PUBLIC PENSION REFORM IN EUROPE AND THE USA

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1. Introduction

The reform of pension systems is on the political agenda in most European countries. There is a widespread need to adjust social security arrangements to new demographic, economic and social conditions while safeguarding their essential achievements. Even though several reforms have already been introduced in the recent past, others are under consideration. Pension reforms are also discussed in the United States, where changes have so far been more limited.

Pension systems are an essential feature of all developed countries. Most citizens either contribute to finance them or draw benefits from them: individuals' plans and decisions are influenced by social security rules over a large part of their lifetime. Pension systems absorb sizeable public resources, influence the labour and capital market, and largely affect income distribution both within and across generations. These features make reforms an extremely complex task.

After considering the main drivers of the policy changes under discussion or implemented in developed countries,[1] the paper highlights the three main lines of action characterising these measures: (i) parametric changes in traditional PAYG public schemes, (ii) the introduction of new pension formulas (such as notional funding) in PAYG schemes, and (iii) the development of funded schemes.

The paper examines the debate in the USA and in some European Union countries in the Nineties and in the current decade.[2] The analysis aims at tracing common features, but also at underlining country peculiarities. The paper considers the role of different objectives and policy approaches in determining the reform structure. Finally, it evaluates the results achieved so far.

2. The main factors underlying the pension reform debate

Pension reforms are prompted by three main factors: (i) the increase in projected outlays, (ii) the adverse effects of the pension system on the labour market and (iii) the distributive problems related to public spending composition.

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[1] For a survey of issues which are more relevant for less developed countries, a useful reference is World Bank (1994) and its recent follow-up (World Bank, 2005).

[2] The main features and data of the pension systems of developed countries are examined in OECD (2005).

2.1 Demographic and expenditure developments

Most developed countries are ageing.[3] The ratio of the elderly (65 years and more) to working-age population (20 to 64 years) has already reached historically unprecedented levels and is projected to increase further (Table 1). In OECD countries the ratio will raise from 24.1 in 2000 to 50.6 per cent in 2050 (OECD, 2001; Table 2). The dependency ratio will increase particularly fast after 2010, when the generations born after the Second World War will reach 65. In many countries it will peak after the year 2025. The ageing process is driven by progress in life expectancy and low fertility rates. Migration limits the increase in the dependency ratio but its size is unlikely to offset the impact of fertility and longevity trends (Dang *et al*., 2001).

Demographic changes increase the demand for transfers and services directed to the elderly. Public pension schemes will bear much of this pressure.[4] In spite of the reforms introduced over the last 20 years, the ratio of pension expenditure to GDP is still expected to rise in most OECD countries. In the EU it would increase from 10.1 per cent of GDP in 2000 to a peak of 13.7 per cent in 2040; in the United States it would increase from 4.6 in 2000 to 6.7 per cent in 2050 (OECD, 2001; EPC, 2001, and EPC, 2003; Table 3).

Demographic changes also tend to increase spending for health and long-term care. Overall, age-related public spending in OECD countries is expected to increase on average by about 5.5 percentage points of GDP. While in EU countries expenditure growth will mainly be driven by pensions, in the USA spending for health and long term care will be the dominant factor.

The reform debate largely reflects the concern about these long-term expenditure developments, with the sustainability of PAYG systems being frequently questioned.[5] However, policy changes are sometimes also invoked in order to improve budget balances over the short and medium term. In EU countries this would contribute to ensure compliance with the common fiscal rules and it would help in reducing public debts and interest burdens (Kopits, 1997).

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[3] This paper does not review the vast literature concerning the broader macroeconomic implications of ageing populations. See for instance Casey *et al.* (2003), Group of Ten (1998), Heller (2003), OECD (1998), Roseveare *et al*. (1996) and Visco (2002). Jackson and Howe (2003) examine the capacity of twelve developed countries to meet the impact of demographic changes.

[4] Since the early Eighties this issue has drawn increasing attention and a number of studies have examined the long-term prospects for public budgets. Projections pointed to large increases in age-related spending and, in particular, of pension spending. See Chand and Jaeger (1996) and Leibfritz *et al.* (1995). The evolution of pension expenditure projections, both in terms of methodology and results, is examined in Franco, Marino and Zotteri (2005).

[5] International Labour Office (2001) takes a somewhat different view and argues that the affordability of social protection mostly depends on policy preferences.

Table 1

Demographics and Social Expenditure – Projections

	DEMOGRAPHICS									PUBLIC SOCIAL EXPENDITURE					
	Fertility rates (a)			Life Expectancy (a)			Dependency ratio (a)			Public Social Expenditure (b)			Old Age Public Social Expenditure (b)		
Countries	1980	2000	change	1980	2000	change	1980	2000	change	1980	2000	change	1980	2000	change
Australia	1.90	1.75	–0.15	74.6	79.3	4.7	17.1	20.7	3.6	11.3	18.6	7.3	3.2	5.3	2.1
Austria	1.65	1.36	–0.29	72.6	78.1	5.5	27.8	25.1	–2.7	22.5	26.0	3.5	8.6	10.5	1.9
Belgium	1.68	1.66	–0.02	73.4	77.7	4.3	24.8	28.2	3.4	24.1	26.7	2.6	6.1	8.5	2.4
Canada	1.68	1.49	–0.19	75.3	79.4	4.1	16.2	20.3	4.1	14.3	17.3	3.0	3.1	4.7	1.6
Czech Republic	2.10	1.14	–0.96	70.3	75.1	4.8	23.8	21.9	–1.9	n.a.	20.3	n.a.	n.a.	6.8	n.a.
Denmark	1.55	1.77	0.22	74.3	76.9	2.6	25.3	24.1	–1.2	29.1	28.9	–0.2	8.1	8.3	0.2
Finland	1.63	1.73	0.10	73.4	77.6	4.2	20.0	24.6	4.6	18.5	24.5	6.0	5.2	7.6	2.4
France	1.95	1.88	–0.07	74.3	79.0	4.7	25.0	27.5	2.5	21.1	28.3	7.2	7.7	10.6	2.9
Germany	1.56	1.38	–0.18	72.9	78.0	5.1	27.2	26.4	–0.8	23.0	27.2	4.2	10.0	11.5	1.5
Greece	2.21	1.29	–0.92	74.5	78.1	3.6	23.2	28.5	5.3	11.5	23.6	12.1	5.1	11.8	6.7
Hungary	1.92	1.32	–0.60	69.1	71.7	2.6	22.9	24.5	1.5	n.a.	20.0	n.a.	n.a.	7.8	n.a.
Ireland	3.25	1.90	–1.35	72.9	76.5	3.6	21.7	19.2	–2.5	17.0	13.6	–3.4	4.5	2.6	–1.9
Italy	1.64	1.24	–0.40	74.0	79.6	5.6	23.3	29.1	5.8	18.4	24.1	5.7	7.4	11.2	3.8
Japan	1.75	1.36	–0.39	76.1	81.2	5.1	15.1	27.9	12.9	10.2	16.1	5.9	3.0	6.8	3.8
Korea	2.80	1.47	–1.33	n.a.	n.a.	n.a.	n.a.	11.4	n.a.	n.a.	5.6	n.a.	n.a.	1.4	n.a.
Luxembourg	1.49	1.76	0.27	72.5	78.0	5.5	22.9	23.0	0.1	23.5	20.0	–3.5	6.7	7.2	0.5
Netherlands	1.60	1.72	0.12	75.9	78.0	2.1	20.1	21.9	1.8	26.9	21.8	–5.1	7.1	6.4	–0.7
New Zealand	2.03	1.98	–0.05	73.2	78.5	5.3	n.a.	20.1	n.a.	17.2	19.2	2.0	6.9	5.0	–1.9
Norway	1.72	1.85	0.13	75.8	78.7	2.9	26.6	25.7	–0.9	17.9	23.0	5.1	5.1	6.5	1.4
Poland	2.28	1.34	–0.94	70.2	73.8	3.6	17.5	20.3	2.8	n.a.	21.9	n.a.	n.a.	8.1	n.a.
Portugal	2.18	1.55	–0.63	71.5	76.6	5.1	20.9	26.7	5.8	10.9	20.5	9.6	3.4	7.5	4.1
Spain	2.20	1.24	–0.96	75.6	79.1	3.5	20.2	27.2	7.0	15.9	19.9	4.0	4.7	8.5	3.8
Sweden	1.68	1.54	–0.14	75.8	79.7	3.9	28.5	29.5	1.0	28.8	28.6	–0.2	7.8	9.2	1.4
United Kingdom	1.90	1.64	–0.26	73.2	77.9	4.7	26.8	26.8	–0.0	17.9	21.7	3.8	5.5	8.2	2.7
United States	1.84	2.06	0.22	73.7	76.8	3.1	19.8	21.1	1.2	13.3	14.2	0.9	5.2	5.2	0.0
Countries' average	1.93	1.58	–0.35	73.5	77.7	4.2	22.5	24.1	2.3	18.7	19.3	3.4	5.9	7.5	1.8
EU 15 - average	1.88	1.58	–0.30	73.79	78.1	4.3	23.8	25.9	2.0	20.6	23.7	3.1	6.5	8.6	2.1

