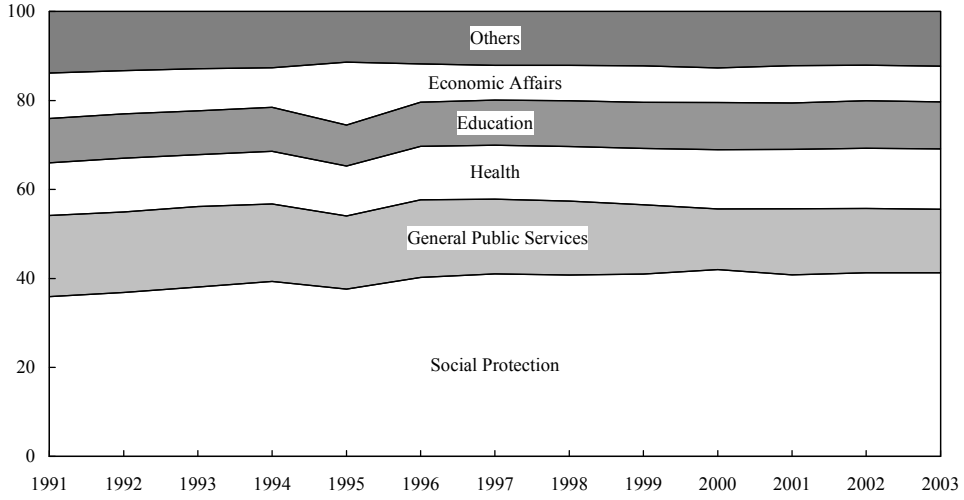
Functional Classification op Public Expenditure
(percent of GDP)



Source: Commission Services. Countries included are BE, DK, DE, EL, IT, LU, PT, UK.

Figure 4

Functional Classification of Public Expenditure
(percent of total expenditure)



Source: Commission Services. Countries included are BE, DK, DE, EL, IT, LU, PT, UK.

legislative organs, financial and fiscal affairs, external affairs and, foreign economic aid – is largely consistent with the decline in interest payments as reported in Figure 2. Finally, the decline in the category of *economic affairs* – which includes covers items such as support programmes and subsidies to mining, manufacturing, agriculture, energy, and services industries – is in line with the decline in spending on subsidies.[9]

Taken together, the long-term trends of expenditure increases on transfers/social protection and decreases on public investment have clearly led to worries that the composition of public expenditure might have become less supportive to long-term growth over the last decades. The agreed policy recommendation to redirect public expenditure towards growth-enhancing investment in physical and human capital, as mentioned in the introduction to this paper, can therefore be seen as a direct response to these trends. The question is: how to evaluate actual trends in the composition of public expenditure in this respect since the start of the Lisbon strategy in 2000?

4. Redirecting public expenditure: The Lisbon experience

The policy prescription of *redirecting* public expenditure towards productive items implies that increases in productive expenditure need to be compensated by decreases in other expenditure categories. Therefore, it seems appropriate to use relative changes in expenditure categories – *i.e.* expenditure as a percentage of total expenditure – as a yardstick for evaluating changes. Using this yardstick would imply that an *increase* in total expenditure due to a rise in expenditure on public investment would classify as redirecting, just as a *decrease* in total expenditure due to a reduction in other categories such as transfers or interest payments.

Table 2 evaluates changes in the composition of public expenditure since the late Nineties. On the horizontal axis it measures the size of relative changes in the composition, while on the vertical axis it shows the main components of public expenditure, as part of the economic and functional classification of public expenditure. Data have been measured as averages over 1998-99 and 2002-03/4, in order to avoid that developments in a particular year (e.g. elections) heavily influence the measured changes.[10]

Based on the economic classification, interest payments show by far the biggest relative *decrease*, except from countries that saw their debt increasing (DE, FR), where debt remained relatively constant (AT, PT) or that have low debt (LU). In addition, NL and UK show strong decreases in transfers, whereas public

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[9] For a breakdown of the expenditure data of the functional classification of pubic expenditure into the economic classification, see Revelin (2003).

[10] 2000 has not been used as a starting year given that the data are influenced by the UMTS sales in this year while 1997 is not included given that during this year special consolidation efforts related to qualification for EMU where made.

Table 2

Relative Changes in Composition of Public Expenditure: Averages 2003/4 versus 1998/99 (Economic Classification) and 2002/3 versus 1998/99 (Functional Classification)

Economic classification:	**–10.0**	**–5.0**	**–2.0**	**–1.5**	**–1.0**	**–0.5**	**+0.5**	**+1.0**	**+1.5**	**+2.0**	**+5.0**	**+10.0**
Subsidies				DE	SE, IE	FI, NL, IT, LU, DK, ES, FR, EL	PT, AT, BE, UK					
Interest payments	EL	IE, SE, IT, BE, NL, ES, UK, DK, FI		PT	DE, FR, AT	LU						
Public investment		PT			AT, DE	BE, SE	DK, LU, FI, IT	FR, UK, EL, ES	NL	IE		
Consumption						LU	AT, DE, FR			DK, PT	EL, ES, FI, UK, SE, IT, BE, NL	IE
Transfers		UK, NL		FI		ES, FR	IE, LU, DK	BE, IT, SE		DE, AT, EL, PT		
Functional classification:												
Economic affairs		PT		DK, FR		DE, IT, FI	ES, BE	SE, LU	NL, UK, AT	EL, IE		
Education						DE, FR, LU, PT	BE, ES, EL, SE, AT, NL, IT	IE, FI, DK, UK				
Health				EL, AT		ES	LU, DE	PT, DK	NL, BE, FR, FI	UK, IT, SE, IE		
General Public Services	EL	IE, SE, IT, NL, UK, DK	BE, AT	ES	FI, DE	LU	PT	FR				
Social Protection		IE	UK, FR, NL			FI	ES, BE, LU	IT, DK, DE	AT	EL, SE, PT		

Source: Commission services.
Note: Changes are measured in percentage points of total public expenditure.

investment declined heavily in PT. The biggest *increases* in expenditure are recorded for most countries in the category of consumption, while several countries also recorded substantial increases in transfers (DE, AT, EL, PT). and noticeable relative increases in public investment (FR, UK, EL, ES, NL, IE).

In terms of the functional classification, many countries show decreases in general public services (which includes interest payments) and increases in health care. The picture for social protection is more mixed, with substantive relative decreases in IE, UK, FR and NL and substantive increases in SE, EL and PT. Furthermore, IE, FI, DK and UK show noticeable relative increases in public expenditure on education.

Overall, while strong decreases in interest payments have been used mainly for relative increases in consumption, several countries also saw strong increases in transfers. Results for the categories of public investment (which could be used as a proxy for investment in physical capital) and education (which could be used as a proxy for investment in human capital) show a mixed picture, but more countries show relative increases than decreases. Finally, given that strong relative decreases in interest payments cannot last, it seems that the process of redirecting will have to involve decreases in other categories of public expenditure, *i.e.* mainly transfers and consumption. However, these are the categories where, in the absence of policy changes, underlying pressures for expenditure increases will remain the highest.

5. Redirecting public expenditure: the role of budgetary institutions

5.1 Redirecting public expenditure between broad expenditure categories

Long-term projections indicate that, in a no-policy change scenario, ageing populations will lead to an increase in public spending of between 3 and 7 percentage points of GDP up to 2050 in most Member States (EPC, 2003). In particular spending on pensions (increase between 3 and 5 p.p. of GDP up to 2050) and health care (between 1.4 and 4 p.p.) show strong upward pressures. Such mechanic projections imply strong dynamics in the composition of public expenditure away from any reasonable proxy of productive expenditure. As a result of these – and other[11] – projections, a growing literature has investigated possible policy reactions in response to increasing pressures on the public sector. A first strand of this literature focuses mainly on institutional reform for improving expenditure control and the efficiency of public spending (e.g. Atkinson and van den Noord, 2001, Joumard *et al*., 2004, EC, 2004a), while a second strand concentrates on options for policy reform or increasing market solutions (CPB, 2003, Lindert, 2004, Tanzi, 2004, Schuknecht and Tanzi, 2004).

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[11] See Heller (2003) on the impact of a range of factors such as ageing populations, climate change and technical progress.

The purpose of this section is to contribute to the first strand, from the perspective of the agreed policy recommendation to introduce institutional mechanisms for improving the control and efficiency of public expenditure, as mentioned already in the introduction. The starting point is a possible link between Medium Term Expenditure Frameworks (MTEFs) and expenditure rules and the ability of countries to redirect public expenditure. This is based on the hypotheses that effective medium-term expenditure frameworks facilitate the reallocation of public expenditure by extending the planning horizon and improving the consistency in the implementation of expenditure priorities. When embedded in a medium-term framework, expenditure rules may also contribute to containing expenditure categories subject to underlying upwards pressures (e.g. health, pensions) and protect future-oriented expenditure – for which the degree of discretionary decision-making often is large – from being crowded out (e.g. public investment). In this respect, Schick (2002) argues that medium-term expenditure frameworks can be used to facilitate reallocation between broad expenditure categories, by permitting some sectors increases above the baseline projections while other should produce decreases.

Thus, is it true that countries with more advanced institutional frameworks for managing public expenditure show better results in terms of redirecting public expenditure? In order to address this question, the Appendix shows the results of an empirical investigation by the European Commission into the design of expenditure rules (European Commission, 2003). Results in the first column (coverage of expenditure items), the fourth column (date of introduction) and the fifth column (time span) show that expenditure rules that cover all or a substantial part of central government expenditure, and that are embedded in a medium-term framework, were reported for BE, DK, DE, FR, IT, NL, FI, SE, and UK. In most (but not all) cases these reforms were introduced at the end of the Nineties, while ES introduced a multi-annual framework for medium-term budgeting in 2003.[12] Of those countries, the rules were perceived to have had a significant impact on expenditure developments in NL, FI, SE and the UK (see last column "experience with the rule"). No clear judgement on the experience with the rule could be given for BE and DK (difficult to judge adherence given definition of target over a number of years) and ES, IT (too early to assess given recent introduction of the framework). Finally, it was not possible to detect a restraining impact in FR (no enforcement, original objectives not respected) and DE (ceiling not respected in 2002). These findings are in line with those of Dában *et al.* (IMF, 2001) that state that FR, DE, IT and ES have not been at the forefront of recent experimentation with multiyear fiscal frameworks and argue that these countries should place more emphasis on spending rules. However, as indicated, ES has introduced such a framework in 2003.

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[12] Unfortunately, this survey did not cover expenditure rules for individual expenditure categories. Therefore, a follow-up survey might investigate the link between the ability to redirect public expenditure and experience with expenditure rules and medium-term projections for specific categories of public expenditure.

In principle, it would be difficult to establish a direct link between institutional reform and fiscal policy outcomes, given that expenditure outcomes are driven by a range of other factors (e.g. ageing, unemployment, policy reforms) so that the effects of institutions can be overshadowed by the effects of other factors. It is noteworthy, however, that all countries that have been at the forefront of institutional reform (*i.e.* ES, NL, FI, DK, SE and UK) also managed to redirect their public expenditure towards public investment and education.[13]

5.2 Redirecting public expenditure within broad expenditure categories

Apart from redirecting public expenditure *between* broad classes of public expenditure, which requires the identification of priorities and political decision-making at the highest political level, redirecting public expenditure can also take place *within* broad classes of public expenditure. See Schick (2003): a relaxation of input controls can give managers and agencies more freedom to use their expertise in finding and the designing the best programmes. In return they will be held more accountable for the achieved results. Such institutional reforms to the budget process shift attention from public expenditure (inputs) to policy outcomes, in order to increase the efficiency of public expenditure by achieving expenditure savings while maintaining or improving performance in terms of policy outcomes (*i.e.* improving the allocative efficiency of scarce public resources). In this context, Section 2 already indicated that the productive effects of public expenditure ultimately depend on policy outcomes achieved (positive spillover effects from better infrastructure, better educated population, etc.) and not necessarily on the amount of money spent.

The question thus arises which countries have introduced institutional reforms for increasing the focus on policy outcomes, and whether this may qualify conclusions reached so far.[14] In this context, the literature on performance budgeting stresses that a tight budget constraint is a precondition for performance budgeting since increased flexibility requires certainty over the funds that are available to reach the stated targets. Therefore, steps towards performance budgeting have usually been taken in parallel with introducing or strengthening medium-term expenditure frameworks. In this respect, the available empirical data for EU countries in EC (2004a)[15] indeed confirm that the countries that are more advanced in introducing

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[13] With the only exception of public investment for SE, which shows a small relative decrease.

[14] A different question concerns the effectiveness of reforms of performance budgeting. To summarise, much of the literature on performance budgeting stresses the importance of moving "beyond rhetoric" and giving a balanced assessment of what can and has been achieved through such reforms. Still, Moynihan (2003) points out that performance budgeting can enrich policy debates and help to identify and prioritise desired outcomes, especially when embedded in a broader strategy of managing for results, while OECD (1997) points out that there are strong reasons to believe that "restructuring public management" has brought sizeable efficiency gains, while there is no reason to believe that outcomes have either improved or deteriorated.

[15] On the basis of the OECD/Worldbank Budgeting Practices and Procedures Database.

institutional reforms related to performance budgeting (ES, NL, FI, DK, SE, UK) indeed also introduced medium-term expenditure frameworks.

6. Conclusion

Overall the available data indicate that the countries that have put stronger emphasis on institutional reforms for controlling public expenditure within medium-term expenditure frameworks (*i.e.* ES, NL, FI, DK, SE, UK) have also introduced institutional reforms for increasing the focus on policy outcomes and improving the efficiency of public expenditure. It would be difficult to establish a direct link between institutional reform and the degree to which expenditure has been directed towards productive items, not only since expenditure outcomes are driven by a range of other factors (e.g. ageing, unemployment, policy reforms) but also given the lack of a direct measure of productive expenditure. It is noteworthy, however, that countries that have been at the forefront of institutional reform (*i.e.* ES, NL, FI, DK, SE, UK) also managed to redirect their public expenditure towards public investment (as a proxy of physical capital) and education (as a proxy for human capital). Finally, some countries that recorded large decreases in interest payments (EL, IT) mainly used this room for manoeuvre for increasing expenditure on government consumption and on transfers, while opportunities for redirecting were more limited in other countries due to a relative increase in interest payments linked to increasing budget deficits (DE, FR).

APPENDIX

THE FEATURES AND IMPLEMENTATION OF EXPENDITURE RULES WITHIN MEMBER STATES

	Expenditure item	Definition of target	Level of application	Date of introduction	Time span	Action in case of non-compliance	Exceptions to rule in case of economic shocks	Experience with the rule
BE	Primary expenditure	Annual real growth rate to 1.5 per cent, in the medium term	Originally: federal government and social security (entity 1). From 2001 onwards: federal government	First mentioned at end of 1998 as "point of reference"	Medium term (time frame as covered by stability programme)	No measures specified *ex ante*	No automatic exceptions specified *ex ante*	Limit was respected in 2000 and 2001, but not in 1999. Difficult to judge adherence given status of medium term benchmark
DK	Public consumption	Annual real growth rate to 1 per cent on average during 1999-2005	Central government	First mentioned in 1997, but became fully binding in 1999	Multi-annual rule (three years)	No measures specified *ex ante*	No automatic exceptions specified *ex ante*. However, discretionary revisions of target have taken place, e.g. in 2001 when target was raised from 1 per cent to 2.2 per cent	Difficult to judge adherence, given specification of average target over several years and revisions of the target during that period. New government is implementing system that aims at recuperating slippage in subsequent years
DE	Overall expenditure	Annual nominal growth rate to be agreed on yearly basis by Finanzplanungsrat (FPC)	Central, regional and local governments	Beginning of the Eighties	Current and following four years	From 2004 onwards, the FPC would discuss deviations and could agree upon recommendations	No automatic exceptions specified *ex ante*. However, discretionary revisions of targets have taken place, at least in downswings	Ceiling not respected in 2002; it remains to be seen how possible recommendations by the FPC on non-compliance would affect outcomes
EL	Compensation of employees	Recruitment norm 5:1 (one new recruitment for every five civil servants leaving service), except for health, education and armed forces where the norm is 1:1	Central government	1997	Indefinite	No measures specified *ex ante*	No automatic exceptions specified *ex ante*	Political commitment, not legally binding. Difficult to assess the implementation of the recruitment norm

	Expenditure item	Definition of target	Level of application	Date of introduction	Time span	Action in case of non-compliance	Exceptions to rule in case of economic shocks	Experience with the rule
ES	Non financial expenditure	Fixed ceiling set up annually in the budget Law	Central government	2003	Annually	No measures specified *ex ante*	This limit includes a contingency fund, set at 2 per cent within this limit, so as to meet unforeseen events in the budget. Therefore, any unexpected non-financial expenditure increases have to be met throughout this contingency fund and/or by decreasing other spending items	To be assessed since 2003 is the first year of application
FR	Total expenditure	Cumulative real growth rates, as established each year for the next 3 years	Mainly central government	1997	Medium term, rolling	No measures specified *ex ante*. These targets are not legally binding and are usually adjusted in medium term programmes of later years and the final budget for any particular year	No automatic exceptions specified *ex ante*	The original medium term objectives have not been respected. However, in general the increases fixed in the yearly budget have been respected, except in 2002
IE	Total expenditure	Annual nominal growth of 4 per cent on average during 1998-2002	Central government	1997	5 years of the government's term: 1998-2002	No measures specified *ex ante*. Target abandoned in budget for 2001as the ceiling of 4 per cent in nominal terms turned out to be ambitious given high nominal GDP growth	No automatic exceptions specified *ex ante*	Rule abandoned in budget for 2001 rather than adjusted to reflect higher than expected nominal GDP growth

	Expendit-ure item	Definition of target	Level of application	Date of introduction	Time span	Action in case of non-compliance	Exceptions to rule in case of economic shocks	Experience with the rule
IT	Primary expenditure	Nominal ceilings or "safeguard rules" for all provisions included in all legislation introducing new and higher expenditures	General government	End 2002	Indefinite	Application of legislation is frozen until new legislation makes funding available	No automatic exceptions specified *ex ante*	Too early to assess. However, some evidence of a reduction in general government consumption on quarterly data
	Current primary expenditure of regions	In 2002, +4.5 per cent compared to 2000 engagements. In 2003, 2004 and 2005: 2002 absolute value + target inflation of DPEF	Regions	End 2001	2002-2004	None direct. Remote action only in case of EU sanctions following a breach of the Maastricht Treaty 3 per cent of GDP deficit threshold	No automatic exceptions specified *ex ante*	Too early to assess
	State funding of healthcare expenditure	Ceilings on expenditure by regions over a 3-year period. Revised in 2001: ceiling of € 71.3 billion in 2001, with annual increases in 2002-04 equal to nominal GDP growth as estimated in the medium-term plan (DPEF)	Regions	2000	2000-2003 (revised target for 2001-04)	None. State-Regions agreement. However, any extra deficit should be covered by regions through own resources or by expenditure cuts	No automatic exceptions specified *ex ante*	The ceiling was not respected and a new agreement between state and regions was negotiated in 2001. According to provisional figures, the ceiling was breached also in 2001
NL	Expenditure as defined by the ceilings	Medium term real expenditure ceilings, translated each year into nominal amounts	General government	First introduced in 1994; adapted in 1998 and 2002	Medium term: coverage according to cabinet period	Commitment to offset overruns of expenditure ceilings by expenditure cuts	Specific rules formulated for dividing windfalls between lowering the deficit or the tax burden	General expenditure ceiling has been adhered to, but overruns have occurred as regards the specific targets for subsectors (health care). It is generally assumed that the framework has had a restraining impact on expenditure

	Expenditure item	Definition of target	Level of application	Date of introduction	Time span	Action in case of non-compliance	Exceptions to rule in case of economic shocks	Experience with the rule
	Administrative expenditure	Cuts in personnel, mostly through not replacing civil servants leaving for retirement	Central government	Previous rule: 2000 Forthcoming rule : 2003	End of legislation period (previous rule: 2003 in theory but government collapsed in 2002; for forthcoming rule: end of 2006)	No measures specified *ex ante*	No automatic exceptions specified *ex ante*	The planned personnel cuts were implemented as planned from 2000-02. Despite an increase in pension expenditure for public servants, it is assumed that this rule has had a restraining impact on expenditure
AT	Total expenditure	Budget balance rule. However, budgetary targets can be attained via expenditure side measures only	Regional and local governments	2001	End of the current financial equalisation	Financial sanctions similar to those of the excessive deficit procedure of the SGP, via revenue distribution mechanism between central and lowers levels of government	The flood disaster in 2002 led to a temporary suspension of the rule, *i.e.* not taking into account of flood-related expenditure in the years 2002 and 2003	Ceiling not respected in 2001. Not respected in 2002 but suspended for that year. In general, difficult to measure structural savings of regions
PT	Compensation of employees	No new labour contracts in the central administration are to be signed unless authorised by the Minister of Finance	Central government	2002	Current legislature (2002-05)	No measures specified *ex ante*	The Finance Minister alone can override the freezing, in particular for sensitivity areas like health care	Too early to be assessed
FI	Total expenditure	Freezing real central government spending at the level of 1999 outcome	Central government on-budget expenditure excluding extra-budgetary funds (pension, etc.)	1999 but annual frames for central government spending were designed already at the beginning of Nineties	Cabinet period (1999-March 2003)	No measures specified *ex ante*	No automatic exceptions specified *ex ante*. However, declining government debt and falling unemployment have created leeway for additional expenditure	Overruns occurred in 2001 and 2002 and according to the 2003 spending guideline central government budgetary spending is estimated at €1.2 billion over the outcome of 1999. It is generally assumed that the framework has had a restraining impact on expenditure

	Expenditure item	Definition of target	Level of application	Date of introduction	Time span	Action in case of non-compliance	Exceptions to rule in case of economic shocks	Experience with the rule
SE	Primary expenditure plus expenditure for the old-age pension system outside the budget	Annual ceiling on nominal expenditure: expenditure covered by the ceiling should not rise faster than (projected) nominal GDP	Central government	1997	3 years ahead, rolling	Biannual monitoring required by the Budget Law. If there are signs of overruns (overall) the government shall prepare a proposal for correction	No automatic exceptions specified *ex ante*	The expenditure ceilings have been respected in each year since 1997 when they were first introduced. It is generally assumed that the framework has had a restraining impact on expenditure
UK	Departmental Expenditure Limits (DEL)[16]	Government Departments are set spending plans for the level of nominal expenditure for three years ahead in so-called Comprehensive Spending Reviews (CSR). Parliamentary authority to spend must still be obtained each year	Government Departments	First launched under the 1998 CSR for the period 1999-2002. A new batch of three years was set in the 2000 CSR and again in the 2002 CSR	3 years. The CSR take place every two years – the third year of the previous exercise becomes the first year of the succeeding exercise	The DEL plans are binding, but they can be altered in the budget process and are subject to approval by government and parliament. Under- or overspending in one year can be offset in another year within the current 3-year batch	No automatic exceptions specified *ex ante*	The government's medium-term plans published in the Budget report, and which form the framework for DEL programmes, are required, under the terms of the Code for Fiscal Stability, to meet the government's fiscal rules. They have satisfied these rules so far

[16] The two main parts of the UK's budgeting and control framework are DEL (Departmental Expenditure Limits) and AME (Annually Managed Expenditure). Government departments are given 3-year spending limits: the DELs. Any spending that cannot reasonably be subject to such multi-year limits is included in AME (e.g. social security spending, net payments to the EC). All AME projections for future years are estimates which are updated twice-yearly in the Budget and Pre-Budget Reports. Together, AME and DEL sum to Total Managed Expenditure (TME), a national accounts measure defined as public sector current expenditure plus net investment plus depreciation. In the attached tables, only DEL spending is included, since this is the only part of TME which is subject to multi-year limits.

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EXPENDITURE GROWTH, FISCAL SUSTAINABILITY AND PRE-FUNDING STRATEGIES IN OECD COUNTRIES

Blair Comley and Adam McKissack[*]

1. Introduction

OECD countries are ageing. This ageing is leading to demographic changes that are expected to significantly increase age-related expenditure over the next 50 years. Faced with this increase in expenditure, OECD governments have four options. First, they could modify policies to ensure that the increase in expenditure does not occur in the first place. Second, they could seek to increase growth to increase the capacity to fund the additional expenditure. Third, they could wait for the increase in expenditure and then increase taxes to ensure that debt levels do not become unsustainable. Finally, they could increase taxes or reduce expenditure in advance of the expected expenditure pressures to provide additional financial resources in the future. This last option, pre-funding, is the focus of this paper.

In discussing pre-funding, this paper seeks to address two questions. First, what is the current pre-funding practice in OECD countries? Second, why have some countries adopted pre-funding strategies while others have not? The paper also makes some observations on factors that a government should take into consideration when deciding whether to pre-fund.

At the outset we would like to stress that the focus of the paper on pre-funding is not meant to imply that pre-funding is necessarily the best option for individual countries. In other words we use the term "pre-funding" as a positive rather than normative description of a particular policy response.

The paper is organised as follows. Section 2 discusses the high level objectives of policy: well-being, equity and efficiency. Section 3 establishes a framework for defining and identifying pre-funding and discusses the related concept of fiscal sustainability. Section 4 identifies OECD countries that have adopted a pre-funding strategy. Section 5 then attempts to identify common characteristics of countries that pre-fund. Section 6 summarises and provides some tentative conclusions.

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2. Well-being, efficiency and equity – motivations for pre-funding

Each country has its own strategy for advancing the well-being of its people and there are many alternative analytic frameworks that have been adopted to map well-being.[1] This paper does not attempt to explore those different frameworks. In this paper we use a framework based on two broad criteria – efficiency and equity – which we believe are consistent with many of the different frameworks adopted by OECD countries.

2.1 Efficiency

In this paper we are interested in two issues related to aggregate fiscal policy: the path of taxes through time; and the path of debt through time. We are particularly concerned with these two paths given that, on current policy settings, most OECD countries expect to face significant expenditure pressures due to the ageing of the population. Changing taxes or changing debt levels are two possible responses to higher expected expenditure levels. Naturally, a third policy response is to modify policies so that additional aggregate expenditure does not arise. For the moment, to simplify the discussion, we focus on responses to an expected increase in expenditure some time in the future and ignore for the moment the possibility of changing expenditure or income levels.

2.1.1 Tax smoothing

One possible response to an expected increase in future expenditure is to wait until the higher expenditure occurs and then increase taxes. Such a strategy would keep debt constant, but would require changes in taxes equivalent to the change in expenditure. An alternative approach would be to raise taxes now, reducing debt and allowing a lower increase in taxes in the future. Barro (1979) demonstrates that, for a particular set of assumptions, there are efficiency benefits associated with smoothing tax rates. Indeed, if efficiency were the only consideration the policy prescription is to attempt to maintain constant tax rates (or more precisely in the Barro model the tax-to-GDP ratio) through time. While the strong conclusion in favour of perfect tax smoothing requires quite restrictive assumptions, the conclusion that some tax smoothing is optimal is more robust (Buiter and Kletzler, 1992, p. 290). The intuition is straightforward: if the marginal excess burden of tax increases more than proportionally with tax rates, then efficiency costs are minimized by applying a constant tax rate to yield the required revenue.

This analysis assumes that the marginal cost of raising taxation is constant through time. If this is not the case, then the presumption is that more tax should be raised in the periods in which the marginal cost of raising taxation is lower.

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[1] For example, the Australian Treasury has developed a well-being framework for use in analysing policy (Australian Treasury, 2004).

The practical significance of tax smoothing is an empirical question. Cutler *et al.* (1990, pp. 50-53) estimate the benefits of tax smoothing for the United States over a 70 year time horizon from 1990 to 2060 in response to a demographic shock of increased spending of a little over 6 per cent of GNP. They conclude that the efficiency benefits that would arise from a perfect tax smoothing approach (in contrast to an approach of allowing taxes to move contemporaneously with changes in expenditure) would be quite small – around 0.017 per cent of GNP annually or around 1.1 per cent of 1990 GNP in present value terms.

Caution should be exercised in applying this result directly to other OECD countries. The critical assumption is the estimate of the marginal excess burden of taxation. Cutler *et al.* (1990) use an estimate of 30 cents in the dollar (based on Ballard, Shoven and Whalley, 1985) and a standard functional form whereby the marginal excess burden increases with the square of the tax rate. Naturally, the benefits of tax smoothing increase the greater the change in the marginal excess burden in response to a change in the tax rate. Accordingly, even assuming the same functional form, the higher the initial tax rate, then the greater the efficiency benefits associated with tax smoothing. This suggests that the benefits of tax smoothing will be correspondingly higher for most other OECD countries which have higher initial tax burdens than the United States.[2]

2.1.2 Debt levels and interest rates

The second efficiency consideration that arises with aggregate fiscal policy is the implication of government debt for interest rates. Theory suggests that higher government debt levels increase the level of interest rates.[3] Higher interest rates increase the costs associated with servicing the existing stock of debt and reduce investment, capital accumulation and growth.

Empirical estimates of the magnitude of these effects differ markedly. Engen and Hubbard (2004, p. 42) find in the United States context that an increase in federal debt equivalent to one per cent of GDP is expected to increase real long-term interest rates by around three basis points. However, they note that this conclusion is very sensitive to the particular empirical specification. Also in the US context, Laubach (2003) finds a statistically significant effect on interest rates of around 4 basis points for a one per cent increase in the debt-to-GDP ratio. Gale and Orszag (2003) undertake a US literature review that concludes that there is strong evidence that expected deficits increase interest rates.

Liebfritz, Roseveare and van den Noord (1994, p. 15) note that there is some evidence that budget deficits affect the spread between domestic and world interest

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2 An important caveat is that this result assumes that there is a unique relationship between the tax rate and the marginal excess burden of taxation between countries. Clearly this is not the case given the disparate tax systems in OECD countries.

3 In this respect we are focussing on the effect on long-run interest rates due to crowding out rather than the short run stimulus of aggregate demand (Engen and Hubbard, 2004, p. 4).

rates. Comley, Anthony and Ferguson (2002) find evidence of government debt increasing interest rates in Australia. However, while there is evidence that government deficits affect interest rates in some countries, there is little evidence that world real interest rates are affected by the stance of macroeconomic policy.

The relative importance of the interest rate channel will differ from country to country. In particular, fiscal policy may influence interest rates more in countries with high debt levels.

2.1.3 Other efficiency considerations

For completeness, we note that there are other channels through which fiscal policy affects efficiency. These include the individual allocative decisions, the impact of the overall size of government, and the impact of short-term fiscal policy on demand management and the implications for the average size and volatility of the output gap. Although all these questions are important, we do not attempt to deal with them in this paper.

2.2 Equity

In considering the longer term implications of fiscal policy, most OECD governments focus on the intergenerational equity implications of passing on future liabilities.[4] There are two traditions in discussing equity in the public finance literature: the benefit tradition and the ability to pay tradition. The benefit tradition focuses on the payment for services matching the benefit derived from the services. A tax system is said to be equitable "…if each taxpayer contributes in line with the benefits which he or she receives from public services" (Musgrave and Musgrave, 1989, p. 219). It is most commonly associated with payment for the provision of public goods (where the rationale for government provision is based on the particular production technology rather than equity goals *per se*) and is not solely a tax policy prescription, but one that considers jointly the tax and expenditure sides of the Budget.

The ability to pay tradition focuses on the appropriate approach to finance a given amount of public services. The ability to pay tradition isolates the tax problem independently from the question of expenditure determination (Musgrave and Musgrave, 1989, p. 219). Subsidiary to the ability to pay tradition are the twin goals of horizontal and vertical equity. Horizontal equity requires that individuals with the same ability to pay, pay the same level of tax while vertical equity requires that

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[4] This implicitly assumes that changes in government fiscal policy can in fact transfer liabilities through time. However, if full Ricardian equivalence were to hold, then attempts by governments to pass liabilities through time would be thwarted by offsetting private sector saving behaviour. In practice we observe partial rather than full Ricardian equivalence. Accordingly, governments do have the capacity to transfer liabilities through time, but the magnitude of these transfers will be less than would be the case if there were no savings offsets.

those with a greater ability to pay, pay a higher level of tax (Musgrave and Musgrave, 1989, p. 223).

When dealing with *intra*-generational equity the dominant approach is the ability to pay approach. This partly recognises the difficulty of linking tax to expenditure and also the fact that the benefit tradition has difficulty handling redistributive taxes. Interestingly, this is not necessarily the case with intergenerational equity discussions. Indeed, the generational accounting literature sits more comfortably in the benefit principle tradition.

The choice of framework is not trivial. In particular, if we assume that there will be real per capita income growth over time, then each successive generation will be wealthier than its predecessor. If we adopt the ability to pay tradition this implies that the next generation should pay a greater amount of the burden. However, even this can provide little guidance as different assumptions imply different degrees of progress (Musgrave and Musgrave, 1989, p. 228-31).

This underlies the difficulties in answering the normative question of what is an appropriate fiscal policy, in particular since all fiscal strategies designed to deal with an expected future increase in expenditure have intergenerational equity implications.[5] Different traditions will suggest different answers to this question. The framework developed below is agnostic on this point, but does suggest how different pre-funding strategies may reflect different equity goals.

3. A framework for pre-funding

To establish a practical definition of pre-funding we consider some related concepts that deal with the government's balance sheet. We establish a practical definition of pre-funding that is consistent with broader theoretical concepts and can be ascertained from commonly available data sources.

3.1 The government budget constraint and sustainability

A motivation for pre-funding is to ensure that current policies are sensible in light of longer-term constraints. That is, governments are concerned about their sustainability in the long term.

Policy is said to be sustainable if all obligations, current and future, can be met without changing current policy settings (Croce and Juan-Ramón, 2003).[6] These

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[5] For example, if taxes are raised in line with expenditure and there are overlapping generations then those bearing the tax may be different from those that benefit from the expenditure. This may offend the benefit principle, but may not offend the ability to pay principle. Accordingly, judgments about the desirability of a particularly policy cannot be divorced form the normative question of the preferred equity framework (and the balance of efficiency considerations).

[6] The theoretical literature distinguishes between two related concepts: solvency and sustainability. A government is said to be solvent if it can meet all of its current and future obligations, including by way of

(continues)

obligations formally are part of the government's intertemporal budget constraint which can be expressed as:[7]

$$d_t = \sum_{n=1}^{N} \beta^{-n} ps_{t+n} + \beta^{-N} d_{t+N} \quad (1)$$

where d_t is the level of government debt as a ratio of GDP, ps_t is the primary surplus as a ratio of GDP at time t, and:

$$\beta_t = \frac{(1 + r_t)}{(1 + g_t)} \quad (2)$$

where r_t is the real interest rate and g_t is the real growth rate.

Equation (1) establishes the formal condition for sustainability. The fiscal position is sustainable if the present discounted value of future primary surpluses is equal to the outstanding stock of debt on the basis of current policies. In other words, sustainability requires that the present value of future primary surpluses are sufficient to pay off this debt.

3.2 The budget constraint and government net worth

The government budget constraint provides a useful theoretical perspective. However, it may not be possible to formally apply the constraint as a rule to inform policy for two reasons.

First, meeting the intertemporal budget constraint implies that the government extinguishes all liabilities by time N. However, a practical policy time-horizon is likely to be considerably shorter than N years.

Second, establishing whether the budget constraint is met in practice requires an estimation of future expenditure, taxation and interest rates that is difficult to do in practice.[8]

We believe that we need an alternative benchmark that focuses on a narrower set of revenues and expenditure (or in stock terms assets and liabilities) for practical purposes. However, we recognise that contemplating an alternative (and necessarily partial) benchmark risks being inconsistent with the broader conceptual base of the intertemporal budget constraint. While this is a constant risk, we believe that the benefits of operationalising the sustainability concept outweigh the costs and that

changing its policies in the future. In contrast, policy is said to be sustainable if the government is solvent on the basis of current policies. Clearly sustainability is a stronger condition than solvency given the vast range of policy changes that a government can make over time. Given that solvency is a less relevant condition for OECD countries, we focus on sustainability.

7 This is the constraint assuming βt is stable over time (*i.e.* $\beta_t = \beta_{t+1}$) (see below for the definition of βt).

8 Establishing solvency entails the additional difficulty of either assuming the way in which policies will change, or making an equivalently difficult estimate of expected changes in policy.

these costs can be managed. The principal method for managing these risks is to focus on a narrow measure, while monitoring other factors that could alter the conclusion if the more comprehensive framework were applied.

3.3 Weak sustainability – A stable net financial asset-to-GDP ratio

In addressing sustainability a possible benchmark is one that ensures a stable net financial asset to GDP ratio over time. We believe that this is a reasonable starting point from both an efficiency and equity point of view.

From an efficiency point of view, a stable net financial asset position is likely to mean that government pressure on interest rates as a result of fiscal policy is stable. Similarly a stable net financial asset position is a minimum condition for avoiding intertemporal inefficiencies associated with changes in the marginal excess burden of taxation (see Section 2.1.1).

That said, in the presence of increasing expenditure pressures, more than a stable net financial asset ratio will be needed to avoid changes in the tax-to-GDP ratio. Ultimately, the optimal fiscal strategy from an efficiency perspective will depend on the profile of expenditure, the sensitivity of interest rates to debt levels and the efficiency benefits of tax smoothing. In general, we may expect that tax smoothing is a more significant issue for countries with high tax levels.

From an equity point of view a stable net financial asset position implies that this generation is handing on the same proportionate burden as it received. Given a neutral starting point this may underachieve on the benefit principle. However, it would appear broadly consistent with the ability to pay principle, assuming positive growth in GDP per capita.

Three issues need to be considered with respect to this approach to sustainability. First, by choosing net financial assets as a measure for assessing sustainability we are necessarily choosing a subset of the government balance sheet, running the risk that net financial assets could be stable, but policy is unsustainable due to the path of net worth. This is a legitimate concern. Our argument for choosing net financial assets is purely one of pragmatism as using net worth introduces a set of difficult valuation issues. To counter the risk, other expenditure drivers should be monitored. This is precisely the approach of exercises such as those documented in OECD (2001).

Second, the period over which we require stable net financial assets is important. The longer the time frame considered, then the stronger the criterion. For example, if we required the criterion to be met over a 40 year time horizon, then we must take account of spending pressures identified over that period. With a time frame of this length, the criterion becomes “weak” only if additional pressures arise

beyond the 40 year window. As the time period approaches infinity the criterion approaches full sustainability.[9]

Third, a stable net financial asset to GDP ratio may not be a desirable benchmark if the ratio is already too high. In terms of the framework presented here, β may be adversely affected by the high initial debt level or the higher debt-to-GDP ratio may not capture risks that fall outside the period being considered. Put another way, if fiscal policy has been poor in the past, then it may not be sufficient to "stand still" at a high level of debt.

3.4 Relationship of a stable net debt-to-GDP ratio and the primary balance

On the assumption that β does not change over time, then a stable debt-to-GDP ratio (d_t=d_{t+1}) implies:

$$ps^* = \left[\frac{(r-g)}{(1+g)}\right] d^* \tag{3}$$

where ps* and d* are the respective stable levels of the primary surplus and the level of debt.

Equation (3) shows clearly the required primary surplus (or deficit) that is associated with a stable debt-to-GDP ratio. Equation (3) illustrates the important point that for debt dynamics primary balances provide more useful information than general government financial balances.

A few special cases are of interest. Maintaining a zero net debt position requires a zero primary surplus and a zero general government balance. Similarly if the rate of interest is equal to the rate of growth of GDP, then a zero primary surplus is required to maintain a stable debt-to-GDP ratio.

Barro (1976) has argued that in a steady state the rate of interest must be greater than the rate of growth by a small margin. If the interest rate growth differential is small, then a stable net financial asset position requires a small primary surplus.

Table 1 provides information on the interest rate growth differential for the 30 OECD countries since 1991 (where data is available). The average differential was 0.3 per cent for short-term rates and 1.2 per cent for long-term rates. This average includes considerable individual country variation. Ireland benefited from a growth rate that exceeded short term interest rates by an average of 4.8 per cent and long-term rates by an average of 4.1 per cent. In contrast, Turkey on average had a growth rate 6.6 percentage points below its short term interest rate and 9.3 per cent below long-term rates (and faced a difficult economic adjustment process as a result).

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[9] Indeed, over a 40 year period the criterion may not be that weak – arguably no OECD country currently meets the weak sustainability criterion over 40 years.

Table 1

Differential between Interest Rates and Growth Rates
(average difference in percentage points)

	Short run	Long run
Australia	0.4	1.4
Austria	0.4	1.7
Belgium	0.5	1.8
Canada	–0.1	1.5
Czech Republic[10]	–1.2	N.A.
Denmark	0.8	1.9
Finland	1.0	2.6
France	1.3	2.3
Germany	1.2	2.3
Greece	0.0	–2.1
Hungary[11]	0.0	N.A.
Iceland	1.7	2.6
Ireland	–4.8	–4.1
Italy	1.4	2.5
Japan	0.3	1.7
Korea	–0.2	–0.4
Luxembourg	–3.0	–2.2
Mexico	0.6	0.6
Netherlands	–0.1	1.2
New Zealand	1.9	2.1
Norway	–0.7	0.0
Poland[11]	0.4	N.A.
Portugal	–0.1	0.1
Slovak Republic[11]	0.4	0.0
Spain	–0.7	0.3
Sweden	1.3	2.4
Switzerland	0.6	1.6
Turkey[12]	6.6	9.3
United Kingdom	0.9	1.2
United States	–1.0	0.6
Average OECD	**0.3**	**1.2**

Average interest rate/growth differential for 1991-2006 unless otherwise specified.

Source: OECD Economic Outlook 76 Database.

[10] 1994-2006.

[11] 1996-2004.

[12] 2000-2006.

Table 1 covers the recent past. Data availability makes it difficult to conduct a longer analysis for all countries. However, Figures 1a and 1b provide information for eight economies where continuous data is available from 1970. The recent period has been more stable than the Seventies and Eighties. It is beyond the scope of this paper to analyse this issue in detail. However, we believe a reasonable explanation is that the Seventies represented a period of negative differentials as a result of the unexpected inflation shock. In contrast inflationary expectations took some time to unwind through the Eighties and early Nineties. The more recent period may reflect a more "normal" configuration of rates following the absorption of these shocks.

If we were to put this into a European context, maintenance of a debt-to-GDP ratio at the Maasctricht threshold of 60 per cent of GDP, with interest rates equal to growth rates and a growth rate of 2 per cent would mean that the primary deficit would have to be zero and the general government balance would have a deficit equal to 1.2 per cent of GDP to maintain a stable debt-to-GDP ratio.

3.5 Defining pre-funding

The above provides the necessary groundwork to define pre-funding. We link the definition of pre-funding to the benchmark provided by our weak sustainability criterion. We define pre-funding as raising more taxes than required to stabilize the net financial asset to GDP ratio.[13] We stress that this is a positive definition. That is, we intend pre-funding to describe a particular circumstance of policy stance without in any way implying that "pre-funding" is necessarily a desirable thing.

The intuitive appeal of the definition is that it captures the idea that the net financial asset position is a measure of the financial legacy that a government inherits at the start of each period. It also has the useful property that an improvement in the net financial asset position will, in the face of additional expenditure pressures, reduce the required level of future taxes necessary to stabilize the net debt position. Further, if the rate of interest is greater than the rate of growth, then an increase in taxes now will also reduce the required primary surplus to stabilize the net financial asset position.[14] This is the essence of pre-funding – raising taxes now to reduce pressure in the future.

A fundamental criticism of this approach is that it unduly privileges the starting net financial asset position. A country that has run very poor fiscal policy and has very high debt will be classified as pre-funding if it subsequently decides to reduce its debt. Some may argue that this debt reduction should be thought of as "post-funding" rather than pre-funding. We acknowledge that this is a possible approach to interpreting these facts. However, we believe that it is appropriate to

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[13] This implies that debt reduction is equivalent to asset accumulation. See Appendix 2 for a more detailed discussion of debt reduction versus asset accumulation.

[14] Somewhat counter-intuitively, if $r=g$, then an increase in taxes which lowers the net debt level does not change the required level of taxation to stabilise the net debt ratio. The level of taxation required would still equal the level of taxation prior to the increase in order to preserve a primary surplus of zero.

describe it as "pre-funding" as it captures the actual decision faced by a government. The level of debt a government has at any point in time is a sunk cost. It cannot change that level, except by making forward looking decisions. Faced with higher expected expenditure the government can do one of four things: reduce the debt (pre-fund); alter the expenditure pressures; raise taxes in the future; or raise growth. "Pre-funding" is a description of one policy decision that a government can make. Again this illustrates the point that we do not wish "pre-funding" to be interpreted as necessarily a "good" thing.

Another potential criticism of this approach is that it is based on cash concepts. That is, we are focusing on the change in net debt that arises from the cash transactions in any period. In principle, we would wish to look at changes to the entire government balance sheet, encompassing changes to non-financial assets, the accrual of future expenditure liabilities and valuation of a government's greatest "asset", its ability to raise taxes. In practice, this raises the difficulty of measuring a range of assets and liabilities that are typically not included in government accounts (due to valuation difficulties).

Using a partial cash concept has the advantage of putting the analysis within a practical setting. We believe this is reasonable, as long as it is considered a *starting* point, not an end point. This starting point is then augmented by information about key long-term liabilities and other influences on the broader balance sheet.

3.6 Identifying pre-funding – practical issues

It is necessary to map the above definition of pre-funding to the concepts applied in national accounting and budget data. To do this we consider two alternative approaches to analysing pre-funding: the direct approach and the indirect approach.

3.6.1 Direct approach to identifying pre-funding

The direct approach seeks to observe the stable debt-to-GDP ratio directly, and looks directly at net financial liabilities. Two main issues arise when looking at net financial liabilities. First, the classes of assets included in the definition (e.g. bonds, shares, property). Second, the set of institutional arrangements that are to be included. The treatment of funded or partially funded pension funds is the most important issue in this respect.

In considering these two issues we should keep in mind the original purpose for looking at this variable. We are interested in the net financial legacy that a government inherits in each period. Accordingly, the measure would ideally include all financial liabilities that have concrete payment obligations and assets that will deliver clear returns.

In the first instance we consider the variable "net financial liabilities" (OECD, 2004j). The definition of the variable is reasonably broad:

> *"… debt and other liabilities (short- and long-term) of all the institutions in the general government sector, defined by ESA95/SNA93, subject to data availability…Such assets may be cash, bank deposits, loans to the private sector, participations in private sector companies, holdings in public corporations or foreign exchange reserves, depending on the institutional structure of the country considered and data availability."*

With respect to the key issue of government pension schemes:

> *"The status and treatment of government liabilities in respect of their employee pension plans in the national accounts have been diverse across countries, making international comparability of government debts difficult. The current interpretation of the 1993 SNA is that: i) "autonomous" funded pension plans should be classified outside the general government sector, which entails that their assets and liabilities are not reflected in the general government debt data; ii) non-autonomous pension plans should be classified inside the general government sector and only the funded component should be reflected in the general government liabilities. Furthermore, the 1993 SNA recommends that the liability inherent in unfunded schemes be recorded as a memorandum item for the government sector. However,… few follow the 1993 SNA recommendation."*

Accordingly, the variable "net financial liabilities" is a useful starting point for assessing whether pre-funding is occurring. That said, this variable may need to be modified given the particular definition of this variable for individual countries.

3.6.2 Indirect approach to identifying pre-funding

The indirect approach of defining pre-funding does not start with net financial liabilities. Instead we look at the state of the primary balance, which, in conjunction with an assumed relationship between the rate of interest and the rate of growth, provides insight into the trajectory of net financial liabilities (as per equation (3)).

The general government primary balance is equal to the general government financial balance minus net debt interest payments. Net debt interest payments according to SNA93 include interest on deposits, securities other than shares, loans and other accounts receivable (SNA93, paragraph 7.93).

The main reason for using an indirect approach rather than a direct approach is that data may be more readily available on flows rather than stocks. As can be seen from above the way in which assets and liabilities are reported is not consistent across all OECD countries. This complicates establishing the extent of pre-funding on the basis of the reported data.

The key issue in this area is to ensure that the stocks and flows are treated consistently. Accordingly, any returns on pension assets should be included in the

primary balance if and only if the assets of the pension funds are *not* included in the measure of net financial assets.

Alternatively, if the net interest of the pension assets are excluded from the measure of the primary surplus, then this is appropriate if and only if the assets and liabilities of the fund are fully measured in the current period measure of net financial assets. Given the fact that few funds are valued in this way, it is probably better to include the net interest payments of pension schemes in the measure of the primary surplus, but at the same time carefully monitor the evolution of the primary surplus over time. This implies that net financial asset measures should exclude net pension assets.

The OECD also publishes structural primary balance measures. However, the OECD's concept of structural balance is not directly related to the path of debt dynamics as the OECD measure gives an indication of the expected balance were the economy operating at potential. Unless the economy operates on average at potential, then maintaining a structural balance is not an indication of pre-funding (even if the rate of interest were equal to the rate of growth).

3.6.3 Identifying pre-funding – other objectives

A government may have intended to reduce the net debt-to-GDP ratio for reasons other than pre-funding. Reducing debt has a range of "no regrets" benefits including reducing vulnerability to shocks and reducing interest rate risk premia. Particularly at high levels of debt, debt reduction may be a desirable policy independent of any motivation to fund future liabilities. Put another way there may be efficiency benefits associated with reducing risk premia that are in addition to any efficiency benefits associated with tax smoothing or intergenerational equity benefits associated with shifting the tax burden through time. In this context, discussions of pre-funding need to be mindful of the fiscal history within a country, which may not have been optimal.

For either case we still define an improvement in the net debt position as pre-funding. Government's may not have intended to improve their net asset position with a view to covering future expenditure pressures, but their action has nevertheless improved the starting point for dealing with these pressures. That said, intentional pre-funding may be more sustainable than unintended pre-funding. Furthermore, debt reduction that is motivated by reducing risk premia is unlikely to continue beyond the point at which risk premia have been reduced to acceptable levels.

In the analysis that follows, quantitative observations are supplemented by analysis of the stated policy objectives of the government in question to ensure that the classification of pre-funders reflects more than simply a statistical correlation.

4. Countries with pre-funding strategies

This section considers the country experience with pre-funding. Our methodology involves a two stage process. First, we filter the countries on the basis of the process outlined in Section 3.6. That is we look for direct evidence of improved financial asset positions and also compare countries' primary surpluses with the calculated primary surplus required to stabilize net financial liabilities. Second, we then look in some detail at the set of countries to ensure that there are not other factors that have been obscured by the data. We also take account of forward looking intentions as embodied in announced policy.

This two stage process recognises that not all the data is constructed on a consistent basis and that there is an element of judgment in classifying individual countries.

4.1 Financial liabilities

We first look at the change in general government gross financial liabilities (Table 2). Table 2 includes projections up to 2006 in addition to historical data. We have chosen to use these projections to provide further information on the intentions (albeit over a short period) of OECD countries.

The theory outlined in 3.6.1 indicates that net financial liabilities are a better measure. However, data on gross financial liabilities is available for a larger number of countries. Accordingly, this data should be thought of as indicative only.

As is clear from Table 2, the time period that is being considered heavily influences the countries that may be identified as having undertaken pre-funding. On the basis of the last five years (defined as 2001 to 2006, which includes some projections) 13 countries may have undertaken some degree of pre-funding. These countries are Australia, Belgium, Canada, Denmark, Greece, Iceland, Ireland, Italy, Luxembourg, New Zealand, Norway, the Slovak Republic, Spain, and Sweden.

If the period being considered were instead the last 10 years, then Finland, the Netherlands, the United Kingdom and the United States would be added to the list and the Slovak Republic would be excluded from the list.

Less data is available for the last 15 years, but for those where data are available, the numbers indicate that the list should include the first list without Greece, Italy, and Luxembourg, but adding the Netherlands and the United States.

Table 3 presents data on net financial liabilities. On the basis of net financial liabilities, the countries that may have undertaken some pre-funding in the past 5 years are the same as those identified by the gross liabilities measure for the same period, with the addition of Korea, and the exclusion of the Slovak Republic and Sweden. Sweden is included on the 10 year measure, as would be the Netherlands. No data is available for Greece, Ireland and the Slovak Republic. Longer term

Table 2

Change in General Government Gross Financial Liabilities (Data to 2006)
(percent of GDP)

Country	5-year change	10-year change	15-year change	Peak-2006
Australia	–4.1	–23.4	–5.9	–26.6
Austria	0.0	0.4	12.6	–1.7
Belgium	–16.8	–39.5	–34.8	–47.7
Canada	–16.1	–35.4	–17.3	–35.9
Czech Republic	17.1	N.A.	N.A.	0
Denmark	–8.5	–29.4	–25.6	–43.7
Finland	1.7	–13.6	27.9	–13.6
France	12.5	9.9	37.1	0
Germany	8.6	8.8	30.2	0
Greece	–7.6	–4.2	25.0	–7.6
Hungary	0.2	N.A.	N.A.	–7.1
Iceland	–15.5	–25.7	–7.2	–28.4
Ireland	–10.7	–48.1	–70.2	–70.2
Italy	–2.7	–16.4	2.9	–16.4
Japan	33.0	81.5	110.6	0
Korea	3.9	15.4	14.6	0
Luxembourg	–0.1	–1.8	0.7	–1.8
Netherlands	6.6	–21.1	–20.2	–29.0
New Zealand	–9.9	–18.5	N.A.	–38.5
Norway	–2.4	–3.8	–0.7	–13.7
Poland	17.6	N.A.	N.A.	0
Portugal	8.9	2.1	N.A.	0
Slovak Republic	–11.0	7.2	N.A.	–12.2
Spain	–9.2	–22.9	3.6	–22.9
Sweden	–4.2	–25.8	3.4	–25.8
United Kingdom	5.3	–6.1	12.9	–7.3
United States	8.8	–6.7	–4.5	–8.6

Source: OECD Economic Outlook Database and authors' calculation.

Table 3

Change in General Government Net Financial Liabilities (to 2006)
(percent of GDP)

Country	5-year change	10-year change	15-year change	Peak-2006
Australia	–4.9	–21.4	–10.7	–27.3
Austria	0.3	–3.3	8.7	–4.1
Belgium	–13.0	–36.3	–31.1	–40.9
Canada	–14.9	–41.8	–24.3	–43.7
Denmark	–6.0	–24.1	–20.6	–25.5
Finland	–3.6	–29.6	–2.0	–32.3
France	12.0	6.1	29.9	0
Germany	13.9	15.5	37.8	0
Hungary	11.4	N.A.	N.A.	0
Iceland	–8.3	–21.7	–1.6	–21.8
Italy	–1.4	–15.4	6.6	–15.7
Japan	29.5	65.0	82.1	0
Korea	–4.2	–15.2	–19.1	–19.7
Netherlands	8.4	–11.3	7.0	–12.4
New Zealand	–15.1	–25.5	NA	–42.7
Norway	–19.2	–54.6	–53.1	–60.1
Portugal	9.5	10.3	N.A.	0
Spain	–9.0	–20.3	0.1	–20.2
Sweden	4.5	–24.1	6.6	–24.1
United Kingdom	5.9	–1.1	23.9	–4.3
United States	9.6	–8.7	–4.9	–10.8

Source: OECD Economic Outlook 76 Database and authors' calculations.

measures suggest the US is a pre-funder, in contrast to the shorter term measure, reflecting the more recent reversal of earlier fiscal consolidation.

4.2 Primary balances

Equation (3) sets out the relationship between the required primary surplus to maintain a stable debt-to-GDP ratio on the assumption of a stable β. This is equivalent to defining the stability condition assuming a constant relationship between the interest rate and the growth rate. We recognise that this is a simplifying assumption, as the relationship between interest rates and growth rates is not stable over time. Seeking to deduce the implied path of net financial liabilities over time requires quite detailed information about the nature of the debt and asset portfolios of each individual country, and goes beyond the scope of this exercise, which simply aims to create a filter to identify countries that should be examined in more detail. As a result, we have calculated measures based on equation (3) recognizing that they will imperfectly describe the implied underlying debt dynamics. A more detailed analysis encompassing more realistic assumptions about debt dynamics could be further pursued by the countries themselves.

As a first approximation we look at three periods. These periods are 2002-06, 1997-2006, and 1992-2006. For these periods we calculate the average primary surplus for each country with the calculated required primary surplus. For calculating the required primary surplus we use the average gross financial asset position in the mid year of the period. For the interest rate we make the further simplifying assumption that the whole portfolio is financed using long-term debt. The results are summarised in Table 4.

This approach suggests a similar list of pre-funders as the analysis of changes to debt-to-GDP ratios, with the addition of two further countries – Luxembourg and Greece. However, despite the strong primary surplus position of Greece, it is not classified as a pre-funder on the basis of the information on gross financial liabilities and more detailed examination of Greek fiscal policy. The primary balance measure would also tend to exclude the US as a pre-funder.

4.3 Individual countries

The following sections provide a brief discussion of each of the individual countries classified as pre-funders in the previous analysis. The discussion is not comprehensive, but instead attempts to set out the approach taken to pre-funding and some relevant background information.

One complication in identifying countries that are pre-funding is to clearly distinguish between countries that have undertaken pre-funding in the past and those that intend to undertake pre-funding in the future. Furthermore, there are some countries that formally have a framework that implies pre-funding (for example

Table 4

Difference between Actual Primary Surplus and Calculated Required Primary Surplus (to 2006)
(percent of GDP)

Country	5-year average	10-year average	15-year average
Australia	2.2	2.4	1.0
Austria	0.3	0.2	–0.7
Belgium	4.3	4.9	3.1
Canada	2.8	4.0	1.3
Denmark	2.0	3.0	1.6
Finland	2.2	3.7	–0.2
France	–1.5	–0.6	–2.0
Germany	–2.2	–1.1	–1.2
Greece	4.5	5.0	N.A.
Iceland	–0.1	1.2	–0.9
Ireland	–0.7	0.9	–0.8
Italy	0.3	1.3	0.9
Japan	–5.1	–5.1	–3.9
Korea	3.0	3.0	N.A.
Luxembourg	–0.8	1.4	1.0
Netherlands	–1.3	1.7	0.9
New Zealand	1.9	1.3	1.5
Norway	5.4	6.5	3.8
Portugal	–0.6	0.4	N.A.
Slovak Republic	–1.1	–3.8	N.A.
Spain	3.2	3.1	0.8
Sweden	0.1	1.5	–2.7
Switzerland	0.2	0.4	–0.1
United Kingdom	–1.4	0.9	–1.0
United States	–1.9	0.5	–0.1

Source: OECD Economic Outlook 76 Database and authors' calculations.

balance over the cycle with an initial debt position), but have not actually undertaken pre-funding as they have not met their own targets and it is unclear whether they will achieve their fiscal targets in the future.[15]

With respects to these issues, we have attempted to come to an on balance decision as to the pre-funding intention and practice of a country giving particular weight to the forward looking intentions of countries (given the foucs is preparation for future demographic pressures). In this respect we separate two groups of countries. The first we identify as "strong pre-funders". The second, we identify as "mild pre-funders". The "strong pre-funders" are identified by clear evidence of past pre-funding and a forward looking commitment to further pre-funding. The second group are characterised by less pre-funding in the past, or a forward looking pre-funding policy that implies less pre-funding, or weaker compliance with their own policy.

At this stage it is important to stress that we do not intend to imply that the "mild pre-funders" are necessarily pursuing poorer policies than the "strong pre-funders". The appropriate policy for each country depends on their specific circumstances. Even putting aside the general issue of whether pre-funding is the right policy response, there may be other issues such as the extent of future pressures and the state of the balance sheet at any point in time.

For example, we characterise Australia as a "mild pre-funder" notwithstanding the substantial pre-funding that has occurred in the last decade (general government net financial liabilities have fallen by over 25 percentage points of GDP from 1995 to 2004 (OECD Economic Outlook 76 Database)) and the fact that Australia has demonstrated strong compliance with its own medium term fiscal framework. The reason that we do not define Australia as a "strong pre-funder" is that the balance over the cycle objective implies little pre-funding once net financial liabilities are low. Similarly we define Ireland as a "mild pre-funder" notwithstanding the dramatic reduction in gross financial liabilities (over 70 per cent of GDP over the last 15 years) as a result of the implied forward looking strategy.

In contrast, we characterize Belgium as a "strong pre-funder". Belgium has reduced its net financial liability position by a little more than Australia over the last decade (around 35 percentage points of GDP from 1995 to 2004 (OECD Economic Outlook 76 Database)) and also has a balance over the cycle objective. However, given that Belgium had general government net financial liabilities of over 90 per cent of GDP in 2004, the balance over the cycle objective implies much higher primary surpluses and further reductions in debt.

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[15] Many countries in the European Union are notable in this respect. The Stability and Growth Pact commits member countries to comply with the medium-term budgetary objective of positions of close to balance or in surplus (European Commission, 2005). If this were adhered to, then all EU member countries with a net debt position would be pre-funders. We have not characterised them this way.

4.4 Strong pre-funding countries

4.4.1 Belgium

The Belgian Government has a pre-funding strategy which involves reducing debt in order to provide scope for increase age-related spending. The current Government target is to reduce gross debt to 30 per cent of GDP by 2030 from 100.7 per cent of GDP in 2004 (OECD Economic Outlook 76 Database).

To achieve this reduction in debt the Belgium High Finance Commission estimates that the structural budget balance must be increased to a surplus of 0.3 per cent of GDP in 2007 and then rise to 1½ per cent of GDP over 2011-18 before slowly falling back to zero by 2030 as the budget costs of ageing rise (OECD, 2005).

While the Belgian Government intends to follow the adjustment path outlined above, the OECD's assessment is that this will require further policy adjustments, including with respect to health policy (OECD, 2005).

4.4.2 Canada

The Canadian Government has adopted a strategy of reducing debt and has a fiscal strategy of achieving a balanced budget or better (OECD, 2004g, p. 27). This implies a declining debt-to-GDP ratio. This strategy has been partly motivated by concerns about future expenditure pressures. The Canadian Minister for Finance explicitly made this link (Goodale, 2004) when releasing the 2004 Economic and Fiscal Update – "By continuing to reduce the debt burden, we will build our flexibility to meet emerging demographic pressures – paying down debt today means more money for social programs tomorrow."

To date, Canada's debt reduction strategy has reduced general government net interest payments from a peak of 5.7 per cent of GDP to 1.3 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). General government net financial liabilities were 31.1 per cent of GDP in 2004 (OECD Economic Outlook 76 Database).

The Canadian Government has an objective of reducing the federal debt-to-GDP ratio to 25 per cent within 10 years (OECD, 2004g, pp. 27-29).

4.4.3 Denmark

Denmark has a clear pre-funding strategy with primary surpluses being run to reduce debt (general government gross financial liabilities were 48.4 per cent of GDP in 2004 (OECD Economic Outlook 76 Database)) and provide scope to continue expenditure programs without the need to excessively raise taxation.

The Danish Government has a medium term fiscal strategy which is to ensure that public finances are sustainable in the long-term. This has translated into a target

of maintaining a structural general government surplus of around 2 per cent of GDP (OECD, 2003c, p. 107).

4.4.4 Finland

The Finnish Government's fiscal objectives, set out in June 2003, are to reduce the central government debt-to-GDP ratio; aim to achieve balanced central government finances under normal conditions of growth; and limit growth in real spending by central government to EUR 1.12 billion over the four year electoral period (OECD, 2004h, p. 44).

The Finnish Government has undertaken some pre-funding to date. This is evidenced by the positive net lending (currently around 3 per cent of GDP per year) of the pensions and social security funds.

Finland's general government financial balance has been in surplus since 1998 and has been around 2 per cent of GDP over the last four years after peaking at 7.1 per cent of GDP in 2000 (OECD Economic Outlook Database 76). This strong fiscal position is partly due to a positive contribution from the pensions and social security contributions. In 2005 the general government surplus is estimated to be 2.1 per cent of GDP which comprised a surplus of 3.0 per cent of GDP in the pension and social security funds, a central government deficit of 0.7 per cent of GDP, and a municipal government deficit of 0.2 per cent of GDP (OECD, 2004h, p. 57).

Finland's general government sector had net assets of 34.8 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). The net asset position reflects large asset holdings with the public pension scheme offsetting general government gross financial liabilities of 51.8 per cent of GDP in 2004 (OECD Economic Outlook 76 Database).

4.4.5 Luxembourg

Luxembourg has a pre-funding strategy of maintaining balance in the central government accounts and accumulating assets in the social security funds. On current assumptions this is equivalent to maintaining a general government surplus of around 2 per cent of GDP.

The Government is committed to maintaining general government budget surpluses (with the central government in balance) in the medium term. This will result in the further accumulation of net financial assets, which stand at around 50 per cent of GDP (OECD, 2003h, p. 41). The central government balance excludes social security surpluses. This surplus was projected by the government to be 2.2 per cent of GDP in 2003 (OECD, 2003h, p. 46). Accordingly, if the Government

were to meet its target, then central government balance would imply an annual general government surplus of around 2 per cent of GDP.[16]

4.4.6 New Zealand

The New Zealand Government has a comprehensive pre-funding strategy. This strategy includes (Cullen, 2004, p. 23):

- The establishment of the New Zealand Super Fund (NZS Fund). The NZS fund is designed to partially fund future government superannuation benefits.
- Maintaining operating surpluses during the contribution phase of the NZS Fund. Contributions will be made to the NZS Fund during this period.
- The Government is contributing around 1.4 per cent of GDP in 2004, with contributions estimated to decline to zero in 2026. (New Zealand Super Fund, 2005).
- On current projections the fund is estimated to peak (as a proportion of GDP) at just under 40 per cent of GDP in 2036 (New Zealand Treasury, 2004).
- Reducing sovereign issued gross debt-to-GDP ratio to below 20 per cent.
- Increase net worth consistently with the operating surplus objective.

One interesting aspect of the New Zealand approach is the assumed rate of return on the asset portfolio. NZS Fund have used an assumed rate of return of 10.2 per cent per year.[17] Therefore, a significant contribution to the pre-funding strategy is the excess return above the rate of growth of GDP.

4.4.7 Norway

Norway presents a special case. The raw data suggests that Norway is a very strong pre-funder. However, this is motivated more by revenue smoothing than provisioning for increased expenditure.

Analysis of pre-funding in Norway is complicated by the existence of oil revenues that are expected to fall over the next 50 years. The oil strategy – placing assets in a fund and allowing an annual drawdown equal to the estimated real rate of return – is based on the belief that all generations should benefit from the natural resource endowment. The strategy is not motivated by changing demographic or spending pressures.

There have been some proposals to hypothecate the Petroleum Fund to pension liabilities (OECD, 2004d, p. 13). However, the current proposal does not

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[16] Luxembourg has an extremely generous public pension system. The replacement rates guaranteed by the general public pension scheme are exceptionally high at 98 per cent of average income for a worker on average earnings with 40 years contributions (IGSS, 2002, quoted in OECD, 2003h, p. 47).

[17] This is an arithmetic mean – see McCulloch (2003) for an excellent discussion of arithmetic versus geometric means.

seek to change the rule that assets can only be withdrawn in line with an estimated real rate of return. As a result, the proposal may have potential governance benefits (by increasing the effective political ring-fencing of the assets), but it would not materially change the extent of pre-funding.

4.4.8 Sweden

The Swedish Government has a fiscal strategy, introduced in 1997, of maintaining a general government surplus of 2 per cent of GDP over the cycle. The fiscal strategy also includes nominal expenditure ceilings and from 2000 balanced budget requirements for local government (OECD, 2004k, p. 163).

Sweden has significantly consolidated its financial position over the last decade. With the exception of a small deficit in 2002, Sweden has maintained a general government financial surplus since 1998. This contrasts with a general government financial deficit of 11.4 per cent of GDP in 1993 and 9.3 per cent of GDP in 1994. General government net financial liabilities have declined from a peak of 25.7 per cent of GDP in 1996 to 3.8 per cent of GDP in 2004 (OECD Economic Outlook 76 Database).

4.5 Mild pre-funding countries

4.5.1 Australia

Australia has been undertaking significant pre-funding over the last decade. Indeed, on the basis of past performance Australia would be characterised as a strong pre-funder.

The Government's fiscal strategy, introduced in 1996, is to maintain budget balance, on average, over the economic cycle (Australian Government, 2004, p. 1-5). To date this has involved an element of pre-funding as budget balance has implied primary surpluses. The average primary surplus between 1996 and 2004 has been 2.4 per cent of GDP (OECD Economic Outlook 76 Database).

However, as net debt approaches zero, maintaining budget balance on average over the cycle will imply declining levels of pre-funding as the primary balance approaches zero.

Looking forward the Australian Government has a pre-funding strategy, targeted at pre-funding public sector employee superannuation liabilities. To this end the Australian Government has announced the establishment of a Future Fund. The Government has announced that Fund earnings will be reinvested and excluded from the calculation of the underlying cash balance (Australian Government, 2005, p. 1-6). Accordingly Fund earnings will contribute to improving net worth.

The Australian Government (2004, p. 1-7) has set out a multi-pronged strategy for addressing demographic challenges involving elements of pre-funding,

lowering expenditure and growing the economy faster to maintain a stable fiscal position into the future.

4.5.2 Iceland

The Iceland government has a policy of maintaining budget surpluses over the business cycle and of reducing debt. This represents pre-funding. This is partly motivated by a desire to reduce vulnerability to external shocks. They also have undertaken specific measures to pre-fund public sector employee pension entitlements (OECD, 2003e, p. 50).

Iceland has gone through a period of fiscal consolidation with general government surpluses since 1998. General government net financial liabilities have also fallen in recent times from a peak of 40.4 per cent of GDP in 1995 to 22.7 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). To put thus in context, this reduction represents an unwind of a fast accumulation of financial liabilities in the early Nineties. General government net financial liabilities were 9.9 per cent of GDP in 1989 and around the current level at 20.1 per cent of GDP in 1991 (OECD Economic Outlook 76 Database).

4.5.3 Ireland

The extent of forward looking pre-funding is unclear given the lack of an articulated medium term fiscal strategy. The Irish Budget appears to running a *de facto* target of around balance over the cycle. This represents pre-funding while net financial liabilities remain positive.

The Irish Government established the National Pension Reserve Fund (NPRF) in 1999 to help meet the future costs of social welfare and public service pensions. The Irish Government is required by law to contribute 1 per cent of GNP to the fund each year until 2025. The Fund's assets can only be drawn from 2025 onwards, to help smooth the burden arising from additional pension commitments. The assets of the NPRF are projected to be 21.3 per cent of GDP in 2020 and 64.1 per cent of GDP in 2050 (Irish Government, 2004, pp. E.24-25).

It is important to note that the one per cent commitment, in itself, does not increase the savings rate of the Irish Government. As they note (Irish Government, 2004, p. E.13) "…this pre-funding does not affect the General Government Balance, but does add to the General Government Debt". This is because the transfer of funds to the NPRF is not expenditure for the purposes of calculating the general government balance. Accordingly, the only additional pre-funding that results from the existence of the fund is the extent to which the rate of return on the assets exceeds the cost of government debt.[18]

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[18] See Appendix 2 for a discussion of debt reduction versus asset accumulation.

The Irish Government's balance sheet has improved substantially over the last two decades with general government gross financial liabilities having fallen from over 100 per cent of GDP in the late Eighties to 29.3 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). The debt-to-GDP ratio net of the National Pension Reserve Fund (NPRF) is projected to be around 23 per cent of GDP at end 2004 (Irish Government, 2004, p. E.15).

4.5.4 Italy

The Italian government does not appear to have a clear pre-funding strategy. Although the Italian government intends to improve the primary balance by around ½ per cent per year each year until 2008 they have not provided precise indications of how this will be achieved. Italy's general government balance in 2004 is estimated to be a deficit of 2.9 per cent of GDP. The structural balance is estimated to be a deficit of 2.7 per cent of GDP and the general government primary balance is estimated to be 1.8 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). Accordingly, if this improvement were to occur then there would be a modest degree of pre-funding.[19]

Further, this strategy is primarily targeted at reducing debt to lessen interest payments and provide room for pro-growth expenditures and tax cuts rather than to pre-fund expected demographic pressures.

The major fiscal pressure in Italy arises from the poor balance sheet position. Public gross debt in Italy was 106 per cent of GDP in 2004 with public debt interest payments equal to 5.3 per cent of GDP (OECD 2003a, p. 49). Although this is high, it does represent a reduction from a peak of 124.3 per cent of GDP in 1994 (OECD 2003a, p. 59).

4.5.5 Korea

The Korean Government does effectively have a pre-funding strategy.

The major long-term driver of additional expenditure is the National Pension Scheme. The Government is required to review the sustainability of the NPS every five years. In 2003 the government proposed reducing the generosity of the scheme and increasing the contribution rate. These proposals have not yet been approved by the National Assembly (OECD, 2004c, p. 66).

To the extent that the Government chooses to increase the contribution rate this is pre-funding. In contrast, revising the benefit formulae is an example of renegotiating the social contract. The recent proposal by the Government is a mixture of benefit reduction and pre-funding.

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[19] The interest rate growth differential has fallen substantially in Italy. The differential between long term interest rates and growth was only 0.1 per cent in GDP. This compares with an average of 2.5 per cent between 1991-2001, which included a high of 8.2 per cent in 1992.

To date the Korean Government has been pre-funding. The general government has continuously run surpluses which have resulted in a net financial asset position of 30.7 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). Korea's gross public debt is also relatively low at around 35 per cent of GDP (OECD, 2004c, p. 37).

4.5.6 Netherlands

The Netherlands' Government has a pre-funding strategy which aims at maintaining government finances on a sustainable path defined as a path that maintains constant tax rates (OECD, 2004l, p. 15). A sustainable path requires a government surplus of around 1 per cent of GDP on an ongoing basis (OECD, 2004l, p. 78).

The estimation of a sustainable path is clearly very sensitive to assumptions. A key assumption in the Dutch projections is the assumed rate of return of pension assets. The CPB sustainability projections assume a real rate of return of 4 per cent on bonds and 8½ per cent on equities. The required structural surplus increases by 0.9 per cent of GDP for every 1 per cent decrease in the assumed rate of return of pension fund assets (van Ewijk *et al*., 2000, p. 67).

4.5.7 Spain

The government aims for a balanced budget or a small surplus (OECD, 2003g, p. 51). This has the effect of pre-funding while net financial liabilities are positive.

In recent years the general government balance has been in broad balance. This has contributed to a significant reduction in net financial liabilities. General government net financial liabilities have fallen from 53.1 per cent of GDP in 1996 to 37.0 per cent of GDP in 2004 (OECD Economic Outlook 76 Database). Gross financial liabilities have also declined from 77.1 per cent of GDP in 1996 to 58.4 per cent of GDP in 2004 (OECD Economic Outlook 76 Database).

5. Reasons for pre-funding

The following table provides some key statistics related to the subset of countries that have adopted pre-funding strategies. The first group of countries represent the strong pre-funding countries. The second group represent the mild pre-funding countries. The rest of this section considers the characteristics of these countries compared with the other OECD countries that do not have a pre-funding strategy.

Table 5

Fiscal Positions of Pre-funding Countries
(percent of GDP)

Country	Gross Financial Liabilities 2000	Gross Financial Liabilities 1995	Net Financial Liabilities 2000	Net Financial Liabilities 1995	Tax and Non-Tax Receipts-to-GDP Ratio
Belgium	115.0	138.8	102.5	125.6	49.5
Canada	81.8	100.8	44.8	69.3	44.1
Denmark	54.4	78.4	8.7	25.9	57.4
Finland	53.2	65.7	–31.5	–3.8	56.1
Luxembourg	5.5	6.7	N.A.	N.A.	44.7
New Zealand	44.7	56.9	20.7	34.7	41.3
Norway	30.0	34.4	–60.6	–32.6	58.2
Sweden	64.2	82.2	1.4	25.3	62.4
Average of strong pre-funders	56.2	70.5	12.3	34.9	51.7
Australia	25.2	44.6	9.9	28.2	36.5
Iceland	41.9	60.3	24.0	40.4	45.6
Ireland	38.3	81.9	N.A.	N.A.	36.4
Italy	124.5	133.5	98.9	109.2	46.2
Korea	16.3	5.5	–27.0	–17.4	29.3
Netherlands	66.7	90.8	35.1	54.1	47.5
Spain	67.3	70.3	43.3	48.9	39.1
Average of mild pre-funders	54.3	69.6	30.7	43.9	40.1
Average of non pre-funders	64.9	73.2	39.2	39.0	42.7
OECD average (unweighted)	59.5	71.2	27.8	41.3	44.8

Source: General government gross financial liabilities, general government net financial liabilities and total tax and non-tax receipts are from Economic Outlook 76 Database. Change in old age pension spending and health spending are from OECD (2001), except for the following: Pension figure for Luxembourg IGGS(2002); pension sand health expenditure for Iceland is from the EU EPC quoted in OECD (2003f); health expenditure for Italy is from EU EPC quoted in OECD (2004d). For pensions and health the OECD average is the average of the 21 countries covered in OECD (2001).

5.1 Initial debt position

Table 5 presents information on the gross and net financial asset position of the pre-funding countries at year 2000. This indicates that in 2000 the average gross general government financial liabilities of the strong pre-funding countries are around 9 per cent of GDP lower than the average of the non pre-funding countries. The difference between the strong pre-funders and the non pre-funders on the basis of net assets is even more marked, with the strong pre-funding countries having a net financial asset position almost 30 per cent of GDP lower than the latter.

However, to some extent, this is not surprising given that these countries have been chosen on the basis that they have implemented a pre-funding strategy. In 1995, there was little difference between the strong pre-funding countries and the non pre-funding countries in the gross or net financial asset positions.

Accordingly, as a group, we conclude that the initial asset position does not appear to provide a strong explanation for the decision to pre-fund. That said, high initial debt positions were probably influential in some individual countries. For example, the initial debt position of Belgium, Canada and Italy does appear to have been a significant factor in their decisions to pre-fund. In the case of Belgium and Italy broader European considerations (in particular adoption of the Euro) also played a significant part.

5.2 Magnitude and type of spending pressure

The average estimated increase in old age pension spending for the strong pre-funding countries is 4.5 per cent of GDP (Table 6) and the average of the mild pre-funding countries is 4.2 per cent of GDP. This compares with an OECD average of 3.8 per cent of GDP. Given the differences in methodologies for calculating these figures and the inherent uncertainty associated with long-term projections of this kind, we would not want to over-interpret this information. That said, the data are consistent with the proposition that the magnitude of expected increases in pension expenditure is related to pre-funding.

It is clear, however, that there are many countries with strong pension funding pressures that are choosing not to pre-fund. Germany, for example, expects to see old age pension spending increase by 5 per cent of GDP but as yet has not adopted a pre-funding strategy. Instead, it is seeking to reconsider some of its expenditure programs.

These differences between countries may be better explained by the qualitative issue of differences in funding commitments. These commitments may be considered as forming a spectrum, ranging from the strongest, being contracts at law, to less well-defined social contracts to provide public services into the future. Many public sector employee pension schemes are contractual in nature, and the government has little choice but to fund them. Broader commitments to support a level of retirement incomes for the community at large may fall more within the

Table 6

Spending Pressures
(percent of GDP)

Country	Change in Old-Age Pension Spending, 2000-2050	Change in Health Spending, 2000-2050
Belgium	3.7	3.0
Canada	5.8	4.2
Denmark	3.6	2.7
Finland	4.8	3.8
Luxembourg	2.0	N.A.
New Zealand	5.7	4.0
Norway	8.2	3.5
Sweden	2.2	3.2
Average of strong pre-funders	4.5	3.5
Australia	1.6	6.2
Iceland	0.5	3.5
Ireland	4.4	3.5
Italy	1.7	2.1
Korea	8.0	0.8
Netherlands	5.3	4.8
Spain	8.0	N.A.
Average of mild pre-funders	4.2	3.5
Average of non-pre-funders		
OECD	3.8	3.3

terms of a social contract which is subject to renegotiation, with the strength of that social contract varying between countries.

Many of the countries in the strong pre-funding category could be said to have strong social contracts which bind their governments to provide a certain standard of income support into the future – a feature in particular of the Nordic countries. Other countries where the social contract may be less strong are either mild pre-funders, or are more inclined to pursue strategies to renegotiate the social contract.

In contrast to the information on expected changes in pension expenditure, there appears little evidence that expected changes in health expenditure explain differences in the tendency to pre-fund. The average estimated increase in health expenditure is 3.5 per cent of GDP for both the strong and mild pre-funding countries compared with the OECD average. Furthermore, the health estimates should be treated with an even greater degree of caution than the pension estimates as the methodologies differ more and there are more countries where there is no data. That said, there is no reason to believe that the countries we describe as pre-funders would systematically have estimated health costs that are higher than the OECD average. For example, Australia, Canada and the Netherlands do allow for enrichment in their estimates, while many non-pre-funding countries do not.

Moreover, consideration of the nature of the social contract in respect of health care may suggest a different policy response than applies to pensions. In many countries, expected increases in health expenditures are as much a function of improvements in technology as they are of demographic factors. While demographic factors suggest an increasing cost in delivering on an existing social contract, public provision of new, higher cost medical technologies would appear to go beyond the existing contract and require future renegotiation of the social contract.

5.3 Initial tax position

Another variable of interest is the initial tax position of the pre-funding countries. As indicated in Table 5, there appears to be a significant difference between the average tax-to-GDP ratio of the strong pre-funding countries and other OECD countries. The strong pre-funding countries in 2000 had an average tax-to-GDP ratio of 51.7 per cent of GDP. This compares with an average of 40.1 per cent of GDP for the mild pre-funding countries and 42.7 per cent for those OECD countries that are not identified as pre-funders.[20]

Furthermore, no OECD country that is not a pre-funding country had a total tax and non-tax to-GDP-ratio higher than the average of the strong pre-funding

[20] The qualitative pattern is the same for 1995. In 1995 the average tax-to-GDP ratio of the strong pre-funding countries was 51.7 per cent of GDP, the weak pre-funding countries 38.8 per cent of GDP, and the average of non pre-funders was 42.7 per cent of GDP. Accordingly, the general pattern of ratios does not appear to be particularly sensitive to the choice of the "initial period".

countries, although there are some countries with relatively high tax-to-GDP ratios that do not appear to be pre-funding.

Section 2.1 of this paper discussed the two major efficiency motivations for pre-funding: tax smoothing and interest rate effects. The magnitude of the benefits of tax smoothing depends in part on the initial level of taxation. The observation that countries with high initial tax rates tend to undertake more pre-funding is therefore in keeping with what would be expected. That said, high tax countries may not have been motivated by tax smoothing. An alternative explanation is that countries that already have high taxes may feel that they have little flexibility to increase future taxes in the future (which could be for a variety of reasons including efficiency, political constraints or international tax competition). Further, it is possible that high tax countries may have institutional arrangements that make it difficult to revise the terms of the social contract, as discussed above. In this respect it may bet better to characterise these countries as "high expenditure" rather than high tax.

The above suggests that high tax levels cause pre-funding. That is that countries are pre-funding because they have high tax rates. However, one could argue that the causality runs the other way. That is that the higher taxes result in evidence of pre-funding. We do not think this latter explanation is as convincing. Most of the strong pre-funding countries are pre-funding in the order of 1 to 2 per cent of GDP per year (Norway is the exception given oil revenue). This compares with a tax-to-GDP ratio of more than 10 per cent higher than the OECD average. In addition, the strong pre-funding countries face slightly higher increases in expenditure from their current high base.

5.4 Other explanations

The three previous sections appear to indicate that there is some evidence that the initial tax-to-GDP ratio influences the likelihood of a country pre-funding. There is also weaker evidence that the expected increase in pension expenditure also influences decisions to pre-fund. However, while no OECD country had a tax-to-GDP ratio higher than the average of the strong pre-funding countries, countries such as Austria and Germany were close (49.8 and 51.1 per cent of GDP respectively compared with 51.7 per cent of GDP for the strong pre-funding countries in 2000 (OECD Economic Outlook 76 Database and Table 5)). Further, a number of other countries have a higher tax-to-GDP ratio than New Zealand and Canada who are part of the strong pre-funding group. Moreover, the mild pre-funding countries have a lower tax-to-GDP ratio than the non pre-funding countries. This begs the question whether there is an alternative explanation.

The most obvious explanation lies in the cultural and political institutions of the countries. It is notable that the strong pre-funding countries are comprised of the Scandinavian countries, two-thirds of the Benelux countries (with the other third very close to the strong pre-funding group) and two English-speaking countries. In the Scandinavian countries there is a well known commitment to the concept of sustainability. In New Zealand and Canada there is a strong commitment to fiscal

responsibility following periods that are now regarded as representing poor fiscal management.

6. Summary and conclusions

In this paper we have developed a framework for analysing pre-funding among OECD countries. This framework is consistent with concepts of fiscal sustainability which require that a government can meet its intertemporal budget constraint on the basis of current policies.

We define weak sustainability as stabilizing the government's net financial asset position over a period of time. The criterion is weak to the extent that the time horizon is finite. The longer the time horizon the stronger is the criterion, converging to full sustainability as the time period approaches infinity. We recognise that the weak sustainability criterion is imperfect, but believe that it forms a useful starting point for assessing sustainability.

We define pre-funding as improving a government's net financial asset position. This involved raising more taxes than is required for current needs, resulting in greater financial resources in the next period to deal with any additional expenditure needs.

This approach privileges the initial financial asset position. We recognise this criticism, but believe that it is still a meaningful approach as governments are in fact faced with a policy decision based on their initial starting point. If governments do improve their net financial asset position then they do reduce future financing costs and create additional flexibility compared with the initial starting point (whatever that may be).

To identify pre-funding in practice we adopt a direct and indirect approach as initial filters. The direct approach looks at the historical evolution of both general government gross and net financial assets. The indirect approach looks at the primary balances of individual countries compared to benchmark primary balances calculate using the condition for stable net financial assets. Finally, we examine each country identified by the filters to establish evidence of pre-funding.

Our analysis identifies two categories which we describe as "strong pre-funding countries" and "mild pre-funding" countries. Strong pre-funding countries are identified by clear evidence of past pre-funding and a forward looking commitment to further pre-funding. Mild pre-funding countries are characterised by less pre-funding in the past, or a forward looking pre-funding policy that implies less pre-funding, or weaker compliance with their own policy.

According to this classification we define Belgium, Canada, Denmark, Finland, Luxembourg, New Zealand, Norway and Sweden as strong pre-funding countries and Australia, Iceland, Ireland, Italy, Korea, the Netherlands and Spain as mild pre-funding countries.

We stress that we do not intend to imply that the mild pre-funders are necessarily following poorer policies than the strong pre-funders. The appropriate policy for an individual country depends on their particular circumstances. This point is related to the time period over which weak sustainability is assessed. To the extent that some of the mild pre-funders face smaller future pressures, then the weak sustainability criterion may be met for a much longer period. That is policies can be left unchanged for a longer period of time without the net financial asset position deteriorating. Put another way, if the time period over which the weak sustainability criterion is assessed were extended, then the grouping of countries could change markedly.

We would have expected that pre-funding countries would have been characterised by higher initial net financial liability positions, higher expected increases in expenditure (particularly pensions) and higher initial tax rates. A high net financial liability position may lead to more observed pre-funding, partly motivated by a desire to reduce government-induced risk premia on interest rates, and partly to increase flexibility to adjust to adverse shocks. Higher expected pension expenditure may lead to more pre-funding, particularly to the extent that government's view pension scheme obligations as contractual or quasi contractual in nature. Public sector employee pension schemes may particularly lend themselves to pre-funding. In contrast health expenditure may be viewed as part of the social contract that can be renegotiated over time.

Against the background of these expectations we observe little evidence that the pre-funding countries have higher initial liability positions. Indeed, the opposite appears to be the case to a small degree, although this conclusion is sensitive to the choice of the "initial" period.

The strong pre-funding countries do have slightly higher expected increases in pensions (around 1 percentage point of GDP between 2000 and 2050) than the OECD average. There appears no significant difference between the strong pre-funding countries and the rest of the OECD in terms of the expected increase in health expenditure. Although this accords with what we would expect, we would not want to over-interpret these figures, particularly in the health area.

There does seem to be a substantial difference between the initial tax-to-GDP ratios of the strong pre-funding countries and the OECD average. In 2000 the strong pre-funding countries had an average tax-to-GDP ratio of 51.7 per cent of GDP compared with an average of 42.7 per cent of GDP for the non pre-funders. Furthermore no OECD country outside the strong pre-funding group has a tax-to-GDP ratio higher than the average of the strong pre-funding group.

The observation that the strong pre-funding countries have higher initial tax rates is consistent with policy motivated by the desire to improve efficiency by tax smoothing. It may also reflect the fact that high tax countries may believe that they will have less flexibility to increase taxes in the future. As a result, even a small risk of significant expenditure pressures may lead to an early policy response.

Finally, whilst the conclusion that high tax rates appear to be related to pre-funding activity appears to be clear, it is possible that another common factor explains why particular groups of countries pre-fund. In this respect it is striking that the countries are geographically clustered in Northern Europe and the English-speaking countries. This perhaps suggests that other cultural and institutional factors are the common determinants of pre-funding behaviour. In particular, the strength of the social contract which binds governments to provide a certain level of government services may be a stronger part of the institutional framework of strong pre-funding countries.

Finally, in terms of the policy mix, it is important to ensure that other "no regrets" measures are pursued even if pre-funding is undertaken. In particular, irrespective of the approach to pre-funding, productivity and participation issues should be addressed. The latter may be seen as a variant of options that seek to renegotiate the social contract with a view to reducing unacceptable costs.

APPENDIX 1
SUSTAINABILITY AND DEBT STABILITY CONDITIONS

The government's budget constraint in any period can be defined as:

$$PSBR_t = (D_t - D_{t-1}) = PD_t + i_t D_{t-1} \tag{A1}$$

where $PSBR_t$ is the public sector borrowing requirement at time t, D_t is the stock of debt at time t, PD_t is the primary deficit at time t, and i_t is the interest rate at time t. This simply says that the change in the level of debt is equal to the primary surplus (that is the general government balance without net interest payments) plus the cost of servicing the debt inherited from the previous period.

In this presentation we have used the common approach of just referring to "debt". However, in practice we should distinguish between gross and net debt. The logic of the constraint expressed in equation (A1) means that D_t should be interpreted as net debt as the net interest payments associated with inherited debt contribute to the government's borrowing requirements. Furthermore, if there are other financial (non-debt) assets or liabilities then these will also need to be taken into account. We expand further on the issue of assets below.

Multiplying equation (A1) by –1 gives:

$$PS_t = i_t D_{t-1} - (D_t - D_{t-1}) \tag{A2}$$

where PS_t is the primary surplus of the public sector at time t. Dividing equation (A2) by GDP_t and rearranging terms provides an equation that describes the debt dynamics in each period:

$$d_t = \beta_t d_{t-1} - ps_t \tag{A3}$$

where ps_t is the primary surplus as a ratio of GDP, and

$$\beta_t = \frac{(1 + r_t)}{(1 + g_t)} \tag{A4}$$

where r_t is the real interest rate and g_t is the real growth rate.

If we assume that β_t is stable over time (*i.e.* $\beta_t = \beta_{t+1}$) then we can derive the following budget constraint:

$$d_t = \sum_{n=1}^{N} \beta^{-n} ps_{t+n} + \beta^{-N} d_{t+N} \tag{A5}$$

Equation (A5) establishes the formal condition for sustainability. The fiscal position is sustainable if the present discounted value of future primary surpluses is equal to the outstanding stock of debt on the basis of current policies. In other words, if there is an initial stock of debt, then present value of future primary surpluses are sufficient to pay off this debt.

APPENDIX 2
DEBT REDUCTION VERSUS ASSET ACCUMULATION

Improving the net financial asset position of a country can be achieved either by reducing debt or increasing assets. Conceptually there is little difference in terms of providing the financial capacity to meet future expenditure pressures. That said, two factors need to be taken into account in comparing debt reduction with asset accumulation: differences in the rate of interest paid on debt or received on assets; and the nature of governance arrangements for debt and assets.

A2.1 Rate of interest and rate of return on assets

Recall equation (A3) which describes debt dynamics in each period. In this equation β is implicitly a weighted average of debt costs and asset returns. Alternatively, the equation can be rewritten as:

$$b_t - a_t = \beta_t^B b_{t-i} - \beta_t^A a_{t-1} - ps_t \tag{A6}$$

where b_t equals the gross debt at time t, a_t equals the gross assets at time t, and:

$$\beta_t^B = \frac{(1+r_t^B)}{(1+g_t)} \tag{A7a}$$

and:

$$\beta_t^A = \frac{(1+r_t^A)}{(1+g_t)} \tag{A7b}$$

where r_t^B is the rate of interest on debt at time t and r_t^A is the rate of return on assets at time t.

The net asset stability condition on the assumption that β^A and β^B are stable becomes:

$$ps^* = \left[\frac{(r^B - g)}{(1+g)}\right] b^* - \left[\frac{(r^A - g)}{(1+g)}\right] a^* \tag{A8}$$

Equation (A8) summarises some key issues associated with debt reduction versus asset accumulation. If the rate of return on assets is equal to the cost of serving debt, then, at least from a fiscal sustainability perspective, we should be indifferent between reducing debt or increasing assets. However, if there is a systematic difference between the rate of interest and the return on assets, then this will need to be taken into consideration.

It is beyond the scope of this paper to discuss fully this issue. However, we can make a number of observations. First, the relevant rate of interest and rate of return on assets is that faced by the government. Therefore the particular composition of the government's debt portfolio and asset portfolio will influence

both returns.[21] Second, where equities are held as assets, the most important issue will be the size of the equity risk premium. The higher the assumed equity risk premium, then the higher the expected difference between the return on government bonds and equities. Third, the relative risk of alternative assets should also be taken into account as governments are not indifferent to volatility in returns. Fourth, the two rates may differ if the fiscal policy of the government directly affects the rates themselves. The narrower the asset class, then the greater the likely effect of government activity. For example, changes in government debt stocks (which with debt reduction would be favourable) may have a greater impact on interest rates than changes in investment activity in a diversified portfolio.

A2.2 Assets and governance issues

Both maintaining a debt portfolio and managing an asset portfolio involve important governance issues. That said, the issues associated with managing assets are arguably more difficult for three main reasons.

First, the range of assets in an asset portfolio is likely to be greater than that in a debt portfolio. This increased complexity needs to be appropriately managed.

Second, in some political systems a pool of assets may result in a temptation to direct investments to achieve other goals. This issue does not arise with debt portfolios as funds are being provided to the government.

Third, large pools of assets may lead to a relaxation of fiscal discipline.

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[21] If the rate of interest faced by government affects the rate of interest faced by other actors (as we would expect), then there will be second round effects through changes in growth rates.

APPENDIX 3
EXPENDITURE PRESSURES AND SUSTAINABILITY

In flow terms we can re-express equation (A6) to show the independent influence of expenditure and taxes:

$$b_t - a_t = \beta_t^B b_{t-i} - \beta_t^A a_{t-1} - (pt_t - pe_t) \tag{A9}$$

where pt_t is equal to primary tax and non tax receipts at time t and pe_t is equal to primary expenditure at time t.

The net asset stability condition then becomes:

$$pe^* - pt^* = \left[\frac{(r^B - g)}{(1+g)}\right] b^* - \left[\frac{(r^A - g)}{(1+g)}\right] a^* \tag{A10}$$

Expected expenditure pressures correspond to an expected increase in primary expenditure. Without other policy adjustments the debt stability condition will not be met and weak sustainability will not be maintained. If the government wishes to return to a sustainable path, then either taxes will need to be increased or expenditure will need to be reduced.

Thus expected additional spending pressures lead to an expectation that the weak sustainability criterion will not be met. This prompts a possible policy response.[22]

A3.1 Stock treatment

The stock equivalent of this is the budget constraint which becomes (on the assumption of a constant γ):

$$b_t - a_t = \sum_{n=1}^{N} \gamma^{-n} (pe_{t+n} - pt_{t+n}) + \gamma^{-N} (b_{t+N} - a_{t+N}) \tag{A11}$$

where:

$$\gamma = \left[\frac{(1 + r_t^B)}{(1 + g_t)}\right]\left(\frac{b_t}{b_t - a_t}\right) - \left[\frac{(1 + r_t^A}{(1 + g_t)}\right]\left(\frac{a_t}{b_t - a_t}\right) \tag{A12}$$

Equation (A11) is the government budget constraint allowing for both assets and liabilities and separately identifying the contribution of primary expenditure and taxation. The discount factor, γ, is a weighted average of the rate of interest on bonds and the rate of return on the government asset portfolio.

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[22] This paper focuses mainly on the policy responses of changing primary expenditure or primary taxation in order to change the trajectory of the net financial asset position. A third alternative is to increase the rate of growth, g. The higher the growth rate, the lower the required primary surplus for net financial asset stability.

The government budget constraint brings future spending pressures to account in the current period. Higher expected primary expenditure requires either a higher initial net asset position, or higher future taxes, or measures to reduce future expenditure.

General Government Total Outlays
(percent of nominal GDP)

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia	38.9	36.3	35.5	36.2	37.9	39.7	39.8	39.3	39.1	37.9	36.8	36.7	35.8	35.7	37.2	36.3	36.0	35.7	35.8	35.4
Austria	54.4	53.2	51.9	51.6	52.3	53.2	56.4	56.0	56.0	55.4	53.1	53.4	53.2	51.4	50.9	50.6	50.8	49.9	49.4	48.2
Belgium	57.0	55.1	53.4	53.4	54.4	54.7	55.7	53.4	52.9	53.1	51.4	50.7	50.0	49.3	49.3	50.2	51.0	49.2	49.5	49.1
Canada	46.1	45.4	45.8	48.8	52.3	53.3	52.2	49.7	48.5	46.6	44.3	44.4	42.5	41.1	41.8	40.9	40.5	39.4	38.9	38.9
Czech Republic *(a)*	-	-	-	-	-	-	-	-	54.4	42.8	42.4	43.8	42.9	42.1	45.0	46.9	54.5	46.1	45.8	45.2
Denmark	55.0	57.2	57.3	57.0	57.8	59.0	61.7	61.6	60.3	59.8	58.0	57.6	56.3	54.9	55.3	55.8	56.1	55.6	54.6	54.1
Finland	48.5	47.0	45.1	48.7	57.6	62.9	64.1	62.8	59.5	59.8	56.4	52.8	52.1	49.1	49.1	50.1	51.0	50.5	50.6	50.4
France	51.9	51.4	50.4	50.7	51.5	53.0	55.3	55.0	55.1	55.4	54.9	53.7	53.5	52.5	52.5	53.4	54.5	54.5	54.4	53.9
Germany *(b)*	45.8	45.3	44.0	44.5	47.1	48.1	49.3	49.0	49.4	50.3	49.3	48.8	48.7	45.7	48.3	48.7	48.8	47.8	47.2	46.1
Greece	45.1	44.0	45.4	50.2	46.7	49.4	52.0	49.9	51.0	49.2	47.8	47.8	47.6	52.1	50.2	49.1	48.3	49.8	48.4	48.1
Hungary	-	-	-	-	56.7	60.3	59.8	63.4	56.9	53.9	51.8	52.5	50.2	47.8	49.0	52.6	49.7	51.3	50.7	50.0
Iceland	37.4	42.5	45.0	42.4	43.7	44.6	44.5	44.3	43.7	43.2	41.6	42.4	43.5	43.1	44.1	45.8	48.0	45.9	44.5	43.6
Ireland	52.0	48.5	42.1	43.2	44.8	45.3	45.1	44.3	41.5	39.6	37.1	34.9	34.5	32.0	33.5	33.8	34.3	33.9	34.0	34.3
Italy	50.8	51.5	52.8	54.4	55.5	56.7	57.7	54.5	53.4	53.2	51.1	49.9	48.9	46.9	48.7	48.0	48.9	48.7	48.3	48.7
Japan *(c)*	31.5	30.9	30.2	31.7	31.5	32.5	34.2	34.8	35.8	36.3	35.1	36.1	37.7	38.2	37.7	38.1	37.6	36.7	37.2	37.5
Korea	17.7	17.9	19.0	19.5	20.6	21.8	21.4	20.9	20.8	21.8	22.4	24.7	23.9	23.8	25.0	24.8	27.3	27.9	28.2	28.3

Luxembourg	-	-	-	43.2	44.4	46.0	45.7	44.5	45.5	45.6	43.3	42.0	41.2	38.7	38.8	43.1	44.9	45.3	45.6	45.6
Netherlands *(d)*	58.4	56.6	54.5	54.8	54.8	55.8	56.0	53.6	51.4	49.6	48.2	47.2	46.9	45.3	46.7	47.8	49.0	48.9	48.6	47.8
New Zealand	53.6	52.7	51.9	53.3	51.5	49.5	46.0	43.0	41.9	41.0	41.7	42.7	41.0	39.8	38.6	38.5	38.3	38.2	38.7	39.1
Norway	50.5	52.6	52.2	54.0	54.9	56.2	55.1	54.1	51.5	49.0	47.2	49.6	48.1	42.7	44.3	47.4	48.7	46.7	45.1	45.3
Poland	-	-	-	-	-	-	-	-	51.3	51.2	50.2	48.5	48.1	44.9	47.6	48.9	48.2	47.7	46.6	45.1
Portugal	40.0	38.5	38.8	42.1	45.1	46.2	47.8	46.0	45.0	45.8	44.8	44.1	45.3	45.2	46.3	45.9	47.7	48.0	47.3	47.3
Slovak Republic	-	-	-	-	-	-	-	57.8	54.1	61.5	65.0	60.8	56.9	59.9	51.5	51.0	39.4	39.2	39.0	38.1
Spain	41.0	40.9	42.2	43.4	44.9	45.9	49.4	47.3	45.0	43.7	41.8	41.4	40.2	40.0	39.6	39.9	39.6	41.0	40.2	40.1
Sweden	62.3	62.5	62.4	63.5	65.5	70.2	72.9	70.9	67.6	65.2	62.9	60.7	60.3	57.3	57.0	58.2	58.2	57.5	57.2	56.7
Switzerland	-	-	-	30.0	31.8	33.9	34.8	34.8	34.6	35.3	35.6	36.1	34.6	34.0	34.8	35.4	36.0	36.0	35.7	35.2
United Kingdom	43.6	41.1	40.5	42.2	44.0	46.1	46.1	45.3	45.0	43.0	41.4	40.2	39.7	37.5	41.0	41.8	43.7	44.4	45.0	45.2
U.S. *(e)*	37.0	36.1	36.0	37.0	37.8	38.5	38.0	37.0	36.9	36.5	35.3	34.6	34.2	34.0	35.1	36.0	36.1	35.6	35.6	35.7
Euro area	48.9	48.4	47.9	48.7	50.1	51.3	52.9	51.8	51.4	51.5	50.2	49.3	48.9	47.1	48.1	48.5	48.9	48.6	48.2	47.7
Total OECD	40.4	39.6	39.3	40.3	41.5	42.6	43.1	42.3	42.3	41.9	40.7	40.3	40.0	39.2	40.2	40.8	41.1	40.6	40.5	40.4

(a) In 1995 data reflect the large privatisation campaign which transferred some public enterprises to private ownership through vouchers distributed to the population. In 2003 the activation of State guarantees, mainly for the banking sector, accounts for about .7 per cent of total outlays.

(b) The 1995 outlays are net of the debt taken on this year from the Inherited Debt Funds.

(c) The 1998 outlays would be 5.3 percentage points of GDP higher if it included central government's assumption of the debt of the Japan Railway Settlement Corporation and the National Forest Special Account. The 2000 outlays include capital transfers to the Deposit Insurance Company.