Notes: (a) OECD (2004a), *Health Data*; (b) OECD (2004b), *Social Expenditure Database*.

Table 2

Demographic Projections

	Fertility rates (a)			Life Expectancy (a)			Dependency ratio (b)		
Countries	2000	2050	change	2000	2050	change	2000	2050	change
Australia	1.72	1.56	–0.16	76.7	82.6	5.9	20.4	47.0	26.6
Austria	1.31	1.50	0.19	75.0	80.3	5.3	25.2	58.2	33.0
Belgium	1.54	1.80	0.26	75.3	80.5	5.2	28.1	49.5	21.4
Canada	1.62	1.50	–0.12	75.5	80.0	4.5	20.4	45.9	25.5
Czech Republic	1.14	1.50	0.36	71.5	75.2	3.7	21.9	57.5	35.6
Denmark	1.77	1.80	0.03	74.8	79.1	4.3	24.2	40.3	16.1
Finland	1.73	1.70	–0.03	73.9	79.9	6.0	25.9	50.6	24.7
France	1.73	1.80	0.07	74.8	80.0	5.2	27.2	50.8	23.6
Germany	1.40	1.50	0.10	74.7	80.0	5.3	26.6	53.2	26.6
Hungary	1.30	1.60	0.30	66.8	74.6	7.8	23.7	47.2	23.5
Italy	1.22	1.50	0.28	75.5	81.0	5.5	28.8	66.8	38.0
Japan	1.38	1.61	0.23	77.4	79.4	2.0	27.7	64.6	36.9
Korea	1.71	1.59	–0.12	70.6	76.2	5.6	11.3	45.4	34.1
Netherlands	1.71	1.80	0.09	75.5	80.0	4.5	21.9	44.9	23.0
New Zealand	-	-		74.3	79.5	5.2	20.4	48.3	27.9
Norway	1.80	1.80	0.00	75.7	80.0	4.3	25.6	41.2	15.6
Poland	1.34	1.58	0.24	69.9	78.5	8.6	20.4	55.2	34.8
Portugal	1.53	1.70	0.17	72.0	78.0	6.0	26.7	50.9	24.2
Spain	1.19	1.50	0.31	74.9	79.0	4.1	27.1	65.7	38.6
Sweden	1.50	1.80	0.30	77.3	82.0	4.7	29.4	46.3	16.9
United Kingdom	1.72	1.80	0.08	75.2	80.0	4.8	26.6	45.3	18.7
United States	2.05	1.95	–0.10	73.9	79.1	5.2	21.7	37.9	16.2
Countries' average	1.54	1.66	0.12	74.1	79.3	5.2	24.1	50.6	26.4

Notes: (a) OECD (2001); for New Zealand data are for 1996 and 2051; (b) Casey *et al.* (2003).

Table 3

Expenditure on Public Pensions – Projections
(percent of GDP)

Countries	2000	2010	2020	2030	2040	2050	change 2050-2000 (c)
Australia (b)	3.9					5.7	1.8
Austria (a)	14.5	14.9	15.8	17.2	17.3	16.5	2.0
Belgium (a)	10.0	9.9	11.4	13.3	13.7	13.3	3.3
Canada (b)	5.1					7.9	2.8
Czech Republic (b)	9.6					15.7	6.1
Denmark (a)	10.5	12.5	13.8	14.5	14.0	13.3	2.8
Finland (a)	11.3	11.6	12.9	14.9	16.0	15.9	4.6
France (a)	12.1	13.1	14.3	15.0	14.7	n.a.	2.6
Germany (a)	10.8	11.1	12.1	13.8	14.4	14.9	4.1
Greece (a)	12.6	12.6	15.4	19.6	23.8	24.8	12.2
Hungary (b)	7.2					15.3	8.1
Ireland (a)	4.6	5.0	6.7	7.6	8.3	9.0	4.4
Italy (a)	13.8	13.9	14.8	15.7	15.7	14.1	0.3
Japan (b)	7.9					8.5	0.6
Korea (b)	2.4					10.4	8.0
Luxembourg (a)	7.4	7.5	8.2	9.2	9.5	9.3	1.9
Netherlands (a)	7.9	9.1	11.1	13.1	14.1	13.6	5.7
New Zealand (b)	4.8					10.5	5.7
Norway (b)	7.3				17.1	16.9	9.6
Poland (b)	12.2					9.6	–2.6
Portugal (a)	13.3	14.7	15.5	15.7	15.5	15.3	2.0
Spain (a)	8.4	8.0	8.5	9.9	12.0	13.0	4.6
Sweden (a)	9.0	9.6	10.7	11.4	11.4	10.7	1.7
United Kingdom (a)	5.5	5.1	4.9	5.2	5.0	4.4	–1.1
United States (b)	4.6					6.7	2.1
EU 15 (a)	10.1	10.6	11.7	13.1	13.7	13.4	3.3
Countries' average	8.7					12.3	3.6

Notes: (a) Franco and Marino (2004), source: EPC (2003) and EPC (2001) – the latter only for countries whose forecasts did not change with the 2003 projection exercise; (b) OECD (2001) – it includes old-age pensions and early retirement programmes; (c) For France, change 2040-2000.

2.2 Labour market effects

In most industrialised countries, the participation rates of the elderly significantly fell over the last decades (OECD, 1995a and 1995b). In OECD countries, the average labour force participation rate for 55 to 65-year old men steadily declined from 79 in 1970 to 62 per cent in 2000 (Gruber and Wise, 1999). The average effective retirement age is slightly under 60 in most European

Table 4

Pensions and Labour Market

	Changes in pension wealth from working an additional year* (percent of earnings) (a)	Employment rate of men 55 to 64 in 2000 (percent) (a)	Average age of withdrawal from labour market (Men - average 1994/1999) (b)
Australia	–	59	62.3
Canada	–2	58	62.2
Finland	1	44	59.8
France	–	38	59.3
Germany	0	48	60.5
Italy	–	30**	59.3
Japan	–	78	69.1
Korea	37	68	67.1
Norway	n.a	73	64.2
Netherlands	–	50	61.6
Spain	–1	55	61.1
Sweden	–	68	63.3
Switzerland	5	77	n.a.
United Kingdom	n.a	60	62
United States	5	66	65.1

Nota: Source: (a) OECD 2003; (b) Scherer (2002).
* for the average production worker, at the earliest eligibility age.
** age group 60-64.

countries. The EU average is about 59 years.[6] In the USA it is about 65 (Scherer, 2002; Table 4).

[6] Visco (2001) notes that while in the period 1960-1985 life expectancy in the OECD area increased by about 4 years, over the same period the unweighted average age of retirement declined from around 65 years for both males and females to 62 years for males and 60 years for females. This implies that the average duration of receipt of a public pension increased by about 7 years.

One explanation for the low participation rates in Europe is that PAYG systems are not neutral with respect to the retirement decision. Indeed, in many countries social security provisions are such that the pension wealth of a worker (*i.e.* the discounted value of the stream of future pension payments) decreases with the age of retirement.[7] Differentials in activity rates may also reflect the design of other welfare programs as well as the higher European personal income tax and social security contribution rates. The large tax wedge may affect both the demand and supply of labour.

Even if the trend towards lower activity rates seems to have come to a halt, the present levels of participation rates are considered too low in view of the ageing process. There is also a growing awareness that in order to achieve higher employment rates, countries need both to improve the design of pension schemes and to take action in the labour market (more training for older employees, higher flexibility in age-earnings profiles and in working arrangements).

2.3 Redistribution issues

The increase in pension spending has contributed to improve the economic conditions of elderly citizens, who were traditionally one of the groups with relatively high poverty risks. Poverty rates for older citizens have dropped and are now similar to the population average: in some European countries they are actually lower than for younger people (Table 5).[8] The poverty risk of the elderly is limited by minimum pension guarantees, such as flat-rate universal benefits or means-tested social assistance schemes. Many countries offer top-up payments to raise earnings-related pension entitlements to a specified minimum level. In most EU countries, public pension schemes allow adequate living standards after retirement.

This has led to question whether more public resources should be channelled to other welfare programs, which are more targeted towards the needs of other social groups. The rise in the ratio of pensioners to the active population could induce an increase in contribution rates and could compress the resources available for other potentially problematic groups of citizens.

3. The available policy options

High and rising expenditure as well as badly designed pension schemes can threaten the sustainability of public finances, exacerbate inefficiencies in labour markets and determine problematic redistributive outcomes (OECD, 1988). In order to address these issues, pension reforms have long been discussed in most developed countries. Generally they follow one of the three following broad lines of action:

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[7] See Blondal and Scarpetta (1998) and Duval (2003).

[8] See European Council and European Commission (2003).

Table 5

Pensions and Poverty

	Poverty rate* for people aged 0 to 64	Poverty rate* for people aged 65 and over
Belgium	11	22
Denmark	7	31
Greece	18	33
Finland	10	17
France	14	19
Germany	11	11
Italy	19	14
Ireland	17	34
Austria	10	24
Portugal	18	33
Netherlands	11	7
Spain	19	16
Sweden	10	8
United Kingdom	19	21
United States	-	-

Note: Source: Economic Policy Committee (2003).
* at 60% of median income.

parametric changes in traditional PAYG public schemes, the introduction of new pension formulas (such as notional funding) in PAYG schemes and the development of funded schemes.[9] In spite of the different approaches, all reforms basically tackle one issue: how to grant adequate living standards to an increasing number of elderly citizens without imposing an excessive burden on public finances (OECD, 1994).

3.1 Parametric changes

In most developed countries social protection programs are built around a PAYG pension scheme, in which social contributions paid by those currently

[9] The literature on the economics of pension reform is vast, for a survey see Feldstein and Liebman (2002) and Lindbeck and Persson (2003). The international organisations have significantly contributed to the debate, see Heller (1998), Holzmann (2000), Queisser (2000) and OECD (1988). For a general discussion of the mechanics of social security systems, see Diamond (2004).

working are transferred to retirees in the form of pension benefits. One possible reform strategy involves changes in the parameters of such scheme that do not question its basic structure (European Commission, 2001). In many countries contribution rates are already considered very high, making their increase a non-feasible option. A reduction in pension expenditure can be achieved by reducing the level of the average individual benefit and/or the number of pensions. It can be implemented in several ways: the proportion between past wages or contributions and the initial level of benefits can be made less favourable; the rate of growth of benefits during the retirement period can be linked to price increases instead of wages dynamics; the normal retirement age (the age after which retirement entitles to full benefits) can be increased; the minimum age can also be raised.

An increase in the minimum eligibility age forces liquidity-constrained agents to work longer and increases the average effective retirement age. If the system is actuarially fair, this measure has no first order impact on spending in present value terms, but merely changes the intertemporal expenditure profile. However, as already mentioned, most schemes are not neutral with regard to retirement. Also, if there is under-investment in real annuities (either because the market for this instrument is inefficient or because workers act myopically), a rise in the minimum eligibility age ensures more adequate pension levels.

Distortions in labour supply can be reduced if the links between benefits and lifetime contributions are tightened (for example, by extending the number of working years which are relevant for the computation of benefits). As labour supply in the early part of a worker's career is typically quite inelastic, what matters the most are the incentives faced by individuals at – and immediately after – the minimum retirement age. In a well designed pension system the pension formula should make the discounted pension wealth independent of the moment of retirement, so that the system mimics, at the margin, an actuarially fair scheme (Wise, 2005).

All such policies have distributive implications. First of all, increasing the weight of the earnings-related component of pension benefits reduces the degree of insurance against unexpected and undeserved differences in lifetime earnings across individuals. On the other hand, extending the number of working years that are relevant for the computation of benefits can make the system less regressive, as high earners are also characterised by steeper age-earnings profiles. Finally, increasing the retirement age tends to penalise individuals who have started to work earlier and have been employed in activities involving a shorter life expectancy.