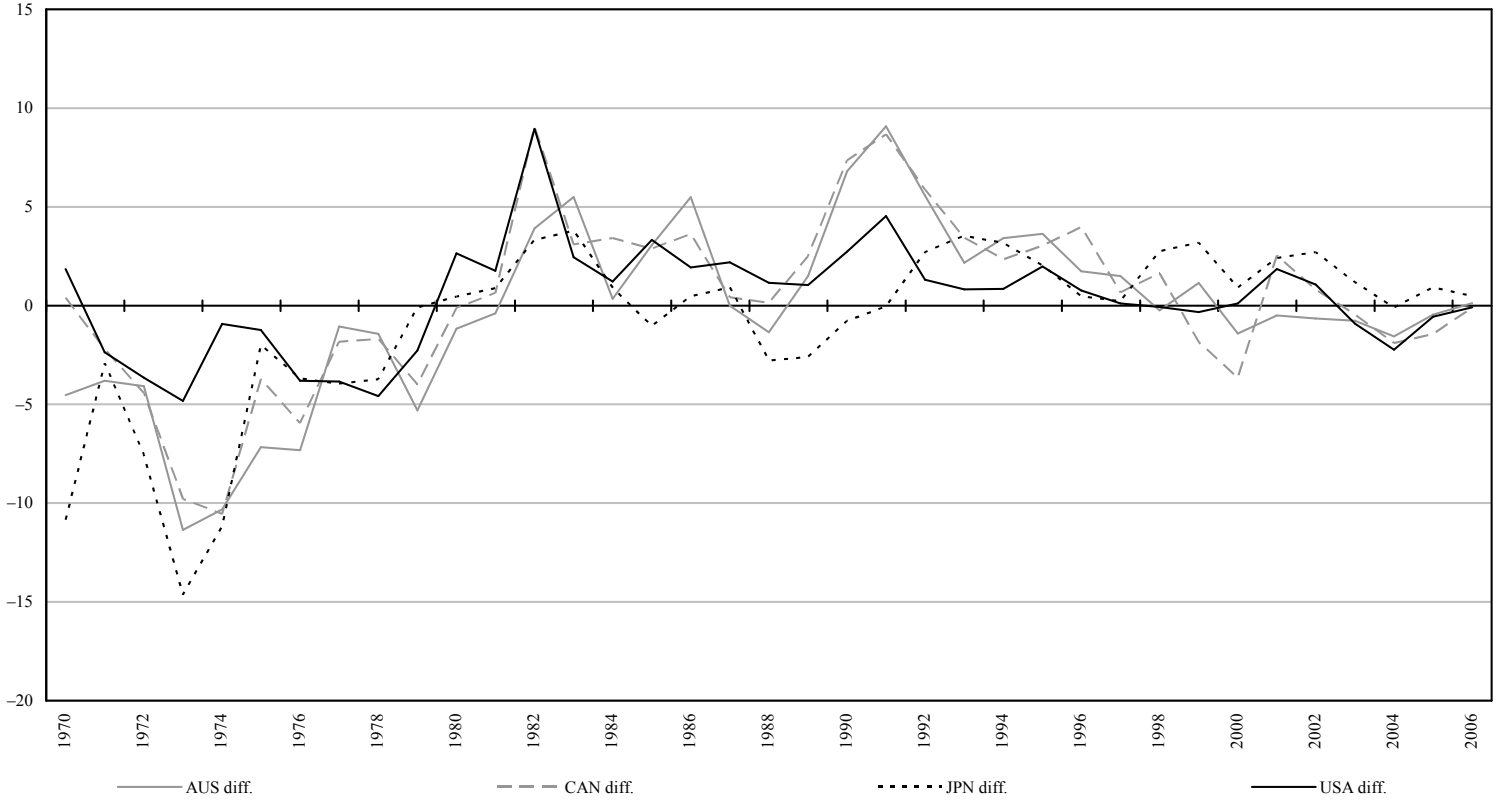
(d) The 1995 outlays would be 4.9 percentage points of GDP higher if capital transfers to a housing agency offering rentals to low income people were taken into account.

(e) These data include outlays net of operating surpluses of public enterprises.

Source: OECD Economic Outlook 76 database.

Figure 1a

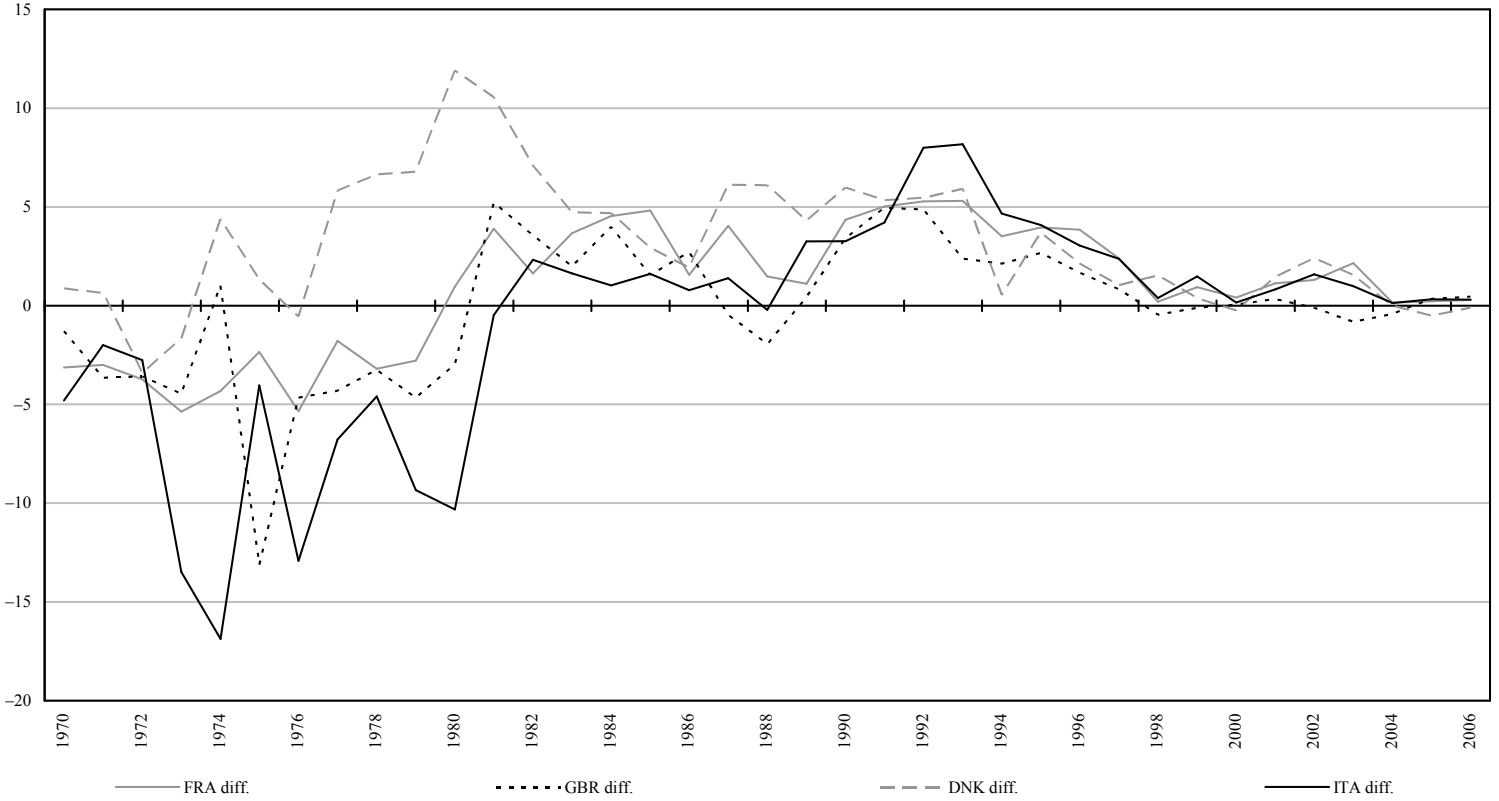
Growth and Interest Rate Differentials for Australia, Canada, Japan and the United States



Source: OECD.

Figure 1b

Growth and Interest Rate Differentials for France, United Kingdom, Denmark and Italy



Source: OECD.

Age-related Spending

(levels in percent of GDP, changes in percentage points)

	Total Age-related Spending			Old-age Pension			Early Retirement Programmes			Health Care and Long-term Care			Child/Family Benefits and Education		
	Panel A			Panel B			Panel C			Panel D			Panel E		
	Level 2000	Change 2000 peak [a]	Change 2000-2050	Level 2000	Change 2000 peak [b]	Change 2000-2050	Level 2000	Change 2000 peak [c]	Change 2000-2050	Level 2000	Change 2000 peak [d]	Change 2000-2050	Level 2000	Change 2000 peak [a] [e]	Change 2000-2050
Australia	16.7	5.6	5.6	3.0	1.6	1.6	0.9	0.2	0.2	6.8	6.2	6.2	6.1	0.0	–2.3
Austria [f]	10.4	4.6	2.3	9.5	4.3	2.2	-	-	-	-	-	-	-	-	-
Belgium	22.1	5.4	5.2	8.8	3.7	3.3	1.1	0.1	0.1	6.2	3.0	3.0	6.0	0.0	–1.3
Canada	17.9	8.7	8.7	5.1	5.8	5.8	-	-	-	6.2	4.2	4.2	6.4	0.0	–1.3
Czech Republic	23.1	6.9	6.9	7.8	6.8	6.8	1.8	–0.7	–0.7	7.5	2.0	2.0	6.0	-	–1.2
Denmark [g]	29.3	7.3	5.7	6.1	3.6	2.7	4.0	0.8	0.2	6.6	2.7	2.7	6.3	0.3	0.0
Finland	19.4	8.5	8.5	8.1	4.8	4.8	3.0	–0.1	–0.1	8.1	3.8	3.8	-	-	-
France [h]	-	-	-	12.1	4.0	3.8	-	-	-	-	-	-	-	-	-
Germany	-	-	-	11.8	5.0	5.0	-	-	-	-	-	-	-	-	-
Hungary [i]	7.1	1.6	1.6	6.0	1.2	1.2	1.2	0.3	0.3	-	-	-	-	-	-
Italy	-	-	-	14.2	1.7	–0.3	-	-	-	-	-	-	-	-	-
Japan	13.7	3.0	3.0	7.9	1.0	0.6	-	-	-	5.8	2.4	2.4	-	-	-
Korea	3.1	8.5	8.5	2.1	8.0	8.0	0.3	0.0	0.0	0.7	0.8	0.5	-	-	-
Netherlands [j]	19.1	10.1	9.9	5.2	5.3	4.8	1.2	0.4	0.4	7.2	4.8	4.8	5.4	0.1	0.0
New Zealand	18.7	8.4	8.4	4.8	5.7	5.7	-	-	-	6.7	4.0	4.0	7.2	0.0	–1.3
Norway	17.9	13.7	13.4	4.9	8.2	8.0	2.4	1.6	1.6	5.2	3.5	3.2	5.5	0.5	0.5

Poland [i]	12.2	–2.6	–2.6	10.8	–2.5	–2.5	1.4	0.2	–0.1	-	-	-	-	-	-
Spain	-	-	-	9.4	8.0	8.0	-	-	-	-	-	-	-	-	-
Sweden	29.0	3.4	3.2	9.2	2.2	1.6	1.9	–0.2	–0.4	8.1	3.2	3.2	9.8	0.0	–1.2
United Kingdom	15.	0.8	0.2	4.3	0.0	–0.7	-	-	-	5.6	1.8	1.7	5.7	0.0	–.09
United States	11.2	5.5	5.5	4.4	1.8	1.8	0.2	0.3	0.3	2.6	4.4	4.4	3.9	0.0	–1.0
Average of countries above [k]	**16.9**	**5.9**	**5.5**	**7.4**	**3.8**	**3.4**	**1.6**	**0.3**	**0.2**	**6.0**	**3.3**	**3.3**	**6.2**	**-**	**–.09**
Average of countries which provide all or nearly all spending components	**18.7**	**7.2**	**6.9**												
Portugal [l]	*15.6*	*6.6*	*4.3*	*8.0*	*4.5*	*4.5*	*2.5*	*0.4*	*–0.4*	-		-	-		-

(a) The peak values are in 2050 except for Denmark (2030), Sweden and the United Kingdom (2035) and Belgium, Norway and the Netherlands and Korea (2040).
(b) The peak values are in 2050 except for Japan (2015), the United Kingdom and Italy (2030), the United States, Sweden, Austria, Denmark and France (2035), and the Netherlands, Norway and Belgium (2040).
(c) The peak values are in 2050 except for Belgium and Denmark (2025), Finland (2010), the Netherlands (2020), Poland (2035) and Sweden (2005). For Czech Republic the highest level is in 2000.
(d) The peak values are in 2050 except for Denmark and Korea (2035), Norway and the United Kingdom (2040).
(e) 0.0 indicates the highest levels in 2000. The peak values are in 2035 for Denmark and in 2040 for Norway and the Netherlands.
(f) Total pension spending includes other age-related spending which does not fall within the definition in Panels B to E. This represents 0.9 per cent of GDP in 2000 and rises by 0.1 percentage point in the period to 2050.
(g) Total includes other age-related spending not classifyable under the other headings. This represents 6.3 percent of GDP in 2000 and increases by 0.2 percentage points from 2000 to 2050.
(h) For France, the latest available year is 2040.
(i) Total includes old-age pension spending and "early retirement" programmes only.
(j) "Early retirement" programmes only includes spending on person 55 or over.
(k) OECD average excludes countries where information is not available and Portugal which is less comparable than other countries.
(l) Portugal provided and estimate for total age-related spending but did not provide expenditure for all of the spending components.

Source: OECD (2001).

Participation and Dependency Changes in the Baseline Scenario Definition of the Working-age Population
(percentage point changes)

	Participation rate		Old-age dependency ratio		Overall dependency ratio		Share of older workers (aged 55-64)	
	2000-2025	2025-2050	2000-2025	2025-2050	2000-2025	2025-2050	2000-2025	2025-2050
Australia	–0.3	–0.6	13.2	12.0	10.9	17.2	3.9	1.1
Austria	–4.6	0.4	11.1	16.7	25.3	25.2	4.8	–1.2
Belgium	1.7	0.4	9.9	10.1	6.4	14.8	4.3	–0.1
Canada	1.2	0.2	15.8	8.3	11.9	8.9	5.7	1.1
Czech Republic	–1.4	–5.3	15.8	25.3	19.7	66.8	2.9	3.8
Denmark	–2.3	0.3	10.3	4.3	15.5	5.3	3.5	–0.8
Finland	0.3	1.4	21.0	5.3	29.8	1.8	4.7	–0.8
France	–2.6	0.3	12.4	9.1	24.6	12.5	4.5	–0.4
Germany	2.2	0.3	13.3	10.0	9.6	12.9	4.6	–1.9
Greece	8.4	0.6	9.3	12.0	–17.4	16.9	4.6	0.9
Hungary	–1.9	–5.7	18.2	24.4	30.0	87.1	2.2	3.02.3
Iceland	2.3	–.09	10.4	10.1	–0.8	13.7	5.7	2.5
Ireland	9.7	1.1	8.0	15.5	–22.8	16.2	6.9	2.5
Italy	2.9	0.2	13.9	24.6	5.9	43.2	9.3	–1.4
Japan	1.4	–.03	22.6	19.2	24.2	28.2	2.6	1.3

Korea	–3.2	0.9	22.9	31.5	42.9	46.4	8.7	–2.1
Luxembourg	2.0	1.8	11.7	7.5	11.8	5.9	7.8	–2.4
Mexico	6.5	0.2	6.5	13.8	–42.9	13.6	5.3	4.9
Netherlands	2.2	1.6	14.8	7.3	11.2	6.5	6.7	–1.5
New Zealand	–2.3	–0.9	14.5	12.1	17.2	18.3	7.5	–0.2
Norway	1.7	1.1	8.7	3.6	2.7	1.1	5.9	–.08
Poland	–0.7	–6.2	19.1	18.9	22.4	66.8	2.7	4.2
Portugal	1.4	0.4	6.5	16.4	3.6	24.1	4.0	–0.1
Slovakia	–1.3	–5.8	15.3	27.6	13.9	68.4	2.6	3.1
Spain	3.2	1.7	9.0	20.7	1.1	26.5	9.3	–1.7
Sweden	–5.0	0.0	10.9	1.7	27.5	1.0	2.8	–0.2
Switzerland	1.7	–.06	10.5	5.6	5.8	10.0	5.4	–1.2
Turkey	–10.2	–2.4	4.3	13.1	52.8	50.2	2.2	1.0
United Kingdom	–1.2	0.8	9.7	6.4	11.8	5.4	5.5	–1.2
United States	–1.7	0.8	12.6	2.2	21.7	1.3	5.7	–1.2
OECD unweighted average	**0.3**	**–0.5**	**12.7**	**13.2**	**12.5**	**23.9**	**5.1**	**0.3**

Participation rate: calculated as the ratio of the active (employed and unemployed) to the total population aged 15 to 64.
Old-age dependency ratio: calculated as the ratio of the population aged 65 and over to the population aged 15 to 64.
Overall dependency ratio: calculated as the ratio of the inactive population (total population less labour force aged 15 to 64) to the labour force aged 15 to 64.
Share of older workers (aged 55-64): Calculated as the share of the active population aged 55 to 64 to the total labour force aged 15 to 64.

Source: Burniaux *et al.* (2004).

The Old-age Dependency Ratio and the Share of the Very Old in the Total Elderly Population
(percent and change in percentage points)

	Old-age Dependency Ratio			Very Old Persons Ratio		
	2000	**2050**	**Percentage point**	**2000**	**2050**	**Change**
Australia	20.4	47.0	26.6	23.3	34.0	10.7
Austria	25.2	58.2	33.0	22.7	42.7	20.0
Belgium	28.1	49.5	21.4	21.5	39.7	18.2
Canada	20.4	45.9	25.5	23.8	36.2	12.3
Czech Republic	21.9	57.5	35.6	17.0	29.0	12.0
Denmark	24.2	40.3	16.2	26.8	37.4	10.6
Finland	25.9	50.6	24.7	22.0	35.2	13.2
France	27.2	50.8	23.6	22.2	37.5	15.3
Germany	26.6	53.2	26.6	21.1	37.5	16.4
Hungary	23.7	47.2	23.5	16.9	26.6	9.7
Iceland	20.3	44.0	23.7	23.9	34.3	10.4
Ireland	19.7	45.7	26.1	23.1	27.1	4.0

Italy	28.8	66.8	38.0	21.0	37.1	16.1
Japan	27.7	64.6	36.9	21.9	42.2	20.3
Korea	11.3	45.4	34.2	13.7	33.2	19.6
Netherlands	21.9	44.9	23.0	23.3	37.3	14.0
New Zealand	20.4	48.3	27.9	23.6	36.3	12.7
Norway	25.6	41.2	15.7	29.0	34.7	5.7
Poland	20.4	55.2	34.8	15.2	26.6	10.4
Portugal	26.7	50.9	24.2	19.1	30.7	11.6
Spain	27.1	65.7	38.5	21.8	33.2	11.4
Sweden	29.4	46.3	16.9	28.0	35.7	7.7
Switzerland	25.1	45.3	20.3	26.5	40.4	13.9
United Kingdom	26.6	45.3	18.7	25.0	37.3	12.3
United States	21.7	37.9	16.2	26.5	36.1	9.6
Average	**23.8**	**49.9**	**26.1**	**22.4**	**35.1**	**12.7**

Note: Old-age dependency ratio is equal to (persons aged 65+)/(persons aged 20-64) and the very old persons ratio is the equal to (persons aged 80+)/(persons aged 65+).
Sources: Casey *et al.* (2003). Eurostat: National data for Norway, Switzerland, Canada and the United States, United Nations' *World Population Prospects 1950-2050 (The 2000 Revision)* – February 2001 for Iceland.

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RAISING THE AGE OF RETIREMENT: AN EXAMPLE OF POLITICAL RATCHET EFFECT

Mathieu Lefèbvre,[*] Sergio Perelman,[*] Pierre Pestieau[**] and Jean-Pierre Vidal[***]

1. Introduction

It is expected that by the year 2050 Europeans (EU15) will live about five years longer than today. Given that today's remaining life expectancy at 65 is almost 16 years for men and 20 years for women, an increase of 5 years will raise the cost of providing the same pension level by 25 to 30 per cent. This remark is compounded when observing that if 65 is the statutory age of retirement in most countries, the effective age at which individuals cease working is lower: 59.9 in the EU15. For men, this figure ranges from 57.8 in Belgium to 63.1 in the United Kingdom. In the absence of reforms such changes will put at risk the sustainability of European pay-as-you-go pension systems.

An obvious response to increased life expectancy would be to raise the retirement age, both the statutory and the effective ones. Yet, Tanzi and Schuknecht (2000) stressed that the generosity of policymakers in the pension area is reflected by the fact that since 1970, the effective retirement age has declined in several industrial countries while life expectancy has increased significantly. Why are policymakers so generous and why have they been unable to maintain a reasonable balance between life expectancy and retirement age? First, increasing eligibility and real benefits in pay-as-you-go pension systems is not very costly in the short term, since budgetary imbalances, as measured by general government deficit, will only unfold in the longer term. Second, there has been a strong support in the public at large for social protection, which certainly contributed to increasing government size. Increased life expectancy brings about a gain for those who will benefit from pensions paid over a longer period of time and are reluctant to accept cuts in what they perceive as entitlements.

The support for generous pension systems seems to be well established in Europe. All recent surveys indicate that the majority of Europeans, including the young ones, intend to retire between 56 and 60 and very few expect to be still on the labour market after age 65. It is thus not surprising that a number of governments, particularly in countries where the effective age of retirement is especially low, have

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been unable to raise the age of retirement. We have here a good example of a policy which is desirable from most viewpoints – social welfare, majority choice – and yet cannot be implemented. In this paper, we present a simple model explaining such a resistance to change or, to put it another way, such a bias towards *status quo*. Then we quantify the extent of the problem by calculating for a number of European countries and several years the length of expected retirement. Our objective is to find what are the determinants of an ever increasing length of retirement that is clearly unsustainable.

Our main result highlights the role of preferences in the resistance to reforms. Based on survey data, we identify different attitudes towards pensions in European countries, which can be divided into two groups: a group characterised by a bias towards status quo and a group more open to reforms. This group dummy is shown to explain part of the "inefficiency" in public pension spending, as identified from the estimation of a best practice frontier.

From a policy perspective, the main challenge therefore is to make voters aware of the consequences of the status quo strategy for the sustainability of pension systems. In this respect, long-term pension projections[1] may increase awareness in the public at large and makes it easier to reach a consensus on the need for pension reforms.

The paper is organised as follows. Section 2 sets out a simple theoretical model showing that reforms that would *ex post* be beneficial for a majority may be voted down *ex ante*. Section 3 examines the length of retirement from both a cross-country and a time series perspective, pointing to a general increase in the length of retirement over the past four decades. Section 4 proposes a simple model of retirement, explaining the difference between the effective and the optimal age of retirement, as derived from the estimation of a best-practice frontier.

2. A simple theoretical model

We consider a two-period OLG model with three types of individuals:[2] type 1 has productivity w_L and a poor health denoted by γ_L; type 2 has the same productivity but a good health $\gamma_H (> \gamma_L)$; type 3 has a higher productivity than the two other types $w_H (w_L)$ and a good health γ_H.

Individual utility depends on first and second period consumptions, *c* and *d*, and on the age of retirement, *z*. It is represented by the following separable and quasi-linear form:

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[1] The reports published by the Economic Policy Committee provide benchmarks for assessing challenges posed by population ageing in Europe (EU15). See Rother, Catenaro and Schwab (2004) for a study on ageing and pensions in the euro area.

[2] This model was initially presented in Fenge and Pestieau (2005). See also Cremer *et al.* (2004) for an approach with a non-linear scheme.

Individuals' Types

Types	**1**	**2**	**3**
Productivity	*Low*	*Low*	*High*
Health	*Poor*	*Good*	*Good*

$$U(c,d,z) = u(c) + \beta u\left(d - z^2/2\gamma\right)$$

where β is the time preference factor and γ is a health factor. For further use we denote $x = d - z^2/2\gamma$, $\gamma_H = 1$ and $\gamma_L = \gamma < 1$ and the proportion of each type is given by π_i. The government provides everyone with a flat benefit *p* that is financed by a payroll tax τ. We thus write the utility of type *i*'s individual as:

$$U_i = u\left(w_i(1-\tau) - s_i\right) + \beta u\left(Rs_i + w_i z_i(1-\tau) + p - z^2/2\gamma_i\right)$$

where *R* is the interest factor, w_i gross labour income, s_i the amount of saving and z_i the age of retirement. The disutility of working long is quadratic with health parameter γ_i. Furthermore, the pay-as-you-go (PAYG) principle implies the following revenue constraint:

$$p = \tau \sum \pi_i w_i (1 + n/z_i)$$

The optimal amount of saving s_i^* is given by the FOC:

$$-u'(c_i) + \beta R u'(d_i) \leq 0 \text{ for } s_i^* = 0$$
$$= 0 \text{ for } s_i^* > 0$$

Low productivity individuals are assumed to be credit-constrained and only rely on their current income, including labour income and pension benefits, to finance their consumption during their second period of life. Alternatively, high productivity individuals save part of their first-period labour income. We therefore have: $s_3^* > 0$ and $s_2^* = s_1^* = 0$. Also, if individuals could freely choose their age of retirement, they would decide to work a fraction z_i^* of their second period of life:

$$z_i^* = \gamma_i w_i (1-\tau)$$

When choosing their optimal age of retirement, individuals take their pension benefits as given. They do not internalise that working longer may bring about higher pension benefits for the society as a whole. We start with a social security system consisting of a payroll tax τ and a compulsory age of retirement $\bar{z}$ such that:

$$z_1^* \leq \bar{z} < z_2^* < z_3^*$$

By this assumption, we mean that the first type of individuals, characterised by low productivity and poor health, would like to retire earlier and the two others later.

We want to see the political support for an increase in the age of retirement from $\bar{z}$ to $\tilde{z}$. But before, let us see the first- and second-best solution from a utilitarian viewpoint. Assuming that $R = 1 + n$, the first-best problem can be expressed by the following Lagrangean:

$$L_1 = \sum \pi_i \left\{ u(c_i) + \beta u\left(d_i - z_i^2 / 2\gamma_i\right) - \mu\left[c_i(1+n) + d_i - w_i(1+n+z_i)\right] \right\}$$

From the first-order conditions, we obtain the standard results:

$$c_i = x_i = \text{constant if } (1+n)\beta = 1$$

$$z_i = \gamma_i w_i$$

Assume now that the government can only use z as an instrument. Its second-best problem is given by the Lagrangean:

$$L_2 = \sum \pi_i \left\{ u\left(w_i(1-\tau) - s_i\right) + \beta u\left(w_i \bar{z}(1-\tau) + R s_i - z_i^2 / 2\gamma_i + \tau \bar{w}(1+n+\bar{z})\right) \right\}$$

with

$$\frac{\partial L_2}{\partial \bar{z}} = \sum \beta \pi_i u'(x_i)\left[w_i - \bar{z}_i / \gamma_i + \tau(\bar{w} - w_i)\right] = 0$$

where $\bar{w} = \sum \pi_i w_i$. One clearly see that when $\bar{z}$ is the only instrument, it is chosen considering two effects: (i) it is a compromise among the optimal ages $z_i^* = w_i \gamma_i$; (ii) it benefits those with productivity below the mean.

In this paper we assume that $\bar{z}$ is not optimal or rather that it is not anymore optimal because of, e.g., aging. It would be desirable to increase it from $\bar{z}$ to $\tilde{z}$.

We want to see the political support for such an increase in z; we keep $\bar{\tau}$ constant and assume that the increased revenue so generated is used to finance a new pension level $\tilde{p}$ with:

$$\tilde{p} = \bar{\tau}(1+n+\tilde{z})\bar{w} > \bar{p} = \bar{\tau}(1+n+\bar{z})\bar{w}$$

Alternatively,

$$\Delta \bar{p} = \bar{\tau}\,\bar{w}\,\Delta \bar{z} > 0$$

From a utility viewpoint, both types 2 and 3 gain. Type 1's individuals can lose or gain; we assume that they lose. In other words:

$$\Delta x_1 = w_1(1-\tau)\Delta \bar{z} + \bar{\tau}\,\bar{w}\,\Delta \bar{z} - \frac{(\bar{z} + \Delta \bar{z})\bar{z}^2}{2\gamma} + \frac{\bar{z}^2}{2\gamma} < 0$$

or:

$$\bar{\tau}\,\overline{w} + w_2(1-\bar{\tau}) - \Delta\bar{z}/2\gamma - \bar{z}/\gamma < 0 \tag{1}$$

Quite clearly for low values of w_L and above all of γ, this inequality holds.

For $\pi_2 + \pi_3 > 1/2$, there is a majority in favour of the policy reform $\Delta\bar{z}$. However if the reform is proposed before low productivity workers know about their health status, namely in the middle of the first period, they will vote for the reform only if their expected utility following the implementation of the reform exceeds their expected utility under a no-policy change scenario, *i.e.* only if:

$$\begin{aligned}&\bar{\pi}_1\, u\left(w_L(1-\tau)\tilde{z} + \tilde{p} - \tilde{z}^2/2\gamma\right) + \bar{\pi}_2\, u\left(w_L(1-\tau)\tilde{z} + \tilde{p} - \tilde{z}^2/2\gamma\right) > \\ &\bar{\pi}_1\, u\left(w_L(1-\tau)\bar{z} + \bar{p} - \bar{z}^2/2\gamma\right) + \bar{\pi}_2\, u\left(w_L(1-\tau)\bar{z} + \bar{p} - \bar{z}^2/2\gamma\right)\end{aligned} \tag{2}$$

where $\bar{\pi}_1 = \dfrac{\pi_1}{\pi_1 + \pi_2}$ and $\bar{\pi}_2 = 1 - \bar{\pi}_1$. Note that there is a majority for the reform if, from a utilitarian perspective, the expected gain of type 2 individuals exceeds the expected loss of type 1 individuals, allowing for Pareto-improving transfers *ex post*.

With $\pi_1 + \pi_2 > 1/2$, inequality (1) and a strong concavity of u(·), the reform could be rejected even though *ex post* it would be supported by a majority of citizens. Fernandez and Rodrik (1991) show that this outcome is even possible with risk neutrality. The fact that the outcome depends on the concavity of the utility function suggests that observed cross-country differences in resistance to reforms could also be attributed to differences in preferences rather than to socio-economic factors, such as national income or health conditions.

We thus have a reform that would improve the welfare of a majority of workers and yet it is rejected *ex ante* by another majority of workers. To circumvent this typical ratchet effect, the government should guarantee the workers with poor health that they will not be subject to the reform. In other words they will keep the possibility of retiring at age $\bar{z}$.

Here we face the issues of commitment and credibility. Indeed, it is not clear that workers will trust their government's commitment to protect the disabled from the adverse consequences of the reform. As it is well known governments' credibility varies across countries and we can expect that social security reforms will be more successful where governments are credible. The conclusion one can draw from this simple model is that reforms are more likely in countries with more credible public authorities and less uncertainty as to the capacity to work long and healthy.

There exist other explanations of the difficulty of reforming social security and particularly of raising the age of retirement. First of all, there is a pure redistributive factor. If a majority of citizens benefit from the *status quo*, a reform will be difficult. Cremer and Pestieau (2003) have shown that workers don't realize that a true *status quo* is unrealistic and that if they vote against the reform they will not avoid a cut in pension benefits. If they were given the real alternative:

unchanged retirement age and reduced benefits on the one hand and increased retirement age and unchanged benefits on the other hand, they would predominantly vote for the reform.

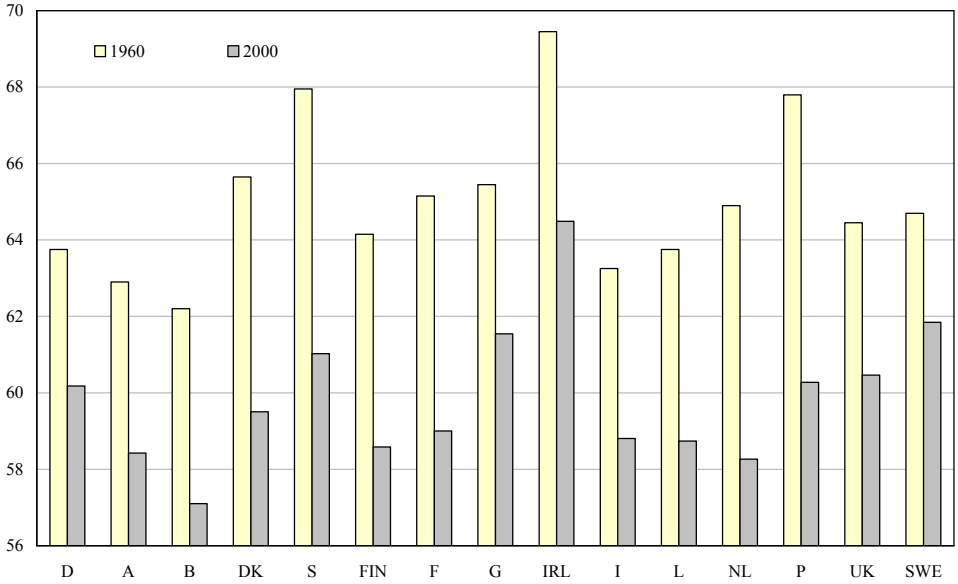
3. The length of retirement

Figures 1-3 presents for the EU15 countries and the years 1960 and 2000 three sets of data: the effective age of retirement such as computed by OECD, the longevity proxied by life expectancy at birth and finally the expected or average length of retirement, obtained as the difference between life expectancy and effective age of retirement. This is a quite rough measure but it indicates an order of magnitude. In Portugal and in 1960, we have a negative length of retirement. We have to keep in mind that the populations on which life expectancy and effective retirement age are computed are very different.

The effective age of retirement is a synthetic measure of the rate of activity of elderly workers which is known to have decreased everywhere over the last four decades, but to a variable extent across countries. As shown by Gruber and Wise (1999) and Blondal and Scarpetta (1998) the main explanation for such a decline is

Figure 1

Effective Age of Retirement, Men and Women together, 1960 and 2000



Source: Blöndal and Scarpetta (1998), Burniaux, Duval and Jaumotte (2004).

the generosity of social security programs that induce elderly workers to exit the labour market much before the statutory age of retirement.

In 1960, the effective retirement age ranged from 69.5 in Ireland to 62.2 in Belgium. Forty years later, this range narrowed down to 64.5 and 57.1 for the same countries.

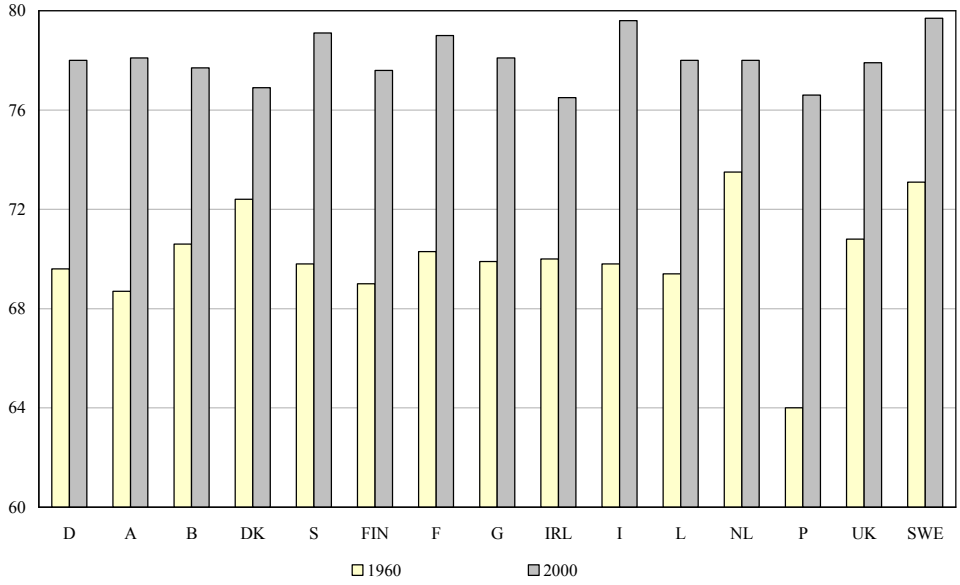
Figure 2 gives life expectancy at birth for both sexes together. In 1960, it ranged from 73.5 in the Netherlands to 64.0 in Portugal. In 2000, it went from 79.6 in Sweden to 76.5 in Ireland. These numbers point to both significant increases in and convergence of life expectancy in Europe (EU15).

Finally, Figure 3 gives the expected length of retirement which in 1960 reached a maximum of 8.6 years in the Netherlands. In 2000, it ranged from 20.8 in Italy to 12.0 in Ireland. Average length of retirement in EU15 went from 5.0 years in 1960 to 18.2 in 2000. This is quite an impressive increase.

This rapid increase in the length of retirement is due to two contrasting evolutions: an increase in longevity that is explained by both medical progress and living habits and a decline in the activity rate of elderly workers that is explained by social security but also by economic growth. Our purpose is not really to explain these evolutions but rather to explain why some countries seem to have behaviour

Figure 2

Life Expectancy at Birth, Men and Women Together, 1960 and 2000



Source: OECD Health Data 2004, 1st edition.

Figure 3

Expected Length of Retirement, Men and Women Together, 1960 and 2000

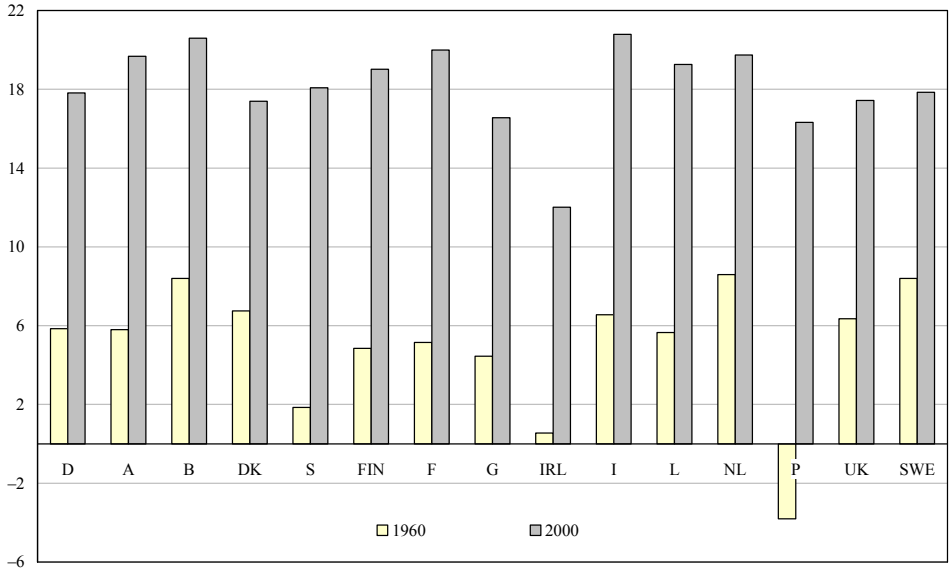


Table 1

Correlation Between Longevity and Effective Age of Retirement – EU15

		Year	Effective Retirement Age		
			Male	Female	Male and Female
Longevity	Male	1960	0.060	–0.194	–0.110
		2000	0.026	0.010	0.018
	Female	1960	–0.249	–0.445	–0.397
		2000	–0.343	–0.197	–0.281
	Male and Female	1960	–0.079	–0.312	–0.243
		2000	–0.180	–0.105	–0.149

towards retirement that is less reactive than others to factors that should lead them to increase their age of retirement.

Table 1 gives us the correlation coefficients between longevity and retirement age. One would expect a positive correlation between those two variables. All things being equal, people should retire later if they live longer. As we can see, we have coefficients that are low, often negative and always non significant. This does not necessarily point to resistance to reforms. For example, the negative correlation coefficients may be due to economic growth.

4. Model of retirement

Microeconomics theory shows that a rational worker would choose an age of retirement that decreases with income and wealth (leisure being a normal good) and that increases with longevity (additional earnings are needed). This rational choice can be distorted by public policy notably in case of unemployment. Unemployment normally leads elderly worker to withdraw from the labour force; if furthermore the government thinks that exiting elderly workers from the labour market may help youth employment, it will create inducements to early retirement. On this basis, we start with a simple relation:

$$r = \underset{-}{\varphi}(y, \underset{+}{\ell}, \underset{+}{1-u})$$

which relates the effective age of retirement, r, to income y (negatively) and to both longevity, ℓ, and one minus the unemployment rate, $(1 - u)$ (positively). We will use this relation to construct a best practice frontier. Each country taken in three periods, 1970-80, 1980-90 and 1990-2000, will be evaluated with respect to this frontier and the slack between its behaviour and the frontier will be considered as measuring its resistance to reforms. It is important to understand that by including the unemployment rate in the function we are not saying that this is a good policy. In fact, we believe that lowering the age of retirement has no effect on unemployment. What matters here is to represent the behaviour of governments. As a consequence, the slack that we are measuring are taken relative to a behaviour that is already inefficient.

What may explain why some countries seem to be better at reforming their pension policies than other is the way their inhabitants perceive the reality of retirement. Thanks to the Euro barometer, we have some information concerning the attitude of Europeans towards their pension system. Six questions are presented in Table 2. They allow for detecting conservative versus reformist views concerning pensions reforms. For example, reformists tend to be in favour of a late age of retirement, to think that times will be tough without changes, to believe that aging is a real problem, to agree that the retirement age should be raised, to disagree with the idea that early retirement fosters youth employment and to be against a fixed (low) age of retirement.

Table 2

Eurobarometer 56.1 (September-October 2001)
(selected questions)

No.	Question
Q.48	Intended age of retirement
Q.55	Percent of people who anticipate after retirement they will be able to enjoy without having to worry about money or they will be able to live reasonably well
Q.66	Percent of people who think that in the future the aging process will pose a major problem
Q.673	Percent of people who agree that the age of retirement should be raised
Q.681	Percent of people who agree that people in their late fifties should give up work to make way for younger and unemployed people
Q.682	Percent of people who agree that older worker should be forced to retire at a fixed age

Instead of looking at the way each country's citizens answer those six questions by computing averages, we have used cluster analysis to see if we can divide Europe into two groups. As Figure 4 shows, we end up with two clusters: cluster A includes Ireland, Denmark, United Kingdom, Finland, Austria, the Netherlands, Germany and Sweden. Cluster B gathers Portugal, Spain, France, Italy, Luxembourg, Belgium and Greece. Cluster A is made of Northern countries with Germanic languages (except Finland). Cluster B is Mediterranean (except Luxembourg and Belgium). This distinction somehow overlaps with that of Esping-Andersen (1995).

We can now turn to the estimation of the relation:

$$r = \varphi(y, \ell, 1-u)$$

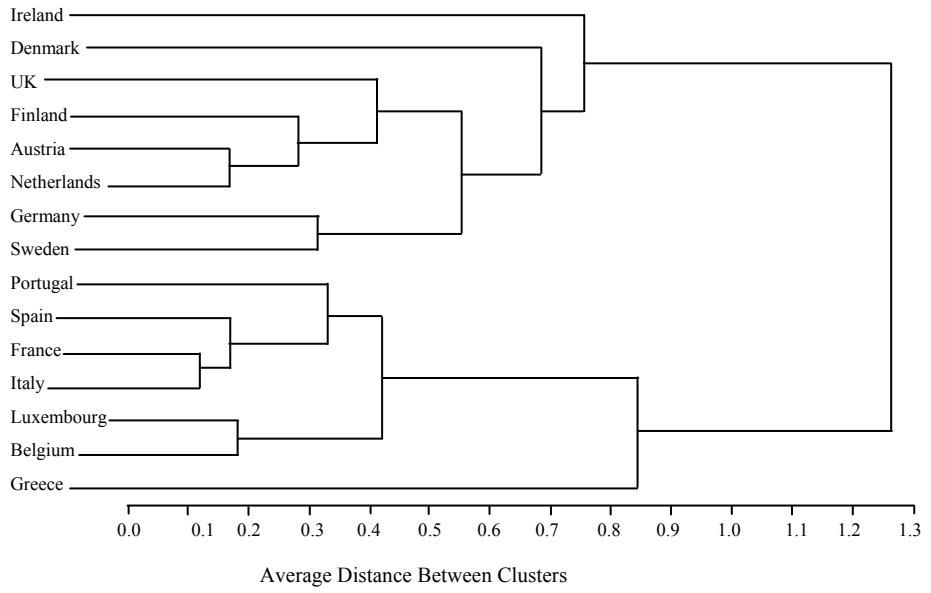
We have modified this simple relation in several ways. The explanatory variables are lagged and we have also used their variations, over the previous period, as regressors. All these variables are expressed in logarithms, as well as the endogenous variable. Moreover, we also included periods and clusters dummy variables as potential explanatory factors of slacks to the frontier.

The corresponding stochastic frontier specification is as following:

$$r_t = [\beta_0 + \beta_1 y_{t-1} + \beta_2 \Delta y_t + \beta_3 \ell_{t-1} + \beta_4 \Delta \ell_t + \beta_5 (1-u)_{t-1} + \beta_6 \Delta (1-u)_t] + [\upsilon_t - \mu_t]$$

Figure 4

Dendogram of Eurobarometer Variables



where $\mu_t = \delta_0 + \delta_1 d_{80-90} + \delta_2 d_{90-100} + \delta_3 d_A$, and β_i (i = 1,...,6) and δ_j (j = 1,2,3) the parameters to be estimated.

The d_{80-90} and d_{90-100} indicate binary variables for the periods 1980-90 and 1990-2000 respectively, and d_A a dummy for cluster A. Moreover, υ_t is a stochastic random term assumed to have the usual *iid* properties and a normal distribution, $N(0,\sigma_v^2)$, and μ_t an *iid* non-negative random variable associated with slacks to the frontier assumed to follow a truncated normal distribution $N(\mu_t,\sigma_\mu^2)$.

Batesse and Coelli (1995) developed the log-likelihood function of this model and the corresponding derivatives.[3] Note that besides β_i and δ_j, two other parameters are estimated, simultaneously: $\sigma^2 = \sigma_v^2 + \sigma_\mu^2$ and $\gamma = \sigma_\mu^2 / \sigma^2$. Slacks to the frontier are estimated as expectations $E\left[\exp(-\mu_t | (\upsilon_t - \mu_t))\right]$.

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[3] We use the FRONTIER program developed by Coelli (1996) to estimate the model.

Table 3

Retirement Frontier Model
(periods: 1970-80, 1980-90 and 1990-2000 – 15 countries)

Variable			Coefficient	Standard error	t-test
Dependent variable : effective retirement age (r_t)					
Intercept		β_0	0.837	0.940	0.89
GDP per capita	y_{t-1}	β_1	–0.110	0.013	–8.21
	Δy_t	β_2	0.077	0.052	1.49
Longevity	ℓ_{t-1}	β_3	0.657	0.232	2.83
	$\Delta\ell_t$	β_4	–0.801	0.882	–0.91
Unemployment	$(1-u)_{t-1}$	β_5	0.172	0.131	1.31
	$\Delta(1-u)_t$	β_6	0.099	0.195	0.51
Explanatory factors of inefficiency					
Intercept		δ_0	0.024	0.040	0.59
Period	d_{80-90}	δ_1	0.036	0.039	0.93
	d_{90-00}	δ_2	0.019	0.060	0.31
Cluster	d_A	δ_3	–0.035	0.018	–1.93
Other parameters					
		σ^2	0.001	0.000	2.21
		γ	1.000	0.001	1.20E03

Note: Explanatory factors of inefficiency are dummies variables. The other variables in the model, included the effective age of retirement, are in logarithms.

Data sources: GDP per capita: OECD, 2004b, unemployment: OECD, 2001, longevity: OECD, 2004a.

The results are given in Table 3. The coefficients of y_{t-1}, ℓ_{t-1} and $(1-u)_{t-1}$ have the expected signs and those of y_{t-1} and ℓ_{t-1} are highly significant. However, none of the three variables representing variations over the previous ten-years period, Δy_t, $\Delta\ell_t$ and $\Delta(1-u)_t$, is associated with significant coefficients. Summing up, these results indicate that, at the country level, the average age of retirement is correlated with income and longevity but not with labour market performances, nor with short term variations of these variables.

Table 4a

Effective and Optimal Age of Retirement by Cluster and Country

Cluster Country	Period	Effective age of retirement	Technical efficiency	Optimal age of retirement	Difference
A	1970-1980	62.0	0.974	63.7	1.7
	1980-1990	60.4	0.965	62.6	2.2
	1990-2000	60.2	0.971	62.0	1.8
B	1970-1980	61.7	0.967	63.8	2.1
	1980-1990	59.4	0.948	62.7	3.3
	1990-2000	59.5	0.954	62.4	2.9
Cluster A					
Austria	1970-1980	59.7	0.949	62.9	3.2
	1980-1990	57.7	0.946	61.0	3.3
	1990-2000	58.4	0.956	61.1	2.7
Denmark	1970-1980	62.8	0.998	62.9	0.1
	1980-1990	61.6	0.992	62.1	0.5
	1990-2000	59.5	0.979	60.8	1.3
Finland	1970-1980	59.9	0.942	63.6	3.7
	1980-1990	59.5	0.945	63.0	3.5
	1990-2000	58.6	0.972	60.3	1.7
Germany	1970-1980	61.5	0.981	62.7	1.2
	1980-1990	59.3	0.959	61.8	2.5
	1990-2000	60.2	0.994	60.6	0.4
Ireland	1970-1980	66.1	0.990	66.8	0.7
	1980-1990	62.9	0.971	64.8	1.9
	1990-2000	64.5	0.982	65.7	1.2
Netherlands	1970-1980	59.9	0.946	63.3	3.4
	1980-1990	57.6	0.916	62.9	5.3
	1990-2000	58.3	0.917	63.6	5.3
Sweden	1970-1980	63.3	0.988	64.1	0.8
	1980-1990	63.2	0.999	63.2	0.0
	1990-2000	61.8	0.995	62.1	0.3
United Kingdom	1970-1980	63.3	0.994	63.7	0.4
	1980-1990	61.9	0.991	62.5	0.6
	1990-2000	60.5	0.974	62.1	1.6

Table 4b

Effective and Optimal Age of Retirement by Cluster and Country

Cluster Country	Period	Effective age of retirement	Technical efficiency	Optimal age of retirement	Difference
	1970-1980	61.7	0.967	63.8	2.1
B	1980-1990	59.4	0.948	62.7	3.3
	1990-2000	59.5	0.954	62.4	2.9
Cluster B					
	1970-1980	59.3	0.943	62.9	3.6
Belgium	1980-1990	56.5	0.930	60.7	4.2
	1990-2000	57.1	0.931	61.3	4.2
	1970-1980	61.1	0.964	63.4	2.3
France	1980-1990	59.3	0.964	61.5	2.2
	1990-2000	59.0	0.962	61.3	2.3
	1970-1980	63.7	0.958	66.5	2.8
Greece	1980-1990	61.5	0.975	63.1	1.6
	1990-2000	61.5	0.937	65.7	4.2
	1970-1980	60.6	0.947	64.0	3.4
Italy	1980-1990	59.2	0.964	61.4	2.2
	1990-2000	58.8	0.966	60.9	2.1
	1970-1980	59.9	0.982	61.0	1.1
Luxemburg	1980-1990	56.8	0.917	61.9	5.1
	1990-2000	58.7	0.972	60.4	1.7
	1970-1980	63.8	0.988	64.6	0.8
Portugal	1980-1990	62.5	0.957	65.3	2.8
	1990-2000	60.3	0.941	64.1	3.8
	1970-1980	63.5	0.985	64.4	0.9
Spain	1980-1990	60.7	0.929	65.3	4.6
	1990-2000	61.0	0.969	62.9	1.9

In the second panel of Table 3 we find the explanatory factors of inefficiency (the gap between the best practice frontier and actual behaviour). As expected, countries belonging to Cluster A are closer to the best practice frontier. Higher inefficiencies are observed over time, particularly for the period 1980-1990, but the estimated coefficients are not significant at all.[4] Very little change is observed over the period 1970-2000, reflecting significant inertia of attitudes towards pensions.