3.2 Notional defined contribution system

In the previous paragraphs we have discussed how different reforms would change the steady state of the economy. However, it is also relevant to understand how social security systems differ in their response to shocks (especially those

related to adverse demographic developments).[10] The majority of existing PAYG systems grant a fixed rate of return to workers (*i.e.* they provide "defined benefits"). If there are changes, such as a reduction in the rate of growth of total wages (which determines the rate of return of the system), future working generations will have to pay higher payroll contributions in order for the pension system to have a balanced budget. In a fully funded system, instead, these shocks translate directly into a change in the pension wealth of the person (therefore such systems are said to be of the "defined contribution" type), [11] leaving the future workers unaffected. The same is true for a decrease in mortality rates: in a standard PAYG scheme the fraction of GDP transferred to the non-working population would increase, while in a funded system an improvement in life expectancy causes the price of annuities to rise, which only hurts the younger generations.

Some recent reforms introduced in PAYG schemes aimed at making the intergenerational distribution of macroeconomic and demographic risks similar to the one characterising an investment-based scheme.[12] Indeed, in such plans (called Notional Defined Contribution plans), the formula which translates contributions into benefits weights each year's contribution with a discount factor which is proportional to the medium-run growth of the wage base, *as if* contributions had been invested at a compound interest rate equal to that rate of growth. While it is easily demonstrated that any pension formula which uses the whole contributory life to calculate pension benefits shares this structure, other two features make NDC systems somewhat different from standard PAYG schemes: first, the formula multiplies this discounted sum with a factor which automatically reflects life expectancy and the age of the individual, *as if* the person was using his/her fictional wealth to buy an annuity on the insurance market. Secondly, Social Security administrators keep track of cumulated contributions and in some cases (for example in Sweden) communicate this amount to the worker, *as if* the person had an actual account.

As a consequence, NDC systems can mimic the same apportionment of socioeconomic risks across generations of an investment-based plan, without the strains of the transition and without its high economic costs and rate of return risks. They can be designed to adjust automatically in order to respond to exogenous variables variations, reducing the risk of unexpected rule changes. Personal accounts give to workers a clearer perception of their pension position and transparent accrual rules increase available information necessary for efficient decision making during the working life. Indeed, endowing people with personal accounts should make it easier to move across different jobs and sectors, as well as across different stages of the life cycle.

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[10] The different intergenerational contracts implicit in pension schemes are examined in Musgrave (1981).

[11] As in Lindbeck and Persson (2003) among others, our taxonomy distinguishes the contribution-based vs. flat-rate dimension of the pension formula from the defined contributions vs. defined benefit dimension.

[12] See Cichon (1999), Franco (2002) and Palmer (2002).

Anyway it must be stressed that even though a NDC system can improve work incentives, the effects are not automatic. The *"as if"*s have to work properly: first workers have to understand how the NCD system works (hence governments should properly inform citizens); second contributions should be perceived as invested funds. Finally, the inclusion of adjustment mechanisms does not guarantee *per se* that reforms to the system would not be required over long periods.

Parametric changes based on predefined adjustment mechanisms, via NDC formulas or via other pension rules, can reduce problematic political discussions. The mechanisms relating pension indexation to economic developments can help spreading the burden of demographic changes or economic shocks across all generations, including pensioners.[13]

3.3 Introducing investment-based elements

If confronted with current or perspective social security imbalances, one policy option is to shrink or – in an extreme case – eliminate the PAYG scheme. An adequate old-age income would then be pursued through investments on the financial markets, at the individual or at the collective level. In fully privatised funded systems, workers are given control of the way in which their contributions are invested. Alternatively, the government can manage the public pension funds. In any case, the rate of return on pension savings is determined by financial markets performance.

PAYG and funded schemes are subject to different risks and returns.[14] PAYG schemes are superior in the alleviation of poverty and the provision of insurance against inflation and investment risks. On the other hand, they are vulnerable to population ageing and decline in employment. Governments may also default promises based on optimistic assumptions. Funded schemes produce lower distortionary effects in the labour market. They may also contribute to the development of financial markets and provide workers with higher returns to contributions in a situation in which the real interest rate is higher than the rate of growth of employment and real wages. On the other hand, they are vulnerable to investment risks, have relatively high administration costs and suffer from the inefficiencies of the market for annuities. These different features of PAYG and funded systems may advise to opt for a mixed system (Lindbeck, 2002). The development of funded schemes can facilitate the reforms of PAYG schemes by offering to the workers the possibility to compensate for the reduction in the replacement rate resulting from the reforms.

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[13] Lindbeck (2002) notes that if automatic risk sharing between generations is desired, an obvious reform is to introduce a mechanism that ensures that the relation between pensions and the earnings of contemporary workers is fixed.

[14] See, for instance, Panel on Privatisation of Social Security (1998), Lindbeck and Persson (2003) and Sinn (2000).

The economics of shifting from PAYG to funding is quite complex and involves many policy issues (Holzmann, 1999; Disney, 2000). Abstracting from market failures, if workers' contributions to social security are capitalised at a rate that is lower than the market rate of return, a PAYG system is equivalent to a tax on labour. This implies that a reform which would abruptly dismantle a PAYG scheme (starting from the current period no contributions are levied and no benefits are paid), would increase efficiency because labour supply distortions would disappear. Of course, this reform is not viable from a practical point of view, as it would dramatically penalise those who have already matured substantial pension rights under the PAYG system.

Alternatively, pension liabilities determined by past contributions can be fully recognised. In this case, implicit pension liabilities are treated as an equivalent amount of explicit public debt. However, there are efficiency and redistributive effects that depend on the intergenerational apportionment of the burden of outstanding pensions. If obligations are met by rising the payroll contributions of those currently working and the old PAYG system is close to actuarial, distortions would increase in the short run – because workers will pay higher marginal tax rates – but they would decrease in the long run. Those which are in the workforce at the time of the reform would be hurt, the retirees would not be affected, and future generations would be better off. Savings would also increase, as current workers would need to save in order to sustain their post-retirement consumption. Feldstein (1996) points out that if the economy is in a steady state with a sub-optimal level of capital this effect will improve efficiency as well. Instead, if obligations are met through debt issuance, the intertemporal profile of labour market distortions would be smoother, but the effect on capital deepening would be reduced, the increase in private savings being at least partially offset by the reduction in public savings. In practice, governments can adopt mixed packages: they can reduce the implicit debt of the PAYG schemes, make explicit a part of the remaining debt, and increase taxation to finance the remaining part.

Whether the transition improves the long-term performance of the economy depends on a number of factors, including the design of the PAYG system. A shift from a well designed PAYG system to an investment-based system does not guarantee a Pareto improvement (Sinn, 2000). Furthermore, any net efficiency gain which comes from intertemporal tax smoothing could also be obtained in a PAYG system. Any improvement which comes from a higher steady state level of per capita physical capital could probably be achieved by addressing the distortions which determine under-accumulation (for example badly designed capital income taxes).

Financial market performance is also important. The returns of funded systems tend to exceed in the long term those of PAYG systems. However, higher returns from personal accounts should be adjusted for risk and the high administrative costs usually incurred by private pension funds (Feldstein and Ranguelova, 2001, and the papers in Shoven, 2000). In particular there is a trade off between the freedom of choice granted by a wide offer of privately provided saving

products and the lower costs of publicly managed funds. Furthermore, due to market imperfections, available annuity products are expensive and less than perfectly linked to inflation. Unequal access to financial markets can lead to undesirable distributive outcomes. Well functioning funded systems require effective regulatory agencies and a wide array of sophisticated financial instruments (Group of Ten, 2005).