Table 4 gives a detailed account of the efficiency slacks for the 15 countries and the 3 periods considered. We have the observed age of retirement and the "optimal" age of retirement, namely the one given by the best practice frontier. The difference between the two is what is called the technical inefficiency or the performance slack. It measures the resistance to reforms. On average this resistance is higher in Cluster B than in Cluster A. The slacks don't decrease over time.

5. Conclusions

There is an increasing consensus on the need for pension reforms among policy makers. However, the public at large is more reluctant to support reforms, having a clear bias for status quo. This paper presented a simple model in which a welfare improving reform can be voted down *ex ante*. This notably depends on how individuals evaluate pension reform *ex ante*, *i.e.* on their attitudes as reflected by their utility function in this stylised model. Empirically, it seems that preferences, as captured by a dummy grouping countries with similar attitudes, play a role in the "efficiency" of pension systems, as measured by their distance to a best practice frontier. This suggests that more information on reform options and on the challenges posed by population ageing may be key to alter people's attitudes towards reforms. One should also bear in mind that reforms will affect different categories of the population in different manners and that some would be made worse off compared to the status quo option. The key challenge here is that the status quo option may simply not be feasible and that therefore thereis an urgent need to reach consensus on pension reforms.

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[4] As observed at the bottom of Table 3, the parameter is equal to one, which indicates that the estimated model is deterministic. In other words, the composed error term, $\nu_t - \mu_t$, is fully attributed to efficiency slacks.

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POPULATION AGEING AND PUBLIC EXPENDITURE TRENDS IN FINLAND

Helvi Kinnunen[*] *and Marja Tuovinen*[**]

Finland is greying fast, faster than most other European countries. Accordingly, some of the challenges ageing will pose to the economy will be faced in the medium rather than the longer term. On the expenditure side, a change in the population structure will push up spending on pensions and social welfare services for the elderly. As for the financial base, demographic ageing is reducing future labour force resources, and an increasing proportion of this diminishing labour force will shift to the production of basic public services. This poses problems for economic growth and the financing of services.

In fiscal policy, the risk of expenditure overrun grows with an increase in the number of older people eligible for public welfare services. There is a risk that in the future it may become politically difficult to cut down on social and health care services when the majority of voters are already consuming or soon will consume these services. Another important concern is the risk associated particularly with public expenditure prices. If the current unfavourable trends in public sector productivity are to continue, the so-called Baumol disease may worsen the public balance even more than witnessed during the past.

To address these issues, we made projections for public expenditure items classified according to purpose. Long-term projections for different expenditure items were made by using explicitly the unit cost concept and pricing principles applied in the State budget process when the costs of social services, health care and education are compensated to municipalities. The idea was to relate expenditure estimates directly with welfare policy parameters and thereby to make calculations as transparent as possible. When projecting GDP growth, the interdependence between the whole population structure and labour supply was factored in by setting up a consistent population/employment balance. The questions were analysed using the intertemporal deficit/debt accounting method.

The population/employment balance and employment trends will be discussed briefly in the first section. Section 2 describes calculation principles for projecting expenditure in volume and price terms. Section 3 presents estimates on public sector productivity and some simulation outcomes resulting from changes in this productivity. Section 4 will conclude.

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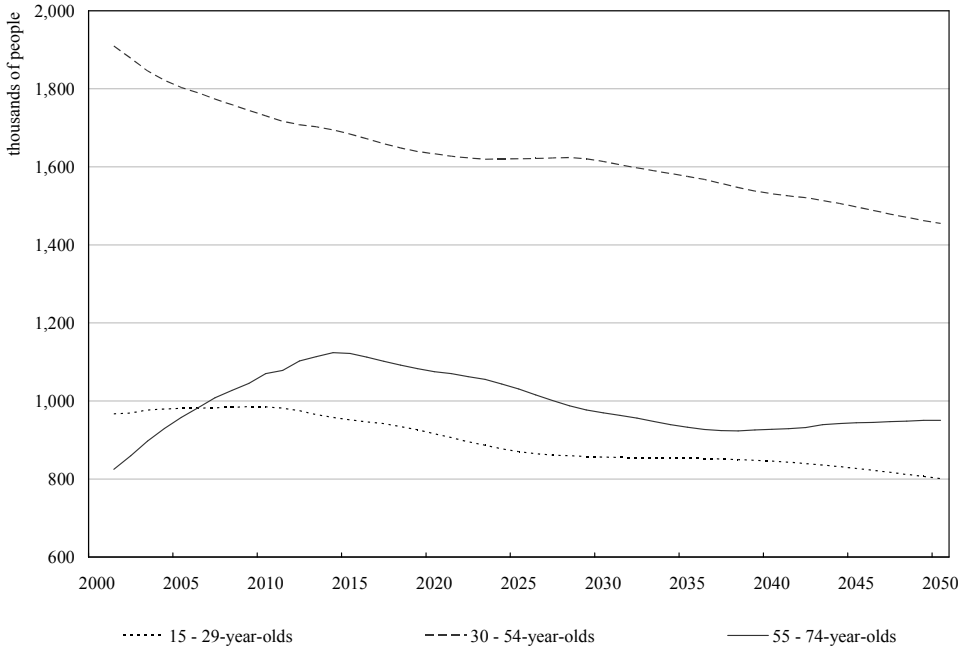
1. Labour supply trends

Demographic ageing will have a considerable impact on the labour market over the next 10-20 years. The working-age population near and in the retirement age will increase rapidly (Figure 1). According to statistics, Finland's population projections, the number of people aged 55-74 will increase by about 40 per cent by the middle of the next decade and, at the same time, the number of people of prime working age will decrease by nearly 15 per cent. The number of young people aged 15-29 declines by 10 per cent by 2030. The number of the elderly will also remain high in the long run, because the projection of life expectancy increases and the birth rate remains low. (The fertility rate in Finland is however expected to be clearly above the EU average.)

The projections of the overall labour and population balance were constructed by using estimates of the number of pensioners and by assuming that the labour market status of other groups outside the labour force – students, people doing housework, etc. – would remain relatively unchanged within each age group. The number of people in the labour market status groups and age cohorts was then

Figure 1

Working-age Population (15-74-year-olds) by Age Group



Sources: Statistics Finland and calculations by the Bank of Finland.

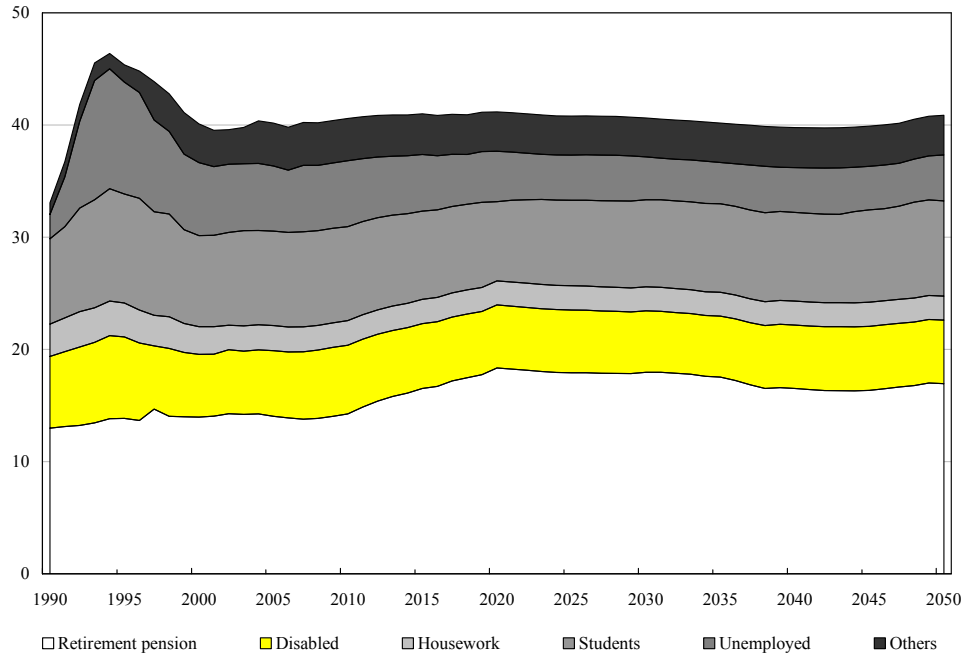
estimated using population projections by cohort. In this way we obtained data on people outside the labour force. Then in estimating the employment rate, we assumed that the employment rate for older workers, which has risen steadily in recent years, would continue to rise further. This is due to an improvement in levels of education and the overall health of the population. In addition to the cuts already made in early retirement benefits and the reform of the old-age pension schemes. The number of unemployed was calculated as a residual.

On the whole, the employment rate among 55-74-year-olds is reckoned to rise by a further by 3-4 percentage points on average by 2015. As well as pensioners, there are, for instance, far more students than there were before the recession in the middle of Nineties (Figure 2). Also the category "others" grew after the recession, and will remain relatively large in the future, as it consists mostly of young adults and those close to retirement age.

Altogether, the overall employment rate (in terms of the age group 15-64) is reckoned to rise to close to 70 per cent during the next 10 years, after which it will gradually rise further, to almost 72 per cent. Although structural unemployment is

Figure 2

Proportions of Working-age Population (15-74-year-olds)
(percent)



Sources: Statistics Finland and calculations by the Bank of Finland.

estimated to fall 2-3 percentage points, to 6 per cent, the ratio of non-employed to working-age population will remain virtually at the current level, approximately 40 per cent (Figure 2). That means that there will be only a slight growth in labour supply during the next 10 years, and the contribution of labour input for GDP growth will turn negative or near zero thereafter.

2. Expenditure developments

In Finland, the public sector produces more services and pays less transfers than the EU countries on average (Figure 3). Partly this reflects the fact that the services are produced mostly within the public sector instead of using private producers. Compared to other countries, relatively more resources are devoted to education and to other social services (mainly day care for children). As for social transfers, old-age pensions constitute the main part, but also prolonged difficulties in the labour market have kept unemployment benefits high.

The service orientation of the public sector means that the risk of expenditure overrun is mostly related to the production process itself, and the most crucial questions are the financial principles and incentives in budgetary processes of the State and municipalities.

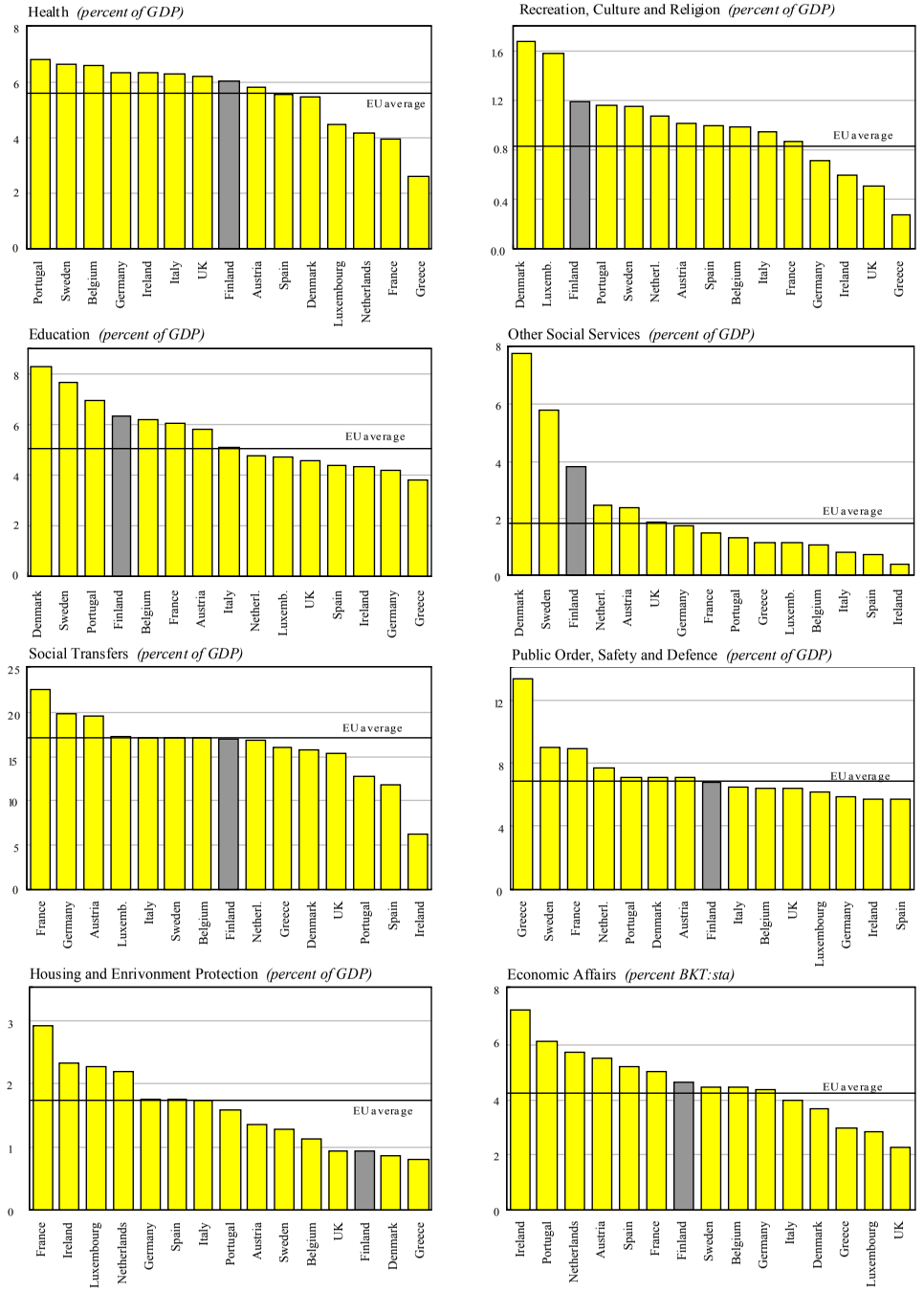
2.1 Volumes of health care, social services and education spending

Demographic ageing will increase pension expenditure and will also affect on spending in social services, health care and education. Welfare services are mainly statutory and provided by local governments (municipalities) and partly financed from the State budget. Therefore, the volume of services was projected in the model following the principles which determine the actual central government transfers to local government. State aid to municipal services is established on the basis of costs by age groups and the age structure in the municipality. We have completed that calculation basis also by other cost items, such as child allowance and financial aid to students, to obtain per capita public expenditure for each category of expenditure and age cohort (Figure 4). Thereafter, using the population growth forecasts broken down by age cohort, we have calculated the long-term costs for different expenditure categories, the underlying assumption being that the expenditure base would remain at the first-year level.

The volume of social services for the elderly will be more than double in the next 30 years. The volume of health care expenditure will, in turn, increase by a third by the early 2030s. On the other hand, the decrease of the number of young people will lead to a drop in expenditure on education and other social services, primarily day care services. On the whole, the level of welfare expenditure seems likely to increase fairly slowly over the next two decades, by about 3 percentage points. The pace of increase is unlikely to accelerate until the 2030s.

Figure 3

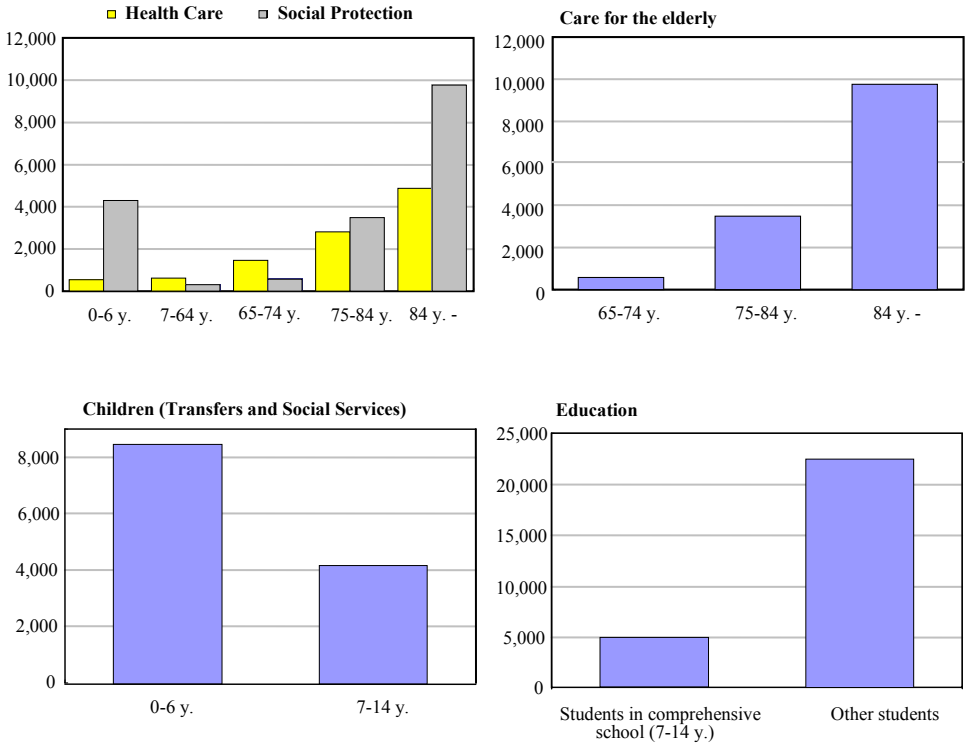
Share of Public Expenditure to GDP in EU Countries, 2001



Source: Eurostat.

Figure 4

Unit Costs by Age Group, 2004



Source: Ministry of Finance.

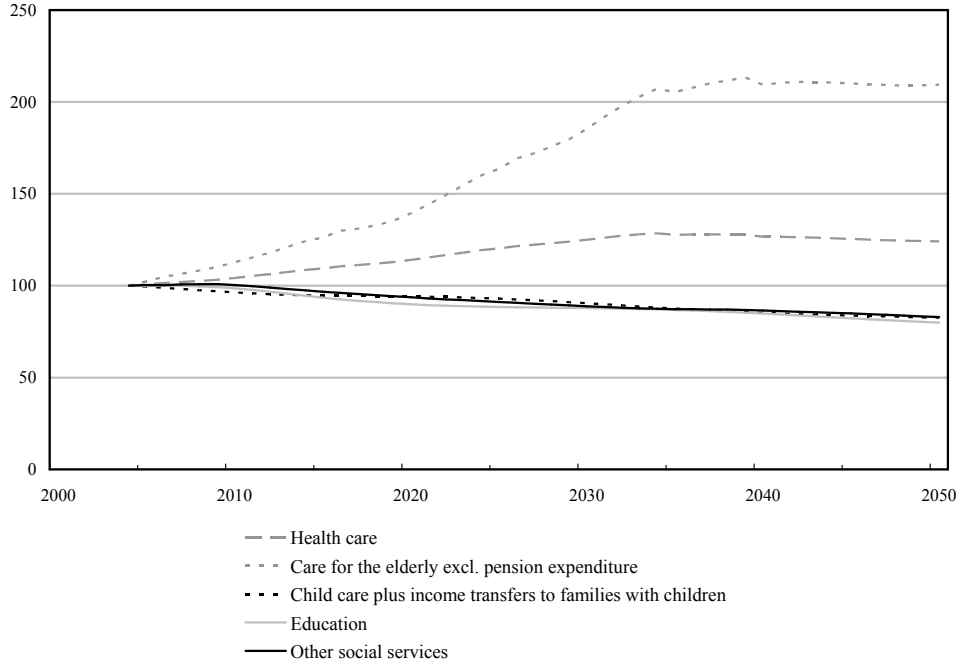
The change in the age structure leads to both positive and negative changes in expenditure (Figure 5). Ageing increases the use of social services and health care.

2.2 Prices of health care social services and education

The trend in public service prices was calculated with the help of the formula applied in calculating the cost index of central government transfers to local government. The index takes into consideration the labour costs of the local government sector, *i.e.* wages and employer's social security contributions, and also the procurement costs for goods and services. The proportion of labour costs in the index is 67 per cent, with general prices accounting for the remaining 33 per cent. In determining the price index for local government services, it is assumed that the cost structure for the various services is roughly similar. For example, education, day care and health care are assumed to require the same relative volumes of intermediate goods and labour input. It is further assumed that wage development in

Figure 5

Public Expenditure Volumes
(index: 2004 = 100)



Sources: Statistics Finland and calculations by the Bank of Finland.

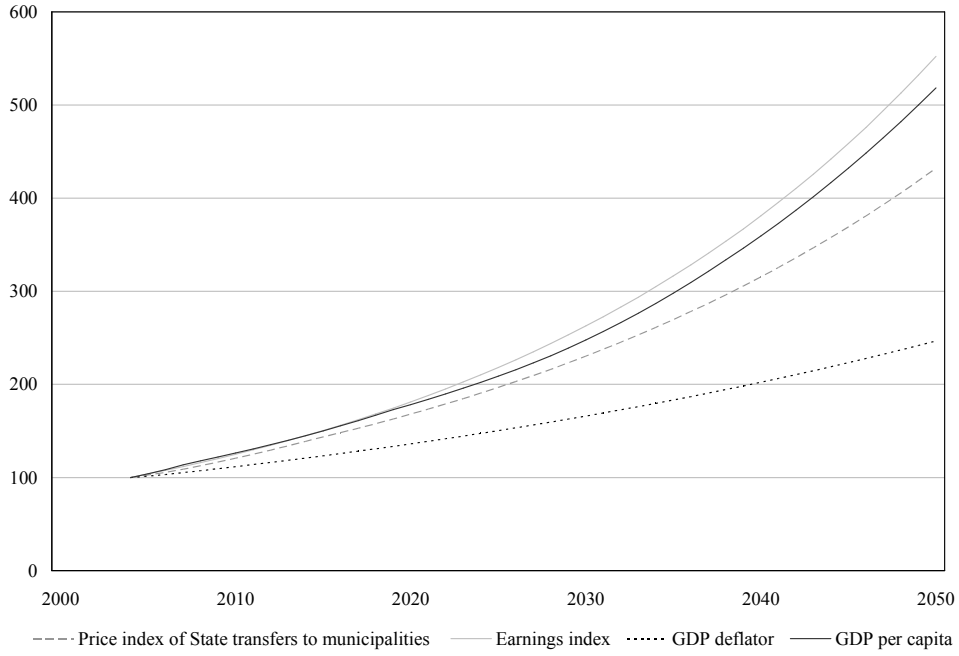
local government and the public sector as a whole is the same as for the economy overall, *i.e.* 3.75 per cent *per annum*.[1]

The choice of price index has a crucial impact on the estimated trend in public consumption expenditure relative to GDP (Figure 6). As public service productivity is not expected to improve, an increase in real wages also means an increase in the GDP ratio of public expenditure. In the basic calculation, the annual difference between the change in the cost of public expenditure and the GDP price index is a good percentage point. This is somewhat larger than the actual difference between the indices so far. For example, in 1990-2000 the difference was a little less than a percentage point. The Baumol effect, *i.e.* the increase in public

[1] Calculation inevitably underestimates the costs, as wage pressures on local government will clearly increase in the future, since roughly a quarter of the current municipal workforce are expected to retire by the end of the present decade. Therefore, the cautious assumption applied is that during the most intense period of recruitment, in 2008-15, local government costs will increase 0.5 per cent faster than they would solely on the basis of general wage development and other costs. Also adding to local government costs is the potential rise in indirect labour costs, which has been excluded from the calculations.

Figure 6

Price Indices
(index: 2004 = 100)



Source: Ministry of Finance, Bank of Finland.

expenditure relative to GDP resulting from a rise in relative prices, would have been about 3.5 percentage points in the same period.

2.3 Other expenditure items

The recently agreed pension reform in Finland will reduce the pressure on pension expenditure. The raising of the retirement age and the linking of pension benefits to life expectancy (by the inclusion of a life expectancy coefficient in the pension formula) plus the change in pension indexing are expected to cut pension expenditure to GDP by about 2-3 percentage points. Even so, the ratio will still rise by about 4-5 percentage points as the number of pensioners increases.

Public expenditure also includes items which are unaffected by the age structure of the population. The most significant of these items are internal and external security, administration and subsidies. We assume that these items will remain unchanged relative to nominal GDP.

All in all, old-age-related expenditure to GDP was projected to grow by 6 percentage points (Table 1). Unemployment benefits and other unemployment related spending decrease slightly with improving employment. Increasing transfers to the elderly is reflected in an increase in taxes and social contributions paid by pensioners. Otherwise primary income grows along with GDP.

The calculations presented in the table, which comprehensively account for the impact of changes in population age structure on the development of public expenditure volumes, create a somewhat more positive general picture for sustainability developments than previous estimates, such as the one presented in the Finnish stability program a year ago. There are many explanations for this: the BoF forecast of balanced general government finances in the medium term affects also the general government finances in the long run. Increased income tax revenues from pensions due to growth in the number of pensioners also improve the picture somewhat. The long-term prospects for financing public funding commitments are also fair, provided that jobs growth is favourable, the retirement age rises as expected, and people do not withdraw from the labour force for any other reasons as extensively as in the recent years.

3. Expenditure projections and decreasing productivity of public services

One of the main threats for fiscal sustainability comes from cost developments of public services. Cost pressures originate from two sources. First, there are pressures for excessive increase in wages as the municipalities need to hire a large number of new employees while labour supply is shrinking and thereby tightening the labour market. The second factor pushing up costs is the weaknesses in productivity developments of the public sector.

3.1 Public services employment

The production of public basic services (education, health care and social services) in Finland in 2003 employed about 380,000 persons, primarily in local government. Of these, 130,000-140,000 persons each were employed in education and health care services. Social services employed about 110,000 persons.

There was a rapid rise in the numbers employed in basic service production towards the end of the Seventies and through the Eighties: between 1975 and 1985 the numbers more than doubled. During the recession years of the early Nineties the number of basic service employees fell, and in the early years of the present decade there has been an increase of 3,000-8,000 jobs *per annum*.

Relative to the total numbers employed in the economy as a whole, the ratio of basic service employees was highest during the recession years in early Nineties, since when the ratio has decreased somewhat alongside the overall improvement in employment, and has now stabilised at around 16 per cent. If the number employed in basic services produced by non-profit institutions – about 100,000 persons – is

Table 1

Public Revenue, Expenditure and Fiscal Balance

(forecast, percent of GDP)

	2004	2005	2010	2020	2030	2040	2050
Revenue							
Taxes	31.9	31.6	32.1	32.5	32.7	32.6	32.6
Corporation tax	3.8	3.4	3.4	3.4	3.4	3.4	3.4
Income tax on wages	9.0	9.1	9.4	9.4	9.4	9.4	9.4
Income tax on pensions	1.8	1.8	2.0	2.4	2.6	2.5	2.5
Taxes on unemployment benefits	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Taxes on other income	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Taxes on output and imports	13.8	13.8	13.8	13.8	13.8	13.8	13.8
Social security contributions	12.2	12.3	12.1	12.2	12.2	12.2	12.2
Employee contributions	3.1	3.2	3.0	3.0	3.1	3.1	3.1
Employer contributions	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Income from pension funds	1.6	1.6	2.1	2.1	1.4	0.3	–0.8
Other income on assets	1.8	1.6	1.3	0.9	0.7	0.7	1.5
Other income	5.2	5.4	5.5	5.5	5.5	5.5	5.5
Total revenue	52.6	52.5	53.2	53.2	52.4	51.3	51.0
Expenditure							
Health care	6.8	6.8	6.9	7.4	8.0	7.9	7.7
Pensions	11.1	11.2	12.1	14.6	15.8	15.4	15.5
Care for the elderly	1.3	1.3	1.4	1.6	2.1	2.4	2.3
Children	3.4	3.3	3.2	3.0	2.9	2.6	2.5
Unemployed	2.6	2.5	2.3	1.9	1.6	1.6	1.7
Other social security	3.3	3.3	3.2	2.9	2.7	2.6	2.5
Education	6.6	6.5	6.6	5.2	5.3	5.1	5.2
Expenditure on assets	1.9	1.8	1.6	1.0	0.3	0.0	0.0
Other expenditure	13.5	13.7	13.9	13.9	13.9	13.9	13.9
Total expenditure	50.4	50.3	51.2	51.5	52.8	51.5	51.4
Fiscal balance	2.2	2.2	2.0	1.6	–0.4	–0.2	–0.3

Source: Bank of Finland calculations.

taken into consideration, basic services that are publicly produced or dependent on public financing currently employ one fifth of the employed labour force.

Demographic ageing will increase the need for basic services further still. Assuming no change in the structure of service production and no increase in productivity, about 55,000 new employees will be required in the production of public services over the next three decades. When the working-age population declines, about 20 per cent of the labour force will be employed in producing public services. This would be the case despite the assumption in our long-term calculation of a slight rise in the employment rate and a decline in the unemployment rate.

Labour demand in the public sector is particularly prominent on a gross basis, since a large number of municipal employees are retiring. It is estimated that about a third of municipal personnel will retire during the next decade.

3.2 Estimates of productivity development of public services

Public sector productivity cannot be measured in terms of the relation between output and inputs, since public goods and services have no market prices. Instead, estimates of productivity have been made by comparing the number of various activities against real inputs.[2] The main problem in these estimates is that the volume variable of activities is fairly heterogeneous even within a single field and quality changes cannot be taken into account even at the most general level. For instance, health care productivity declines if treatments become more complex or the patient-base ages.

There is therefore considerable uncertainty relating to productivity estimates based on this method of calculation. It is difficult to assess if an observed decline in productivity reflects a genuine fall in efficiency. Be that as it may, estimates of productivity development are in any case fairly bleak. Productivity in health centres and overall productivity in local government have declined annually since 1998 (Table 2).

If productivity were to continue to decline, as has been the case in recent years, the prices of public services would rise accordingly and labour demand would increase compared with the baseline scenario in which productivity is assumed to remain unchanged. In contrast, if productivity could be improved, which is the Government's objective, this would have important implications for the labour market and the outlook for general government finances.

The implications of these changes in productivity can be illustrated by a simulation in which the current productivity trends in service production are

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[2] Discussions on measurement practices in Finland see Aaltonen *et al.* (2004) and Junnila (ed.) (2004). In addition, overall productivity in local government has been studied in a productivity report by Statistics Finland (*Tuottavuuskatsaus*, 2003) and in the Finnish Government's report on the management and state of central government finances (*Hallituksen kertomus valtiovarain hoidosta ja tilasta*, 2003, annexes available in English).

Table 2

Productivity of Public Sector, 1998-2003
(percent of change on previous year)

	1998	1999	2000	2001	2002	2003
Total factor productivity, central government		0.7	–0.7	2.8	–1.4	–2.1
Labour productivity, central government	3.3	–1.5	–1.1	0.3	–0.2	0.2
Total factor productivity, local government	–2.2	–1.4	–1.8	–2.5	–3.2	
Education	–3.3	–1.1	–1.3	–1.5	–3.4	
Libraries	2.0	–0.3	–0.5	–0.5	0.3	
Social services	–1.1	–1.9	–2.7	–4.5	–3.2	
Health centres	–0.2	–2.4	–0.9	–3.4	–3.7	–3.0
Specialised medical care				–2.2	0.1	–0.3
Institutional care for the elderly				–6.4	–0.5	–0.5

Sources: Statistics Finland, Government Institute for Economic Research (VATT) and National Research and Development Centre for Welfare and Health (Stakes).

assumed to continue and labour productivity is assumed to decrease annually by 1 per cent in 2006-15. As a result, the prospects for general government finances would be much weaker than in the baseline scenario. The decline in productivity would accelerate the rise in basic service prices,[3] which in turn would increase the GDP ratio of basic services by 1.4 percentage points in the long term (Table 3). This would push general government finances into deficit, and debt/deficit dynamics would increase the effect to almost 5 per cent of GDP in the long term. Lower labour productivity would also mean that, compared with the baseline scenario, about 40,000 additional employees would be needed in the production of basic services.

Productivity growth of a similar magnitude has a symmetrical effect in the calculation. If productivity were to grow by 1 per cent, the need for additional labour would vanish almost completely and general government finances would record a sizeable surplus. This is, however, based on the assumption that wages would not respond to the growth in productivity.

4. Conclusions

The exercise above showed that the number of assumptions that lay behind the sustainability calculations is quite huge. Therefore, it is of utmost usefulness to

[3] The rise in prices would accelerate annually by about 0.7 percentage points in 2006-15 compared with the baseline scenario, which corresponds to the share of labour input in the price component.

Table 3

Impact of Change in Productivity of Basic Service Employees*
(change with respect to baseline)

	2010	2020	2030	2040	2050
Number of employees *(thousands)*	19.6	39.4	39.4	39.4	39.4
Expenditure on services and health care to GDP	0.7	1.4	1.5	1.4	1.4
General government net lending to GDP	–0.8	–2.0	–2.8	–3.7	–4.6
General government budgetary position in baseline scenario	2.0	1.6	–0.4	–0.2	–0.3

* Productivity decreases by 1 per cent annually in 2006-15.

Sources: Statistics Finland and calculations by the Bank of Finland.

be as transparent as possible when setting these assumptions. This has been the main motivation in constructing our calculation set.

For Finland, of great concern is the cost trend in public expenditure. It is clear that the renewal of the public sector labour force due to large scale retirement coupled with a rapidly growing need for labour in the social and health care will cause significant pressures on expenditure growth. Hence, improved public sector productivity, which the Government has made a strategic priority,[4] would be a necessary and welcome step in preparing for the increase of expenditure pressures resulting from ageing.

Productivity development in public services is actually a key factor for the future financing of welfare services. If productivity growth were to lead to permanent cost savings, there would even be room for tax cuts without endangering fiscal stability, despite the rise in the dependency ratio. Therefore, the Government's objective of increasing productivity is well founded. It is also a natural objective, as there is great potential for productivity growth in the public sector. This is due to the fact that there are still substantial differences in productivity within different production units which cannot be explained by customer base or other similar external factors.

Signs of very poor productivity development for several years now give, however, reason to fear the present negative trend could continue. The incentives for cost savings are unclear. In addition, competition is virtually lacking from most activities. On the other hand, the most significant cost savings will probably come from more efficient organisation of services, a point that was highlighted in the

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[4] Ministry of Finance (2002), *Kohti tehokkaampaa ja laadukkaampaa julkista taloutta*. Valtiovarainministeriön työryhmä VM 128:00/2001, (*Report on improving the efficiency and quality of general government*, Ministry of Finance Working Group VM 128:00/2001).

Government's productivity programme. However, it is unlikely that this alone would be a sufficient solution to the increasing problem of costs. It is still essential to keep a tight rein on expenditure.

For the labour market, demographic changes are of concern. As an increasing part of the decreasing labour force will be employed in public sector, resources of market based production will be cut. The increase of the proportion of the public sector labour force will also lower the overall productivity and growth potential of the economy. The long-term challenge for fiscal policy is, therefore, to adjust expenditures to a level which can withstand even the gloomier scenarios of economic growth, employment and productivity of labour. In this respect, the relatively tight controls and expenditure limits placed on the government spending provides a good starting point. But an even longer planning horizon for the government finances is needed. For instance, estimates of demand for welfare services in the long run should be included in cost calculations when improvements in the services are planned.

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FOUR LONG-TERM SCENARIOS FOR THE DUTCH GOVERNMENT AND THE HEALTH CARE SECTOR

Frits Bos, Rudy Douven and Esther Mot[*]

Preface

In the CPB study "Vier vergezichten op Nederland" ("Four Futures of the Netherlands"; Huizinga and Smid, 2004) four scenarios are presented for the development of the Dutch economy until 2040. In this paper the development of the sectors government (public administration, defense and subsidized education) and health care (including pharmaceuticals) are discussed.

Both sectors are of great economic importance in the Netherlands. In terms of value added they constitute about one fifth of the Dutch economy; in terms of employment and final consumption even about one quarter is involved. Furthermore, these sectors have in common that they are mainly financed publicly (by social security contributions and taxes) and that productivity growth is relatively slow. Baumol's cost disease model suggests that this can lead to increasing pressure on public finance and to negative effects for economic growth and inflation.

The research was carried out by Frits Bos, Rudy Douven and Esther Mot. They collaborated intensively with the principal authors of the long run study on the Dutch economy, Free Huizinga and Bert Smid. Statistical assistance, comments and suggestions were received from Rob Euwals, Adriaan van Hien, Marco Lighthart, Rocus van Opstal, Hans Roodenburg, Martin Vromans and Dinand Webbink.

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Summary

In the CPB study "Vier vergezichten op Nederland" ("Four Futures of the Netherlands") four scenarios are presented for the development of the Dutch economy until 2040. Scenarios are internally consistent views of the future. The scenarios for the Netherlands differ with respect to population growth, ageing, labour participation, the growth of labour productivity and the development in the various sectors. Such comprehensive and coherent views on the future can serve as frame of reference for strategic policy issues.

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This study describes the development of the sectors government (public administration, defense and subsidized education) and health care in the four scenarios for the Netherlands. These sectors constitute about 20 per cent of Dutch GDP and 25 per cent of employment. They are also important for Dutch government finance, as government and health care services are mainly financed by taxes and social security contributions. Compared to 1960 the share of government and health care increased considerably. The cost disease model of Baumol suggests that relatively low productivity growth in government and health care will further raise both types of expenditures.

The scenarios are defined in terms of two groups of "key uncertainties". The first concerns *national institutions*: to what extent will the mix of public and private responsibilities change? The second key uncertainty concerns *international cooperation*: to what extent are national states willing and able to cooperate in Europe and at a world wide scale?

The scenarios *Regional Communities* and *Strong Europe* will be labeled as "public scenarios". In these scenarios, reform of public arrangements is relatively minor and the importance of solidarity and equity is stressed. The scenarios *Transatlantic Market* and *Global Economy* are labeled as "market scenarios", and have a larger preference for private initiatives and favor a more limited role of the government.

Government services

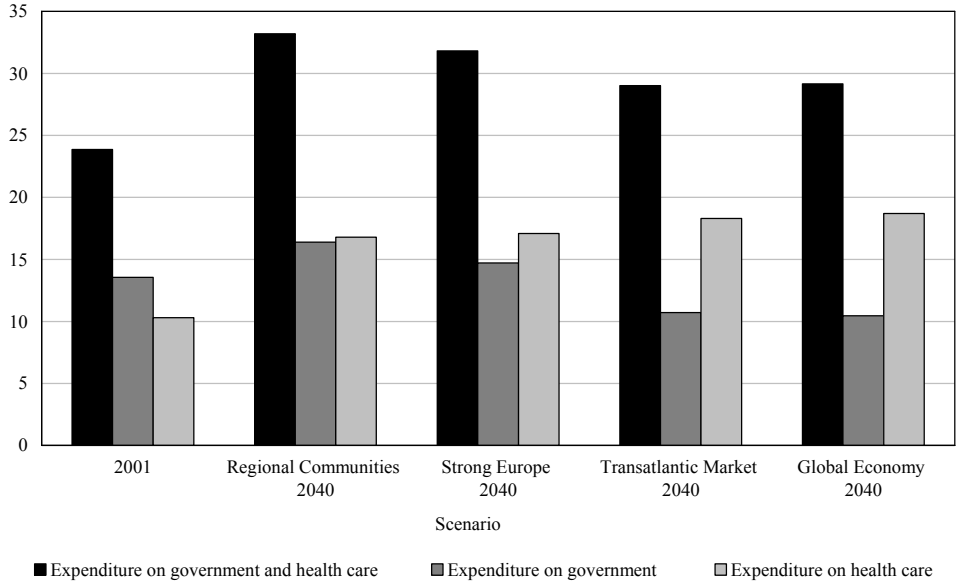
The final consumption expenditure on the services of the government (public administration, defence and subsidized education) will grow in the public scenarios from 13.6 per cent of GDP in 2001 to about 15 or 16 per cent of GDP in 2040. In *Regional Communities* the relative importance of public administration will increase; this is partly compensated by lower expenditure on education, in particular due to a decline in the number of pupils and students. In *Strong Europe* the relative size of public administration will grow less and at more selected areas. In this scenario expenditure on defense and education will increase; the latter is mainly due to demography.

The two market scenarios show an entirely different development for government services: a decrease from 13.6 in 2001 to 11 per cent of GDP in 2004. In *Transatlantic Market* and *Global Economy* the role of the services provided by the government is more limited, substantial savings are attained on administrative costs and school fees are raised. In *Global Economy* the number of pupils and students substantially increases. Like in the United States, private, non-subsidized, institutes will play a major role in higher education.

In the public scenario *Strong Europe*, the growth rate per capita is the highest (1.1 per cent per year). However, due to differences in productivity and participation, this growth rate is hardly higher than the 1.0 per cent in the market scenario *Global Economy*. In the public scenario *Regional Communities* the growth

Figure 1

Expenditure on Government Services and Health Care
(percent of GDP)



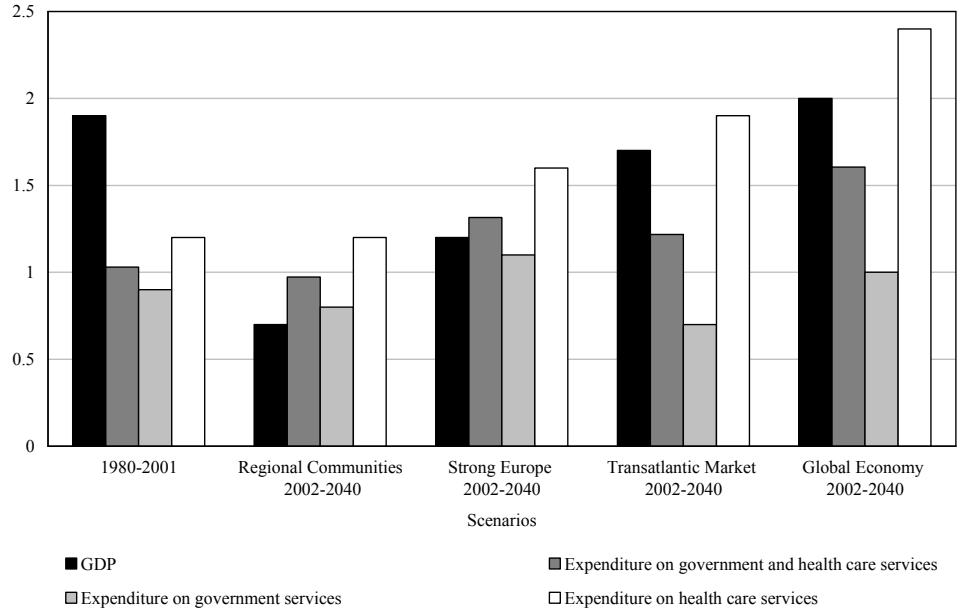
rate of government services per capita is even lower (0.8 per cent) and almost equal to that in the other market oriented scenario (*Transatlantic Market*: 0.7 per cent).

Health care

In all four scenarios, expenditure on health care as a percentage of GDP will increase, from 10.3 in 2001 to between 16.8 (*Strong Europe*) and 18.7 per cent (*Global Economy*) in 2040. Ageing and progress in medical technology are major driving factors behind this growth. Ageing does not only increase expenditure on health care services, but also substantially alters its composition. Progress in medical technology is potentially even a more important driving factor than ageing. However, the impact of medical technology on health care expenditure depends also on the economic growth and the role of public arrangements. More economic growth increases the income available for consuming new technology. Citizens and patients will be willing to spend a substantial part of their increase in material welfare on better health care. Lower economic growth reduces the financial means for new medical technology, in particular when public arrangements play a dominant role.

Figure 2

Annual Volume Growth per Capita



In all four scenarios the growth of labour productivity in the health care sector lags behind that in the market sector. This raises the relative price of health care services and contributes also to an increasing claim on GDP.

In both market scenarios *Transatlantic Market* and *Global Economy* economic growth per capita is highest. In these scenarios, the expenditure on health care as a percentage of GDP are about 1 per cent of GDP higher than in both public two scenarios. In both market scenarios volume growth of health care services per capita, in particular of private health care, is substantially higher. Growth per capita in *Global Economy* is 2.4 per cent, even twice as high as in *Regional Communities*.

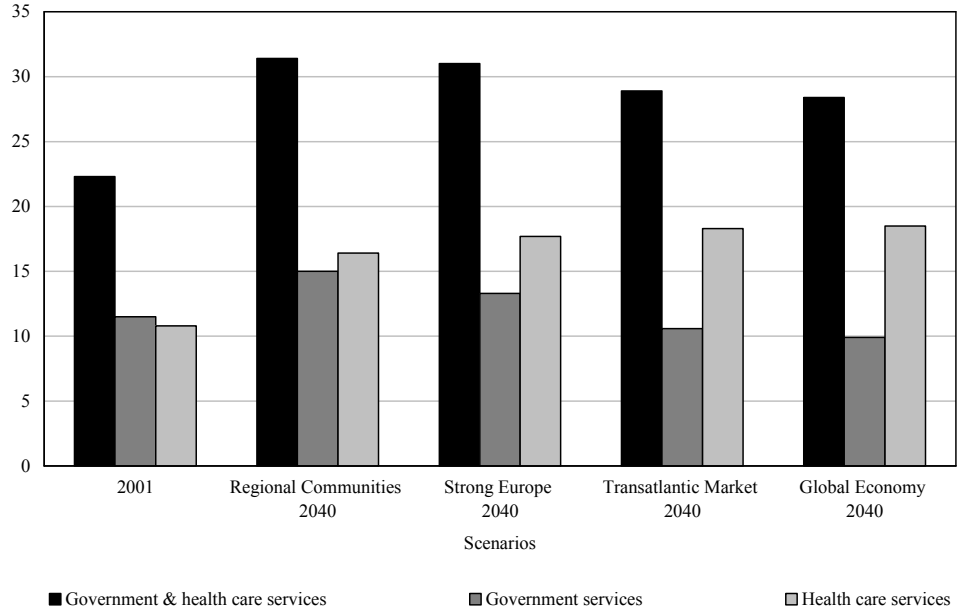
The rising claims of health care on GDP combined with relatively low productivity growth leads to substantial increases in their share of employment, *i.e.* from 10.8 in 2001 to between 16.4 (*Regional Communities*) and 18.5 per cent (*Global Economy*) in 2040.

Total of government and health care

In 2001, the final consumption of government and health care services (including pharmaceuticals) was about 24 per cent of Dutch GDP. According to all

Figure 3

Share in National Employment
(percent)



scenarios this will increase to between 29 (the market scenario *Global Economy*) and 33 per cent of Dutch GDP in 2040 (the public scenario *Regional Communities*).

In all scenarios there is a negative correlation between government expenditure and health care expenditure. In the market scenarios, government expenditure, as percent of GDP, decreases, but this is fully compensated by a rapid growth of health care expenditure. In the public scenarios, government expenditure increases, but this is partly compensated through slower growth of health care expenditure. This negative correlation limits in all scenarios the increase in the total claim of government services and health care on GDP.

In the market-oriented scenarios the increase in government expenditure on government services and health care, *i.e.* the increase in pressure on government finance, is smaller for two reasons. Firstly, in the market-oriented scenarios the increase in government services and health care is smaller as a percentage of GDP. Secondly, in the market-oriented scenarios there is more, rapidly growing, privately financed health care.

In terms of employment, the size of government and health care services increases from 22 in 2001 to between 28 (*Global Economy*) and 31 per cent (the public scenarios *Regional Communities* and *Strong Europe*).

1. Introduction

The CPB[1] started developing long term scenarios in 1992. The study "Scanning the Future" (CPB, 1992a) presented four long-term scenarios for the world economy, based on a thorough assessment of current trends, strengths and weaknesses. The study "The Netherlands in triple" (CPB, 1992b) translated and elaborated these scenarios for the Dutch economy.

Long-term scenario analysis by the CPB is a synthesis between quantitative economic modelling (e.g. by Tinbergen) and qualitative trend analysis (e.g. the work by Malthus, Ricardo, Marx and Schumpeter). Its purpose is to provide a frame of reference for strategic policy decision-making by identifying key uncertainties, trade-offs and potential bottlenecks and by showing a possible range of outcomes. Major features of this approach are:

- uncertainty is grappled by identifying key uncertainties and sketching consistent alternative worlds;
- knowledge about general trends, stylised facts and economic behaviour is included;
- quantification is illustrative. The scenarios are plausible outcomes and tell stories about a possible future. They are not predictions of the future and reflect to a substantial extent science as an art.

Since 2003 a new set of scenario analyses have been published by the CPB. In the study Four Futures of Europe (de Mooij and Tang, 2003) four scenarios are sketched for the development of the European economy until 2040. The scenarios are defined in terms of two groups of "key uncertainties". The first concerns *national institutions*: to what extent will the mix of public and private responsibilities change? The second key uncertainty concerns *international cooperation*: to what extent are national states willing and able to cooperate in Europe and at a world wide scale?

In the CPB study "Four Futures of the Netherlands: Production, Labour and Sectoral Structure" in *Four Scenarios until 2040* (Huizinga and Smid, 2004), the European scenarios are elaborated for the Dutch economy. These scenarios differ with respect to demography (population growth, ageing), macroeconomic development (productivity, labour market participation, inflation, interest rates, world trade), government policy (e.g. social security system) and specific sector trends.

In this paper the development of the sectors government (public administration, defense and subsidized education) and health care (including pharmaceuticals) are discussed. Both sectors are of great economic importance in

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[1] The CPB Netherlands Bureau for Economic Policy Analysis was founded in 1945. Its first director was Jan Tinbergen, who received a Nobel prize for his work on econometric modelling. Also the famous econometrician Henri Theil worked at the CPB. The first long term study by the CPB (Verdoorn) was published in 1955.

the Netherlands. In terms of value added they constitute about one fifth of the Dutch economy; in terms of employment and final consumption even about one quarter is involved. Furthermore, these sectors have in common that they are mainly financed publicly (by social security contributions and taxes) and that productivity growth is relatively slow. Baumol's cost disease model suggests that this can lead to increasing pressure on public finance and to negative effects for economic growth and inflation.

In section 2 the European scenarios and the major results for the whole Dutch economy are summarized. The scenarios and results for the government sector are the topic of section 3, while the future of health care in the Netherlands is discussed in section 4. Boxes are used to discuss the most important concepts, trends and economic behaviour. Topics included are:

- Why does productivity growth of government services lag behind? (Box 1);
- Baumol's cost disease model (Box 2);
- The major determinants of health care expenditure (Box 3);
- Ageing and health care (Box 4).

2. The scenarios

2.1 Two key uncertainties

The scenarios in the CPB studies *Four Futures of Europe* and *Four Futures of the Netherlands* are based on two key uncertainties: international cooperation and national institutions, *i.e.* the mix of public and private responsibilities.

2.1.1 International cooperation

The benefits of further economic integration are still not exhausted. However, international cooperation, necessary for economic integration, will not be easy in the coming years. In some areas, such as global climate change, capital flight to tax havens, AIDS and poverty, cooperation is weak or even non-existent. In relatively successful areas, organizations such as the WTO and the European Union are nowadays under pressure. In particular, these organizations face three problems: increasing heterogeneity, increasing scope (from single-issue clubs to multi-issue negotiations and agreements) and lacking legitimacy. The first key uncertainty in the scenarios is therefore to what extent international organizations succeed in overcoming these problems during the coming decades.