On the other hand, an increase in the demand for privately provided annuities can contribute to improve financial markets efficiency. Collective management of workers' saving, be it through a centralised fund or through financial intermediaries, can be expected to increase the overall demand for securities. In turn, this could have an impact on the supply of securities: as markets become more liquid, it becomes worthwhile to introduce new financial products (so reducing the degree of market incompleteness).[15] A shift from a PAYG to a system of mandatory savings is also likely to enhance the household saving rate.[16]

3.4 Summing up

From this concise review of the main policy options we can highlight a few points.

1) The status quo is not an option for most developed countries: the soundness of PAYG pension systems is put into question by demographic and economic developments. Sooner or later governments will have to choose from an unpalatable menu: benefit cuts, higher payroll taxes or a substantial downsizing of the system. Early action may allow the implementation of gradual solutions providing individuals a long period of time in which to adjust their work and saving decisions to the new framework.
2) All reforms are likely to hurt some categories of citizens or some generations, in terms of cuts in their social security wealth or of higher tax burdens. Reforms can however improve the incentive structure of the pension system. The removal of distortions, such as the incentive to early retirement, can have positive effects on economic growth. Reforms should both ensure the macroeconomic sustainability of pension systems and improve their microeconomic features. This can either be achieved via parametric changes in traditional PAYG schemes, the introduction of NDC systems or a greater role of funded schemes.

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[15] Furthermore, pension funds can provide a useful monitoring role against managerial misbehaviour and be a powerful force for the introduction of pro-investor laws. All these direct and indirect effects should in principle spur financial market development (Impavido and Musalem, 2000).

[16] If financial markets are perfect, mandating a certain amount of savings in a funded system has no effects on the saving ratio, to the extent that they earn the market rate of return. If savings in pension accounts are higher than what individuals desire, individuals would reduce the amount they hold in other assets. In practice, credit constraints are widespread, as well as a certain tendency to undersave. The impact on national savings also depends on the tax treatment of funded pension schemes.

3) PAYG and funded systems present different features in terms of risks and returns. A mixed system is probably the best solution. This may require a large increase in the size of funded schemes in some countries, especially in Europe.[17] The overall welfare implications of a (full or partial) transition to funding are complex. The costs of the transition for the initial generations can be substantial. A debt-financed transition would be more favourable to the current generation of workers, while a tax-financed transition would favour future cohorts. A tax-financed transition is less likely to reduce labour market distortions, but it is more likely to favour capital accumulation with respect to a debt-financed transition. A parametric reform of the PAYG system complemented by a tax-based transition to a mixed system would increase both public and private savings.
4) The increase in retirement age is essential for achieving budgetary sustainability while providing adequate pensions.[18] The incentive structure of PAYG schemes has frequently been geared to allow or even induce early retirement. This is reflected in an average retirement age that is very low with respect to life expectancy. The key to delaying retirement is strengthening the link between contributions and benefits. NDC systems present significant advantages, but their success requires a careful design of the mechanisms adjusting benefits to potential shocks, a considerable effort in terms of communication to the public and a durable commitment of policy makers to avoid interfering with the system.
5) Reforms increasing the role of funded schemes or making PAYG benefits more tightly related to lifetime contributions weaken the redistributive features of the pension system. This may require increasing the redistribution carried out via other welfare programmes.
6) In general, the cost of the transition to a different set of pension rules should be spread widely. The transition should have smooth adjustments across cohorts with no sharp discontinuities in eligibility criteria or benefit levels. Apart from equity considerations, this solution would limit the room for political difficulties (Diamond, 2005).

4. The role of the European Union

In the European Union national governments retain full responsibility for social policies. The role of the EU is primarily that of ensuring that social protection arrangements do not hamper the mobility of labour.[19] However, economic

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17 See CSIS Panel Report (2002) and Jackson (2002).

18 See the simulations in European Commission (2001).

19 Holzmann (2004) notes that labour mobility across member countries makes national economies less exposed to asymmetric shocks and facilitates labour market integration which in turn magnifies the welfare gains from product and capital market integration. He suggests a closer coordination of pension systems in Europe and argues that a multi-pillar system including a NDC pillar plus a supplementary funded pillar and a welfare pension could combine an harmonised structure and country-specific preferences.

integration and EU fiscal rules indirectly influence national pension policies. Moreover, the EU is taking an increasingly active role in the pension policy debate.

Economic integration increases the scope for tax competition, which can shift the tax burden from highly mobile bases (like capital) to less mobile bases (like labour), thereby inducing distortions and negative effects on employment and affecting redistribution policies, including those carried out via PAYG pension schemes (European Commission, 1997). The issue of tax coordination has been discussed for a long time without much progress, with the exception of indirect taxation.

The fiscal rules set in the Maastricht Treaty and the Stability and Growth Pact require budget positions close to balance in the medium term, deficits lower than 3 per cent of GDP and debt to GDP ratios below 60 per cent. Compliance with these rules has two effects on pension reform. First, governments may be induced to accelerate the introduction of pension reforms in order to meet the fiscal requirements. Second, the implementation of the rules would allow EU countries to meet the worsening of the demographic situation after the year 2010 with smaller public debts and lower interest burdens, which may allow them to sustain – other things equal – a higher level of social spending.[20]

The need for indicators which highlight prospective developments and which measure their size and timing has been increasingly recognised by the European Council and the European Commission. The Council stressed the need for an explicit reference to the sustainability of public finances in the coordination of economic policies at the EU level and agreed that long-term fiscal sustainability should be regularly reviewed within the EU multilateral surveillance. In order to tackle the budgetary implications of ageing population, the Council agreed on a three-pronged strategy that envisages: (i) raising employment rates especially amongst women and older workers; (ii) reducing public debt at a fast pace; and (iii) reforming pensions and health-care systems.

The Council called for the use of an open method of coordination in the area of pensions in order to help EU countries to reform their pension systems (European Commission and European Council, 2003). Reforms should ensure the financial sustainability of pension systems and guarantee the achievement of their social objectives. Governments should adapt the systems to more flexible employment and career patterns. The Council stressed the need to raise employment levels and extend working lives.

The work carried out at the European level has widened the technical discussion on the issue of pension reform and improved the availability and comparability of data. In particular, it has induced all countries to carry out long-term expenditure projections on a regular basis. The debate has played a role in eliciting and clarifying government preferences among the various objectives and

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[20] More specifically, part of the increase in pension and health expenditure determined by population ageing would be offset by a reduction in interest payments on the public debt (Franco and Munzi, 1997).

the implications of the different policy options. It has also made clear that problems are rather similar across the EU.

In the end, economic integration, fiscal rules and the joint work at EU level have all increased the pressure for reforming EU pension systems. The gap between the indications of the Council's reports and the slow and tortuous path to reform highlights the political difficulties of implementing policy changes.

5. Pension reforms across Europe: similarities and differences

The analysis of the reforms that have been introduced in European countries over the last decades highlights some common features (Table 6).[21]

a) *Reforms have been partial and gradual*. After a first wave of reforms in the early Nineties (France 1993; Germany 1992; Italy 1992 and 1995) many countries had to "reform their reforms" later on (France 2003; Germany 2001 and 2004; Italy 2004). The incremental approach to pension reform may have costs in terms of uncertainty of the rules governing the system. While a gradual approach to reform may be useful, since individuals can adjust their decisions, continuous uncertainty about future reforms is harmful. The widespread perception that more adjustments are required can worsen expectations and induce elderly workers to retire at the earliest possible date to avoid future benefit reductions.

b) *Reforms have been predominantly driven by the need to curb expenditure growth*. Changes have been frequently introduced under urgent budgetary pressure. For example, in Italy the reform approved in 1992 was introduced in the context of a fiscal and exchange rate crisis. The Swedish reform of 1994 was influenced by the critical conditions of the Swedish economy in the early Nineties. Another powerful factor of change has been the need to avoid unsustainable increases in contribution rates in future years. For example, in Germany the 2001 Riester reform explicitly set a target in terms of the dynamics of the contribution rate.

c) *A significant part of the expenditure cuts have been achieved via changes in the pension benefits indexation mechanism.* In many countries the indexation mechanisms have been frequently adjusted in response to slowdowns in employment growth, population ageing and budgetary constraints (Vording and Goudswaard, 1995). On several occasions the mechanisms were temporarily suspended or modified.[22] The use of changes in pension indexation may depend

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[21] The literature concerning pension reforms in EU countries is extremely vast. For France, see Blanchet and Legros (2002) and Lavigne (2003); for Germany, see Börsch-Supan (2000) and Rürup (2002); for Italy, see Franco (2002); for the Netherlands, see Kremers (2002); for Spain, see Bonin *et al.* (2001); for Sweden, see Palmer (2002) and – for a detailed description of the NDC system – Swedish Social Insurance Agency (2004), for the United Kingdom, see Disney and Emmerson (2005).

[22] Some countries moved from wage to price indexation (France, Italy, United Kingdom). Several of those still retaining wage indexation moved from gross wage indexation to net wage indexation, in order to get the pensioners to share the burden of increases in contribution rates (Austria, Finland, Germany, the

(continues)

on the fact that its effects are more diluted over time and over the different cohorts making expenditure cuts less evident. However, there can be doubts on the long-run political sustainability of widening differences in living standards between workers and retirees.

d) The increase in retirement age has often been used as the main tool for combining expenditure restraint with adequate pension levels.[23] Measures have been taken both for increasing the minimum retirement age and for increasing the incentives (or reducing the implicit costs) of staying longer in the labour market. Among the latter, there are the bonuses and penalties introduced in defined benefits PAYG schemes (as in Germany and France).[24] The same role is accomplished through the notional accounts introduced in PAYG systems (Sweden and Italy). These schemes aim at making the net present value of pension wealth almost independent of the retirement age.[25] However, in some countries which had recently reform their system, replacement rate are set to fall in the future (European Commission and European Council, 2003).

e) Reforms have frequently increased the flexibility of individuals in choosing the retirement age. The design of NDC systems and the bonuses and penalties introduced in defined benefits schemes recognise that it makes sense to allow workers to retire at different ages depending on their preferences and economic conditions (Diamond, 2005).

f) Several reforms aimed at tightening the link between contribution and benefits. This was reflected by legislative changes which increased the period considered for assessing earnings and especially by the introduction of NDC systems.

g) Some reforms have introduced mechanisms aimed at automatically adjusting pension expenditure to demographic and economic changes. In the NDC systems the notional rate of return and the coefficient of proportionality at retirement are kept in line with the evolution of the payroll tax base and with the life expectancy. Elsewhere, the indexation formulas have been modified (e.g. the new German formula ensures that pension adjustments take into consideration changes in the ratio of pensioners to workers). This has meant shifting some risks from workers and taxpayers to pensioners.

Netherlands). Finland increased the weight attributed to price dynamics. In Austria pension indexation was also inversely related to unemployment levels.

[23] Galasso and Profeta (2004) note that increasing retirement age is the most effective way to contain the growth of spending in a situation in which the median voter becomes older and older.

[24] The 1989 German reform introduced a penalty of 0.3 per cent on the amount of pension paid on each month of anticipated retirement with respect to the normal retirement age of 65, while in case retirement takes place after 65 the pension is increased by 0.5 per cent for each month, up to a limit of 2 years. In France, the 2003 Raffarin reform awards a 3 per cent increase in benefits for those who remain at work after they have reached the full rate contribution period.

[25] These adjustments cannot deliver perfect neutrality with respect to the retirement decision: even if the system is actuarially neutral on average, the incentives of individuals will differ if they have different life expectancy, or if some of them are eligible for other means-tested welfare benefits.

Table 6

Pension Systems Characteristics and Main Refom Timing

Country	Pre-reform Situation	Reforms	Present Situation	Contribution rates	Pensionable Age	Public Pension Expenditure/ GDP
Germany	DB PAYG	1992 parametric (increasing standard retirement age and introducing "self-regulating mechanism"); 1996 parametric (strengthening rules for early retirement); 2001 parametric (providing incentives for supplementary pension schemes and new formula for indexation); 2003 parametric (changing indexation formula and improving incentives for supplementary schemes)	DB PAYG plus non-mandatory funded occupational supplementary pension schemes	19.5	65 (3)	EPC(2003): 10.8 (2000), 13.8 (2030), 14.9 (2050)
France	DB PAYG plus mandatory occupational supplementary pension schemes (PAYG). Mandatory and occupational schemes vary between categories of workers.	1993 parametric (indexation mechanism and benefit formula, eligibility requirements); 2003 parametric (incentives for postponing retirement, introduction of harmonisation between private and public sector workers)	DC PAYG plus mandatory occupational supplementary pension schemes plus voluntary (usually funded) optional supplementary schemes. Mandatory and occupational schemes vary between categories of workers.		65 (4)	EPC(2003): 12.3 (2000), 15.0 (2030), 14.7 (2040)
Spain	DB PAYG	1995 parametric ('Toledo pact': tightening the link between contibution and benefits, harmonisation of special pension regimes); 1997 parametric (creation of 'buffer fund'); 2002 parametric (incentives for older workers to postpone retirement)	DB PAYG		65	EPC (2003): 8.4 (2000), 9.9 (2030), 13 (2050)

Table 6 (continued)

Pension Systems Characteristics and Main Refom Timing

Country	Pre-reform Situation	Reforms	Present Situation	Contribution rates	Pensionable Age	Public Pension Expenditure/ GDP
Italy	DB PAYG	1992 parametric (tightening of eligibility requirments, changing benefit formula and indexation mechanism, introducing harmonisation of different pension schemes); 1995 (moving to NDC system and promoting the development of supplementary pension schemes); 1997 parametric (accelerating the phasing in of tighter requirements for seniority pensions); 2004 parametric	NDC PAYG plus a non-mandatory, privately-managed funded DC component	32.7 employed; 19.0 self-employed (1)	57-65 (2)	Latest Government official forecasts (2004): 13.8 (2000), 15.9 (2030), 13.6 (2050)
Sweden	DB PAYG two-tier pension system: national basic pension scheme plus compulsory supplementary pension schemes	1994 (move to NDC system); 1998 (approval of most of the legislation regulating the new mechanism); 2001 (adoption of automatic balance mechanism)	NDC PAYG plus a privately-managed mandatory funded DC component	16 (NDC) +2.5 (mandatory funded component)	from 61	EPC(2003): 9.0 (2000), 11.4 (2030), 10.7 (2050)
United States	DB PAYG defined benefit system	1983 parametric (broadening compulsory coverage of the system, increasing contribution rates and tightening eligibility for full requirement benefits)	DB PAYG	12.4	65 (5)	OECD(2001): 4.6 (2000), 6.7 (2050)

Legenda: DB: defined benefit – DC: defined contribution – NDC: notional defined contribution – PAYG: pay-as-you-go.