2.1.2 National institutions

In the late Nineties, the US economy combined fast productivity growth with low unemployment rates. The contrast with Europe was strong. Europe's Lisbon agenda seeks to change this. The aim is to increase productivity growth, while

maintaining social cohesion. This will not be easy. Many policy instruments give rise to a trade-off: increasing efficiency is often bought with less equity. The coming decades, all European countries will have to deal with ageing, individualization and probably increasing differences between the income of high- and low-skilled workers. These trends will put the public sector under growing pressure. The key uncertainty is therefore what level of public provisions will be chosen by the European countries. What will be the public responsibilities and what will be left to private initiatives?

Figure 4 combines the two key uncertainties and shows the four scenarios. The vertical axis ranges from successful international cooperation at the top, to an emphasis on national sovereignty at the bottom. The horizontal axis ranges from a strong role for the public sector at the left, to private responsibility at the right. The combination of the two key uncertainties yields four scenarios for Europe and its countries. In *Regional Communities* European countries stress their sovereignty and national identity, and reforms in the public sector are only marginal. In *Strong Europe* the public sector, in particular the social security systems, will be reformed substantially. In *Transatlantic Market* the public sector is also substantially reorganized, but European countries are not prepared to give up their sovereignty. In *Global Economy* international cooperation is combined with a drastic reform of the public sector.

These four scenarios lead to large differences in economic growth. Highest growth rates are achieved by a combination of international cooperation and a large role for the market, *i.e.* by the scenario *Global Economy*.

However, economic growth is not the same as welfare. A large role for the market stimulates economic growth, but induces also differences in income between high- and low-skilled workers and between the employed and the unemployed. Furthermore, a large role for the market will imply less incentives (and more free-riding) to solve global environmental problems. Similarly, international cooperation serves economic growth and the environment, but will harm the sovereignty and national identity of specific countries.

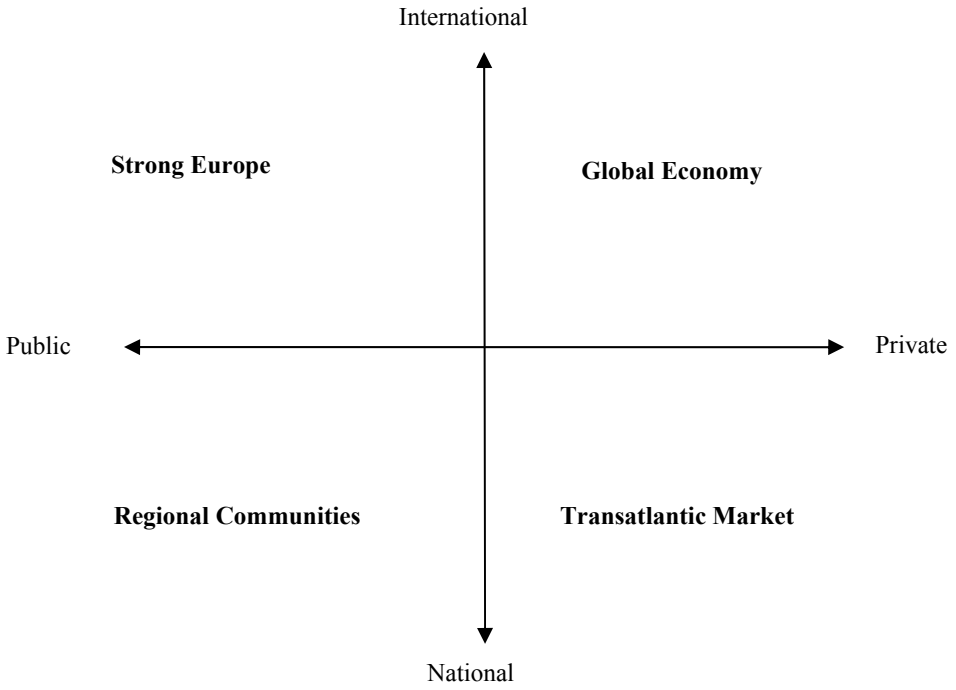
Table 1

Welfare-oriented Overview Table

	Regional Communities	Strong Europe	Transatlantic Market	Global Economy
Volume growth of GDP per capita	0.7	1.2	1.7	2.1
Income inequality	+	0	–	–
Cross-border pollution	0	+	–	–
Sovereignty and identity	+	–	0	–

Figure 4

Two Key Uncertainties and Four Scenarios



The two CPB studies focus on the economic consequences of the scenarios. For a balanced, more welfare-oriented assessment of the scenarios, other dimensions, like income inequality, pollution and sovereignty should also be taken into account (see Table 1).

In Section 2.2, the economic consequences of the European scenarios are described more in detail. The major results for the Netherlands are summarized in section 2.3.

2.2 Four scenarios for Europe

2.2.1 Regional Communities

In the scenario *Regional Communities* European countries stress their sovereignty and national identity. As a consequence, the European Union cannot adequately cope with the Eastern enlargement and fails to reform her institutions. As an alternative, a core of rich European countries emerges. More generally, the world

is fragmented into a number of trade blocks, and multilateral cooperation, e.g. with respect to global environmental issues, is modest.

European countries rely on public arrangements to maintain an equitable distribution of welfare and to control local environmental problems. At the same time, governments in this scenario are unsuccessful in modernizing welfare-state arrangements. A strong lobby of vested interests blocks reforms in various areas. Together with an expanding public sector, this development puts a severe strain on European economies.

The high tariffs of taxes and social security contributions and the lack of incentives to reduce the number of social benefits generate a relatively low rate of labour participation and high unemployment rates. Lack of competition reduces the urgency for corporations to innovate. The fragmented and not very transparent markets limit the dissemination of knowledge. Accompanied by relatively small differences in income creates only most incentives to invest in human capital. The annual labour productivity increase and economic growth are small.

2.2.2 Strong Europe

In *Strong Europe* international cooperation is important. Reforming the process of EU decision-making lays the foundation for a successful, *Strong Europe*an Union. The enlargement is a success and integration proceeds further, both geographically, economically and politically. Europe is the driving force

Table 2

Major Features of the Scenarios

Public	Solidarity and equity; large role for the government
Regional Communities	Minor reforms of public arrangements
	Strong lobbies of interest groups
	Fragmented markets
Strong Europe	Some substantial reforms of public arrangements
	Clear vision on tasks of the government
	Reform of EU successful, Turkey enters European Union
Private/Market-oriented	Preference for private initiatives and more limited role of government
Transatlantic Market	Substantial reforms of public arrangements
	Absence of appropriate regulation and strong lobbies of interes groups
	Reform of EU fails, instead transatlantic economic integration
Global Economy	Drastic reforms of public arrangements
	Appropriate regulation
	Reform of EU and WTO successful, Turkey enters European Union

behind broad international cooperation – not only in the area of trade, but also in other areas such as climate change and poverty reduction. Europe and the USA agree on a joint, somewhat less ambitious, approach to tackle climate change. Turkey, a country with a relatively large, poor and low-skilled population, is accepted as a member of the European Union.

Like in *Regional Communities*, solidarity and equity are important. Nevertheless, in response to the growing pressure on the public sector, selective reforms are undertaken in the labour market, social security and public production. Combined with higher investments in education and research and a bigger joint market, labour productivity increases more than in *Regional Communities*. Also economic growth is higher.

2.2.3 Transatlantic Market

In the scenario *Transatlantic Market*, countries are reluctant to give up their sovereignty. Turkey does not enter the European Union. Reforms of EU decision making fail. Instead, the European Union redirects her attention to the United States: they agree upon transatlantic economic integration. This yields welfare gains on both sides of the Atlantic.

In this scenario, European countries limit the role of the state and social security and rely more on market exchange. The labour market becomes more flexible and differences in income increase.

Cutting back social security increases labour participation. International competition stimulates innovation. The increasing differences in income make education more attractive. Labour productivity increases and economic growth is high. Cross-border environmental issues are not tackled, but the higher material welfare does induce local investments in reducing noise and nasty smell and in public parks and gardens.

2.2.4 Global Economy

In the scenario *Global Economy*, the European Union enlarges eastwards with Turkey and the Ukraine. The WTO-negotiations are successful and international trade flourishes. However, political integration and international cooperation with respect to non-trade issues are not successful. Like in *Transatlantic Market*, the role of the state is limited and the role of private initiative and the market are stressed.

The growth of labour productivity is even higher than in *Transatlantic Market*. In this scenario, material welfare increases therefore most. Like in *Transatlantic Market* no agreement is reached for a joint approach to climate change. In combination with the high economic growth pollution at a global level is relatively high. However, investments in the local environment are stimulated by the high level of material welfare.

2.3 Major results for the Netherlands

The differences in international cooperation and reforms of the public sector, like those with respect to social security, drastically influence the economic outcomes. The driving forces behind economic growth are the development of employment and labour productivity. Employment and labour supply are affected by demographic developments, immigration and labour market participation. Table 3 provides an overview of the major macroeconomic results for the Netherlands.

The scenarios imply for the Dutch economy a wide range of results for many variables. For instance, the cumulated growth of GDP per capita until 2040 varies from 30 to 120 per cent. In the more market oriented scenarios (*Transatlantic Market* and *Global Economy*) economic growth is higher, but they are also characterised by more inequality and less concern for the environment.

Ageing has a negative effect on labour supply and employment growth and on the ratio of the active to the non-active population in all scenarios. An increase in participation, especially of women and older workers, may counterbalance these effects. Sectoral employment shares will shift strongly, particularly from agriculture and manufacturing to services and health care. This shift is a continuation of a process that has already been going on for decades.

Table 3

Major Results for the Netherlands
(annual percentage of change)

		Regional Communities	Strong Europe	Transatlantic Market	Global Economy
	1971-2001	2002-2001	2002-2001	2002-2001	2002-2001
Population	0.7	0.0	0.4	0.2	0.5
Labour supply	1.1	–0.4	0.1	0.0	0.4
Employment	0.9	–0.5	0.1	0.0	0.4
Labour productivity	1.9	1.2	1.5	1.9	2.1
Volume of GDP	2.6	0.7	1.6	1.9	2.6
Volume of GDP per capita	1.9	0.7	1.2	1.7	2.1
Unemployment *(percentage of labour force)*	5.5	7.3	5.7	4.6	4.1
Public expenditure *(percent of GDP)*	42.1	51.1	47.0	38.0	36.1

3. Government

3.1 Introduction

In 2001 the value added of the government sector amounted to 10.5 per cent of GDP and final consumption of government services to 13.6 per cent of GDP; employment in full-time equivalents was 11.5 per cent of the Dutch economy.

The government sector refers to all activities of the government, such as defence (1 per cent of GDP in 2001), education (4 per cent of GDP) and public administration (6 per cent of GDP).[2] Public administration comprises a wide variety of activities. Policy preparation and organizing the democratic decision-making process is only a minor part of the activities. The major activities are the provision of specific services, like police, justice, construction and maintenance of roads, the collection of taxes and social security contributions and the distribution of social benefits and subsidies.

The next forty years the growth of labour productivity at the government will probably, like in the past, lag behind the general productivity growth (see Box 1). In the high general productivity scenarios *Transatlantic Market* and *Global Economy*, also the productivity of the government sector will be higher. This reflects a more rapid technological development (e.g. more intensive use of ICT) and a larger emphasis on efficiency and standardisation. The productivity growth will be concentrated in the more administrative parts of the government. For education, police and justice, productivity growth will be more difficult to realize, even though developments like e-government could contribute to productivity growth and a better quality of the services.

In order to compete at the labour market, in the long run, government wages should be in line with the wages in the other parts of the national economy. Combined with a lagging productivity growth this will cause an increase in the relative price of government services. This could lead to Baumol's disease, *i.e.* an increasing share of national income spent on government services, lower economic growth, higher inflation and a higher public tax burden (see Box 2).

The demand for government services is determined by not only the relative price of government services but also by many other factors, like demography, economic growth, budgetary situation, visions on the tasks of the government and the interests of specific groups. The demand for government services differs therefore substantially in the four scenarios.

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[2] Excluded are the activities of the government pertaining to industries not characteristic for government. Examples are garbage disposal, manufacturing workshops for the disabled, preventive health care by local authorities and asylum seekers' centres. In 2001 their value added amounted to 2.1 per cent of GDP. Value added of the institutional sector government amounted thus to 12.6 per cent of GDP in 2001. Final consumption of the corresponding services was 16.1 per cent of GDP.

Box 1

Why Does Productivity Growth of Government Services Lag Behind?

Productivity growth of government services is difficult to measure. In the Dutch national accounts a productivity growth of almost 1 per cent per year has been assumed for the last twenty years.[a] This is substantially less than the 2 per cent productivity growth by the market sector. This confirms Baumol's law: productivity increases are relatively difficult to achieve for services, in particular for so-called stagnant personal services.

Stagnant personal services are defined by Baumol (1985, p. 302) as "activities in which quality is highly correlated with labour time expended, and in which frequently … there must be direct contact between the consumers and those who provide the labour. These services are also often characterized by the inherent difficulty of standardization of their product". Services by the government like education, police and justice could be regarded as stagnant personal services. Economies of scale are often difficult too realize, e.g. increases in class size impede quality of education. Also some health care services, e.g. nursing, could be regarded as stagnant personal services.

Productivity increase of stagnant personal services is difficult to achieve. However, stagnant personal services are not immune to progress. Productivity increase can be possible by a partial substitution with goods or less labour intensive services, like cameras, educational software and divorce via internet. Another source for productivity increase can be found in improving the productivity of supporting activities, like the administrative processes of police, justice and education.

Not all government services should be regarded as stagnant personal services. Activities like the collection of taxes and the granting of social benefits do not require such direct and personal contact with the consumer. For such services, standardization, increases in scale and ICT do lead to substantial economies of scale and can also raise quality.

These general insights can be compared with estimates of productivity growth of Dutch government services (see Kuhry and van der Torre, 2002, page 267). According to these estimates productivity in primary education, judges and police declined in the period 1990-99. This contrasts with productivity increases of 2 per cent or more per year in the administration of taxes and social security and higher education. Despite potential measurement problems (e.g. with respect to quality), these substantial differences between personal and impersonal services seem to confirm Baumol's law; only the productivity increase of higher education does not comply with Baumol's law. For services like defence and policy preparation no estimates of productivity growth are available. In particular for such public services defining and measuring output and productivity is difficult.

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[a] In the Dutch national accounts, productivity growth of the government is assumed to be equal to the three years moving average of the incidental wage increase (see Kazemier, 1991). Since the Dutch national accounts 2001 for education a different definition is employed. In line with the most recent European guidelines on measuring volumes in the national accounts (see Eurostat, 2001, pp. 142-44) productivity is broadly defined as the weighted development of the pupil/teacher ratio.

In a well-known Swedish report (see Swedish Ministry of Finance, 1996, p. 19) also a link between productivity and budgetary restraint is suggested. In Sweden productivity increased in education, health care and justice in 1980-83 and 1990-92. In these periods greater budgetary restraint and increased external demands on performance (more patients, more school children, more court cases, etc.) have probably forced a greater utilization of capacity and increased awareness of costs.

Box 2

Baumol's Disease and the Government

Slow productivity growth of services, like that for government and health care services, can lead to Baumol's disease (see Baumol, 1967). Relatively slow productivity growth and wages following the general wage development make services per unit product relatively expensive. In combination with the assumption of a relatively price-inelastic demand this results in an increasing share of (government) services and an even faster rising share in national employment. This generates Baumol's disease, *i.e.* a lower economic growth rate for the national economy and a higher inflation rate due to the increasing relative price of services.

Consumption of government services is mainly financed by taxes. A growing share of government services in GDP increases public expenditure and can therefore induce higher government debt and higher tax rates. The latter reduces by definition the net return on labour and capital and therefore the supply of labour and capital. This is a second way in which slow productivity growth of government services can generate stagnant economic growth.

In the long run ever increasing government debts and tax rates are not sustainable. They can then necessitate substantial cuts on public expenditures and mitigate in this way the demand for government services. The same can apply to the European norms for the government deficit and debt and for general policies to reduce the tax burden.

Since the Fifties up to the beginning of the Eighties, the share of government services in Dutch GDP has increased rapidly and in line with the prophesy of Baumol's disease. However, during the last twenty years, the share has declined with 3 per cent of GDP. Baumol's disease disappeared in the Netherlands, because the relative price increase of government services was mitigated by a very modest development of government wages (in particular in the beginning of the Eighties) and a relatively slow growth of the volume of government services. The latter was mainly due to the halving of defence expenditure as a percentage of GDP (the so-called peace dividend) and by the slow growth of expenditure on education (mainly for demographic reasons). This relatively slow growth of government services causes as such a decrease in the employment share. However, this was compensated by the lagging productivity growth of the government. As a consequence, government's share in employment remained unchanged during the last twenty years.

3.2 Four scenarios for government services

The major results for the sector government are shown in Tables 4, 5 and 6.

In 2001, value added of the government sector amounted to 10.5 per cent of GDP. In the two more public scenarios (*Regional Communities* and *Strong Europe*) this will increase to about 12 per cent in 2040 (respectively 12.7 and 11.4 per cent of GDP). In the more market oriented scenarios (*Transatlantic Market* and *Global Economy*) the share of the government will shrink towards about 8 per cent of GDP (respectively 8.3 and 8.1 per cent of GDP).

Table 4

Key Figures on the Government Sector
(Public Administration, Defence and Subsidized Education)
(annual percentage of change)

		Regional Communities	Strong Europe	Transatlantic Market	Global Economy
	1980-2001	2002-2040	2002-2040	2002-2040	2002-2040
Volumes					
Volume of government services per capita	0.9	0.8	1.1	0.7	1.0
Volume of GDP per capita	1.9	0.7	1.2	1.7	2.0
Population	0.6	0.0	0.4	0.2	0.5
Prices					
Price of government services	1.3	1.9	2.0	1.5	1.9
GDP deflator	2.2	1.5	1.6	1.2	1.5
Labour productivity					
Government	1.2	0.6	1.0	1.2	1.5
National economy	1.3	1.2	1.5	1.9	2.1
Employment					
Government (full-time equivalents)	0.3	0.2	0.4	–0.2	0.0
Value added government *(percent of GDP)*	10.5	12.7	11.4	8.3	8.1
Consumption government services *(percent of GDP)*	13.6	16.4	14.8	10.8	10.5
Employment government *(percent of total)*	11.5	15.0	13.3	10.6	9.9

A similar development takes place in terms of shares in national employment: in the public scenarios the share of employment in the government sector increase, while it will decrease in both market scenarios.

The development of the relative size in terms of GDP of employment does not provide information about the development of volume of government services per capita. In the two market scenarios GDP *per capita* increases much more (95 and 121 per cent in forty years) than in both public scenarios (33 and 56 per cent). This higher growth rate of GDP per capita compensates to a great extent the lower preferences for government services. In the public scenario *Strong Europe*, growth of the volume of government services per capita is highest with 1.1 per cent per year; in forty years this amounts to a cumulated increase of 50 per cent (see Table 5). However, this growth is only marginally higher than the 45 per cent (1.0 per cent per year) in the market scenario *Global Economy*. In the public scenario *Regional Communities*, growth per capita is smaller (37 per cent in

Table 5

Employment in the Government Sector

		Regional Communities	Strong Europe	Transatlantic Market	Global Economy
	1980-2001	**2002-2040**	**2002-2040**	**2002-2040**	**2002-2040**
	(level at the end of the period)				
Government *(as percent of national total)*	11.5	15	13.3	10.6	9.9
public administration	5.7	8.4	6.4	4.8	4.1
defense	1.0	1.2	1.3	1.0	0.9
subsidized education	4.8	5.3	5.6	4.8	4.9
	(level at the end of the period)				
Governments *(thousands fte-employment)*	752	812	885	685	761
public administration	372	456	424	310	319
defense	67	67	87	67	67
subsidized education	312	289	374	307	375
	(annual percentage of change)				
Governments *(thousands fte-employment)*	0.3	0.2	0.4	–0.2	0.0
public administration	0.0	0.5	0.3	–0.5	–0.4
defense	–1.8	0.0	0.7	0.0	0.0
subsidized education	0.5	–0.2	0.5	0.0	0.5

Table 6

Volume Growth of Government Services per Capita (Value Added)
(index 2001=100)

			Regional Communities	Strong Europe	Transatlantic Market	Global Economy
	1980	2001	2040	2040	2040	2040
Government services per capita	83	100	137	150	135	145
GDP per capita	67	100	134	156	195	221

forty years, 0.8 per cent per year) and almost equal to the 35 per cent cumulated growth in the market scenario *Transatlantic Market* (0.7 per cent per year).

3.2.1 Regional Communities

The scenario *Regional Communities* is characterized by a government strongly influenced by lobbies of interest groups and considerations of solidarity and equity. There is no clear view on what the government should or should not do. Efficiency is not a major issue in government policy. In such a scenario the government will engage in new tasks and will expand existing tasks. Temporary projects will turn out to be permanent. No effective counterbalancing forces exist due to the absence of to a balanced appraisal of the various interests and a limited focus on efficiency.

Employment in public administration will therefore increase, e.g. through more employment for security (policy, justice, checking of compliance with regulations by municipalities and provinces) and various employment projects. Due to demographic developments the number of pupils will decrease in forty years with about 15 per cent. Employment in subsidized education will decrease somewhat less rapidly because of extra efforts for special needs pupils. For defence an unchanged number of employees is assumed. The volume of defence services will therefore increase with the labour productivity growth.

In this scenario value added of the government will increase with more than 2 per cent of GDP, from 10.5 in 2001 to 12.7 per cent of GDP in 2040. Due to lagging labour productivity growth, increase in terms of employment is even from 11.5 in 2001 to 15.0 per cent in 2040, *i.e.* 3.5 per cent point. In *Regional Communities* increase in the employment share of the government is therefore higher than all other scenarios (see Figure 3). Growth of GDP per capita is limited to 0.7 per cent per year; the volume growth of government services *per capita* is slightly higher (0.8 per cent per year).

3.2.2 Strong Europe

In comparison with *Regional Communities*, *Strong Europe*'s increase in value added and employment is about half as big (1 per cent of GDP and about 2 percentage points of employment share). However, the volume growth of GDP and government services per capita is much higher (respectively 0.5 and 0.3 per cent per year).

Like in *Regional Communities*, solidarity and equity are important in *Strong Europe*. However, in this scenario a clear view on the tasks of the government exists. As a consequence, no unguided and unbalanced growth of public administration will occur. From an international and European perspective, one is well aware of the necessity to increase labour participation and productivity. As a consequence, more investments are made in education and research. The higher flow of immigration causes a higher population growth and therefore extra expenditure on education. The number of pupil and students increases with more than 10 per cent. Reforms towards more tailor-made education further stimulates the employment in subsidized education.

At present the defence expenditure of some big countries (France and the United Kingdom) are disproportionally high in Europe. In this scenario, a more proportional system of contributions to European defence implies for the Netherlands an increase of expenditure and employment for defence.

3.2.3 Transatlantic Market

In *Transatlantic Market* the relative size of the government sector decreases with 2.1 to 8 per cent of GDP. The government share in employment shrinks with 0.9 percentage points to 10.6 per cent in 2040. The volume growth of government services per capita is 0.7 per cent per year. This is slightly smaller in the scenario *Regional Communities*, but substantially smaller than the volume growth of GDP per capita in *Transatlantic Market* (1.7 per cent per year).

In this scenario much more is left to private initiative. The welfare state is cut down and this causes substantial savings on the administration of the welfare state. School fees are increased and scholarships by the government are reduced. The higher costs of education for students is counterbalanced by larger differences in wages between high- an low-skilled workers and by lower taxes. Furthermore, higher income per capita GDP makes increases in schoolfees a smaller financial burden. Mainly for demographic reasons, the number of pupils and students decreases somewhat.

The importance of efficiency and productivity growth is acknowledged in *Transatlantic Market*. In order to give more leeway to private initiative government services are reduced. There will be no European defence policy and the defence expenditure remain unchanged in terms of employment and percentage of GDP.

3.2.4 Global Economy

In *Global Economy* the government sector decreases to somewhat more than 8 per cent of GDP. Employment by the government decreases to less than 10 per cent of national employment. GDP per capita increases with 2 per cent per year. The volume growth of government services per capita is substantially smaller; nevertheless, the 1 percent growth per year is substantially higher than volume growth of government services in *Regional Communities* and *Transatlantic Market*.

Like in *Transatlantic Market*, more is left to the market and private initiatives. However, the focus on increasing private initiative and reducing the role of the government is much stronger than in *Transatlantic Market*. School fees are substantially increased and scholarships are minimized. These negative incentives for human capital formation are counterbalanced by higher economic growth per capita and bigger differences in wages. Mainly for demographic reasons, the number of pupils and students increases with 20 per cent. More tailor-made education will further stimulate employment in education. The government retreats to its core tasks. Private education will become responsible for a substantial part of higher education, in particular by expensive and specialised academies.

The welfare state is cut down substantially. Laws and regulations will be simplified and special cases are more often ignored. Savings on administrative services are therefore more substantial than in *Transatlantic Market*.

There will be no European defence policy and the defence expenditure remain unchanged in terms of employment and percentage of GDP.

4. Health care

4.1 Introduction

In 2001, the value added of the health care sector (health and social work activities) in the national accounts was 7.0 per cent of GDP. Health care expenditures (or final consumption) of health care services amounted to 8.7 per cent of GDP.

The health care sector covers nearly all types of care financed by social security contributions (Medical Health Fund Act (ZFW) and the Exceptional Medical Health Act), taxes (e.g. municipal preventive health care and welfare work), private health care insurance and paid directly by households. However, excluded are pharmaceuticals (1.3 per cent of GDP) and the administrative costs of running private and public health care insurance (0.3 per cent of GDP). Including also these types of expenditure would imply a figure of 10.3 per cent of GDP.[3] Most of these

[3] This concept of health care seems in some respects rather broad, e.g. by including also asylum seekers centres and child care institutions. The concept of health care used in Dutch politics excludes these expenditure. The policy concept also excludes some supplementary and luxury health care. However, our broad concept of health care still excludes some care, e.g. domestic services purchased directly by

(continues)

expenditure on health care are financed via social security contributions (6.5 per cent of GDP in 2001).

4.1.1 Basic assumptions in the four scenarios

Health care expenditure in the Netherlands increased rapidly in the Fifties, Sixties and Seventies of last century. However, during the period 1980-2000 health care expenditure remained rather constant as a percentage of GDP (9 per cent of GDP). A major reason for this was restrictive budgetary policy (see Spaendonck and Douven, 2001). Since 2000 health care expenditure has again grown rapidly; in 2003 they already amounted to 11 per cent of GDP. Also this rapid growth is influenced by government policy, *i.e.* policy to reduce waiting lists.

In the long run expenditure on health care will grow more rapidly than GDP. This applies not only to the Netherlands but also to many other countries. Various factors can explain the increasing share of health care expenditure in GDP. According to Baumol's law (see also Boxes 1 and 2) labour productivity growth in health care will be smaller than in the rest of the economy, while wage-rates will grow in line with those in the rest of the economy. Box 3 provides an overview of such major determinants of health care expenditure in the long run.[4]

The relative importance of these determinants is different in the four scenarios, e.g. with respect to population growth. Demography, and in particular ageing, will become more important in the next forty years than in the past forty years. In all scenarios aging will contribute substantially to the growth of health care expenditure (see Box 4, Ageing and expenditure on health care). A basic assumption in constructing the health care scenarios is the empirical finding that the growth of health care expenditure is closely related to economic growth (Gerdtham and Jonsson, 2000).[5] The influence of advances in medical technology on health care expenditure differs between the various scenarios. The adoption of new medical technology depends also on budgetary restraints and is therefore also closely related to economic growth.

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households like cleaning and babysitting, public expenditure on provisions for the handicapped (WVG) and also all types of informal care by family and friends.

[4] Hall and Jones (2004) also make a link between the increase in health care expenditure and the increase in life expectancy. In the USA, life expectancy grew from 68 years in 1950 to about 77 years in 2002; expenditure on health care increased from 5 per cent of GDP to 15 per cent in 2000. Diminishing marginal utility of non-health consumption combined with a rising value of life causes the health share to grow as long as income grows. By the middle of the century health share in the USA is therefore expected to be 33 per cent of GDP.

[5] In the literature on health care expenditure, there is discussion about the size of the income elasticity. Some argue that health care is a luxury good which implies an income elasticity above one. Others argue that the income elasticity is lower than one and that technology and social cultural trends are major exogenous driving factors behind health care growth. In constructing the health care scenarios of this study, first the volume of health care is adjusted for ageing and general population growth. Additional growth to accommodate technological developments and social cultural trends depends on the economic situation.

Box 3

The Major Determinants of Health Care Expenditure

Ageing

An ageing population will increase expenditure on health care. The elderly will not only spend more on health care, but will also need different type of health care. This will also change the composition of health care (see Box 4).

Medical Technology

Advances in medical technology are regarded as one of the major stimuli for the growth of health care expenditure (see Newhouse, 1992 and Cutler, 1996). Jones (2002) estimates that at least half, but probably even three quarters, of the increase of the share of health care is the consequence of the "march of science". Similar estimates exist for the Netherlands. Spaendonck and Douven (2001) estimate that about half of the growth of health care services in the period 1960-97 is due to technological developments (and socio-cultural trends). Advances in medical technology are likely to continue, e.g. with respect to gene therapy, genetic testing and screening, video technology, vaccines, artificial blood, transplants and preventive medicine (RIVM, 2002).

Income and Socio-cultural Trends

As a consequence of increasing income, patients and consumers will want more quality and more choice. This can generate a continuous pressure to improve the quality of health care and to extent the range of health care products. Also factors like an increasing average level of education, changes in the composition of households and individualization could influence the size and composition of health care expenditure, e.g. by reducing the supply of informal care.

Government Policy

Government policy also affects health care expenditure, in particular the publicly financed part. In 2006 Dutch government intends to introduce basic health insurance and wants to increase competition between insurers and between the providers of health care. The Dutch government also wants to make municipalities responsible for some local care, e.g. welfare services and domestic services. In the four scenarios, such changes in government policy have been included only in a very general way.

Labour Productivity Growth and Relative Prices

Labour productivity growth in health care can be achieved in many ways. Examples are improving the coordination of various types of care, less bureaucracy and overhead, better use of information technology and substitution of high skilled labour by less skilled (e.g. for elementary dental services). Nevertheless, labour productivity growth in health care is likely to be smaller than in the rest of the economy, in particular for physically very labour intensive care, e.g. nursing.

According to the Dutch national accounts, during the last twenty years labour productivity in health care decreased with 0.3 per cent per year. However, the measurement method does not comply with the most recent European guidelines on volume measurement in the national accounts (Eurostat, 2001). As a consequence, quality improvement and therefore productivity growth may have been underestimated. Alternative and much more detailed estimates are available from the SCP (Kuhry and van der Torre, 2002). They made rough estimates of productivity growth for seventeen different types of health care. Average labour productivity growth for total health care was 0.7 per cent per year during the period 1990-99. Productivity growth was highest in maternity care (3.5 per cent per year). Productivity growth for hospitals was 1 percent per year. Labour productivity declined in some sectors, in particular in nursing homes.

In order to compete on the labour market, wage rates in health care should, in the long run, be in line with that in other sectors. Due to a relatively low productivity growth, the relative price of health care will increase. In the period 1990-99 the price increase in health care was about 0.7 per cent per year higher than the price increase of GDP (Folmer *et al.,* 2001).

Box 4

Ageing and Health Care Services

In the four scenarios, ageing will increase the expenditure on the health care services with about 0.8 per cent per year. This volume effect is calculated on the basis of cost profiles by age and gender in 1999 (Polder *et al.,* 2002). These cost profiles indicate that expenditure on health care increase with age and even exponentially after 65 years. The volume effect of 0.8 per cent reflects the impact of a changing demographic composition while assuming a fixed and unchanged consumption of health care by age and gender. However, it is likely that the cost profiles will change over time, e.g. due to changes in health, income, technology, household composition and institutions.

The impact of ageing on health care is not a recent phenomenon. In the period 1961-2001 the volume effect was about 0.6 per cent per year. During 1961-80 the share of the young was relatively high. This substantial group becomes older and generates therefore higher expenditure on health care. The maximum effect is attained in the period 2020-40: about 1 per cent per year. After 2040 ageing will decrease and therefore also the impulse of ageing on health care expenditure.

In all scenarios, ageing will drastically influence the composition of health care, in particular care for the elderly will become much more important. The fixed cost profiles of 1999 are likely to be misleading in some respects. They predict a rapid growth for nursing homes for the elderly. However, such services will probably be more and more provided extramural. People will stay at home much longer, get adjustments in their housing conditions and receive domestic services and personal care at home.

The Net Effect of Ageing on the Annual Growth of Expenditure on Health Care Services
(annual percentage of change)

		Regional Communities	**Strong Europe**	**Transatlantic Market**	**Global Economy**
1961-2000		0.6	0.6	0.6	0.6
2001-2020		0.8	0.7	0.8	0.7
2021-2040		1.0	1.0	1.0	0.9
	1980-2001	**2002-2040**	**2002-2040**	**2002-2040**	**2002-2040**
Total	0.6	0.9	0.8	0.9	0.8
general hospitals	0.5	0.6	0.5	0.6	0.5
family doctor	0.3	0.4	0.4	0.4	0.3
dentist	0.0	–0.2	–0.2	–0.2	–0.2
service homes	1.9	2	2.2	2.3	2.1
nursing homes	1.5	1.8	1.9	1.9	1.8

In all scenarios, government policy differs. In both market oriented scenarios the role of the government is reduced. For example, in *Global Economy*, markets function well and therefore we expected that the revisions of the Dutch health care system, like that in 2006,[6] will generate a more efficient provision and higher quality of care. This scenario is not focused on solidarity and equity, so a major part of the growth of health care expenditure will pertain to private health care (e.g. the health care supplementing the new standard package of basic provisions). In *Transatlantic Market* also the role of public provisions is reduced. This increases health care expenditure, as the elderly are willing to pay more for health care, in particular for private health care. However, the relatively poor will receive less health care. In *Transatlantic Market* this is reflected by the different growth rates of publicly financed health care (2.0 per cent per year) and private health care (2.7 per cent per year).

4.1.2 Other international and national forecasts for health care

Nearly all international estimates indicate that health care expenditure will grow more rapidly than GDP. Wanless (2002) provide three scenarios for the development of health care expenditure in the UK for the period 2002-20. According to these estimates, health care expenditure in the UK will increase from 7.7 in 2002 to somewhere between 10.6 and 12.5 per cent of GDP in 2020. An increase of health care expenditure in the USA is also expected. In estimates by Heffler *et al.* (2004) health care expenditure increase from 14.1 in 2002 to 18.4 per cent of GDP in 2013.

For the Netherlands, a previous CPB study on ageing (van Ewijk *et al.,* 2000) estimated an increase of public health care expenditure from 7 per cent of GDP in 2001 to 11.9 per cent of GDP in 2040. Other more recent long run estimates about Dutch health care cover only parts of health care.

SCP (Timmermans and Woittiez, 2004) estimated that the total potential demand (in number of persons) for nursing will increase with nearly 40 per cent in the period 2002-20. However, for two reasons, publicly financed nursing (via the Exceptional Medical Health Act) will increase only with 28 per cent. Firstly, chronic diseases do increase potential demand for nursing and private nursing (even if the disease did not yet lead to serious practical difficulties), but do not increase publicly financed nursing. Secondly, a higher socio-economic position increases potential demand, but lowers the use of publicly financed nursing. This is caused by the increase of private contributions to public nursing. According to the SCP in the

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[6] At present, for low income earners (excluding civil servants and self-employed) normal health care expenditure are covered by the Medical Health Fund Act (a social security scheme). All other people should cover their own expenses on health care, e.g. via private insurance or via contributions by the employer. The major change of the new system is that there will be a standard package of normal health care obligatory for all people. This will be part of the social security system. For low income earners a separate grant is provided to compensate them for their loss of income. All care not covered by the standard package can be insured privately.

future the potential demand for nursing will be more and more met in an informal and private way and by adjusting the housing and living conditions.

4.2 Four scenarios for health care services

Expenditure on health care services as a percentage of GDP will increase in all scenarios from 8.7 in 2001 to between 13.3 and 14.6 per cent in 2040. Both

Table 7

Key Figures on the Health Care Sector (Health Care Services)

		Regional Communities	Strong Europe	Transatlantic Market	Global Economy
	1980-2001	2002-2040	2002-2040	2002-2040	2002-2040
	annual percentage of change				
Volumes per capita					
GDP	1.9	0.7	1.2	1.7	2.1
Value added health care	1.2	1.2	1.6	1.9	2.4
private consumption		0.9	1.5	2.5	2.7
government consumption		1.3	1.7	1.8	2.4
Population		0.0	0.4	0.2	0.5
Prices					
Price GDP		1.5	1.6	1.1	1.4
Price consumption health care		2.1	2.3	2.2	2.5
Labour productivity					
National economy	1.3	1.2	1.5	1.9	2.1
Health care	–0.3	0.5	0.6	0.7	1.0
Employment					
National economy	1.1	–0.5	0.1	0.0	0.4
Health care	2.1	0.6	1.3	1.3	1.8
	levels at the end of the period				
Final consumption health care *(percent of GDP)*	8.7	13.4	13.3	14.3	14.6
Employment *(percent of national total)*	10.8	16.4	17.7	18.3	18.5

Box 5

Employment in the Health Care Sector

In all scenarios, the share of employment in health care services increases from 10.8 per cent in 2001 to somewhere between 16.4 (*Regional Communities*) and 18.5 per cent (*Global Economy*). The young will be stimulated to follow education in health care and to work in health care. Employees, in particular women, will be stimulated to continue working in health care as long as possible. In the market oriented scenarios (*Transatlantic Market* and *Global Economy*), the leading role in ensuring sufficient labour supply is played by the producers and insurers of health care. In the public scenarios (*Regional Communities* and *Strong Europe*), also the government interferes, e.g. with subsidies and programmes for retraining.

In *Global Economy* the labour market is tight and the share of health care employment is highest. In this scenario, employees will be recruited from abroad, in particular for nursing and the care for the elderly. In *Transatlantic Market* working in private health care is attractive, because the relative price of labour is higher. This generates also a difference in the labour supply for health care. High quality and more expensive hospitals will attract the best medical experts and will focus on providing private health care. Public health care will be provided by relatively less skilled and talented personnel.

market scenarios (*Transatlantic Market* and *Global Economy*) have higher growth rates (respectively 1.9 and 2.4 per cent per year) than both public scenarios (*Regional Communities* and *Strong Europe*, with growth rates of 1.2 and 1.6 per cent per year).

In all four scenarios also the share of employment increases drastically, from 10.8 in 2001 to between 16.4 (*Regional Communities*) and 18.5 per cent (*Global Economy*) in 2040. This is the result of the increase in the share in GDP and the relatively low labour productivity growth in health care.

4.2.1 Regional Communities

In *Regional Communities*, the volume growth of health care services is rather modest with 1.2 per cent per year. This growth is sufficient to cover the substantial claim of ageing (0.9 per cent) and to use, to a very limited extent, new and more expensive medical technology. However, hardly no resources are available for any other increases in health care services. The budgetary restraint is substantial, because GDP per capita increases only with 0.7 per cent per year.

In comparison with other scenarios, labour productivity growth in the national economy is low (1.2 per cent per year). Labour productivity growth in health care is even much lower (0.5 per cent per year). For nursing and personal care, which become much more important in an ageing society, productivity growth will likely be small. The price of health care services (2.1 per cent) will therefore increase more rapidly than the GDP deflator (1.5 per cent).

Box 6

Expenditure on Health Care Including Pharmaceuticals and Administrative Costs

The four scenarios in Table 7 focus on the services of the health care sector. Using a more encompassing concept of health, *i.e.* including pharmaceuticals and administrative costs, gives a somewhat different picture. The major reason is that for pharmaceuticals a high increase in volume as well as a relatively high price increase can be expected. For example, in the period 1990-99 volume growth of pharmaceuticals was about 50 per cent higher than the volume growth of health care services (see Folmer *et al.,* 2001).

Technological development may lead to improvements in current pharmaceuticals (e.g. less side-effects, more effective treatment), but also to entirely new pharmaceuticals. For example, pharmaceuticals for diseases for which no effective pharmaceuticals existed or supplementary pharmaceuticals that improve the quality of life. In order to cover the costs of research and development, marketing and investment risks, new and better pharmaceuticals are relatively expensive.

The price elasticity of pharmaceuticals is generally very low. The market mechanism therefore does not restrain price increases. Government policy may be effective to limit part of these price increases.

Elderly people consume much more pharmaceuticals than young people. Ageing increases therefore also the consumption of pharmaceuticals.

The results for the more encompassing concept of health can be deduced by making an explicit assumption about the pharmaceuticals. Assume that in all scenarios the consumption of pharmaceuticals increases 25 per cent more than that of the health care sector. This would imply that the expenditure on health care (including pharmaceuticals and administrative costs) increases from 10.3 in 2001 to somewhere between 16.8 (Regional Communities) and 18.7 per cent of GDP (Global Economy).

Health care expenditure increases from 8.7 to 13.4 per cent of GDP due to a relative price increase of 0.6 per cent and a volume growth of 0.7 per cent. In combination with a relatively slow productivity growth the share in national employment increases from 10.8 in 2001 to 16.4 per cent in 2040.

4.2.2 Strong Europe

In *Strong Europe*, the volume growth of health care services is with 2.0 per cent per year substantially higher than in *Regional Communities*. This is partly due to population growth (0.4 per cent per year). However, the volume growth per capita of 1.6 per cent per year is sufficient to cover the costs of ageing (0.8 per cent per year), to use new medical technology and for some other increases in health care consumption. In *Strong Europe* the government ensures solidarity: there is a comprehensive standard package of health care, with more new medical technology than in *Regional Communities*; incentives for the consumers of health care are sufficient to ensure an efficient use of health care services.

The volume growth of health care services (2.0 per cent) is slightly higher than that of GDP (1.6 per cent). Labour productivity growth in health care is lower than the rest of the economy. As a consequence, the price of health care services increases 0.7 per cent per year more than the GDP deflator. Expenditure on health care services increase from 8.7 in 2001 to 13.3 per cent of GDP in 2040; this is a lower share in GDP than in all other scenarios. Employment in health care increases from 10.8 per cent of national employment in 2001 to 17.7 per cent in 2040.

4.2.3 Transatlantic Market

In *Transatlantic Market*, volume growth of health care services is 2.1 per cent per year. In combination with a modest population growth (0.2 per cent per year), this implies that the growth of health care services per capita (1.9 per cent per year) is substantially higher than in *Regional Communities* (1.2 per cent per year) and *Strong Europe* (1.6 per cent per year). This rapid growth is partly caused by the use of much new medical technology from the United States. The use of this new technology is not all financed out of public resources. Those who can afford it use the new technology, e.g. wealthy elderly will spend a lot of money on long term care. For the less wealthy not all new technology is available. In this scenario, privately financed health care (2.7 per cent per year) grows more rapidly than publicly financed health care (2.0 per cent per year).

The volume growth of health care services per capita (1.9 per cent per year) is sufficient to cover the costs of ageing (0.9 per cent), to adopt new technology and to increase in other ways the volume and quality of health care, e.g. in response to socio-economic trends.

Like in all other scenarios, productivity growth in health care lags behind that in the rest of the economy. This increases the relative price of health care services. Volume growth of health care services (2.1 per cent) is also somewhat higher than GDP volume growth (1.9 per cent). As a consequence, the expenditure on health care services increase from 8.7 per cent of GDP in 2001 to 14.3 per cent of GDP in 2040. The share in national employment increases from 10.8 in 2001 to 18.3 per cent in 2040.

4.2.4 Global Economy

In *Global Economy*, volume growth of health care services exceeds that in all other scenarios (2.9 per cent per year). Despite considerable population growth (0.5 per cent per year), also volume growth of health care services per capita (2.4 per cent per year) is considerably higher than in all other scenarios. This reflects not only the costs of ageing (0.8 per cent per year), but also the use of new technology and improvements in the quality of health care. Due to the high economic growth, many resources are available to finance extra health care. Growth of private health care consumption per capita (2.7 per cent per year) is higher than that of public health care consumption (2.4 per cent per year). Markets function well: the

substantial increase in the volume of health care services contribute effectively to better health and a better quality of life.

Relative prices of health care services increase, because of the relatively low productivity growth in health care. The expenditure on health care services increase from 8.7 GDP in 2001 to 14.6 per cent in 2040. Employment in health care increases from 10.8 in 2001 to 18.5 per cent in 2040.

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PUBLIC EXPENDITURE IN SLOVENIA: PAST TRENDS AND CURRENT ISSUES

Andreja Strojan Kastelec[*]

Introduction

After gaining independence the aim of fiscal and general government expenditure policy in Slovenia was to support economic stabilisation. This goal had been successfully achieved by 1997, and thereafter fiscal policy has been increasingly oriented to issues connected to European Union membership, which Slovenia took on May 1st, 2004. Current fiscal policy in Slovenia and, in particular, expenditure policy should be viewed in terms of the further fulfilment of the Maastricht fiscal criteria in order to adopt the euro as soon as possible. Slovenia joined ERM II in June 2004, and is striving to adopt the euro at the beginning of 2007. In such circumstances the design of an appropriate policy mix is vital, and fiscal policy has a decisive role.

General government accounts show at present a deficit of around 2 per cent of GDP, according to the ESA95 methodology, which is relatively close to the 3 per cent reference value. Due to European Union fiscal rules and also due to medium- and long-term fiscal challenges, countries should strive in general for balanced budgets in the medium term to provide the safety margins needed to comply with the European Union fiscal framework and specifically to deal with future ageing pressures.

Currently, the share of the general government sector in Slovenia is quite large – as in most European Union countries – with expenditure amounting to around 48 per cent of GDP according to the ESA 95 methodology (see Appendix 1).[1] Although this share has been quite stable in recent years, the expenditure share greatly increased after independence, but was not supported by the same increase in the revenue ratio.

This paper reviews expenditure developments in Slovenia since its independence. The purpose of this paper is twofold. First, it provides a description of expenditure movements. We focus on the trends and seek factors to explain them. Second, an attempt is also made to estimate possible future trends in some expenditure categories, mainly taking into account the possible impact of population ageing on expenditure.

The paper is organised as follows. The first part comprises a short description of the evolution of general government balance and expenditure in the past years.

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[1] Comparing the level of expenditure-to-GDP ratio can be somewhat problematic, as countries can achieve public finance goals in different ways.

Some basic characteristics are also discussed. This is followed in the second part by a description of past movements in the most important expenditure categories, along with their recent developments, and short- and, where relevant, long-term prospects. The third part deals with the need for an adjustment process. Conclusions are given in the fourth part.

The main conclusions can be summarised in the following five points. First, as general government deficit fluctuates at approximately 2 per cent of GDP, close to the Maastricht reference value, a clear need exists to improve the fiscal position. Second, there is a need to make expenditure more flexible and to restructure the current expenditure mix. Third, the pension reform in 2000 along with the restrained growth of individual wages in the public sector in the last few years have been the main successes in the field of expenditure policy. Fourth, additional pressure on expenditure due to the ageing of the population can nevertheless be expected, intensifying especially after 2020 if no measures are taken. Fifth, there is a need to lower the general level of expenditure.

1. The evolution of general government balance and expenditure after independence

In the early Nineties, that is in a period after independence, key role of fiscal policy and public expenditure management was to help achieving macroeconomic stabilisation and to ensure smooth transition from a market socialist economic system to a fully-fledged market system. Upon independence the first thing on the expenditure side was to abolish fiscal "self-management", which meant fragmentation of public expenditure into hundreds of programs at the local community level. They were organised in the form of independent budgets, the so-called self-management interest associations (for social care, infrastructure, education and so on). After this change, government functions have been centralised (Cvikl, Gaspari, 2004).

In the first period Slovenia showed a surplus in general government accounts.[2] Accounts moved into deficit in 1997 and thereafter the deficit has increased to reach a peak in 2000 before calming down to 1.4 per cent of GDP in 2004. While in the first part of the 15-year period the expenditure ratio has declined as a percentage of GDP, it grew thereafter and increased from 1996 to 2004 by some 3 percentage points.

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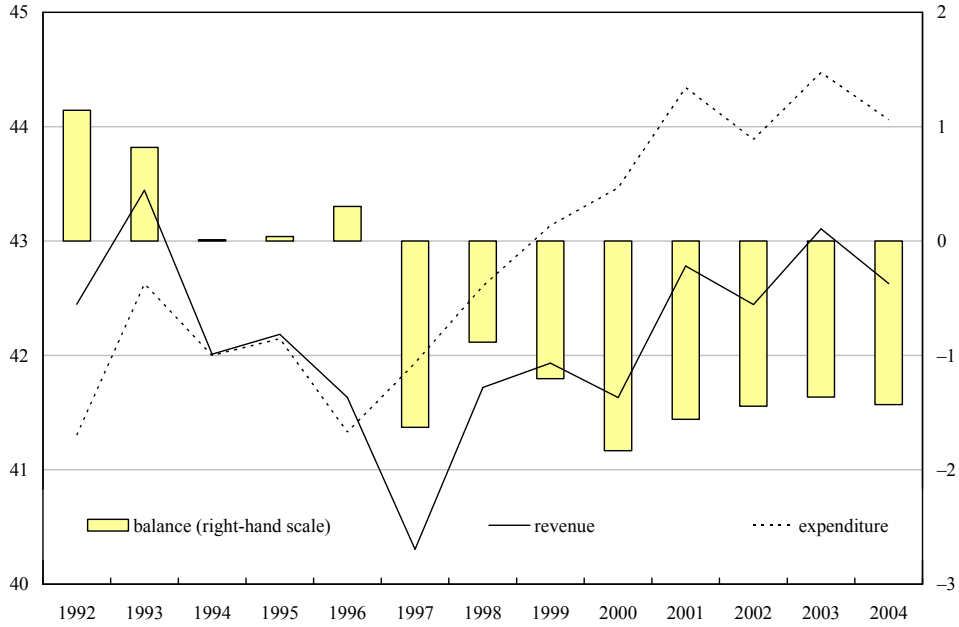
[2] General government data, as defined by the national methodology, is mainly used. The general government sector is comprised of central government, health and pension funds, and local government. The reason we use data based on the national methodology is their availability throughout a longer period (from 1992 on). Data consistent with ESA 95 methodology were published by the Statistical Office for the first time in August 2004, but covered only the period 2000 to 2003. Data for 2004 was published in April 2005. When deemed necessary, this data will also be used, but indicated separately.

Chart 1

General Government Accounts, 1992-2004
(percent of GDP)



Source: Ministry of Finance of the Republic of Slovenia. Data has been adjusted for a shift in indirect taxes and flows to/from the European Union budget have been excluded from 2004 data.

The aim of a government fiscal policy is at present to reach a structural position close to balance. This is to be done in an environment of a decreasing or at least unchanged tax burden. This means that the expenditure ratio should be adjusted in order to reach the target each year.