(1) The contribution rates reported are those to be applied from 2014 onwards; at present, for the self-employed, the contribution rate is lower (17.0 for artisans and 17.39 for shopkeepers respectively). It will increase by 0.20 p.p. per year until it will reach 19.0 per cent.
(2) According to the enabling bill approved by the Parliament in August 2004, pensionable age should increase to 65 for men and 60-65 for women.
(3) 65 is the standard pensionable age; the minimum age for accessing early retirement is 63.
(4) Standard pensionable age.
(5) Age for full retirement benefit; 62 age for early retirement.

h) *The labour market has an important role.* All EU countries have seen increases in employment rates and in the length of the average working life, but most of them are still far from the targets set at the EU level (European Commission and European Council, 2003). Governments have tried to reconcile the provision of adequate pensions with the requirements of financial sustainability through measures aimed at rising employment rates and the average retirement age. However, this has proved to be quite difficult as the tightening of eligibility requirements is strongly unpopular (see Boeri *et al.*, 2002), while active labour market policies, which are also required to sustain labour market demand for the elderly, may be costly in the short run.

Some aspects of the political approach and the technical work underlying pension reforms also show some similarities.

i) *Economic ministries have acquired a leading role in the reform process*. While in the past the government departments responsible for labour and social affairs had usually been in charge of pension policy, in recent decades economic and finance department have largely contributed to designing pension reforms. This largely depend on financial sustainability being the main motivation for reform (Tamburi, 1999).

j) *The search for consensus has led to some innovations in the policy making process*. In several countries governments have produced White Papers on pension reform (e.g. France, Germany, Portugal and the United Kingdom). These documents aimed at disseminating information and achieving a consensus. However, in other countries, like Italy, significant reforms have been introduced without any official report being circulated to the public. Another widespread features of the pension reform debate is the creation of advisory bodies and *ad hoc* commissions with the mandate to monitor expenditure developments, elaborate or evaluate reform proposals, and aggregate a wide consensus on pension reform (Reynaud, 2000).

k) *The availability and quality of long-term pension expenditure projections has been largely improved*. The availability of projections has frequently been crucial in acquiring consensus on the need for a pension reform. Over recent years the resources assigned to the production of long-term pension expenditure projections have been substantially increased. Projections are now available for all EU countries, quite often on a regular basis. Progress has been achieved in the comparability of national exercises and in linking the analysis of pension spending to the sustainability of public finances as a whole (Franco *et al*., 2005).

There are however some interesting country-specific peculiarities.

a) *The political approach to reforms has been quite different across countries*. In some cases governments have tried to reach a consensus about the reform with all the interested parties, in particular with trade unions. In other cases they have taken a confrontational approach: some projects have been successfully introduced, although with relevant political costs; other projects have been

abandoned because of the harsh discontent that they generated (France 1996; Germany 1999; Italy 1994).[26] Some countries have taken a bipartisan approach (Tamburi, 1999). This is the case of the reform that has introduced the NDC approach in Sweden. The pursuit of bipartisan consensus is evidently important to avoid that the rules governing the pension system are affected by changes in government. On the other hand, it can lead to delayed and less clear-cut reforms. This has been the case in Spain.[27]

b) *The degree of funding introduced in the pension system differs across countries.* In the majority of cases reforms have not modified the PAYG feature of pension systems. Measures have been taken to increase the role of funding, but no country has envisaged a radical shift in the way in which the system is financed. This may probably depend on the costs involved in a large-scale transition towards funding. It may also depend on the consideration that PAYG schemes guarantee workers against economic risks and may better allow the government to pursue distributional targets. As to the latter aspect, European Commission and European Council (2003, 39) note that "Public support for solidarity elements in pension system is strong and [EU] Member States have strengthened many of them in recent reforms". The report also notes that solidarity between generations and among generations have a prominent role in the design of pension systems. On the other hand, there are indeed a few countries that have pursued more radical changes. In Sweden, the reform introducing NDC also aimed at increasing the role of funding.[28] The UK has been developing supplementary pension schemes earlier than any other European countries.[29] This makes the UK somewhat of an outlier in the European landscape: on the one hand, public pension expenditure is small and is likely to remain manageable in the future; on the other hand, privatisation has highlighted many implementation problems (especially high administrative costs and insufficient coverage of low income individuals).

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[26] Natali (2003) examines the French and Italian experience and notes that the negotiation of changes with social partners helped the reform process while confrontational approaches led to a deadlock.

[27] Spain started its social security reform process in 1994, when a parliamentary commission including representatives of the four main Spanish parties was appointed to draft a proposal. The mild proposal of a parametric reform which emerged was later endorsed by political parties and social partners (the so-called "Toledo Pact" in 1995), but only in 1997 it was partially transformed into law (Lagares Perés, 2000). The process is not yet over and at present in Spain the discussions on a new reform effort are under way.

[28] A privately managed mandatory funded scheme is to complement on a compulsory basis the PAYG pillar. The contribution rate for this scheme is 2.5 per cent. The scheme foresees an agency that is in charge of distributing paid contributions to the funds selected by each worker. Each worker can choose how to allocate his contributions among the funds registered in the system.

[29] Conservative governments in the eighties and in the early nineties have combined drastic cuts in the earnings-related public PAYG scheme and at the same time have favoured the opting out of workers from the public scheme to private funded plans.

6. The debate about pensions in the USA

The main features of the public pension system in the USA were established by the Social Security Act approved in 1935. The amendments introduced over the following decades have not altered the way in which the system is organised.

Social security is financed on a PAYG basis with the contribution rate being currently set at 12.4 per cent (half of which are paid by the employer). Old-age benefits are computed on the basis of lifetime earnings and are indexed to prices. Full benefits are paid to those retiring at the standard retirement age (currently set at 65). Those claiming the benefits earlier receive a lower amount. Those postponing retirement receive a higher amount. The benefit formula has a pronounced progressive structure that guarantees good replacement rates for poorer and middle income workers even in the face of low contribution rates (Diamond and Orszag, 2004).

The main reform introduced over the last decades was a parametric reform and was prompted by the financial difficulties that became apparent in the early Eighties. In 1981 the government appointed a bipartisan commission chaired by Alan Greenspan. The commission, which was asked to indicate a solution for the financial problems of the Old-age and Survivors insurance programs, issued its report at the beginning of 1983. Its recommendations inspired a bill reforming the social security system that was approved the same year (National Commission on Social Security Reform, 1983).