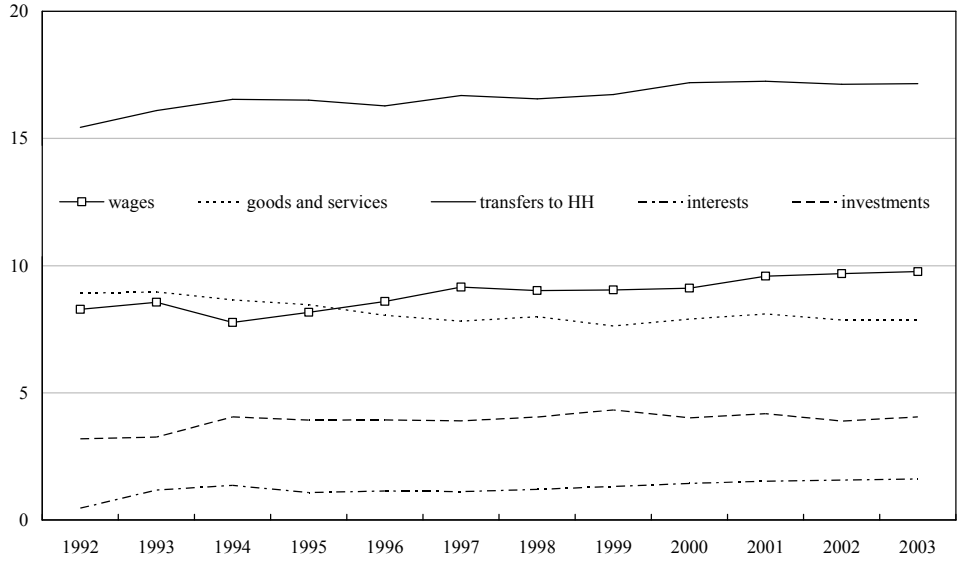
1.1 Expenditure structure

In terms of expenditure policy not only the level of expenditure, but also the structure matters. The former reflects the amount of distortions, while the latter has important consequences for the effectiveness of expenditure policy. High levels of expenditure mean that the adjustment should be considerable, and this normally means a break with past behaviour.

Analysis available so far shows that in improving budgetary performance, adjustments through spending cuts can be more successful than tax increases. Such a conclusion can be found for example in Alesina and Perotti (1995). Afonso, Nickel and Rother (2005) find that since the early Nineties expenditure based

Chart 2

Composition of Expenditure, 1992-2003
(percent of GDP)



Source: Ministry of Finance of the Republic of Slovenia.

consolidations seem to be more successful in Central and Eastern Europe than revenue based.[3] The same conclusion has been drawn for EU-15 in the paper by Briotti (2004), which focuses on the fiscal adjustment in EU-15 in the period 1991-2002. Although in this period in EU-15 countries larger adjustment was made on the revenue side, including temporary measures, expenditure based adjustments proved to be more successful.

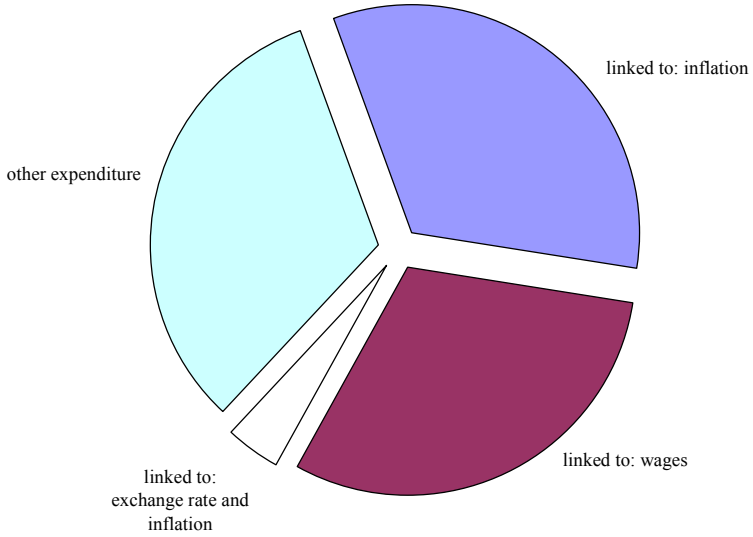
Taking a look at individual expenditure categories in Slovenia in the period after 1992, one can see that social security transfers comprise the largest part in the expenditure structure. In addition, this has been the fastest growing expenditure item in the period shown along with growth of expenditure on wages, which is also high by international standards. While social security transfers increased most in the first part of the period, especially in 1993 and 1994, wages have contributed most to the increase in the expenditure ratio from 1995-97 and again in 2001.

Investment spending, which is seen as politically the easiest way to cut expenditure, has been relatively stable in this period at around 4 per cent of GDP, with the exception of the first two years. Interest spending has grown due to the

[3] Their sample consists of eight new European Union Member States from Central and Eastern Europe plus Bulgaria and Romania for the period 1991-2003.

Chart 3

"Fixity" of Expenditure, 2002



Source: Author's estimates.

growth in debt, but is relatively small in Slovenia, as public debt is among the lowest in the European Union.[4] Some further data on general government expenditure, based on ESA 95 methodology, is provided in Appendix 1.[5]

1.2 Non-flexibility of expenditure

In Slovenia a large proportion of expenditure is "fixed" or mandatory, meaning that it is extremely difficult to change, as this would in most cases require changes to the law. According to some estimates, roughly 80 per cent of expenditure is fixed (mandatory) or relatively fixed, so the ability of the government to react to unfavourable revenue developments is quite limited.

It is hard to define which expenditure items can be treated as mandatory. Nevertheless, one can treat expenditure on wages, different social benefits, interest payments and a large part of expenditure on goods and services as fixed or relatively fixed.

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[4] Debt of the Republic of Slovenia amounted to 25.8 per cent of GDP at the end of 2004, as measured by the national methodology. The debt of the general government sector, measured according to the ESA 95 methodology, stood at 29.4 per cent of GDP.

[5] In Table 6, general government expenditure by type is provided for Slovenia for the period 2000-2004. In Table 7, general government expenditure by type is compared with other EU-25 countries. Additionally, Table 8 provides data on general government expenditure by function for some EU-25 countries.

The above chart shows that in Slovenia – even more in the past, but still today – a large proportion of expenditure is linked (indexed) to different macro-economic categories. Although the shares shown are very rough estimates, they indicate that a large amount of expenditure is fixed in advance (although related to specific macro-economic aggregates). Later the progress made in this respect will be discussed.

2. Developments in individual expenditure categories

In this part we discuss past developments in the most important expenditure categories, along with their current issues and, where relevant, medium- to long-term prospects.

We concentrate our analysis on wage expenditure and transfer payments, as these are the groups that exerted the most pressure on expenditure growth in the past, and because additional pressure is expected from transfer payments in the future. Less attention is given to other categories.

2.1 Wage expenditure

Wage expenditure accounted for between 9.5 to 10 per cent of GDP in the period of 2001 to 2003, and was substantially higher than in the first part of the Nineties (around 8.5 per cent of GDP in the first two years of the observed period). This makes wage expenditure one of the two fastest growing expenditure items in Slovenia. Increases in average wages as well as employment growth contributed to this result.

Employment in the general government sector increased by a third from 1992 to 2004, comprising now more than a fifth of the total employment, and real wages in the public sector have increased by 50 per cent in the same period. The growth of wage expenditure was especially high in the initial years up to 1997, when not only average (real) wages increased substantially, but also employment. Thereafter, the growth in general government sector real wages decelerated and was very low after 2002, with negative growth posted in 2004.[6]

The level of wages in the public sector[7] is currently on average about 34 per cent higher than in the private sector. This comparison may be problematic due to the composition of total remuneration between wages and fringe benefits and due to differences in the level of education between the two sectors. Nevertheless it can be observed that public sector wages are relatively high in Slovenia, which is not the case in many European Union countries. In his study of public sector wages Bole (2001) concludes that in Slovenia relative wages are too high.

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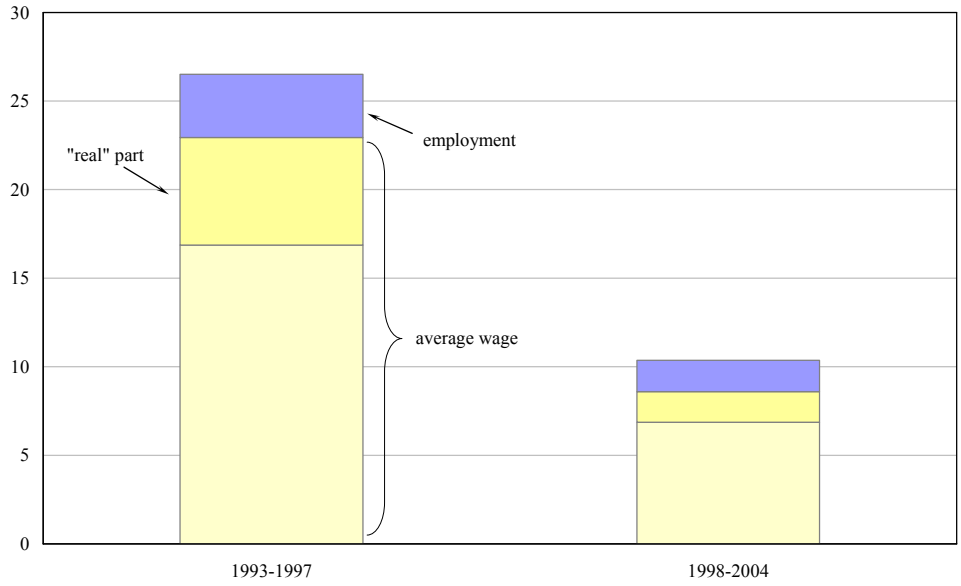
[6] However, public sector employees have been receiving payments for the collective voluntary pension insurance with effect from August 2003.

[7] Wages in the public sector depend on the wage class, working time, and to a small extent, on bonuses.

Chart 4

Growth of Wage Expenditure, 1993-2004
(annual averages, percent)



Source: Author's calculations.

The growth in employment also contributed significantly to the growth in wage expenditure, and thus exacerbated pressures on expenditure. The largest increase has been in public administration. Altogether this indicates that government employment policy has been rather lax. The government plans to apply stricter employment policy in the following years.

In the recent period, moderation in the average general government wage increase contributed to tighter control over general government wage expenditure. This was achieved by changes in wage indexation. The adjustment mechanism for 2004 was based on projected (rather than past) growth of consumer goods prices in Slovenia (excluding alcohol and tobacco), projected consumer goods prices in the European Union and the projected growth in the exchange rate of the tolar against the euro. A similar adjustment mechanism, taking into account the first two elements mentioned above is in place also in 2005 and could be renegotiated thereafter. An increase in individual general government wages of 2.5 per cent is expected according to the adjustment mechanism in July this year.

The average general government sector wage declined in 2004 by 0.7 per cent in real terms. Except in education, where wages are the lowest and are being increased in line with the special agreement over some recent years, other sectors

showed a decline in average wages. This is the consequence of the following two reasons:

- a new adjustment mechanism incorporated into the agreement regulating wages in 2004, which is also valid for 2005 and
- the fact that wages in August 2003 were not increased, as agreed before, but instead voluntary pension insurance was introduced for general government employees.

Restraining the growth in public sector wage expenditure has been set as an important priority for the future. While progress has been made in terms of increases in individual wage settlements, there should be greater restraint in the form of a more prudent employment policy.

2.2 Transfer payments

Social protection in general is well developed in Slovenia. The indicator at-risk-of-poverty rate after social transfers stands at around 11 per cent. This is a share of people with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 per cent of the national median equivalised income. The same indicator stood at 15 per cent in the EU-15 in 2000.

Along with wage expenditure, transfer payments contributed most to the increase in general government expenditure. The social welfare system has played an extremely important role in the transition process. We will show such development in the past and discuss which items increased the most, as developments within the group of transfer payments have been quite diverse.

Data show that expenditure on social protection in Slovenia is very close to the EU-15 level, when expressed in terms of GDP shares. Also, the division between the most important categories is very similar. The highest share is spent on old age and survivors pensions. It is followed by sickness/health care expenditure, which in Slovenia is a slightly larger proportion of social security expenditure than in the European Union. However, the reverse is the case for unemployment payments. Social benefits are mainly determined by law, which determines beneficiaries and their entitlements. The fact that social transfers are large and institutionalised, however, sets some limits on the design of fiscal policy measures.

Some types of expenditure require an assessment of their long-term sustainability, as short- and medium-term movements may mask their "true" development. Typical examples of where long-term sustainability should be considered are public pension schemes and health expenditure. Analysis of these two items is especially warranted due to their large amounts. We will show that the burden of pensions increased in the early stages as a result of transition (in the form of favourable early retirement schemes to prevent high unemployment). This was placed on firmer foundations following the pension reform in 2000, which resulted in a gradual reduction of the financial burden of pensions on the economy. In future,

Table 1

Social Benefits by Function, 2001[8]

	EU-15	**Slovenia**
Total *(percent of GDP)*	**27.5**	**25.6**
Structure *(percent of total)*		
Old-age and Survivors	46.0	45.5
Sickness/Health care	28.2	31.4
Disability	8.0	8.7
Family/Children	8.0	8.9
Unemployment	6.2	3.7
Housing and Social Exclusion	3.6	1.8

Source: Eurostat, *Statistics in Focus,* Theme 3 – 6/2004.

as elsewhere in Europe, demographic developments are expected to cause additional significant financial pressures.

2.2.1 Pension expenditure

Social security in Slovenia has a long tradition, and pensions constitute the most important transfer of payments to households, accounting for around 11 per cent of GDP. The system is characterised by a high dependency rate, and a relatively high replacement ratio, which was even higher in the past. Slovenia is one of the European Union countries, who spend high share of GDP on pensions.[9] Major pension reform was introduced in 2000 and may be seen as a major success in the field of expenditure policy, as it greatly contributed to improving financial viability of the system and decreasing the size of implicit debt. All major expenditure-cutting measures have been employed.

In what follows we will explain the basic features of the Slovene pension system, the reform in 2000, its results, and possible future trends.

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[8] While comparing this data to the data presented in Table 8 in Appendix 1, take into account that social benefits here include health expenditure, while in the classification of the functions of government (COFOG) health expenditure is recorded separately.

[9] The highest expenditure on pensions is found in Italy, where 14.7 per cent of GDP was spent on pensions in 2001 and the lowest in Ireland with expenditure amounting to only 3.7 per cent of GDP (*Statistics in Focus*, 8/2004).

The Slovenian pension system

Slovenia has a defined benefit pay-as-you-go (PAYG) pension system. In such a system, benefits accruing to the current beneficiaries are financed by current contributions, and usually also by a substantial amount of budget transfers. There is no close relationship between an individual's contributions and benefits, as is characteristic of fully funded schemes. Benefits in a Slovenian PAYG system depend on the person's earnings history and contribution period. Eligibility for pension benefits is determined by a statutory retirement age and a minimum contribution period.

Contributions are paid by both employers and employees in Slovenia, with special arrangements for farmers and the self-employed. Contributions paid by an individual are defined as a proportion of gross salary. For some segments of the population, special – more favourable – arrangements are defined by law (casualties of war and war veterans, police, farmers, mine workers, the self-employed). The central government funds the pension system for pensions paid on the basis of these special eligibility criteria. Pension benefits are subject to personal income tax and health care contributions.

Pensions have a floor and a ceiling. Old-age pensioners that do not receive a full pension are entitled to a means-tested income supplement.

Table 2

Revenue, Expenditure and Balance of the Pension Fund, 1992-2004
(percent of GDP)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Revenue	**12.6**	**13.5**	**13.2**	**13.0**	**12.9**	**13.2**	**13.6**	**13.4**	**13.5**	**13.8**	**13.8**	**13.7**	**13.5**
Contributions	11.4	12.6	12.0	11.9	10.2	9.3	9.3	9.2	9.4	9.5	9.3	9.4	9.3
Transfers from State Budget	0.0	0.5	0.9	0.9	2.6	3.7	4.0	4.0	3.7	4.0	4.2	4.1	4.0
Other	1.2	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.2	0.2
Expenditure	**12.9**	**13.2**	**13.5**	**13.7**	**13.6**	**13.5**	**13.5**	**13.6**	**13.8**	**13.8**	**13.8**	**13.6**	**13.4**
Pensions	10.7	11.0	11.4	11.5	11.4	11.3	11.3	11.4	11.5	11.4	11.3	11.2	11.0
Old-age Pensions	6.5	6.8	6.9	7.0	6.9	6.9	6.9	7.0	7.1	7.1	7.1	7.1	7.0
Other Expenditure	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.3	2.4	2.5	2.5	2.4
Balance	**–0.3**	**0.4**	**–0.3**	**–0.7**	**–0.6**	**–0.3**	**0.1**	**–0.2**	**–0.3**	**0.0**	**0.0**	**0.0**	**0.1**
Balance without Transfer	**–0.3**	**–0.1**	**–1.2**	**–1.6**	**–3.2**	**–4.0**	**–3.9**	**–4.2**	**–4.0**	**–4.0**	**–4.2**	**–4.0**	**–3.9**

Source: Ministry of finance of the Republic of Slovenia.

The Pension Fund currently receives transfers reaching some 4 per cent of GDP *per annum* from the central budget, which can be interpreted as a sign of already present financial stress. There are two types of transfers:

1) to cover legal obligations based on various laws, already mentioned above (pensions for war veterans, military pensions)[10] and
2) to cover the remaining deficit of the Pension Fund (deficit of revenues).

PAYG schemes have to be assessed in terms of future economic and demographic prospects. An assessment of these for the case of Slovenia is given below.

The early Nineties

The sustainability of the system worsened markedly at the beginning of the Nineties, when a substantial fall in the ratio of contributors to the pensioners (beneficiaries) occurred. This was caused by the generous early retirement schemes introduced in order to deal with the problems caused by the sharp decline in GDP and enterprise restructuring as a consequence of losing the Yugoslav market. Demographic reasons were not part of the problem at that time.

Due to early retirement schemes, the number of pensioners increased. Early retirement provisions were available to people who became unemployed due to a company going bankrupt, those who were unemployed for the previous two years, and those who were partially disabled. For these groups the pension eligibility criteria were relaxed and they were entitled to receive a pension at the usual age limit, but with five fewer contribution years. The replacement rate was only slightly lower (1 per cent deduction per missing year on the pension base) and adjusted (that is reduced) just until the time when the person reached regular retirement age. During 1991-92, early retirement could be taken at 55.5 years for men and 50.5 for women, with 35 and 30 years of insurance contributions, instead of the required 40 and 35 years, respectively.

The number of early retirement pensioners mainly increased in the early Nineties, peaking in 1992, when they represented some 13 per cent of old age pensioners. We estimate the spending on early retirement in those years at around 0.8 per cent of GDP, or alternatively at around 6 per cent of Pension Fund expenditure.

At the same time the number of contributors declined substantially, which resulted in a very unfavourable development in the support ratio.

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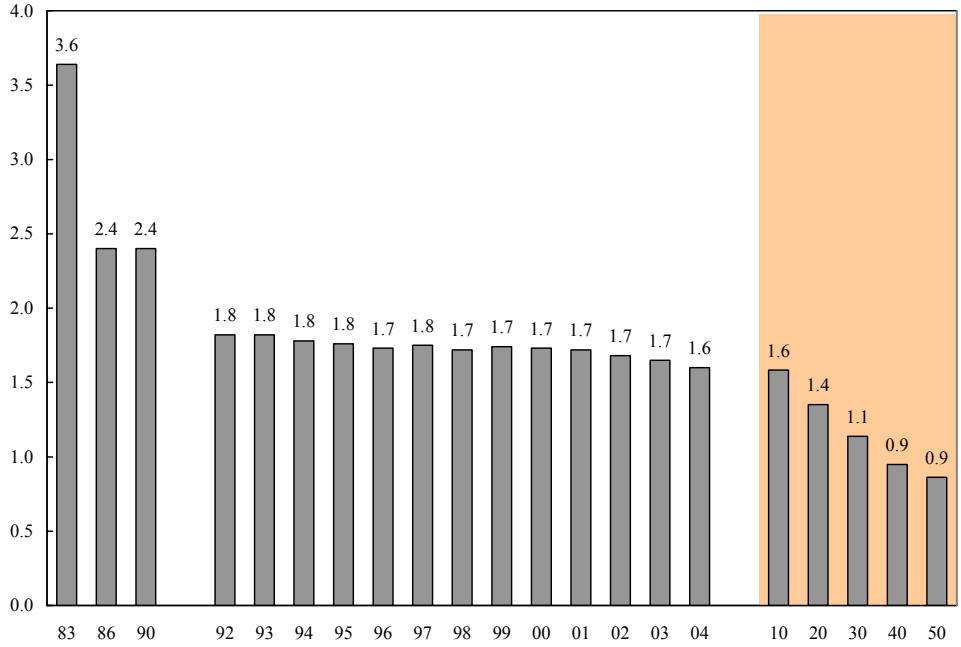
[10] In 2003 these amounted to 1.4 per cent of GDP. This is an indication of budget allocations for the more favourable treatment of specific groups.

Chart 5

Support Ratio, 1983-2050



Source: Pension Fund and author's calculations.

For the beginning of the Nineties the Pension and Disability Insurance Act of July 1983 has been an important legal act. This law treated pensions as remuneration for active labour participation in the past and introduced an indexation rule which was no longer based on the cost of living, but rather on wage growth. This Act also broadened the scope of various non-pension benefits, such as pension income supplement for those with low pensions (Stanovnik, 2002).

In 1992 a new pension law was passed (the so-called minor pension reform), which did not bring very substantial changes. Eligibility requirements were tightened; a gradual increase in the required retirement age was introduced, in total by 3 years. Reversing the preceding legislation, the age condition was re-instated. Beforehand, pension entitlement fell to anyone meeting the criteria of 40 and 35 years of qualifying period, men and women, respectively, regardless of the age. After 1992 the required age increased gradually from 55.5 years in 1992 to 58 years in 1998 for men; and from 50.5 years to 53 years for women. Actual retirement age increased only slightly and was close to the statutory minimum age criterion. The reform in 1992 somewhat increased the inclusion of certain groups of people in insurance, for example, the unemployed receiving unemployment benefits.

Basic features of the pension reform in 2000

Comprehensive pension reform was implemented in 2000, after adopting the Pension and Disability Insurance Act a year before. It was a parametric reform, which complemented PAYG with a voluntary private pillar. Changes introduced in the first pillar were substantial, but are being implemented gradually. The transition to the new system is not yet complete, and will be only finalised in 2025. The initial reform proposal was even more radical, with the intention of introducing a mandatory privately fully funded second pillar. Finally, only a voluntary second pillar was introduced, which is subject to favourable tax treatment.

In the first pillar, Slovenia has introduced a standard list of expenditure reducing measures. The three main parametric adjustments introduced to the pension system include:

- a gradual increase in the retirement age,
- a gradual decline of replacement rates and
- a change in the indexation formula which caused the growth of pensions to lag behind wages.

The first element has been an increase in the statutory retirement age. It was set at 61 years for women (up from 53), and 63 years for men (up from 58) and will be phased in over a number of years. The transition will be completed in 2008. The earliest retirement age is 58, in the case of those meeting the 40 and 38 year qualifying period,[11] for men and women respectively. The retirement age can be reduced progressively for persons with children.[12] Also, in this case, retirement before 58 is not possible. This change will be introduced gradually by 2015. These changes will reduce the growth in the number of beneficiaries.

Following both reforms, the average retirement age began to increase, while the ratio of average old age pensions to average wages began to decrease. After 2000, the effective retirement age increased by an average of around 5 months per year. In 2004 the average age at retirement for new old age pensioners was 60 years and 7 months for men, and 56 years and 7 months for women, an average of 58 years and 7 months for the whole population of new retirees.

Second, the replacement ratio fell, and as a consequence the benefits were reduced. Before the reform the accrual rate was set at 85 per cent of the pension base, but after the reform it has been declining gradually. At the end of transformation period, e.g. by 2025, it will have been reduced to 72.5 for men and 68 per cent for women for full career workers. The benefit assessment period will be increased from 10 years to 18 years[13] by 2008, when it will be fully adjusted to the new regulations.

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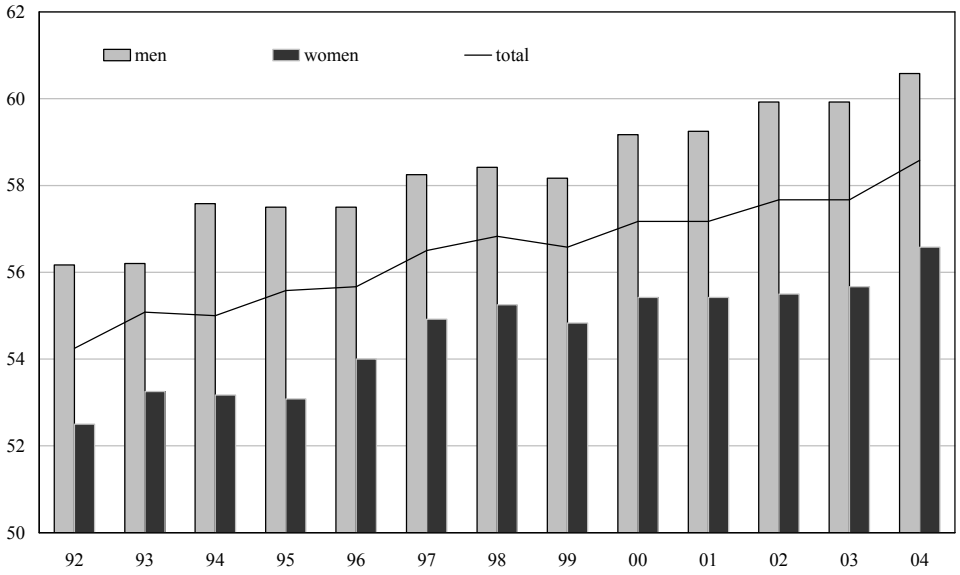
[11] Pension qualifying period includes (i) time a person has been insured and has been paying contributions, (ii) periods, which qualify, but no contributions have been paid and (iii) years "purchased" (time at the university for example).

[12] For one child by 8 months, for two by 20 months, for three by 36 months and for each additional child by another 20 months.

[13] Calculations made by Pension fund have shown that a transition to best twenty year period instead of best ten year period would result in an old age pensions lower by some 10 per cent (Stanovnik and Kukar, 1995).

Chart 6

Average Retirement Age, 1992-2004



Source: Pension Fund.

The revised pension system allows for flexible retirement, making it possible when at least the minimum pensionable age is reached. Early retirement is available for those aged 61 and older, if they have contributed at least 30 years. However, the replacement rate is adjusted and remains in place indefinitely. This contrasts with the previous regulations, when the replacement rate in the case of early retirement increased after person had reached a certain age.

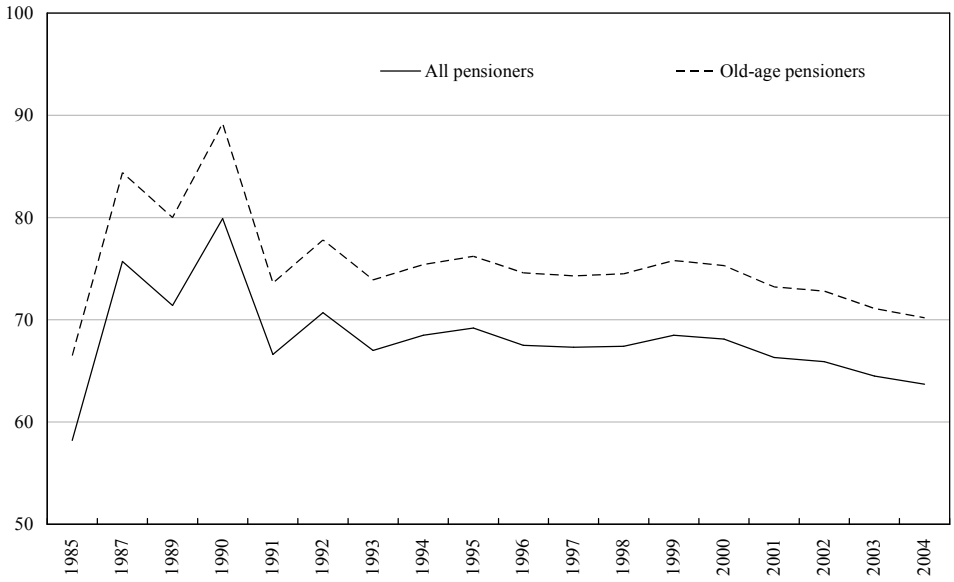
The ratio of the average old age pension to the average wage was very high at the beginning of the Nineties, reaching a high of 90 per cent in 1990. This meant a good relative income position for pensioners.[14] It decreased thereafter, reaching a value of 75.8 per cent in 1999, a year prior to the latest pension reform. It declined thereafter, to 70.2 per cent in 2004. Expenditure on pensions decreased from 11.4 in 1999 to 11.0 per cent of GDP in 2004.

The third element, and the most important in terms of increasing long-term sustainability, was the change in the indexation method. Pension benefits and past contributions are adjusted annually, reflecting wage developments. The new system retained the link between pensions and wages, but in a way that guarantees slower

[14] Calculations show that the system was generous in terms of benefits. There is only a weak link of contributions to benefits as these are based on best earnings formula.

Chart 7

Average Replacement Rate, 1985-2004



Source: Pension Fund.

growth of pensions.[15] Another important innovation was that the law introduced a downward adjustment of pensions for those who had retired in previous years, and by doing so equalised their position with new entrants who had retired under less favourable terms. In the years after the reform (e.g. from 2000 to 2004), the available data point to pension adjustments lagging behind wage growth.

All these changes created savings on pension expenditure in the period after the introduction of the reform. This can also be illustrated by the fact that in this period expenditure on old-age pensions did not increase as a proportion of GDP, being around 7 per cent of GDP in 2004, the same as in 1999. At the same time the number of persons aged 60 years and more increased. Estimates of the savings due to the reform are shown in Chart 8.

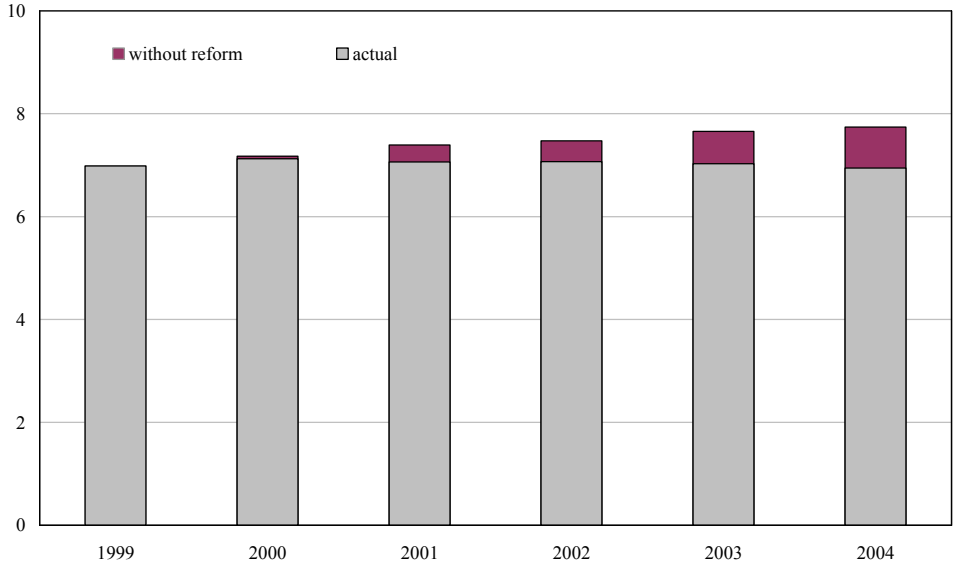
Pension systems are highly complex, and estimates of pension reform savings can be seen as indicative only. According to our estimation, the pension expenditure on old-age pensions would have been 7.7 per cent of GDP in 2004 in the "no reform scenario", some 0.8 percentage points more than the actual outcome. This can be ascribed to two elements of the reform:

- changes in replacement level, which incorporate changes in the indexation mechanism: they account for the larger part of the change,

[15] This change has been introduced in 2001.

Chart 8

Effects of Pension Reform in 2000: Expenditure on Old-age Pensions
(percent of GDP)



Source: Pension Fund and author's calculations.

- an increase in the retirement age, which postponed retirement, a factor harder to estimate. According to our estimates, this contributed to almost half of the difference between the actual outcome and the "no reform scenario".

The new pension law introduced yet another type of pension, the state pension. This is the right of a person aged 65 and over who is not entitled to a pension under "normal" conditions, and has no income or has an income lower than the state pension. The number of persons receiving this pension increased rapidly after the introduction and related expenditure now accounts for 0.1 per cent of GDP. The amount of a state pension is currently set at around EUR 140 per month.

Projection of possible future developments

In this section we try to evaluate the possible effects of future demographic developments (presented in Appendix 2) on pension expenditure. Changes in the old-age dependency ratio provide a broad indicator of the pressures arising from demographic changes on social spending.[16] We have found that the pressure on

[16] While these changes contribute to pressures on pensions and health outlays, expenditure on education is expected to be stable, or more probably, to decline in the next decades despite anticipated higher enrolment rates, especially at university level.

pension expenditure due to ageing will increase, and that implicit liabilities on pensions are high.

Old-age benefits account for approximately half of the total expenditure of the Pension Fund, disability benefits 12 per cent and survivors pensions some 10 per cent.[17] Currently pension expenditure represents 10.9 per cent of GDP, and other expenses of the Pension Fund (mainly social assistance benefits) to 2.5 per cent of GDP; of this, 0.15 per cent of GDP is spent on administrative costs.

Some calculations of the possible effect of future demographic developments on pensions are being presented in what follows, with only changes in old-age pensions being estimated. The macro-economic assumptions underlying our calculations are exogenously determined and presented in the table below.

Table 3

Macro-economic Assumptions, 2001-50

	2001-50	**2001-10**	**2011-20**	**2021-30**	**2031-40**	**2041-50**
Real GDP	1.9	3.6	2.6	1.9	1.0	0.5
Inflation	2.8	4.0	2.5	2.5	2.5	2.5
Employment	–0.5	0.5	–0.3	–0.8	–0.9	–1.3
Participation Rate	72.4	68.1	70.2	72.3	74.5	76.8
Real Interest Rate	3.0	3.0	3.0	3.0	3.0	3.0

Source: Author's calculations.

Projected labour productivity growth (real GDP per person employed) is assumed to gradually converge from 3.7 in 2005 to 3 per cent in 2015, to around 2 per cent in 2030, and to 1.8 per cent from 2040 on due to closing the gap with more advanced economies. Taking these assumptions into consideration, real GDP growth for the whole period is set at 1.9 per cent on average.

The labour force in the next two decades is largely given by past fertility. To a lesser extent, it is influenced by the assumption of increasing participation rate. Employment growth is negative due to a decline in population, in particular, the

[17] Old-age pensions have a predominant share within total pensions and accounted for some two thirds of total pension expenditure in Slovenia and around three quarters in EU-15 in 2001. In the EU-15 share of disability pensions represented about one-tenth, and that of survivors' pensions somewhat lower proportion of the total pension expenditure (*Statistics in Focus*, 8/2004).

Table 4

Replacement Rate and Support Ratio, 1995-2050

	1995	2000	2005	2010	2020	2030	2040	2050
Replacement rate	69.2	68.1	62.8	59.0	52.4	48.8	46.9	45.2
Support ratio	1.76	1.73	1.65	1.58	1.35	1.14	0.95	0.86

Source: Pension Fund and author's calculations.

population of working age people. An increased participation rate implies a reduction in the unemployment rate. CPI inflation is held constant at 2.5 per cent throughout the projection period.

Two indicators are important in projections of the Pension Fund position: the support ratio and the replacement ratio. In our projections the former is mainly effected by demographic changes (also by the macro environment), while the latter depends mainly on the changes introduced in 2000 by the new Pension and Disability Insurance Act. In the projections, standard practice is followed and therefore non old-age pension related expenditure and revenue not connected to contributions is kept at 2004 levels for the whole period.

Simulations show that the replacement rate of pensions will have decreased to less than 50 per cent by 2030, mainly due to changes in the indexation of pensions. Low replacement rate can be a cause of concern in itself, as it raises questions concerning the social welfare of pensioners.

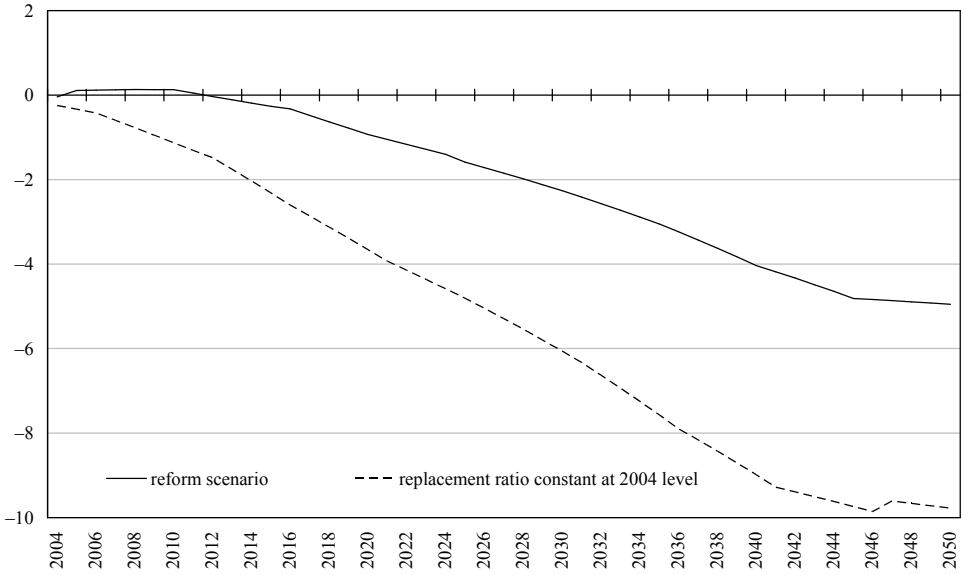
According to our calculations the deficit of the Pension Fund would reach around 5 per cent by 2050. Projections include the effects of pension reform, which are, however, difficult to estimate due to complexity of the pension system. The financial impact of population ageing will start to accelerate quickly at around 2015. These calculations should be treated with caution, as they are subject to uncertainties regarding demographic developments, as well as macro-economic assumptions.

Should the replacement rate remain constant at the level reached in 2004 (63.7 per cent), the results would be substantially worse. According to our estimates, the deficit would double by the end of the projection period, as would unfunded public pension liabilities, e.g. implicit debt.

We can conclude that the pension reform has been successful from the public finance point of view, as the burden of pensions has been substantially reduced. Nevertheless, this means that pensioners taking retirement in the coming decades will need additional financing. In Slovenia there is no mandatory, privately managed, fully funded system in addition to PAYG. However, voluntary pension insurance has been developed to some extent and after five years, just over half of

Chart 9

Projected Pension Fund Deficit
(percent of GDP)



Source: Author's estimates.

the persons included in the compulsory system has also arranged for additional pension insurance. The number increased substantially in 2003, when public sector employees entered the system. This will provide an important additional source of income in retirement and help to keep pensions at an adequate and sustainable level, thus avoiding substantial increases in poverty rates among the elderly. However at this point it is difficult to estimate if this will be enough. Calculations presented also imply the need for additional measures to improve long-term sustainability of the Pension Fund. The uncertainties surrounding such calculations should, however, be taken into account as well.

Current issues

Three main issues arise from our discussion:

- First, according to our results, additional changes will be needed in the future to improve the sustainability of the PAYG system. This can be done by further parametric changes of the system. There are many possibilities, for example additional prolongation of benefit assessment period and changes to the statutory retirement age.

- The second issue that should be mentioned is the need for more equal treatment of various groups of people. For example, the self-employed are now able to choose their contribution rate and basis for pensions.
- The third issue is further development of funded pension schemes, which would provide enough financing in addition to what people would receive from PAYG. This is essential in order to lessen the risk of poverty in old age.

2.2.2 Health expenditure

Slovenia faces similar problems in health care financing as other (comparable) countries. The main issue in the health care systems of these economies is that demand for services is usually greater than the system is capable of providing. It is widely recognised that the pressures for increased health expenditure are due to:

- population ageing,
- the development of new and more expensive diagnostic tests, new methods of treatment and more expensive medicines and
- better informed patients, who require access to new forms of health care.

Health expenditure in Slovenia appears to have stabilised at around 8.5 per cent of GDP, which is comparable to the selected European Union countries shown in the table below. Slovenia's health care indicators are generally also comparable to those in the selected countries. While on one hand the infant and child mortality show favourable outcomes, developments in maternal mortality are more of a concern. Male life expectancy proves worse in comparison with that of females. Slovenia's ratio of 2.2 physicians per 1000 population is lower than in other countries. Also, the number of hospital beds per 1000 population is at the lower end of the scale.

Basic features of the health reform in 1992

In Slovenia, health expenditure was part of an integral budget up to 1992. No extra payments were necessary for health care, as the budget provided full coverage to all citizens. However, in the early Nineties, the financial burden of health financing proved too high. Therefore, reform was needed. In February 1992, a new law on health care and health insurance was passed which established the current health care financing system: a combination of obligatory health insurance and voluntary health insurance, accompanied by out-of-pocket payments. Social security contribution rates for health care were determined, and the Institute of Health Insurance was established to manage public sources from obligatory health contributions and to provide the financing of health care expenditure. Compulsory health insurance covers almost all citizens. Insurance benefits cover payments for health services, sickness payments for absences from work exceeding 30 days, and other, minor expenses (for example, travel costs related to the use of health services).

Table 5

Health Indicators, 2001

	Slovenia	Austria	Czech R.	France	Germany	Hungary	Italy	Portugal	Spain
Life expectancy at birth, females	79.5	81.8	78.8	82.9	81.1	76.1	82.2	80.1	82.6
Life expectancy at birth, males	72.1	75.9	71.9	75.6	75.1	67.3	76.2	72.7	75.3
Lost healthy years at birth, females	9.2	8.8	9.3	9.5	8.9	10.5	9.3	10.7	9.6
Lost healthy years at birth, males	7.0	7.0	8.1	6.6	6.8	9.3	7.0	8.5	6.6
Healthy life expectancy at age 60, females	16.6	18.5	16	19.1	17.7	14.4	18.2	16.2	18.2
Healthy life expectancy at age 60, males	13.3	15.7	12.8	16.1	15	10.5	15.5	13.4	15.2
Health expenditure (% of GDP)	8.4	8.0	7.4	9.6	8.9	6.8	8.4	9.2	7.5
(% of expenditure)	14.6	10.7	14.1	13.7	16.6	11.5	13	13.7	13.6
share of public expenditure	74.9	69.3	91.4	76	74.9	75	75.3	69	71.4
Per capita exp. on health in int. dollars	1,545	2,259	1,129	1,951	2,113	686	1,660	1,116	1,607
Infant mortality rate (per 1,000 births) *	5	5	4	5	4	9	5	6	4
Child mortality rate (per 1,000 births) *	6	6	5	6	5	11	6	7	6
Maternal mortality rate (per 100,000 births) *	17	5	9	17	9	11	5	8	5
Physicians per 1,000 pop. **	2.2	3.4	3.5	3.3	3.4	3.2	6.2	3.2	3.0
Hospital beds per 1,000 **	5.0	8.3	8.6	7.8	8.9	7.8	4.1	3.2	3.6

* Data for 2000 ** Mostly data for 2002.
Sources: OECD, *Health Data 2004*; World Health Organisation, *Core Health Indicators 2004*; WHO, *Health for All* database.

Health reform resulted in an increased role played by the private financing of the health expenditure, whereas previously the health sector had been financed almost entirely from public sources. In Slovenia, approximately 8.5 per cent of GDP is currently spent on health care, most of which – some three quarters – is financed from compulsory health insurance. In the last 5 years the share of GDP spent on health care increased by 0.5 percentage points. Voluntary health insurance covers about 1 per cent of GDP of health expenditure, which is about one-seventh of what is paid from public sources. There are also other payments out of pocket, which represent lower shares, but nevertheless amount to almost 0.8 per cent of GDP.

The basket of benefits covered from public sources has been defined and has not been changed substantially. It basically covers two different types of rights:

- payment of medical services, medicines and other medical materials (in total or to a certain percentage), and
- various payments – for example sick leave compensation: these payments gained importance after the reform.

A basket of benefits, including basic general and specialist treatment in hospitals, along with pharmaceuticals and medical materials, is currently covered by social security contributions and insurance premium.[18] Co-payments are rare only for those who pay additional voluntary health care premiums and cover the area of dental services, pharmaceuticals, and orthopaedic devices. Consequently, very soon after the reform, most of the population opted for additional voluntary health insurance (at present, 92 per cent of the population is covered). This was the consequence of the fact that a lot of health services require cost sharing, and insurance against substantial co-payments in case of illness is provided by supplementary insurance.

The level of services is decided by negotiation among the interested parties. The volume of services, which will be paid out of compulsory health insurance is decided for each year. Such an arrangement represents to some extent some constraint on health spending, but on the other hand, has resulted in increased waiting lists, which are a sign of excess demand for services.

Pharmaceuticals are classified into three lists:

- a “positive” list of drugs that are fully reimbursed through compulsory insurance,
- a “mixed” or “intermediate” list, where part of the burden is covered through compulsory insurance, and
- a “negative” list of drugs that are not reimbursed through insurance arrangements.

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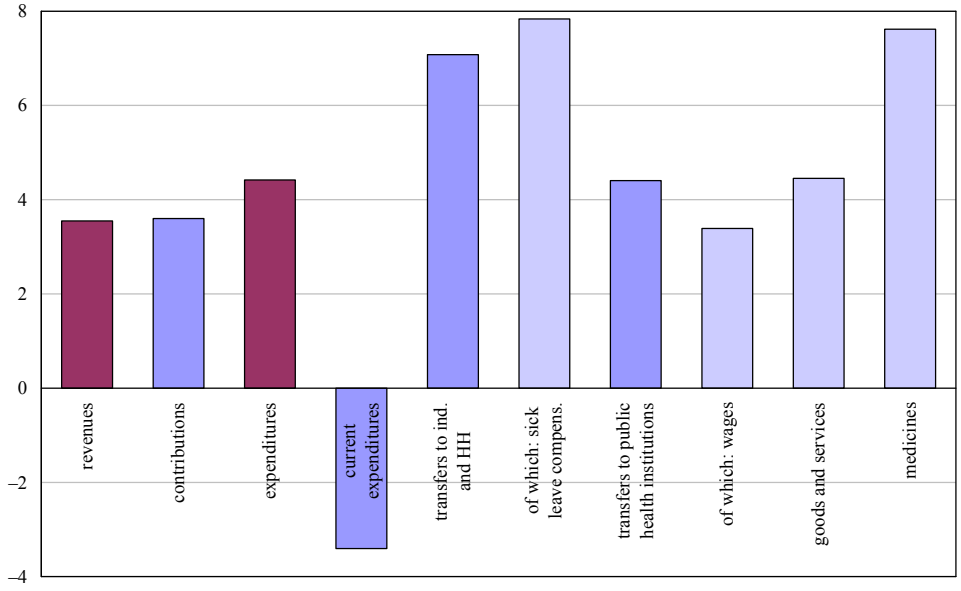
[18] Some services are covered in total from public sources for insured persons and some other specified groups. These include, for example: medical treatment of children and students, urgent first aid, compulsory vaccination, medical treatment and rehabilitation as a consequence of occupational disease or injuries at work, medical treatment for pregnant women, and obstetrics. Other services are paid out of public sources up to a certain percentage. This percentage varies considerably: from 25 per cent (some medicines) to 95 per cent (medical treatment abroad, dialysis).

Chart 10

Revenue and Expenditure of Institute of Health Insurance, 1999-2003
(average real growth rate per year)



Source: Institute of Health Insurance.

In general, after 1992 the regulation was to pay hospitals a flat rate per hospital day or inpatient care by the Institute for Health Insurance. Payment to hospitals primarily on the basis of the number of hospital days created an incentive for excessive lengths of stay. Local governments are responsible for financing the physical infrastructure of local systems of primary health care.

Health care expenditure increased by 48 per cent in real terms from 1993 to 2003. The greatest part of expenditure is on the financing of health care services (hospitals, physicians, materials used), while at the same time employees are entitled to sick leave payments and some other types of cash payments. High growth in wages in 1996, the introduction of VAT, and expenditure on medicines, which increased by 67 per cent in real terms in the same period, are the main reasons behind the high growth in expenditure. In addition to expenditure on medicine, expenditure on sick leave compensation benefits also greatly increased.

Chart 10 shows that in the last five years expenditure has grown faster than revenue, and has also been higher than GDP growth. While revenue increased by 3.5 per cent each year, expenditure grew by almost one percentage point more.

Expenditure on medicines has been growing fast in all economies, and Slovenia is no exception to this trend. Expenditure on medicine represented

14 per cent of expenditure of the Institute of Health Insurance in 2003, while it accounted for 12.3 per cent in 1993. However, this does not reflect the total growth of expenditure on medicines, which was even higher. The compulsory health insurance rules regarding lists of pharmaceutical products have been changed. Pharmaceutical products that are paid for out of compulsory health insurance are classified on a "positive" list (where 75 per cent of costs are covered by the compulsory insurance) and an "intermediate" list (where coverage is 25 per cent). By changing the lists in the period following health reform, payments for medicines have been "transferred" to some extent from obligatory to private health insurance.

The introduction of new medicines has produced the opposite effect, since they are usually much more expensive than those already on the lists of pharmaceutical products covered by compulsory insurance. Due to high pressures on expenditure, measures to limit costs are constantly present in the system.

The proposed reform in 2003

After the 1992 reform, the public health system enjoyed a surplus for some years, but later it was again not possible to fully cover health expenditure from available sources. In 2003 the Institute for Health Insurance showed a deficit for the fourth consecutive year. It was recognised that such a development would only intensify in the following years if no measures were taken. As a result, new health reform was proposed in a White Book on Health Care Reform published in the summer of 2003.

The "White Book" stated six main goals of the reform:

- to promote equity in the collection of resources for health care: payment to be income-related, rather than based on individual risk,
- use of resources according to patient needs: access to basic health care for all if needed. This includes some degree of protection against the financial consequences of falling ill,
- better access to the health care system,
- development of a Total Quality System,
- improved efficiency in the regulation and management of the health system,
- strengthening the area of public health.

A major change in health financing was proposed – to abandon the voluntary health insurance and, instead, increase compulsory contributions. This would result in a greater amount of public resources being spent on health care, but this was strongly opposed and therefore did not materialise.

The reform proposals also covered issues related to the inefficiency of the health care system, such as deficiencies in the running of hospitals, insufficient use of primary and preventive care and the remuneration structure, which does not reflect performance, management of labour and physical resources in hospitals and the like.

Looking at expenditure issues, the authors of the "White Book" claimed that an additional 700 doctors and 1,000 nurses were needed in Slovenia. Additional recruitment will put pressure on expenditure in the coming years, when staff numbers increase.

Despite the fact that some suggestions of the reform were highly criticised in the public and that a final agreement on the reform package was not reached, some changes were introduced to limit expenditure growth and to improve the financial viability of the system:

- first, a system of mutually interchangeable medicines and a list of highest recognised prices, which is a kind of benchmarking system, were introduced in November 2003. The first measure identifies those medicines that can be treated as "equal", as they are recognised as having the same or very similar effects. The second part of the measure was to set the highest price for a given group of medicines which are treated as having the same effects. By taking this measure, expenditure on medicines could be limited, but not stopped. The prices of medicines dropped after this measures were taken (for example, in November 2003 by 3.1 per cent, in April 2004 by 0.6 per cent), but still expenditure on other medicines, for example, those newly introduced on the lists, can continue to demand consistently larger amounts of resources. Long-term control of this form of expenditure will require continuous regulation of pharmaceutical prices combined with stimulation for rational use; estimates by the Institute for Health Insurance show that some 10 per cent of expenditure on medicines is unnecessary.
- second, in the field of hospital financing the Diagnosis Related Groups system was introduced, which tackled the problems of the "old" financing system. A group type payment system has proved to be a potentially effective means of improving hospital efficiency in some countries (Girouard and Imai, 2000). Payment is based on the expected (or average) cost of treatment of the patient (662 different diagnoses are possible),[19] rather than on actual costs. More complex treatment is valued higher. This provides incentives to make better use of resources (for example, by reducing lengths of stay in hospital), but may also lead hospitals to put patients into more "expensive" diagnostic groups. The goal of this system is to pay hospitals more in line with work done (financial flow to follow the patients). Additionally, the financial savings of such measures may take years to materialise.
- third, a centralised purchasing system (by means of tenders) for medical equipment and certain drugs can also bring substantial savings due to economies of scale. The health sector is an important purchaser of goods and services, and empirical studies show that competitive tendering results in lower costs in comparison to uncontested public provisioning, with possible savings estimated in the 10-30 per cent range. However, these savings will most probably show up

[19] Before there were only 10 different types of patient treatment, according to the field of treatment (surgery, gynaecology, etc.), which were valued differently.

in the accounts of health institutions, not in those of the Institute for Health Insurance (Toth, 2003).

Possible future developments

Expenditure on health is sensitive to demographic developments. As older age groups have much higher rates of spending p.c. for health care, the ageing of the population will represent a continuing source of upward pressure on health care costs and expenditure. Estimates show that people aged over 65 consume on average four times as much health care as those below 65 (Oxley and MacFarlan, 1994). This factor alone can cause substantial increases in health expenditure in economies facing population ageing. A mechanical application of this ratio is questionable, however, as one can argue that lengthening of lifetimes means moving these expenditure further into the future (higher age). Some calculations show that from 2000 to 2020, health spending may grow by around 0.4 to 0.7 per cent of GDP due to ageing, and by a similar amount from 2020 to 2040 (Oxley and MacFarlan, 1994).

For Slovenia, estimates of possible future pressure on health expenditure were made by the Ministry of Finance and published in the Updated Convergence Programme in January 2005. Taking these estimates into account, expenditure on health would increase by almost 3 percentage points up to 2050, being more pronounced after 2020. This compares to a 3-3.5 percentage point increase on average over the period 2000-50 estimated for 19 OECD countries (Casey *et al*., 2003). However, these calculations must be treated with caution. It is well known that a large proportion of health expenditure is linked to the last years of life. If this is the major factor, then lengthening lifetimes may finally even postpone an increase in health expenditure.

Current issues

The Institute of Health Insurance has operated at a deficit for the fifth consecutive year in 2004, registering a relatively small deficit of up to 0.2 per cent of GDP in most of these years. The accumulated debt at the end of 2004 amounted to 0.5 per cent of GDP, and will be taken over by the central budget in July 2005. After this transfer, the Institute for Health Insurance will be required to show balanced accounts.

In past years, the volume of health services as well as the definition of the basic health care package has not changed much. In the following years coverage of services will have to be reconsidered and priorities stated more clearly than at present. Some risks could be transferred out of compulsory insurance, for example, those related to extreme sports. The existing system, as in the case of pension insurance, gives some groups of people more favourable treatment: for comparably lower contributions they receive the same benefits. The measures described below can help relieve the pressure and the need for restraint in the volume of services offered.

The health system is not well managed, which is costly, and creates unnecessary waiting lists. Therefore, improvement in the management of the health sector and its effeciency is needed. This can produce substantial savings, better use of available equipment, an improved responsiveness of the system to the changing needs of the population, and should also result in shorter waiting lists. However, this is a matter of organisation of labour and the adequate use of available resources.

One of the problems in the existing health care system is the high level of absenteeism. This is combined with a high level of sick leave payments, which in general reach 90 per cent of wage in the first month, paid by the employer, and 80 per cent thereafter, paid by the Institute of Health Insurance. If the leave is due to the illness of a child, benefit is also set at 80 per cent and is paid entirely by the Institute of Health Insurance. In 2003, 4.7 per cent of working days were lost due to sick leave, and sick leave payments amounted to 1.4 per cent of GDP. The Institute of Health Insurance paid almost half of these payments, employers the rest.

Incentive problems should be dealt with. Free services increase the demand for health services. However, the goal of equity[20] must be respected. Consumers and providers of health services should be made more cost-conscious in order to put available resources to better use. At the same time, people with low incomes needing health care should not be discouraged from using the necessary health services. This means that the health system should be designed so as to assure access to the required health care to the people who are poor and getting sick.

The more cost-conscious policy on the use of pharmaceuticals should be implemented further. Various measures were implemented in the past, but costs have continued to rise. Currently, the goal is pursued by limiting the highest price of a medicine paid for from compulsory insurance.

2.3 Unemployment benefits

In Slovenia, unemployment is to a large extent of a structural nature. A large proportion of unemployed are either long-term unemployed, first time entrants to the labour market and of old age.

The unemployment insurance system is seen as probably the weakest part of the whole social protection system by some and it is therefore concluded that it can not be seen as a generous one (Stanovnik, 2004). The system was more generous at the beginning of the Nineties, with publicly financed programs of unemployment benefits. On the other hand some others (Backe et. all) find that the level of unemployment benefits as measured by the replacement ratio[21] is relatively generous in Slovenia.

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[20] Access to some predefined minimum level of health services should be made available to all citizens based on their need, not (only) income.

[21] It is defined as the initial benefit over previous earned income.

Expenditure on unemployment benefit has declined in the period under review. From 1992 to 2004 it fell by almost 1 percentage point of GDP and currently reaches about 0.3 per cent of GDP. Currently, unemployment benefits account for 0.8 per cent of total expenditure, down from 3 per cent in 1992, when these payments were at their highest level. There are two important reasons for this. First, the economic situation has improved substantially compared to the early Nineties. The level of unemployment has decreased from a high of 9.1 per cent in 1993, to 6.3 per cent in 2004. Second, there has been a reform in the benefit system, and eligibility criteria for unemployment allowances have been tightened in 1998. One measure was the cancellation of extended unemployment payments (up to three years) on the assumption that the person could retire thereafter.

According to the law, unemployment benefit is paid from 3 to 24 months, depending on the insurance period. After this period, means-tested unemployment assistance benefit may be paid for 6 to 15 months.

In recent years more emphasis has been given to active labour policy measures, which however are limited, and intended for certain groups of unemployed people. The latest measures were intended to increase the participation of older workers and those entering the labour market after attaining certain education level. The Budget Implementation Act for 2004 and 2005 foresees the following measures:

- an employer who employs an unemployed person aged 55 or more and registered with the Unemployment Office for a period of 2 years or more, will be exempt from paying social security contributions for this person for a period of one year. The measure was introduced due to the fact that in Slovenia the total employment rate of older workers[22] is one of the lowest in European Union, being close to 25 per cent in 2002, while it reached 40 per cent in EU-15. It is particularly low for females, which is related to fulfilment of retirement conditions,
- an employer who employs an unemployed person with a higher education, below the age of 26 and currently registered with the Unemployment Office for an indefinite period, will be exempt from paying social security contributions for this person for a period of two years. In Slovenia unemployment among first time job seekers is high, and this measure should help facilitate finding first employment.

2.4 Other transfers to households

The most important transfers to households not mentioned above are comprised mainly of family and child benefits, as well as social support for categories of the population in need.

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[22] Employed persons aged 55-64 as a share of the total population of the same age group.

Among these, social financial assistance has gained importance in the last years. It is received by 4.7 per cent of the population, and to some extent provides some revenue amongst others also for those no longer entitled to unemployment benefit. From January 2002 to December 2004 the number of recipients doubled, as did the costs. About 40 per cent of the recipients of financial assistance have finished primary school or less and almost 95 per cent of the recipients have finished secondary school or less. Most recipients are less than 60 years old. This payment is adjusted once a year for the CPI inflation of the previous year. Entitled persons are adult persons and children in households that do not reach the minimum income as defined by the law on social protection.

The main change in the area of family-related expenditure was introduced in 1999. Under this category, the largest expenditure items are parental compensation and child allowances. The first represents wage compensation during parental leave, which is set at one year in Slovenia. Parental compensation depends in general on individual's earning in the last 12 months. Expenditure on child allowances has increased as a consequence of the reform, as allowances were extended and amounts involved increased, again in a gradual manner.

2.5 Interest payments

Interest payments have been driven by debt developments and by the decline in nominal interest rates in line with the disinflation process. Interest payments amounted to 0.5 per cent of GDP in 1992 and increased to 1.2 per cent of GDP in 1993. Thereafter, they have remained relatively stable at approximately this level. They further increased to 1.4 per cent of GDP in 2000 and 1.6 per cent of GDP in 2002 and 2003. In 2004 interest payments declined due to larger reductions in the implicit interest rate.

2.6 Investment expenditure

Investment expenditure fluctuated at around 4 per cent of GDP throughout most of the period. The only exception were the first two years, when immediately after independence other priorities were set. Such constant share of investment expenditure is somewhat surprising, as this is seen as the expenditure category that can be most easily adjusted.

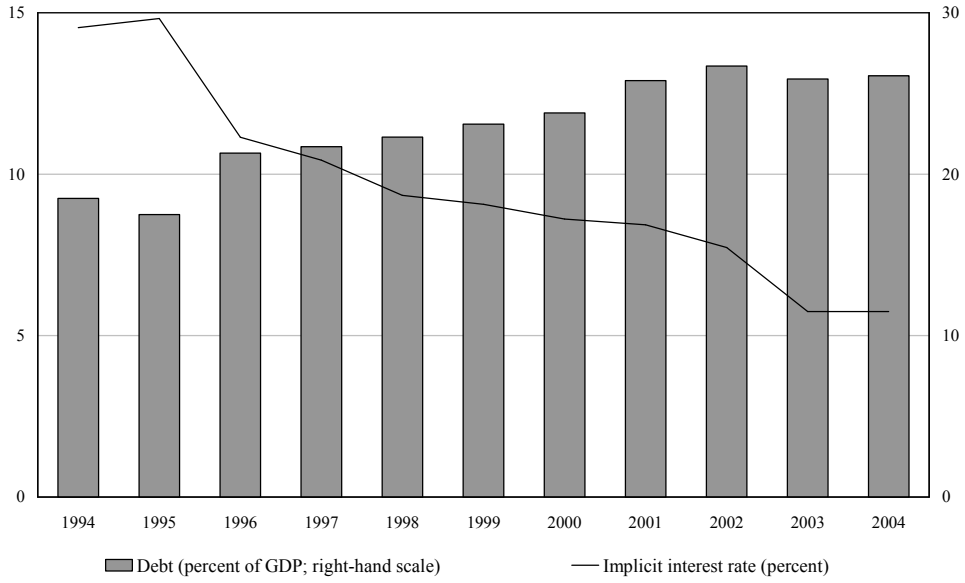
In the very near future some changes will be needed in this item in the relation to the European budget. Co-financing requirements will require some restructuring and clearer priority setting.

3. Policy issues: adjustment process

Analysis shows that the main policy issues in the future will be:

Chart 11

Debt of the Republic of Slovenia and Implicit Interest Rate, 1994-2004



Source: Ministry of Finance of the Republic of Slovenia and author's estimates.

- rethinking spending priorities, among other things by better targeting transfers to specific groups,
- increasing efficiency, which is difficult to measure (changes in the management of public sector)
- outsourcing to the private sector.

Given the limited scope for revenue increases,[23] there is a need to cut expenditure. Analysis shows that the reduction in transfers to households, together with a reduction in public sector wages and employment will be necessary in Slovenia to put public finances in a better position (taking into account also the high tax burden, not analysed here).

For an adjustment process to be successful, measures taken to reduce expenditure should be of a permanent nature. Alesina and Perotti (1995) show that

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[23] Revenues were 46.2 per cent of GDP in 2003 in Slovenia, compared to 45.8 per cent of GDP for the EU-15 average as measured by the ESA95 methodology. This indicates a large burden on the economy. For this reason and in an effort to reach the Maastricht price stability criterium, further increases in the revenue ratio would not be welcomed. Indeed, Slovenia introduced personal income tax reform in 2005, which will result in lower revenues, while reform in corporate income tax will compensate for most of the loss.

adjustments based on social transfers and public sector wages are more persistent than those based on investments. Adjustment in investment spending is also (politically) the easiest to follow.

There is also a need for better-focused expenditure targeting, meaning targeting transfers to the groups/sectors that need them most.

Experience also shows that such measures are more effective in times of good economic growth. For Slovenia, the macroeconomic forecast shows that growth is expected to be around 4 per cent of GDP in the coming years, therefore making it possible for the measures to be introduced.

4. Conclusions

In Slovenia, general government expenditure has increased in the period after independence as a percentage of GDP, and is currently at a level comparable to the European Union average. Meanwhile, revenue also increased, but less so. This has resulted in increased deficits in the general government sector.

The fastest growing general government expenditure groups have been wages and transfer payments. The former has grown both because of increases in individual real wages as well as due to growth in public sector employment. The decline in economic activity at the beginning of the Nineties, which resulted in large early retirement and unemployment expenditure, was behind the upward trend in transfer payments in this period. High growth in health spending and the introduction of some more favourable transfer payments, for example, in the area of child and family benefits, contributed to the overall trend in expenditure.

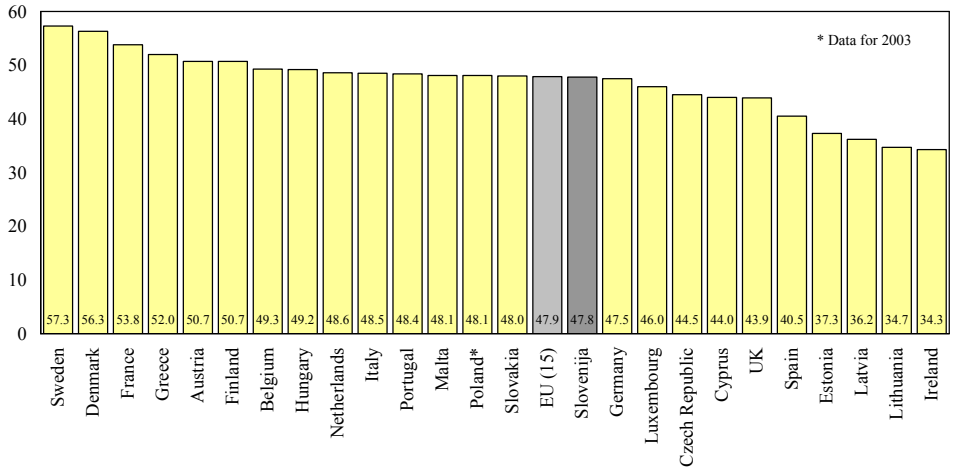
Two main achievements in the area of expenditure policy are worth mentioning. The first is the pension reform introduced in 2000, which according to our rough calculations has already resulted in 0.8 per cent of GDP savings on old-age pensions. The reform has substantially decreased the unfunded liabilities of the PAYG system; however, more pronounced pressures are expected to show up again around 2015 to 2020. The second one is better control over increases in individual general government wages, which show recent modest growth.

Currently, the general government deficit fluctuates at around 2 per cent of GDP, as measured by the ESA95 methodology, which is relatively close to the 3 per cent Maastricht reference value. The goal of fiscal policy is to reduce the deficit and to reach a position close to (structural) balance. In order to reach this goal an adjustment of expenditure will be needed. Such a development would also give a larger safety margin for the case of unexpected macroeconomic developments and substantially improve long-term sustainability of public finances.

APPENDIX 1

Chart 12

General Government Expenditure in the EU-25, 2004
(percent of GDP)



Source: Eurostat.

Table 6

General Government Expenditure in Slovenia by Type, 2000-04

	2000	2001	2002	2003	2004	change
Total expenditure	48.2	47.9	48.1	48.2	47.8	–0.4
Intermediate consumption	7.2	7.2	7.4	7.1	6.8	–0.4
Compensation of employees	11.8	12.3	12.1	12.3	12.1	0.3
Other taxes on production	0.5	0.5	0.5	0.5	0.6	0.1
Subsidies	1.5	1.4	1.2	1.5	1.6	0.1
Property income, payable	2.4	2.4	2.3	2.1	1.9	–0.5
Social benefits in cash and in kind	19.2	19.2	19.3	19.3	19.0	–0.2
Other current transfers, payable	1.2	1.1	1.3	1.3	1.9	0.7
Capital transfers, payable	1.4	1.3	1.1	1.1	1.1	–0.3
Capital formation	3.1	3.0	2.8	3.0	2.8	–0.3
Acquisition less disp. of non-fin. non-prod. assets	0.0	–0.6	0.0	0.0	0.0	0.0

Source: Statistical Office of the Republic of Slovenia, *First Release*, 66/2005.

Table 7

General Government Expenditure by Type, 2003
(percent of GDP)

	Slovenia	EU-15*	Belgium	Czech R.	Denmark	Germany	Estonia	Greece	Spain*	France	Ireland*	Italy	Cyprus
Total expenditure	**48.2**	**47.5**	**51.0**	**53.2**	**56.4**	**48.1**	**35.8**	**48.1**	**38.3**	**53.6**	**33.7**	**49.0**	**45.4**
Intermediate consumption	7.1	6.2	3.4	7.4	8.7	4.1	7.6	5.6	4.2	5.4	5.8	5.3	5.9
Compensation of employees	12.3	10.8	12.1	8.3	17.9	7.8	10.2	11.8	9.9	13.6	8.4	11.0	15.7
Other taxes on production	0.5	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.7	0.0
Subsidies	1.5	1.2	1.6	2.7	2.2	1.3	0.9	0.1	1.2	1.3	0.9	1.1	1.2
Property income, payable	2.1	3.3	5.4	1.3	3.4	2.9	0.3	5.8	2.7	2.9	1.4	5.4	3.4
Social benefits in cash and in kind	19.3	20.4	23.3	18.2	18.5	27.1	11.6	17.2	14.3	24.0	9.9	19.8	11.5
Other current transfers, payable	1.3	1.9	2.2	1.1	3.7	1.8	0.9	1.5	1.2	1.9	2.2	1.5	3.6
Capital transfers, payable	1.1	1.2	1.3	9.9	0.4	1.6	1.0	2.0	1.4	0.7	0.9	1.4	0.7
Capital formation	3.0	2.3	1.6	4.0	1.7	1.5	3.4	3.9	3.4	3.2	4.5	2.6	3.4
Acq. less disp. of non-fin. non-prod.assets	0.0	0.0	0.0	0.1	0.0	–0.1	-	0.1	0.0	0.1	–0.2	0.0	0.0

* Data for 2002.
Source: Eurostat.

Table 7 (continued)

General Government Expenditure by Type, 2003
(percent of GDP)

	Latvia	Lithuania	Luxembourg	Hungary	Malta	Netherlands	Austria	Poland	Portugal	Slovakia	Finland	Sweden	UK
Total expenditure	**35.7**	**34.1**	**45.5**	**50.2**	**50.9**	**49.0**	**50.8**	**44.5**	**47.6**	**39.2**	**50.9**	**58.7**	**43.5**
Intermediate consumption	8.7	6.1	3.9	6.6	4.5	7.0	4.5	6.6	3.8	6.1	8.9	10.2	11.5
Compensation of employees	11.1	11.0	8.8	13.3	15.5	10.8	9.6	11.8	14.9	9.0	13.8	16.6	10.4
Other taxes on production	0.0	-	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.3	0.1	1.0	0.1
Subsidies	0.8	0.8	1.7	1.5	2.2	1.4	3.2	0.5	1.5	1.7	1.3	1.5	0.7
Property income, payable	0.8	1.3	0.2	4.2	3.9	2.9	3.1	3.0	2.9	2.5	2.0	2.4	2.0
Social benefits in cash and in kind	10.2	10.7	21.3	17.1	13.7	20.9	24.2	18.6	17.2	14.8	19.0	21.5	13.6
Other current transfers, payable	0.8	0.1	2.9	1.9	2.3	1.7	2.8	0.4	2.8	1.3	2.6	2.2	2.7
Capital transfers, payable	1.6	1.2	1.9	2.4	3.5	0.6	2.1	0.3	1.3	0.7	0.2	0.3	1.0
Capital formation	1.8	3.0	4.8	3.4	5.4	3.6	1.2	3.3	3.3	2.5	3.0	3.1	1.7
Acq. less disp. of non-fin. non-prod.assets	0.0	0.0	0.0	0.2	0.0	0.0	–0.1	-	–0.1	–0.1	–0.1	–0.2	–0.1

Source: Eurostat.

Table 8

General Government Expenditure by Function, 2002
(percent of GDP)

	Slovenia	EU-15	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	UK	Latvia*
General public services	8.8	6.8	9.9	8.5	6.2	10.7	5.6	7.2	3.5	9.1	5.0	8.2	7.7	6.4	6.1	8.8	4.2	5.3
Defence	1.4	1.7	1.2	1.6	1.2	2.7	1.2	2.4	0.7	1.2	0.3	1.5	0.9	1.7	1.4	2.1	2.5	1.3
Public order and safety	2.0	1.7	1.6	1.0	1.6	1.1	2.2	1.0	1.5	1.9	1.1	1.7	1.4	2.0	1.4	1.5	2.1	2.4
Economic affairs	3.4	4.0	4.6	3.7	4.0	4.5	4.4	4.8	5.0	3.9	5.2	5.4	5.2	5.2	5.0	4.8	2.4	3.7
Environment protection	0.4	0.7	0.7	-	0.6	0.6	0.9	1.2	-	0.8	1.2	0.8	0.3	0.6	0.3	0.3	0.6	0.4
Housing, community amenities	0.2	0.8	0.3	0.9	1.1	0.5	1.1	1.0	2.1	0.1	0.8	1.5	0.8	0.9	0.5	0.9	0.5	0.9
Health	6.8	6.5	6.7	5.6	6.4	3.1	5.4	8.4	6.4	6.5	4.9	4.5	6.7	6.9	6.3	7.1	6.4	3.3
Recreation, culture, religion	1.0	0.8	1.2	1.7	0.7	0.4	1.1	0.8	0.5	0.9	1.9	1.1	1.1	1.2	1.2	1.1	0.5	1.4
Education	5.7	5.1	6.4	8.3	4.2	3.2	4.4	6.0	4.3	4.9	5.1	4.9	5.7	7.0	6.6	7.5	5.0	6.2
Social protection	18.3	19.0	17.8	24.5	22.4	20.0	13.6	20.6	9.3	18.2	18.6	17.9	21.6	14.0	21.3	24.1	15.7	10.8

* Data for 2003.
Source: Eurostat, *Statistics in Focus*, 43/2004; Statistical Office of the Republic of Slovenia, *First Release*, 87/2005; EC, *Public Finances in EMU*, 2005.

APPENDIX 2
DEMOGRAPHIC PROJECTIONS

We discuss here demographic factors: the fertility rate, life expectancy and immigration flows. For past developments, data from the National Statistical Office were used. Projections for the period up to 2050 are taken from United Nations projections: World Population Prospects: The 2004 Revision, Population database.[24] A medium scenario has been used.

Up to the beginning of the Eighties the fertility rate in Slovenia was above the replacement rate. It began to decline some 20 years ago. The total fertility rate[25] was 1.2 in 2000, which is historically very low, and also compared to most European Union members. It is assumed that it will gradually reach 1.7 in the projection period, which is less than 2.1, the level necessary for the replacement of generations. This assumption is not important for the projection in the number of elderly people, but has an important impact on the number of young and working-age people, e.g. the number of contributors to the system.

Life expectancy at birth is projected to rise sharply, by some five to six years until 2050, when men are expected to reach the age of almost 79 years and women over 85 years. The median age, which stood at 38.2 years in 2000 (up from 27.7 in 1950), is expected to increase to 51.9 years in 2050.

Annual net immigration flows are expected to remain close to those observed in the last ten years in the next few decades. Thereafter, they are projected to increase, but not substantially and therefore their expected influence on the Pension Fund balance should not be large. High immigration rates seem unrealistic.

Taking all assumptions together, the population in Slovenia is expected to be 1.6 million in 2050, down from the present figure of 2 million, which would mean a 17 per cent decrease in the population (see table).[26] According to these projections, the population structure will greatly change in the next decades.

The most drastic decline will be in the working population, while the number of persons 60+ will increase. The elderly dependency rate is projected to more than double over the next half century to almost 90 per cent by 2050. This means that the number of elderly will increase sharply. Slovenia is expected to be among those countries where the increase will be most pronounced. Moreover, over 40 per cent of these senior citizens are envisaged to be 75 years of age or older. The total dependency ratio will increase less. It is expected to reach over 100 per cent in 2050. In the short term the most important observation is that elderly dependency ratios will begin to increase sharply as early as between 2010 and 2020, when more retirements are expected.

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[24] http://esa.un.org/unpp/

[25] Fertility rate is defined as number of children born to an average woman during her lifetime.

[26] Eurostat's projections, published later, show a different picture: according to them, the population of Slovenia is expected to decline only little by 2050. This indicates how difficult it is to project future population.

Table 9

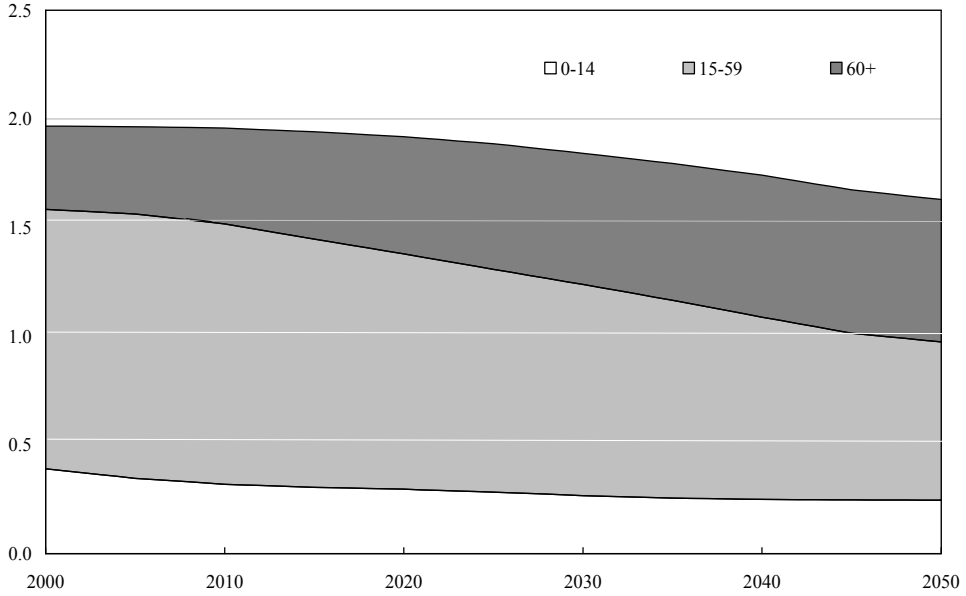
Population Data, Slovenia, 1995-2050

	1995	2000	2005	2010	2020	2030	2040	2050
Population	1,964	1,967	1,964	1,958	1,918	1,842	1,741	1,629
Elderly dependency ratio*	28.0	32.1	33.0	36.8	49.8	62.2	77.9	89.9
Very elderly ratio**	23.3	26.6	31.4	33.1	30.2	36.3	40.4	43.1
Total dependency ratio	56.4	64.8	61.5	63.5	77.1	89.7	107.6	123.7
Life expectancy, men	69.7	71.2	72.6	73.5	75.3	76.7	77.8	78.9
Life expectancy, women	77.4	78.7	79.9	80.7	82.2	83.4	84.4	85.4
Immigration rate	-	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Total fertility rate	1.36	1.25	1.22	1.21	1.32	1.46	1.60	1.74

* People aged 60+ to the population 18-59.
** People aged 75+ in the group 60+.
Source: United Nations' *World Population Prospects, The 2004 Revision*.

Chart 13

Population Structure, 2000-50
(millions)



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IDENTIFYING THE POLITICAL ECONOMIC TIDE SHAPING MAJOR PUBLIC EXPENDITURE TRENDS IN NEW JERSEY DURING THE LAST DECADE

Ranjana Madhusudhan[*]

1. Background

In his budget message delivered on March 1, 2005, New Jersey's acting Governor Codey has proposed a $27.4 billion budget for fiscal year 2006,[1] which is a record $614 million or 2.2 per cent below the budget enacted in FY2005, representing the largest spending cut in the history of the State.[2] The proposed budget reduces reliance on non-recurring budget actions by 70 per cent from $2.86 billion in FY05 to $891 million in FY06 and provides for $2.4 billion in spending reductions, including nearly $1.5 billion in actual cost cutting actions. Increases in mandatory funding needs of approximately $1.4 billion, including $289 million for Medicaid, is a major component of the State's widening budget gap problem.

The challenge of balancing the State budget is even more daunting when, as noted in the FY2006 Budget in Brief (BIB) document, it is recognized that nearly three-fourths of the money that the State receives goes out in State Aid and Grants to municipalities and school districts, direct property tax relief, health care and prescription drug coverage for seniors and the poor, support for higher education, and community programs for the disabled. The remaining 12 per cent of State spending is allocated for the operating budgets of the sixteen State departments in the Executive branch with a majority of spending on State Police, courts and prisons, institutions for veterans, mentally ill and developmentally disabled and highway maintenance.[3]

The Governor's Budget Message will be followed by Budget Hearings before the New Jersey Legislature gets ready to enact the FY 2006 Budget through the Appropriations Act before the start of the next fiscal year on July 1, 2005. Between now and then, expenditure items in particular will be examined carefully against revised revenue estimates by both the Governor and the Legislature since it is a constitutional requirement to balance the Budget. The passage of the Appropriations Act marks the start of a new year in State spending from the State General Fund.[4]

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[*] The views expressed are those of the author and do not necessarily represent the views of the New Jersey Division of Taxation or of the Department of Treasury.

I would like to thank Kathy Steepy and Gary Brune and numerous others at the New Jersey Office of Management and Budget for their generous help.

[1] Fiscal year 2006 will begin on July 1, 2005 and run through June 30, 2006.

[2] See Budget In Brief, March 1, 2005.

[3] Refer to BIB, March 2005, p. 2.

[4] The General Fund supports the largest part of total financial operations of the State and includes revenues from taxes, most federal revenues, certain special or dedicated funds (the Casino Control, Casino Revenue,

(continues)

However, a quick cruising through State budget documents and other annual financial reports, undoubtedly a mind boggling exercise, would reveal that total State expenditures in a particular fiscal year includes several other components of spending outside the State General Fund (SGF) operations such as those under certain special funds, bond funds, proprietary or enterprise funds and non-recurring items. Off budget line items are examples of other spending outside the SGF.

In this analysis, the focus will be on examining a broader more comprehensive measure of State expenditures that reflects spending, including both on and off budget spending from several funding sources, including the State's own source general fund revenues, special funds, federal funds made through inter governmental transfers and bond financing. The data are primarily from the *State Expenditure Reports* (SER), prepared by the National Associations of State Budget Officers (NASBO), which provide actual State expenditure data through FY2003 and estimated numbers for FY2004.[5]

This paper attempts to analyze the annual trends in State spending in New Jersey over the last ten years, between fiscal years 1993 and 2003. Total expenditures, including both operating and capital expenditures, are examined during this period to identify political and economic tides underlying State spending trends in New Jersey. The remainder of the paper is organized as follows: Section 2 presents a snap shot of State spending in FY2003 indicating the distribution of expenditures by major fund sources and its composition by selected program categories. Section 3 compares expenditure trends in two fiscal years, FY1993 and FY2003. Growth trends by program type are also highlighted in this section. Section 4 outlines major political and economic developments and reflects on budgetary priorities during the last decade. Section 5 concludes the paper with a discussion of policy issues and reflects on topics for future research.

2. State spending in FY2003: A snapshot

Total expenditure for New Jersey was over $36 billion in FY2003, including both operating and capital expenditures and funding from all sources. However, due to economic contraction following the stock market bubble burst in FY2002, spending slowed significantly in FY2003, which grew at 3.6 per cent, at less than one-half the rate in the previous fiscal year. FY2004 estimates show further softening (Chart 1). State funds[6] accounted for over three-fourths of spending in FY2003 with General Funds absorbing 65 per cent of it. Spending from State funds grew at a moderate 4.6 per cent rate, below the rate posted a year ago, and is estimated to decline in FY2004, reflecting the fiscal stress facing New Jersey.

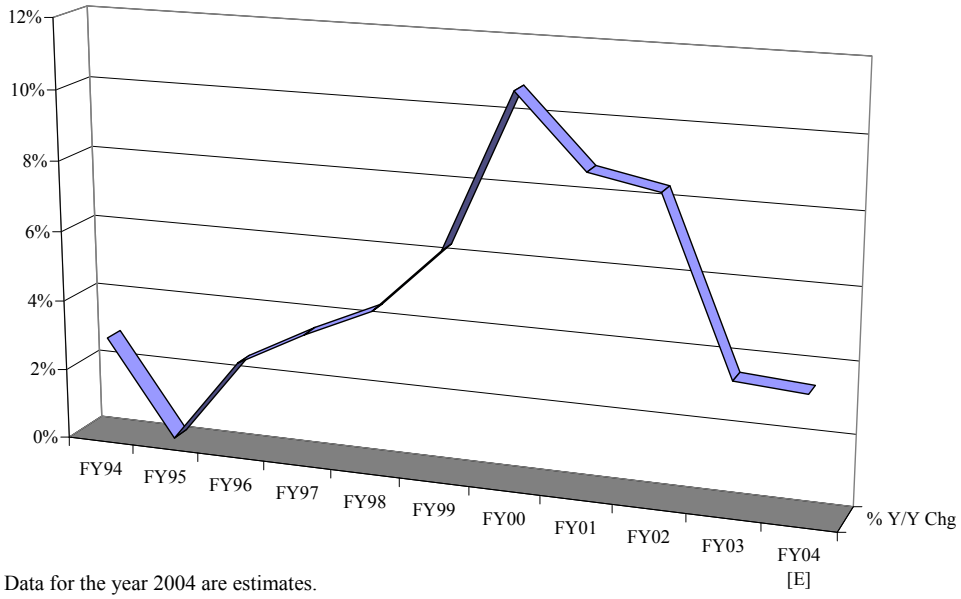
Gubernatorial Elections, and Property Tax Relief Funds), and certain miscellaneous revenue items. See the New Jersey Comprehensive Annual Financial Reports and Annual Budgets for further details.

5 The State Expenditure Report (SER) is based on expenditure survey data provided by states to the National Association of State Budget Officers (NASBO). The upcoming SER showing FY2004 actual spending data is currently being compiled.

6 Defined by NASBO as the sum of general fund and other state funds (excludes bonds).

Chart 1

Annual Change in Total State Expenditures, FY1993 to FY2004



Data for the year 2004 are estimates.

According to the latest SER, spending from State funds declined in seventeen U.S. States between fiscal years 2002 and 2003 and estimates show that it declined in eleven States between fiscal years 2003 and 2004.[7]

Close to one-fourth of FY2003 expenditures were from federal funds and bonds with the former accounting for 20.6 per cent and the latter about 3 per cent (see Chart 2). New Jersey appears to be relying more on federal funds, particularly, to support the State's obligation to nursing homes.[8] Spending from federal funds was $7,451 million in FY2003, $312 million above the year ago level and the estimated figure for FY2004 is over a billion higher.

The distribution of spending among the seven categories included in the SER, indicates that elementary and secondary education is the single largest program category, about 23 per cent, accounting for nearly one-third of general fund spending in FY2003 (see Table 1 and Chart 3). Medicaid spending is a close second at 20.6 per cent, accounting for nearly one-half of federal fund spending. The percentage share of total spending for the remaining five categories was as follows: corrections, 3.6 per cent; higher education, 7.3 per cent; public assistance, 0.7 per cent; transportation, 8.0 per cent; and all other, 37 per cent. In general, the all

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[7] See the 2003 State Expenditure Report, p. 2.

[8] Governor's Budget Message in BIB March 2005, p. 3.

Chart 2

State Spending by Type of Funds, FY2003

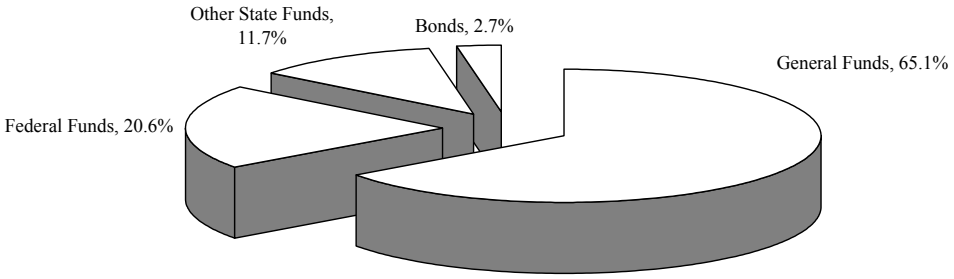


Table 1

The Distribution of State Spending by Major Functions, FY2003

	Expenditure *(million dollars)*		*percent of Total Expenditure*	
Expenditure Category	**All States**	**New Jersey**	**All States**	**New Jersey**
Elementary & Secondary Education	246,957	8,232	21.7%	22.7%
Higher Education	122,892	2,630	10.8%	7.3%
Public Assistance	24,981	263	2.2%	0.7%
Medicaid	243,623	7,458	21.4%	20.6%
Corrections	39,350	1,300	3.5%	3.6%
Transportation	92,972	2,886	8.2%	8.0%
All Other	365,922	13,448	32.2%	37.1%
Total Expenditure	1,136,697	36,217	100.0%	100.0%

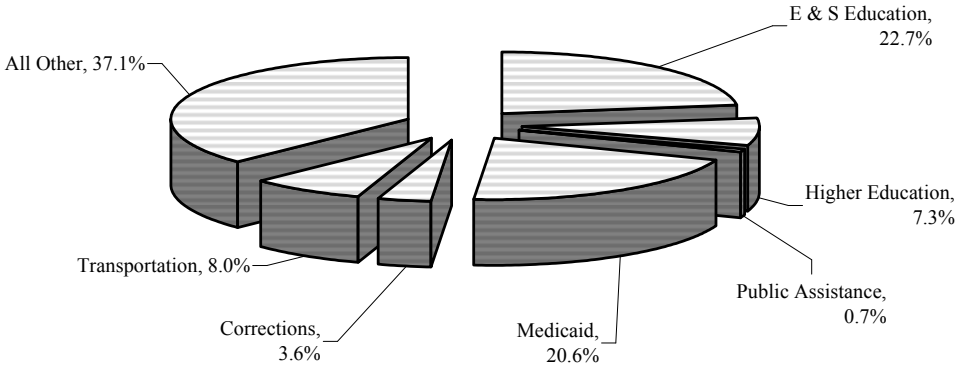
Source: Compiled from NASBO State Expenditure Reports data.

other category is a catch all aggregate of expenditures, including spending on environmental projects, public health, community and institutional for mental health and for developmentally disabled, parks and recreation, housing and other programs not covered under the six categories listed above. The *All other* category includes spending from special and dedicated funds such as the Casino Revenue Fund,[9]

[9] It also includes the Casino Control Fund (N.J.S.A. 5, pp. 12-143), and Gubernatorial Fund (N.J.S.A. 54A, pp. 9-25.1). Spending from the Property Tax Relief Fund (N.J.S.A. 54A, pp. 9-25), which is made up of revenues from the New Jersey Gross Income Tax, is an exception as it is included under general fund spending.

Chart 3

Composition of State Expenditure by Program Type, FY2003



which accounts for revenues from the gross revenues tax on casinos that are dedicated for the reduction in property taxes, utility charges, and other specified expenses of eligible senior citizens.[10]

New Jersey leads in terms of spending on elementary and secondary education and has the highest per pupil spending among the U.S. States.[11] Spending on the all other category was significantly higher for New Jersey at 37 vs. 32.2 per cent for all States in FY2003 (see Chart 4). Spending on corrections is the third category for which New Jersey had a slightly higher share relative to all States. The share of spending on the remaining four categories trailed behind the national share, particularly, the share for higher education, which was 3 percentage points lower. However, it is important to note that State fund spending on higher education increased significantly from $2.4 billion in FY2002 to $2.6 billion in FY2003 with most of the increase relating to tuition and fees in New Jersey.[12]

Overall spending increased by $1.2 billion in FY2003, weaker than the solid $2.7 billion growth reported for the previous fiscal year. Elementary and secondary education, and Medicaid were the major drivers accounting for around three-fifths of the growth in spending in that year. Higher education, corrections and transportation related programs accounted for the remaining two-fifths of the increase while public assistance and all other categories experienced actual dollar declines (approximately

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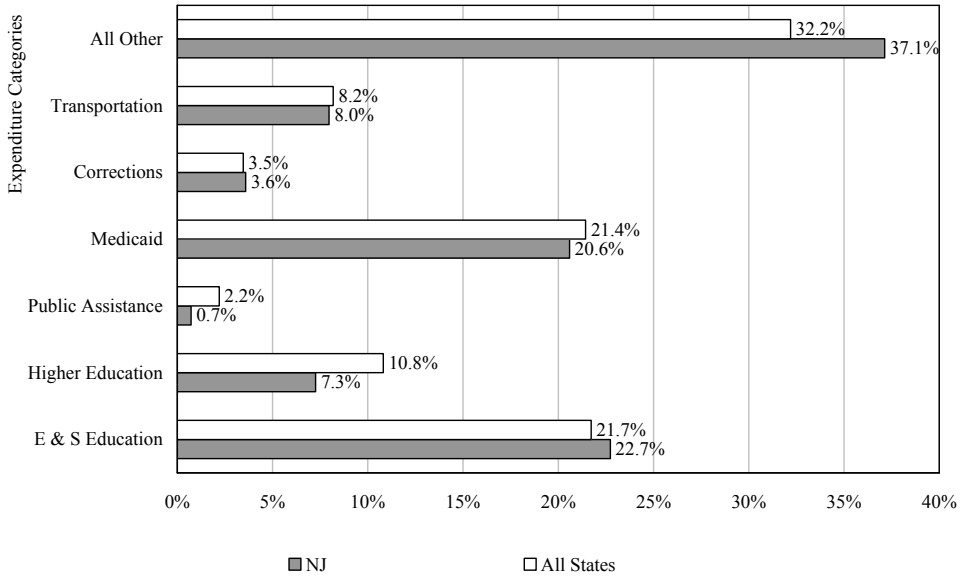
[10] The provisions are contained in the N.J.S.A. 5, pp. 12-145.

[11] According to the U.S. Census Bureau, per pupil spending for New Jersey was $12,202 in 2003, substantially above the national average level of $8,019.

[12] From New Jersey's NASBO Expenditure Survey data provided by the Office of Management and Budget (OMB).

Chart 4

Expenditure Distribution by Major Functions NJ vs. All States, FY2003



$12 million) in spending in FY2003. In terms of year over year per cent annual change, as shown in Chart 5, corrections spending showed the steepest increase due to a one time retroactive cost increase for custody settlement in FY2003 following a decline in spending the year before due to cost savings on certain overtime payments.[13] The second largest percentual annual increase was for higher education spending (8.5 per cent), which was substantial compared to the weak one per cent growth in FY2002. The steepest annual percentual decline was reported for public assistance programs, which has generally been declining since the enactment of welfare reforms legislations by the federal government in 1996 that gave States more flexibility to move recipients from the welfare rolls into the workforce.[14]

3. The trend in State spending in New Jersey

Total expenditures increased over $14 billion in FY2003, up 64 per cent over FY1993, growing at an average annual rate of 5.1 per cent. Despite the increase of nearly $10.5 billion in State fund spending, its share in total expenditures declined

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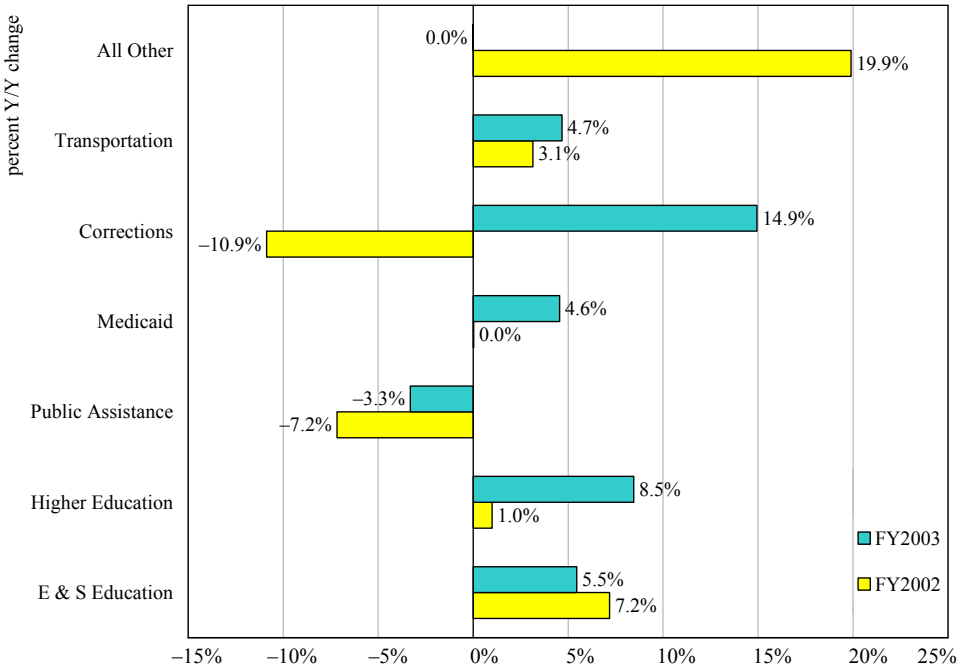
[13] Based on info provided by the State Department of Corrections.

[14] The welfare law changes were made under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, which replaced Aid to Families with Dependent Children (AFDC) with the Temporary Assistance for Needy Families (TANF) block grant.

Chart 5

Annual Change in Spending by Program, FY2002 and FY2003



by 1.7 percentage points from 78.4 to 76.8 per cent between FY1993 and FY2003, respectively (see Table 2). Between these two fiscal years, general fund spending grew by 65 per cent, lagging below the corresponding growth of 70 per cent for federal fund spending.

The share of spending from federal funds went up from 19.9 to 20.4 per cent between FY1993 and FY2003 (see Chart 6). During the ten years since FY1993, spending from federal funds increased at a faster pace than from State funds, growing at 5.5 and 4.9 per cent average annual rates, respectively. Even though the ranking in terms of percentage share of total spending did not change, there appears to be a clear structural shift in the degree of reliance, particularly, on federal funds, reflecting State fiscal stress due to the economic slowdown that started in FY2001, exacerbated by the 9/11 terrorist attack.

The share of bonds, which accounts for below 3 per cent of total expenditures, also increased by one percentage point to 2.7 per cent in FY2003. In that fiscal year, spending from bond financing climbed to $967 million, which was 158 per cent above the FY1993 level. With declining gross income tax and other own source revenues, New Jersey used securitization and other bond measures to close revenue gaps during the last economic recession. This is illustrated by the

Table 2

Major Trends in State Spending in New Jersey, FY1993-FY2003

a) Expenditure by Major Functions

	Expenditure *(millions of dollars)*		Percent of Total Expenditure		Percent of Change Over Year ago		Percent of Change FY93 to FY03	Avg. Annual Growth Rate FY93-03
Expenditure Category	**FY1993**	**FY2003**	**FY1993**	**FY2003**	**FY2002**	**FY2003**		
Elementary & Secondary Education	5,043	8,232	22.9%	22.7%	7.2%	5.5%	63.2%	5.0%
Higher Education	1,080	2,630	4.9%	7.3%	1.0%	8.5%	143.5%	9.3%
Public Assistance	781	263	3.5%	0.7%	–7.2%	–3.3%	–66.3%	–10.3%
Medicaid	5,053	7,458	22.9%	20.6%	0.0%	4.6%	47.6%	4.0%
Corrections	615	1,300	2.8%	3.6%	–10.9%	14.9%	111.4%	7.8%
Transportation	1,064	2,886	4.8%	8.0%	3.1%	4.7%	171.2%	10.5%
All Other	8,431	13,448	38.2%	37.1%	19.9%	0.0%	59.5%	4.8%
Total Expenditure	22,067	36,217	100.0%	100.0%	8.4%	3.6%	64.1%	5.1%

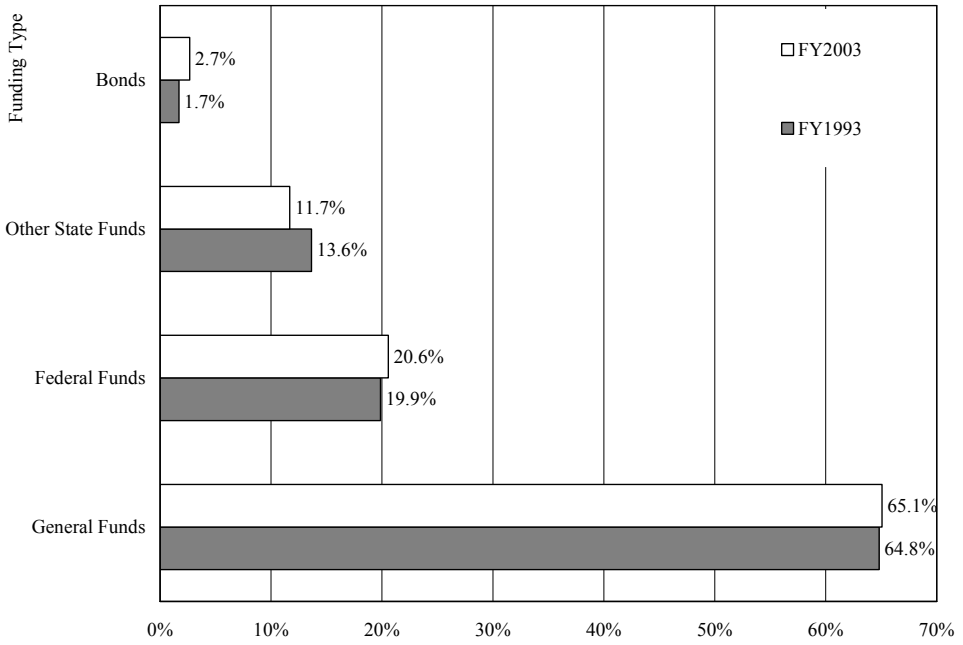
b) Expenditure by Fund Type (millions of dollars)

	(millions of dollars)		Percent of Total Expenditure		Percent of Change FY02 to FY03	Percent of Change FY93 to FY03	Avg. Annual Growth Rate FY93-03
Fund Type	**FY1993**	**FY2003**	**FY1993**	**FY2003**			
General Funds	14,301	23,568	64.8%	65.1%	7.1%	65%	5.1%
Federal Funds	4,381	7,451	19.9%	20.6%	4.4%	70%	5.5%
Other State Funds	3,010	4,231	13.6%	11.7%	–7.4%	41%	3.5%
Bonds	375	967	1.7%	2.7%	–23.9%	158%	9.9%
Total All Funds	22,067	36,217	100.0%	100.0%	3.6%	64%	5.1%
State Funds (=General + Other Funds)	17,311	27,799	79.8% [a]	78.9% [a]	4.6%	61%	4.9%

[a] Percent of State funds in Total excluding bonds.
Source: Compiled from NASBO State Expenditure Reports data.

Chart 6

The Distribution of State Spending by Fund Type, FY1993 vs. FY2003



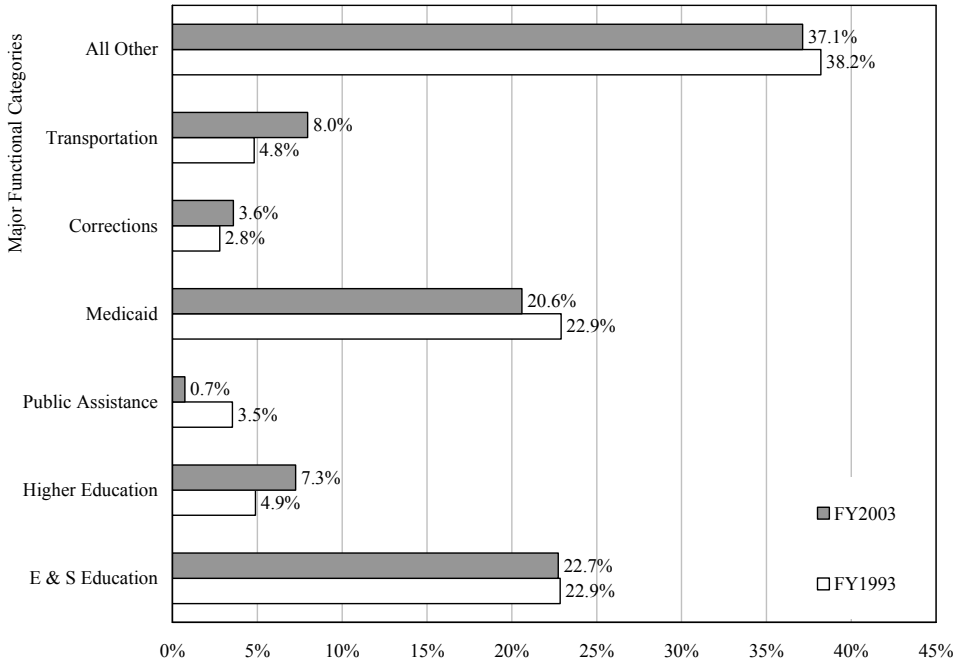
record $1.3 billion in bond spending in FY2002 when the State income tax revenues actually fell by over one billion, its first ever double-digit drop.

Comparing trends by program categories and source of funding reveals interesting changes in the pattern of State spending between FY1993 and FY2003. Chart 7 shows the distribution of State expenditures by major functions in these two fiscal years. The increase in spending, in dollar amounts, varied across program categories ranging from a low $685 million for corrections to a high of $5.0 billion for the all other category. Excluding the latter, reflects that elementary and secondary education and Medicaid were the top two program areas accounting for close to two-fifths or $5.6 billion in spending increases between FY1993 and FY2003. This was followed by transportation and higher education spending, which was up by $3.4 billion in FY2003. With an average annual growth rate of –10.3 per cent, total spending on public assistance in FY2003 fell to near one-third the FY1993 level, primarily due to the steady decline in welfare caseloads after the passage of welfare reform.

In terms of percentual change between the two fiscal years under consideration, transportation spending jumped 171.2 per cent expanding at an average annual rate of 10.5 per cent followed by higher education (143.5 per cent)

Chart 7

State Expenditure Distribution by Major Functions, FY1993 vs. FY2002



and corrections (111.4 per cent), which increased at average annual growth rates of 9.3 and 7.8 per cent, respectively. In the remaining paragraphs the changes in the composition of spending by funding source will be highlighted in an attempt to understand the underlying structural shifts in the State's major spending programs (see Table 3). The all other category will be discussed separately. New federal legislations and reauthorizations will be listed under specific programs.

Elementary and Secondary Education (E&SE) accounts for the largest share of State fund spending, ranging from 26.5 per cent in FY1993 to 27.1 per cent in FY2003. The bulk, around 91 per cent of E&SE spending is from the State general fund revenues, which grew at an average annual rate of 5.1 per cent, at the same pace as total spending in FY2003. The rest of funding (8.5 to 8.9 per cent) comes from federal funds. Around one-tenth of total federal funds were used on E&SE in FY1993 with this share falling to 9.4 per cent in FY2003. New Jersey's spending relating to school finance has been subject to several court challenges[15] on the ground that the State does not provide adequate funding to support a "thorough and

[15] Abbot IV (1997) and Abbot V (1998) rulings are examples.

Table 3

The Trend in Distribution of Spending by Major Program and Fund Categories

a) Percentage of Distribution by Program Type

FY1993 Fund Type	E & S Education	Higher Education	Public Assistance	Medicaid	Corrections	Transport-ation	All Other	TOTAL
State Funds	91.1%	88.1%	60.7%	53.8%	98.2%	51.9%	88.0%	78.4%
Federal Funds	8.9%	1.9%	39.3%	46.2%	0.7%	47.6%	9.0%	19.9%
Bonds	0.0%	10.0%	0.0%	0.0%	1.1%	0.6%	3.0%	1.7%
Total All Funds	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
FY2003 Fund Type	**E & S Education**	**Higher Education**	**Public Assistance**	**Medicaid**	**Corrections**	**Transport-ation**	**All Other**	**TOTAL**
State Funds	91.5%	99.3%	61.6%	50.3%	96.8%	50.0%	82.1%	76.8%
Federal Funds	8.5%	0.7%	38.4%	49.7%	3.2%	26.0%	15.8%	20.6%
Bonds	0.0%	0.0%	0.0%	0.0%	0.0%	24.0%	2.0%	2.7%
Total All Funds	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

b) Percentage of Distribution by Fund Type

FY1993 Fund Type	E & S Education	Higher Education	Public Assistance	Medicaid	Corrections	Transport-ation	All Other	TOTAL
State Funds	26.5%	5.5%	2.7%	15.7%	3.5%	3.2%	42.9%	100.0%
Federal Funds	10.0%	0.5%	7.0%	53.3%	0.1%	11.5%	17.3%	100.0%
Bonds	0.0%	28.2%	0.0%	0.0%	1.9%	1.6%	67.7%	100.0%
Total All Funds	22.9%	4.9%	3.5%	22.9%	2.8%	4.8%	38.2%	100.0%
FY2003 Fund Type	**E & S Education**	**Higher Education**	**Public Assistance**	**Medicaid**	**Corrections**	**Transport-ation**	**All Other**	**TOTAL**
State Funds	27.1%	9.4%	0.6%	13.5%	4.5%	5.2%	39.7%	100.0%
Federal Funds	9.4%	0.3%	1.4%	49.8%	0.6%	10.1%	28.5%	100.0%
Bonds	0.0%	0.0%	0.0%	0.0%	0.0%	71.7%	28.3%	100.0%
Total All Funds	22.7%	7.3%	0.7%	20.6%	3.6%	8.0%	37.1%	100.0%

Source: Author's compilation using data from NASBO's State Expenditure Reports.

efficient education" and creates wide disparities in local property tax rates.[16] "The No Child Left Behind Act of 2002", passed by the federal government reflects new fiscal federal coordination in elementary and secondary education efforts between the federal and State governments. The FY2006 budget reflects $102 million in supplemental spending for the Education Opportunity Aid to Abbot school districts mandated by court decisions and based on final awards.[17]

In contrast, a smaller fraction, 5.5 per cent of total State funds were used to finance *Higher education*, which accounted for 88.1 per cent of total higher education spending in FY1993. The composition in FY2003 changed dramatically with practically all the spending absorbed by State funds (99.3 per cent) and there were no bonds, which had accounted for one-tenth of FY1993 spending. The share of spending from federal funds also fell in FY2003. A multi billion dollar package providing tax incentives for higher education was passed by the U.S. Congress under the 1997 Taxpayer Relief Act.[18] The Higher Education Act (HEA), which was reauthorized by the U.S. Congress in 1998, increased the availability of financial assistance through grants and loans for students services and institutional assistance.

The share of total State and federal funds going to *Public assistance* dropped from 9.7 to 2.0 per cent between the two fiscal years. As noted earlier, public assistance is the smallest among State programs under consideration, accounting for less than one per cent of total FY2003 spending in New Jersey, below the 2.2 per cent share for all U.S. States. Two developments are worth noting under this program:

a) since the replacement of the old Aid to Families with Dependent Children (AFDC) with the Temporary Assistance for Needy Families (TANF) block grants, New Jersey's spending on such assistance has fallen sharply as the State successfully moved recipients from the welfare rolls to the workforce. For instance, its share of FY2003 spending on TANF assistance program accounted for 38 per cent vs. the 65.8 per cent share under the AFDC program in FY1993,

b) There is a dramatic increase in spending under the general assistance segment, which provides other cash assistance to eligible clients from 34.2 in FY1993 to 61.2 per cent of total public assistance spending in FY2003,[19] reflecting tough economic conditions.[20]

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[16] A final ruling was issued by the State Supreme Court in May 1998, which supported the Governor's plan to implement "whole-school reform", expand preschool programs and address school construction.

[17] See BIB, p. 5.

[18] See NASBO reports posted on their website at www. Nasbo.org for discussion of various federal and state law changes.

[19] According to the latest Budget in Brief, general assistance caseloads increased by 44 per cent between FY2001 and FY2004.

[20] Aside from receiving cash assistance during hard economic times, disadvantaged clients become eligible for basic health coverage when they receive the GA cash assistance. This tends to increase the number of GA caseloads.

Among the different programs, contribution from federal funds is the highest for *Medicaid*, which is the primary health care safety net for low income parents, children, the elderly and the disabled in New Jersey. It is a means tested entitlement program jointly financed by States and the federal government.[21] For instance, the bulk, 53.3 per cent, of all federal funds was spent on Medicaid in FY1993 accounting for 46.2 per cent of total State spending on Medicaid that year. In FY2003 the corresponding share for total federal funds was 49.8 per cent, down 3.5 percentage points but it accounted for almost one-half of New Jersey's spending on the program. On the whole Medicaid spending increased by 47.6 per cent between the two fiscal years and remains a major driver of escalating mandatory budgetary growth in New Jersey. It is expected to account for around one-fifth of additional budgetary mandates, $289 million, as indicated in the proposed FY2006 budget.

Although the *Corrections* category represents the second smallest program, accounting for below 5 per cent of total State spending, the size of spending in dollar amounts more than doubled in FY2003. The share of total State funds spending on Corrections increased by one percentage to 4.5 per cent in that year. However, they accounted for a slightly smaller percentual share of total Corrections spending, which fell from 98.2 in FY1993 to 96.8 per cent in FY2003 while the share of spending from federal funds increased from below 1 to 3.2 per cent during the same time points. The contribution of bonds also diminished due in part to the completion of the Southwoods prison, which is the largest State institution in New Jersey.[22]

Spending on *Transportation* increased at the fastest pace at 171.2 per cent rate (up by $1.8 billion) between FY1993 and FY2003 with an average annual growth rate of 10.5 per cent, the highest among all the categories. The most significant shift is in the dramatic growth in spending from bond funds, which accounted for 24 per cent of total State spending on transportation in FY2003 vs. the less than one per cent share reported for FY1993. The significance of the role of bonds is also reflected by the fact that the bulk of total spending from bonds, 71.7 per cent, was on the Transportation category in FY2003, which was significantly above the low allocation of 1.6 per cent in FY1993. The Transportation Trust Fund (TTF) for instance, issues bonds to finance transportation improvements projects in New Jersey.[23] The second shift relates to the somewhat smaller role of federal funds. For instance, one tenth of all federal funds were allocated to this category in FY2003, down from the 11.5 per cent corresponding share in FY1993. Another way to observe this trend is to compare the share of federal funds in total transportation spending by the State, which also fell from 47.6 to 26 per cent

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[21] See the Kaiser Commission on Medicaid and the Uninsured report based on Medicaid Spending survey which discusses the major sources of cost increases associated with this program. For info on other state health spending refer to the NASBO's 2000-01 *State Health Care Expenditure Report*.

[22] Typically construction of prisons and other capital projects span over several years affecting the inter temporal distribution of expenditures. The Southwoods correctional facility opened in FY1997.

[23] Revenue from the gasoline excise tax is constitutionally dedicated to fund the Transportation Trust Fund. Other dedicated revenues include the Petroleum gross receipts tax and certain sales taxes on new car sales.

between the two fiscal years. The share of State funds going to transportation increased by two percentage points to 5.2 per cent while the share of State funds in total State transportation spending remained around 50 per cent between the two fiscal years.

Expenditure on the *All other* category escalated by over $5 billion or 59.5 per cent between FY1993 and FY2003, largely on account of the spike in spending from federal funds. For instance, the allocation of total federal funds to this category increased by 11 percentage points to 28.5 per cent in FY2003. The share of federal fund spending in total expenditures on the all other group also increased from 9 in FY1993 to 15.8 per cent in FY2003. State funds accounted for the bulk, 82.1 per cent, of total expenditures on the all other category; however, this represents a drop of 6 percentage points from the high 88 per cent share in FY1993. The share of total State funds allocated to the all other category also fell by 3 percentage points from 42.9 to 39.7 per cent between FY1993 and FY2003, respectively. The declining shift in spending from bond funds, which account for a small fraction of the total of *All other* expenditures, is another notable development. For instance, the share of total bond funds allocated to the *All other* category slided from 67.7 to 28.3 per cent between FY1993 and FY2003, respectively.

4. Major political and economic developments timeline

This section begins by outlining the underlying political and economic background during the ten years from FY1993 to FY2003 under consideration to help us shed light on the observed trends in State spending in New Jersey during that period.

The ten years span an interesting range of political events:

a) Governors, their terms and their party affiliations[24] (Table 4),

b) Gubernatorial election years during the study period.

There were three gubernatorial elections in New Jersey between FY1993 and FY2003 during which following two governors were elected with one of them reelected to a second term. In January 1994 (or FY1994) Governor Whitman started her first term as Governor followed by her reelection and start of second term in January 1998 (or FY1998). The third election was in November 2001 when Governor McGreevey was elected and he was sworn in January 2002 (FY2002). During this period there were two Presidential elections in the U.S. when President Bill Clinton (Democrat) won his second term in the 1996 election and President Bush (Republican) won his first Presidency in 2000.

c) Geopolitical conflicts include the September 11, 2001 terrorist attack followed by the war on terror in Afghanistan that had started on October 7, 2001; the war with Iraq since March 2003 and the creation of Homeland Security related

[24] See the Manual of the Legislature of New Jersey 2004 for details.

Table 4

NJ Governors, Their Terms and Their Party Affiliations

Name	Date Sworn to Office	First Budget	Last Budget	Party Affiliation	Elected [E]/ Acting [A][25]
Jim Florio	1/90	FY1991	FY1994	Democrat	E
Christie Whitman	1/94	FY1995	FY1998	Republican	E
Christie Whitman	1/98	FY1999	FY2001	Republican	E
Donald DiFrancesco	1/01	FY2001	FY2002	Republican	A
John Farmer, Jr.	1/02	n/a	n/a	n/a	A
John Bennett	1/02	n/a	n/a	Republican	A
Richard Codey	1/02	n/a	n/a	Democrat	A
James McGreevey	1/02	FY2003	FY2005	Democrat	E
Richard Codey	11/04	FY2006	FY2006	Democrat	E

activities since late 2002, a post 9/11 development with budgetary implications. More than $300 million were appropriated for security programs between FY2002 and FY2003.

d) The Economic time line during the tens years under consideration indicates that the State was enjoying one of the longest period of economic expansion in recent history with the last two fiscal years, FY2002 and FY2003, suffering economic contraction, particularly, after the stock market started plummeting in FY2002.

The above outlines the major political and economic timeline within the period of review. Based on New Jersey's spending data primarily extracted from the NASBO's State Expenditure Reports we find that overall State spending has grown at positive rates in all the ten years and spending grew at an average annual rate of 5.1 per cent, which was similar to New Jersey's Gross State Product average annual growth during the same period.

The spending growth appears to be generally responsive to the State of the underlying economic conditions, particularly, the phase of the economic cycles. Take for instance the early Nineties when spending growth was slow as the economy was pulling out of an economic recession. In contrast, New Jersey's total spending

[25] Due to rather unusual circumstances, New Jersey had four acting Governors from January 1 to January 15, 2002 before Governor McGreevy was sworn into office on January 15, 2002. Having John Bennet and Richard Codey as co-Presidents of the New Jersey Senate, for instance, made them take turns as acting governors for the State.

grew at a rapid pace, in the late Nineties to early 2000's with the stock market boom, increasing at an average annual growth rate of 8.5 per cent between FY1998 and FY2002.[26] The State experienced an increase of nearly $9 billion in total expenditures with an average increase of $2+ billion during these four fiscal years.

The solid growth in State fund spending, which includes general fund revenues, during the expansionary years also supports the above observation. The Gross Income tax, which is the single largest source of State own source general fund revenues, accounting for over one-third of total State revenues, increased by solid double-digit growth rates, ranging from 10.9 to 15.9 per cent, during the economic expansion and stock market boom before taking a nose dive in FY2002, following the stock market crash in 2002 and the resultant economic slowdown. This record growth in State income tax revenues fueled long term spending commitments, including both new and expanded programs. Despite the tanking of the GIT revenues, which fell by more than 14 per cent, these State programs remained on the budget leading to serious fiscal pressures as reflected in the slowdown in State spending growth since FY2003.

The shift in the composition of spending under the public assistance category towards General Assistance and other cash assistance programs during the economic slowdown is a case in point illustrating that State spending trends are indeed affected by the economic environment. Even the TANF caseloads appear to be increasing after declining for years when the State was able to move recipients from the welfare rolls to jobs, which were available at the time when the economy was expanding. As indicated in the FY2006 budget,[27] the number of TANF emergency assistance recipients increased by nearly 151 per cent between FY2001 and FY2004 due to the increase in the need for rental assistance. The public assistance programs are generally designed to be anti recessionary to provide support for economic hardships.

Now let us examine how the political environment may have affected the pattern and trend in State spending in New Jersey. As indicated in the Table 4 overleaf, there is sort of a sandwich situation with democratic governors at both the beginning and end years with a two term republican governor in between. It would be useful from a policy maker's perspective to know how the political philosophies, say of Governors, influence the State spending structure and trends. In general the Governor's Budget message (GBM) should reflect his or her spending priorities. Chart 8 indicates the trend in major increases and major decreases in appropriations during FY1993 and FY2004. It is interesting to note that the first and last two years (FY1993-FY1994 and FY2003-FY2004) represent transition periods: the first set is associated with a period when the economy is transitioning from a contraction from the early Nineties while the last two years also are transition ones moving from contraction to slow economic recovery. In contrast the eight years in between

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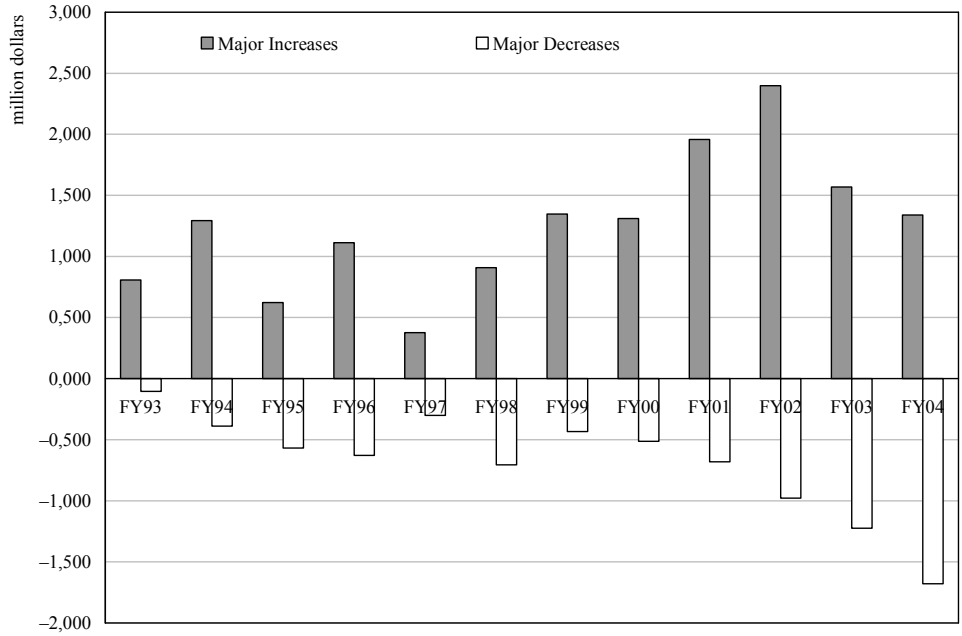
[26] The U.S. stock prices started to fall sharply after peaking in March 2002. The major stock market indexes experienced sharp drops by October 2002.

[27] FY2006 BIB, p. 21-22.

Chart 8

Major Increases & Decreases in Appropriations, FY1993 to FY2004



include some of the best economic years for New Jersey; FY2002 being an exception.

Two of the largest major decreases were in FY2003 and FY2004 under democratic Governor McGreevey and the size of major increases were below the average increase under the second term republican Governor Whitman. The average net change was minimal in that period. It is interesting to observe that both the average of major increases and net change increased significantly in the second term of Governor Whitman. For instance, the average size of net increases in appropriations went up by 132 per cent from $755 million under the first term to $1.753 billion in the second term. The average size of the net change in appropriations grew at a higher 438.6 per cent rate climbing from –$205 million to $1.102 billion. Based on these results, one could hypothesize that a second term Governor has relatively more freedom in setting the level and distribution of appropriations. It is possible that "not running for elections" adds to the degree of freedom in budgetary planning related decision making. This probably explains why Acting Governor Codey is being able to propose historic reductions in State spending and other budgetary changes, including a steep reduction in non-recurring budget actions, which are likely to suffer political will from candidates seeking election.

A quick review of governor's budget messages, presented in the Budget in Brief (BIB) document, reflects some of the revealed preferences of governors and other decision makers. The FY2002 BIB, the last under Governor Whitman is a case in point. Her commitment to environmental programs including open space preservation is reflected in her recommendation of $116 million for the Department of Environmental Protection, including the newly proposed dedication of $25 million from New Jersey's Realty Transfer fee for the reconstruction of State park and wildlife facilities and $10 million to rehabilitate public and private dams. In addition she recommended the constitutional dedication of $98 million to the Garden State Preservation Trust Fund for open space programs.[28] She was also instrumental in recommending large capital appropriations of $1.2 billion of which the single largest was for the Transportation Trust Fund. These priorities are reflected in the expenditure growth trends that are being analyzed. For instance the all other category that includes spending on environmental projects and other capital projects increased by 19.9 per cent in that fiscal year. The growth in spending out of bonds is also reflected in the steep annual per cent increase in the share of bonds in total State spending in FY2002.

The politics of the Governor's preferences on the revenue side of the budget also has the potential to affect spending trends both directly, through dedication for particular expenditure categories for instance, or indirectly, through a particular type of fund such as general fund spending. Governor McGreevey's FY2003 BIB is a case in point. Also, depending on the revenue initiatives being proposed, the impact on spending could be either temporary[29] or permanent.[30] One of the major revenue enhancement initiatives proposed by the Governor was corporate tax reform to promote tax fairness. In FY2003, it generated around $2.5 billion in revenues that were deposited in the State general fund. However, there is another effect of the CBT tax reform via the increase in revenues from the 4 per cent share that is constitutionally dedicated for certain environmental programs.[31]

Other influences of politics on State spending trends can be observed under intergovernmental transfers and joint program initiatives. New Jersey participates in Medicaid, and has a generous program as it provides all the optional services, including prescription drugs and home health care. However, the spending on Medicaid keeps rising uncontrollably due to federal mandates, which have been escalating. According to the latest budget message, Medicaid mandates are expected to increase by nearly 137 per cent to $289 million in FY2006.

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[28] See State of New Jersey, *Budget in Brief*, Fiscal Year 2001-02, p. 24.

[29] For instance, the use of tax amnesty measures generates one time revenues that could be used to fund a new non-recurring expenditure or provide general fiscal relief.

[30] The FY 2004 increase in the Realty Transfer Fee rates, for instance, represents permanent changes to a tax source that did not change in 19 years.

[31] In 1996 a constitutional dedication was made to divert 4 per cent of annual revenues from the New Jersey Corporation Business Tax for Site remediation and water monitoring environmental programs. Since such spending is included in the all other category, the CBT growth would contribute to a growth in spending in the all other category.

Federal legislation changes also affect the pattern of State spending. After the tragic events of September 11, 2001, the U.S. Congress passed the Homeland Security Act and created the Department of Homeland Security in 2002.[32] New Jersey has tried to stay on top on this front despite the declining share of per capita federal funds, since the federal government was using a population based formula that was diverting relatively more money to some rural States such as Vermont and Wyoming instead of New Jersey with a higher potential terrorist threat.[33] New Jersey has been attempting to fill the gap by adding new surcharges on car rentals and monthly telephone bills to pay for several programs, including enhanced 911 service, wireless calls, municipal aid for Homeland security grants.

This case illustrates intergovernmental transfers among all the three levels of government, introducing another layer of local politics in shaping State spending. As noted earlier that the bulk of State expenditures, around 71 per cent, are on State Aid and Grants-in-Aid to local governments, including school districts in New Jersey. An analysis of local government activity would provide a more complete understanding of all activities in the State, however, it remains outside the scope of this paper. In particular, the SERs data are not suitable for such an analysis.

5. Conclusion and beyond

State spending trends in New Jersey in the last ten fiscal years were examined using data in the State Expenditure Reports compiled by NASBO. It is important to keep in mind that the NASBO data are based on survey data provided by States so the quality of the data is dependent crucially on the accuracy and completeness of the survey response. Total expenditures including both operating and capital expenditures were included in the data. However, it would be useful to extend the analysis to study the structure and trends in State capital spending separately.

The trends were studied in the context of various economic and political settings to identify significant factors affecting the underlying structure of State spending in New Jersey. State general fund accounts for the bulk of spending and E&SE and Medicaid remain the two single largest program categories in the State spending.

In attempting to understand the spending trends major economic and political events were tracked. Major changes in appropriations shown in budget documents were reviewed to understand the revealed preferences of the governors. It was interesting to observe that seeking election, reelection or not and the term currently being served by the governor may also influence the budgetary proposals in the State.

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[32] Refer to 6 U.S.C. 101 for details.

[33] Under the Urban Area Security Initiatives grants.

There are several other issues that affect State spending trends such as supplemental appropriations. The actual spending for a particular fiscal year depends on both what was budgeted originally through the Appropriations Act and through supplemental appropriations during the course of that fiscal year. The issue of on-budget and off-budget spending should be explored as well. Another useful item for future research would be to study the pattern of non-recurring (the so called one-shots) revenues on current and future State spending trends.

It would be useful to include spending by local governments to get a better understanding of what goes on in the State as a whole, particularly, in areas where spending decisions are made by both the State and local governments. There are so many important expenditure issues that would be better understood if local government issues including those relating to school finance reform; inequality in the distribution of expenditures on K-12 spending; and local options revenues are included in the analysis.[34]

Future efforts should be directed in generating *user-friendly* data format in the State budget documents such as those showing expenditure data by major program categories. This would facilitate the understanding of where the budget dollars are actually spent by funding sources in a particular fiscal year. Currently, it is a difficult task to extract such information from the State Budgets and Comprehensive Annual Financial Reports without help from the OMB staff. One of the reasons being that different accounting and reporting concepts are used to prepare these documents. For instance, the latter conforms to the generally accepted accounting principles (GAAP) while the former uses budgetary basis accounting, which recognizes encumbrances[35] as expenditures and reflects transactions only for the current fiscal year. The goal should be to enable the reader to easily identify total expenditures in a particular fiscal year on any specific expenditure program of interest and to understand the underlying sources of funding in the State budget.

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[34] For a discussion of expenditure issues relating to local governments in New Jersey refer to the New Jersey State and Local Expenditure and Revenue Commission Report.

[35] In the budget glossary, "encumbrance" is defined as a reservation of funds for future payment (disbursement) to liquidate an obligation incurred, usually by the issuance of a purchase order or the execution of a contract calling for payment in the future.

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COMMENTS ON SESSION 1: PUBLIC EXPENDITURE TRENDS

Geert Langenus[*]

First of all, I would like to thank the colleagues from the Banca d'Italia for inviting me to this workshop. The success of this series of workshops is reflected in the number of the participants and papers that are presented. Both numbers have increased to very high levels over the years. This slightly complicates the task of the discussants as, now, we only have 15 minutes to comment on eight papers. This would give us less than 2 minutes per paper. That is why a task-sharing arrangement for this session seemed more appropriate to us. I would focus my comments on the first and second paper while Ricardo will mainly discuss papers 3 to 5 and Ivan will tackle papers 6 to 8. This arrangement should avoid the risk that you hear the same comments three times and allow us to give each paper the attention it deserves.

Actually I am quite happy about my share of the pie: both papers that were assigned to me are very interesting and thought-provoking and I hereby congratulate the authors. The papers look at public expenditure trends from different angles. The one by Heller and Hauner focuses on the risks regarding future spending trends and how to cope with them in terms of budgetary policy setting. The paper by Wierts, on the other hand, is not so much concerned with the level of spending but looks at its composition and assesses shifts in spending patterns towards more productive categories. When reading the papers I found it useful to keep in mind the mainstream three-pronged approach to deal with the ageing problem. The first pillar of this approach consists in putting the fiscal house in order before the ageing crisis really hits us and create sufficient budgetary room; the second aims at containing the growth of ageing costs (pension entitlements and health care spending); the third, finally, is about pursuing more growth- and employment-friendly strategies. The paper presented by Peter Heller ties in with the first two pillars while Peter Wierts' paper is about the third pillar (although the connection with ageing is not explicitly made in the paper itself).

I will now discuss the papers in the order in which they were presented. The IMF paper correctly argues that future spending pressures are often underestimated for two reasons: first, there is uncertainty about many of the assumptions used in the projections (and official "baseline" projections are rarely based on the most cautious ones); second, one tends to focus almost exclusively on the ageing crisis and forgets about the possibility of other shocks. At the same time, governments' abilities to cope with these spending pressures are limited. That is why a more ambitious fiscal policy stance, together with structural reforms in the area of health care and

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The views expressed in this discussion are those of the author and do not necessarily reflect the views of the National Bank of Belgium.

pensions, is already needed today in order to safeguard fiscal sustainability. Those who know me will understand that I fully agree with this assessment. Hence, I only have a few minor technical comments on the paper and, later on, I will suggest one possible extension.

The first comment pertains to the sustainability indicators which were used as a starting point to illustrate the size of the problem. These indicators measure the fiscal effort which is needed to generate a debt ratio by 2050 equal to the one that would have prevailed if the budget was balanced throughout the period. In my view this does actually not necessarily imply anything about sustainability as it does not guarantee that the 2050 deficit is limited enough to stabilise or reduce the debt. I am somewhat more sympathetic to the view on sustainability developed in the Comley and McKissack paper. Perhaps it would be more appropriate to calculate for all countries what budget balance would be needed to absorb ageing costs – while assuming that revenue and non-age-related spending remain constant with respect to GDP – and generate a balanced budget or a constant debt ratio in 2050. My second remark concerns the table showing potential savings from non-age-related spending where I found the discussion somewhat gloomy. It is argued that the potential savings are very limited but, actually, a permanent spending cut of 1 to 2 per cent of GDP would significantly contribute to cushioning the blow from ageing. The third remark is about the evaluation of acceptable revenue and expenditure ratios based on historical data. I am not sure whether it is very informative to look at these ratios separately. A primary expenditure ratio of 30 per cent might be acceptable when revenue is also 30 per cent of GDP but most likely not when the latter is 50 per cent of GDP. So perhaps one should assess the acceptability of primary balance ratios instead. Finally, the analysis of expenditure overshooting (in Box 1 of the paper) should ideally distinguish between mistakes in nominal spending and GDP forecasts.

These are really just a few minor technical comments I had when reading the paper. Let's get back to the main message however: future spending trends could be substantially underestimated; hence a more ambitious fiscal policy stance is needed. Suppose for a while that policy makers actually buy this message – especially in this beautiful Umbrian landscape it's not forbidden to dream – then they will obviously want to know more precisely what should be done now or in the coming years to be on the safe side in the "ageing" period. Then I think it could be really helpful if we could give them the kind of sustainability indicators that I mentioned earlier and, which, using the labels of the Comley and McKissack paper, would measure full prefunding: which surplus (and, hence, debt reduction) would be needed to "pre-emptively" finance ageing costs (but just ageing costs, not the non-ageing-related rise in health care spending for instance), *i.e.* to absorb them by a worsening of the primary balance without having to resort to additional consolidation measures or generating fiscal imbalances in the ageing period? Such a "frontloading" or "full prefunding" strategy would in my view be more equitable from an intergenerational point of view and allow future governments to keep their hands free to tackle any non-ageing shocks that might occur. Then one could analyse how this required fiscal effort changes if one modifies the demographic,

Table 1

Extending the Heller and Hauner Analysis: An Example for Belgium

	Scenario 1 (higher real interest rates)	**Scenario 2 (constant employment as of 2003)**	**Scenario 3 (full welfare adjustment for pensions)**	**p.m. baseline**
Net increase in social spending in the 2010-30 period	3.6	4.7	4.9	3.6
2010 primary surplus required for frontloading strategy	5.4	5.9	6.0	5.0
2010 overall surplus required for frontloading strategy	1.2	2.3	2.4	1.4
Public debt in 2030	34.1	27.1	25.4	32.5

Source: Langenus, G. and B. Eugène, "Fiscal Policy Setting in a Forward-looking Perspective: The Case of Belgium", paper prepared for the 16th *Congrès des economistes belges de langue française*, included in the conference volume *Les finances publiques: défis à moyen et long terme* (2005, CIFOP).

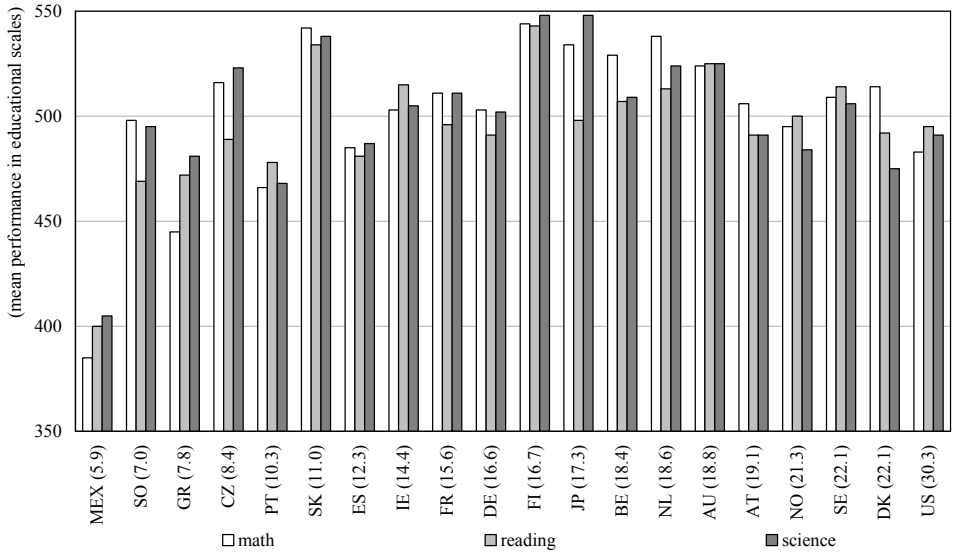
macroeconomic or policy assumptions. We have calculated this in a paper for Belgium. Table 1 taken from that paper adds some further numbers to Peter's general point. If the Belgian government wants to prefund the ageing costs in the way that I described, a surplus of around 1.4 per cent of GDP would be needed by 2010 in the baseline scenario. This would correspond with a primary surplus of some 5 per cent of GDP. However, I personally think that this scenario is too optimistic; it is probably the kind of scenario that made Peter write the book *Who will pay?*. If the macroeconomic or policy environment is slightly less benign, you can see from the table that significantly bigger fiscal efforts are needed. I specifically point your attention to the "scenario 3" column where it is assumed that pensions are indexed to wages (compared to the relatively strong decoupling between pensions and wages in the baseline scenario) as I think that this kind of uncertainty – the one about policy assumptions – could actually have played a more prominent role in the Heller and Hauner paper, especially in view of the rising importance of elderly voters. Generally speaking, I believe that these are the kind of numbers that we should confront policy makers with: which fiscal efforts are needed for full prefunding of ageing costs under different assumptions?

I turn now to the other Peter's paper. This paper provides a very interesting overview of shifts in EU spending patterns and finds that only a few countries have improved the quality of public expenditure. One should point out that Peter has given himself quite a complicated task as the macro data that he uses, two spending classifications, offer a very interesting helicopter view on expenditure trends but

Figure 1

Educational Achievements

(countries ranked according to total spending on education in 2001 PPP USD; figures between brackets indicated in thousands)



Source: OECD.

from a helicopter one can not always discern the details on the ground. The paper is very well written and several of the limitations of this kind of analysis are explicitly acknowledged. My comments will tie in with these limitations and point to some additional ones.

The first comment relates to the breakdown of spending into productive and non-productive items. I can only repeat what Peter already said during his presentation: more money does not necessarily lead to better policy outcomes. In addition, the same accounting labels might cover different things in different countries (and then I am thinking especially about the functional classification). This implies that an analysis based on the distinction between "productive" and "non-productive" money can only provide very rough and not necessarily reliable indications about actual spending quality. Perhaps not all euros attributed to the so-called productive items are well spent. I am sure that most of us have a few examples in mind concerning physical government investment (perhaps even a long list of examples!) but, just for fun, I played around a bit with the data on education spending from the OECD. If you look at an international comparison of education spending and performance indicators regarding educational achievements, you can make rather interesting graphs like the one in Figure 1. On the X-axis I have put the different countries ranked according to education spending per student. I have tried

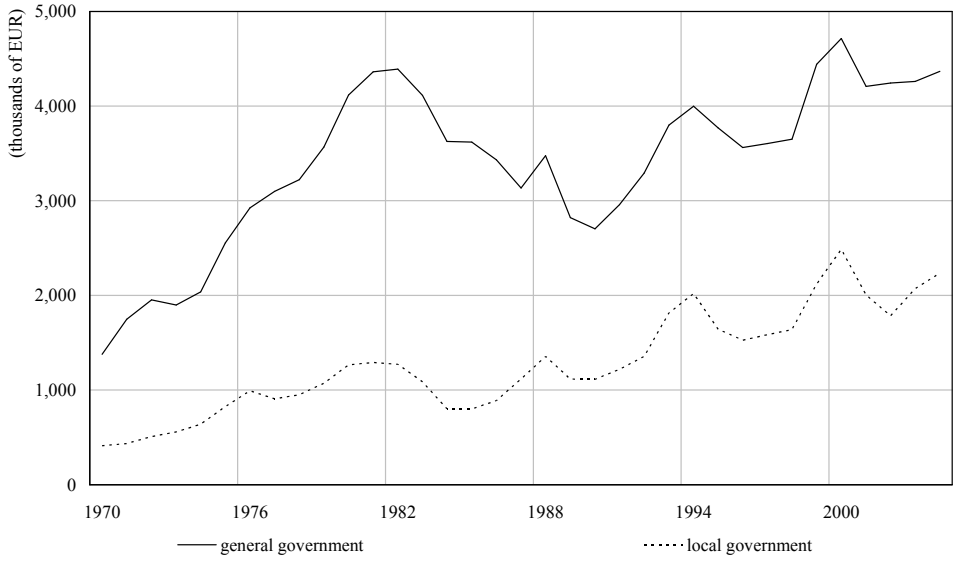
to make this as comparable as possible: taking total spending (including the private part) and only allowing countries for which all data were available in the dataset. On the Y-axis you see three different performance indicators. Instead of a nice upward sloping curve one gets a very erratic pattern. The third discussant of this session, in particular, will be happy to know that the Czech Republic achieves higher average educational standards than the US with only slightly more than a quarter of the American expenditure per student. This was just to show that not only the amount of money invested matters but, perhaps, also the way in which it is invested.

My second point relates to Peter's analysis based on shares in total expenditure. I think this can actually be quite tricky. Take the example of the UK, which gets the best marks in the paper in terms of improving spending quality. In the paper itself it is shown that in four years' time the spending ratio increased by 6 per cent of GDP and Peter could even have added that this contributed to generating an excessive deficit in 2003. I am not sure that this is what the EU leaders had in mind when they agreed on the Lisbon strategy. I would certainly not call this an example to follow and, incidentally, I would also not fully agree with the statement in the paper that "*countries that managed to redirect public expenditure generally respected the EU fiscal rules*".

Figure 2

Government Investment in Belgium

(vertical gridlines indicate municipal election years)



Sources: National Accounts Institute, National Bank of Belgium.

The third remark is that working with "raw" macro data and comparing only two years, as was done in the version of the paper presented at the workshop, can be quite misleading. I refer for instance to the conclusions on investment spending. I noticed the very unfavourable position of Portugal and, to a lesser extent, Italy and Belgium. I would suspect, however, that this is partly or largely explained by one-off real estate sales to comply with fiscal rules. Second, in some cases, conclusions are biased by electoral cycles. Look at the time series of investment by Belgian general and local government, for instance, and you see a clear electoral cycle originating from the local government. By choosing 2000 and 2004 as anchor points, you compare an average point in the cycle with a peak year, as 2000 was a municipal election year. Obviously, you will mechanically register a "drop" in spending quality. In my view, these and other limitations imply that an international comparison based on uncorrected macro data, such as the one by Wierts, can provide valuable indications or tentative conclusions. However, these should then ideally be cross-checked by more focussed country studies.

Then I have three additional comments. First, Peter refers to previous work by the Commission on the long-term decline in government investment. At least in the summary given in the paper the importance of this trend is qualified somewhat as it happened against the background of an already high public capital stock and an outsourcing of investment projects to the private sector. So one could argue that the decrease in government investment isn't all that worrying. I am not sure whether I fully agree with this assessment as, in my view, a third factor referred to in the paper, namely the need for fiscal consolidation, was an even more important driver in many cases. Still, if the Commission assessment is fully accurate, one might wonder if things have changed in the year 2000 as in Peter's paper countries are ranked based on (relative) increases in government investment and chided for further cutting investment spending in the 2000-04 period. I have some trouble connecting the idea that higher government investment in the 2000-04 period improves spending quality with the Commission's rather reassuring statements concerning the drop in government spending observed in previous decades.

Second, I was a bit puzzled by the claim about the positive impact of medium-term expenditure frameworks on spending quality. There is no doubt that those frameworks can help containing the growth of government spending but the intuition behind the coincidence with shifts towards more productive spending should really be spelled out more explicitly in the paper. I can see that medium-term expenditure frameworks make it easier – or more necessary – for governments to clearly determine spending priorities but why should these priorities necessarily be limited to or even include the "productive" items singled out by Peter?

Finally, the argument that there is no contradiction between complying with fiscal rules and improved spending quality is certainly valid in theory. However, in reality rules do not bite for "non-productive" spending only. In addition, the findings in the paper do not really seem to support the claim that countries that have improved spending quality also complied with EU fiscal rules as two of the quality improvers (the UK and the Netherlands) even have exhibited an excessive deficit in the recent past.

COMMENTS ON SESSION 1: PUBLIC EXPENDITURE TRENDS

Ricardo Martner[*]

Let me start expressing my gratitude to Mr. Daniele Franco and the staff of the Banca d'Italia for inviting me to offer these comments. This is my third visit to the Perugia workshops, and I am still impressed with the quality of the works presented and of the discussion. The kindness of our hosts also deserves a mention.

The main trends of the public expenditure composition in OECD countries are described in the papers by Wierts and Heller and by Hauner. In the European Union, a significant rise of total expenditure as a percentage of GDP took place until the Nineties, mainly explained by the establishment of the welfare state: income support, health, education and public pensions (Wierts). The weight of the general government in the economy of the European Union has been rather stable in recent years, clocking in on average at 50 points of GDP. In the rest of the OECD (Australia, Canada, Japan, the U.S.), this indicator is much lower, and social protection is at least 6 points below the average (Heller and Hauner).

The papers of this session are concerned with the future, with only one certainty: ageing population in industrialized countries is a big challenge for public finances, as recent OECD and IMF reports have shown. It is worth mentioning that the average length of retirement (the difference between life expectancy and the effective age of retirement) went from 5 years in 1960 to 18.2 in 2000 (Lefèbvre, Perelman, Pestieau and Vidal).

But uncertainty remains, even in demographic variables, as Heller and Hauner point out. Recently, for example, some experts predicted a decrease in life expectancy in the U.S., due to bad nutrition habits. Certainly, the long-term projections for public finance concerning pensions and health do not consider this assumption. Even if life expectancy continues to rise, as it is plausible, one should expect an endogenous increase of the effective age of retirement in the long term, as Lefèbvre and colleagues conclude in their estimation of a regression panel that the effective age of retirement is positively correlated with income and negatively with longevity.

Uncertainty on economic variables is not minor. For instance, the β-factor (the interest rate/growth differential, in percentage points), used as benchmark to define debt dynamics by Comley and McKissack, fluctuates on average between 2.6 for Finland (not to mention the terrible 9.3 differential of Turkey) and –4.1 for Ireland. Moreover, in countries like Italy, this differential jumped from –17 to 8 points during the 1970-2005 period. Even if this factor tends to be more stable in recent years in OECD countries, any deviation in long-term projections completely

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alters debt dynamic and hence the appreciation of debt sustainability when taking into account ageing populations.

Despite these uncertainties, it is a fact that reforms have to be undertaken. First, in this competitive world, the generosity of pension systems in the European Union is somewhat striking. In that sense, the Lefèbvre and colleagues' paper seems rather pessimistic: the resistance to reforms prevents to converge to the optimal frontier, defined as the best practices that relate the effective age of retirement to economic conditions. In that sense, the comparison between effective and optimal age of retirement is very interesting, as it shows that inefficiencies have grown in seven out of the fifteen countries of the sample, when comparing the Seventies with the Nineties.

But the authors also show that in other seven countries the difference has diminished, as the effective age of retirement is endogenous to income and life expectancy. Hence, if GDP per capita is ever growing in the future, the pressure of social protection in overall public financing should lower, and if life expectancy continues to rise, in the long term the age of retirement should also increase. Endogeneising the effective age of retirement could play a key role in public expenditures projections: to me this is the substantial contribution of the paper.

Second, pre-funding strategies are crucial to manage the future pressure of pensions and health expenditures. Comley and MacKissack classify OECD countries in tough, mild pre-funders and others, depending on the initial levels of debt stocks, taxes and the projection of public finance flows. Many of the pre-funding countries succeeded to generate primary surpluses (Belgium being the polar case) over a long period of time, improving their liability position. These countries have a better starting point than others to deal with ageing populations. Even if it is difficult to make this division between countries, as the criteria are always unsatisfactory, the authors show that pre-funding is a good and perhaps unavoidable strategy for developed countries, even if the question of intergenerational equity remains an open one.

I myself come from a pre-funding emerging country (Chile) that has made pre-payments of debt since the Nineties, achieving an 11 per cent debt burden in 2004 from more than 50 per cent in 1990. In this case, the strategy has to be assessed considering other factors, as the level of poverty or income distribution. Unfortunately, many Latin American countries went from indebtness to recent huge primary surpluses, without establishing the welfare state along the way.

Third, the composition of public expenditures also matters. In the Finnish case, as the paper of Kinnunen and Tuovinen illustrates, between 2005 and 2050 virtually all the rise in health (+0.9), pensions (+4.4) and care for the elderly (+1.0) is compensated by the decrease in children (–0.9), education (–1.4) and expenditure on assets (–1.9), so that the overall expenditure will stabilize at 51 points of GDP. In this kind of projections, the β-factor is critical, since – in the long term – a well behaved relation between growth and interest rates amplify the fiscal room to increase primary expenditures.

Heller and Hauner also point out that the non-age related expenditures do not remain constant over long periods. To be optimistic, there are potential savings in general public services and economic affairs. And institutional reform may help, as emphasized by Wierts, to redirect public expenditure towards growth-enhancing items. The ability to reallocate public expenditure is crucial, and it is much easier within an MTE framework.

The ageing society is undoubtedly challenging for public finances, but not necessarily alarming, if we believe in a better future.

COMMENTS ON SESSION 1: PUBLIC EXPENDITURE TRENDS

Ivan Matalík[*]

I would like to thank the Banca d'Italia, especially Daniele Franco, for inviting me to participate in this conference. My task today is to discuss the Finnish, Dutch, Slovenian and American papers, which were presented during the first session of the conference. This session deals with the public expenditure trends. The papers presented have provided an extensive coverage of this topic. All the papers we have listened to were extremely well prepared and I would like to congratulate their authors.

Each paper represents an individual country's experience and also a different approach of how to analyze the topic. Although there are a lot of differences between the countries, the papers deal with issues which are also topical in the Czech Republic. At first it is growing public expenditure, especially in the social area, which is the main source of the fiscal imbalance in my country. Secondly, we are also facing the question of how to keep public expenditure under control and how to reform it. Finally, the issues about the role of the government in society are one of the crucial questions which we have tried to answer from the beginning of the transition period.

The first paper I would like to comment on is the Finnish paper, written by Helvi Kinnunen and Marfja Tuovinen. The paper deals with population ageing issues and public expenditure trends in the next 45 years in Finland. The changes in the population structure will push up spending on pensions and welfare services. The projected shortage in the labor force supply will limit the potential growth of the Finnish economy. This scenario is also very similar to many other countries. Nevertheless there are some differences. Firstly, a very high increase of people aged 55-74 is expected. Secondly, a big increase of employment in the same group of people is projected, although in many European countries the opposite development is expected. Finally, the high ratio of public sector services will continue and the sustainability of this development is questionable. I would welcome a short comment on this from my Finnish colleague.

The second paper, simulating four scenarios for the Dutch government and health care sector, written by Frits Bos, Rudy Douven and Esther Mot, might serve as a very good illustrative example about the role of the government and the openness of the economy in economic development. The result of this exercise is obvious. The highest economic growth is achieved by a combination of international cooperation and a larger role for the market. I would like to comment on this paper mainly from this point of view. The authors mention in the paper the Lisbon agenda, which aims to increase productivity growth while maintaining social cohesion. We

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all know very well the latest development in this area. The results of the Lisbon agenda are, using diplomatic language, not as encouraging as we had planned in the past. Europe doesn't have enough courage to adopt more ambitious structural reforms. One of the latest examples might be a very weak willingness to liberalize the services sector. I know that it is not possible to directly compare the past of the new EU member countries with the present situation in the EU. Nevertheless, we have gained in our countries some experience. Only fundamental economic and structural reforms lead to economic growth. Economic reforms are painful and touch all people in society. We also very well know that firstly we must achieve economic growth and then we can speak about social cohesion. I don't want to simplify things, but I wanted to say, that if Europe wants to remain one of the most competitive economic regions in the world, it will require more ambitious economic changes. The Dutch paper shows us that the only way how to set Europe on a more prosperous course is a combination of scenarios, where there is more room for greater international cooperation and a larger role for the market (and less for government).

The third paper, the Slovenian one, presented by Andreja Strojan Kastelec, strikes a chord with me. The past trends and current issues are very similar to the Czech ones. One of the main reasons is that Slovenia went through the transition period in the same way as the Czech Republic. She stresses in the paper a need to make expenditure more flexible. This is also something that we would like to achieve in the Czech Republic, but we have not yet been as successful as Slovenia.

When I read this paper I found many similarities with the Czech development in the past. Slovenia had a fiscal surplus at the beginning of transition period, but later it recorded a deficit. In addition, the share of mandatory expenditure is very high and similar to the Czech Republic. Nevertheless there are also differences. I would like to mention the pension reform and a much higher level of wages in the public sector than in private sector. In particular, the level of wages was a little surprising for me. Therefore, I would like to ask my Slovenian colleague what the main factors are behind the wage development in the public sector in Slovenia. I would also like to ask whether the parametric changes, which were adopted in the past have been sufficient to stabilize government spending on pensions in the long term.

Finally I would like to make a brief comment on the paper presented by Ranjana Madhusudhan. This paper analyzes the trends in the state spending in New Jersey over the last ten years. Although it represents a rather different situation in public expenditure than in Europe, it is another interesting overview of public expenditure trends. What I found very interesting was the structure of expenditure. The highest ratio is seen in expenditure on education and on medical aid. Although I have limited knowledge about the role of federal and stage budgets in the U.S. government sector, it seems to me that we could find here a much inspiration for Europe. For example, the New Jersey budget has been in balance over the recent years. Also the room for private sector functioning (e.g. from the point of view of state investments) is much higher than in European countries. Therefore, I would

welcome a brief comment from my American colleague on some of these aspects, especially the role of the federal budget in the New Jersey budget, the issue of the ageing population in the USA and what are the mechanisms for keeping the New Jersey budget in balance.

To conclude, I would like to stress the following. During the first session a lot of differing views on public expenditure trends were presented. Some of the negative trends in public expenditure, especially in pension and social welfare services were mentioned. I think that the main question is how to react to some of these negative trends. Personally, I think that the answer is to be found in the Dutch paper. We need more room for the private sector, more liberalization and to let people know they can't continue to rely on the state to the same extent as in the past.