The reform broadened the compulsory coverage of the system to public sector employees, increased contribution rates and tightened the eligibility requirements for full retirement benefits. Moreover, social security benefits were to be subject to taxation. The implementation of the reform was extremely gradual.[30]

The adjustments introduced with the reform allow the US social security system to show a financial outlook that is more reassuring than those of the European pension systems. At present, the program is characterised by a surplus: the cumulated difference between revenues and disbursements feeds a fund invested in government bonds. According to the latest official projections (provided by the Social Security Trustees), the trust fund will remain positive until 2042. Even after this date, imbalances will remain manageable: the cumulated deficits in the next 75 years will be (in present value terms) around 3.8 trillion dollars. To keep the system balanced over the next 75 years, it would be necessary to permanently rise payroll contributions by 2 per cent.[31] The efficiency costs induced by an increase in the contribution rates which would keep the system balanced are smaller than those

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[30] The increase in age for full retirement benefits (set at 65) was planned to start with cohorts turning 62 in 2000. The transition to the new eligibility requirements will be over in 2022 when the age for full retirement benefit will be 67.

[31] Assuming that the current system will be in place forever, the cumulated imbalance amounts instead to 10.4 trillion dollars – around 100 per cent of GDP. The required increase in the contribution rate over an infinite horizon is 4 per cent.

suggested by similar calculations for European pension systems, also in view of the fact that current contributions are low by international standards.

The debate about the social security system has been enlivened by several reform proposals mainly aimed at addressing the long-term financial imbalances of the system. A central issue in the discussion is the degree of funding of the system and the role that could be played by individual accounts.

Reform proposals can be grouped into three broad categories. First of all, there are parametric reforms that would leave more or less untouched the overall design of the system. The most prominent example is probably the Diamond-Orszag plan (Diamond and Orszag, 2004).[32] The plan envisages a reduction in benefits and an increase in contributions, especially for high earners. A fraction of the rise in contributions and of the reduction in benefits would be automatically linked to realised improvements in life expectancy on a year-by-year basis. The plan is estimated to keep the Social Security budget balanced on a 75 year horizon.

Other proposals, some of which examined by the Congress, aim at more radical reforms of the structure of the system.[33] Even if different in their details, they basically reflect the guidelines of the President's Commission for Strengthening Social Security, a group of experts nominated by President Bush which delivered a series of recommendations in December 2002. After the 2004 election, the new Bush administration reaffirmed its commitment toward the Commission's conclusions and envisaged the following changes:

a) The formula that translates contributions into the initial level of benefits will weight past contributions with an index related to price dynamics instead of wage dynamics. As a consequence, the replacement ratios will decrease at a pace equal to the growth rate of real wages. This benefit cut by itself would ensure a social security surplus for the foreseeable future. The surplus would be used to provide a new means-tested component: workers with at least 30 years of service would be granted a retirement income that is at least 120 per cent of the poverty line.
b) Younger workers are allowed to divert, on a voluntary basis and within a maximum yearly amount, up to 4 per cent points of their contributions, while renouncing to a fraction of their future PAYG benefits. This benefit cut, however, is less than the diverted contributions cumulated at the market interest rate. This measure represents a reduction in the tax implied by the PAYG scheme and corresponds to a downsizing of social security. The diverted funds have to be invested in government bonds and in equities. To minimise administrative costs, the Commission proposes to invest the funds in assets linked to market indexes and to shift form a centrally managed to a privately managed system only after a certain amount of resources has been accumulated in the personal accounts.

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[32] The book includes a non exhaustive list of other parametric proposals.

[33] This is the case of the Demint plan, the Graham plan, the Smith plan (for these proposals, which come from the Republican side, see John, 2004) and the bipartisan "Retirement Security Act".

c) As the privatisation is partially debt financed, the increase in private savings is in part met by a reduction in public savings. To limit this effect, the plan imposes to the government expenditure cuts and/or revenue increases. These additional resources have to be transferred to the social security budget, and have to be enough to grant a long run surplus equal at least to 100 per cent of yearly outlays.

Other reform proposals are even more radical. Kotlikoff and Burns (2004) argue that the PAYG component of social security should be eliminated altogether (albeit gradually): individual accounts should eventually be the only source of future social security benefits, and they should be mandatory. Contrary to the models put forward by the President's Commission, benefits would be given in the form of real annuities. The fund would invest in a portfolio that replicates a global stock market index. The assets in the individual accounts would be sold only gradually during the retirement period, to minimise the risk inherent in market volatility. In order to cover the imbalances that would emerge in the transition period, Kotlikoff and Burns support the introduction of a new consumption tax that would be used to pay for the benefits of those already retired under the PAYG rules.

In spite of the numerous proposals, no reform seems on the way to be implemented. This may depend on the radically different opinions concerning the desirable design of the pension system and the lack of a political effort to reach a bipartisan agreement. It may also depend on the fact that the PAYG scheme will show financial imbalances only in the long term.

Moreover, there is a growing public concern for the financial imbalances of corporate defined benefit pension plans.[34] Indeed, such schemes are vulnerable to swings in the market value of their accumulated assets. In particular, the stock market downturn after 2001 has left company funds severely underfunded. This episode has induced many employers to change the rules of the corporate pension plans, and has severely hampered the financial outlook of many big firms (Group of Ten, 2005).

7. Europe and the USA: some comparisons

The reform debate on the two sides of the Atlantic reflects both the different outlooks for the pension systems and the different views concerning the role of the state (more problematic in the USA than in Europe):

a) Expenditure levels and trends are more worrying in Europe than in the USA, where population ageing is less pronounced. This explains the greater activism shown by European governments in recent years and the frequent recourse to parametric changes rapidly curbing expenditure growth.

b) With respect to the public debate in Europe, the US social security reform debate tends to emphasise the impact on savings and capital formation, while labour

[34] The Netherlands and the UK suffer from the same problem.

supply effects plays a somewhat minor role. Indeed, the distortions induced by social security contributions depend not only on their size, but also on the overall tax burden on labour (which in the USA is much smaller than in Europe). On the other hand, the low saving rate of American workers, which is perceived as a major problem, has no counterpart in Europe.

c) While the overall size of social security is much smaller in the USA than in continental Europe, the American system has a much more progressive structure, which grants relatively more favourable replacement rates to poorer workers. In this regard, reforms strengthening the actuarial fairness of the system and tightening the link between contribution and benefits would hurt poorer workers more in the USA than in Europe. This may also explain the political difficulties in further increasing the role of funding in the USA.

It is not easy to account on purely economic ground for the almost opposite direction that the pension reform debate has taken in Europe and the USA. Indeed, while the US Social Security could probably be put on a sound financial footing with limited parametric adjustments, public discussion is focused on the issue of funding and the creation of individual accounts. In most European countries, where the long run sustainability of the present system is more problematic and contribution rates are already very high, prefunding and privatisation issues are instead much less prominent in public debates and in reform plans.

In part, this discrepancy can be traced back to differences in underlying political values and social attitudes: to the extent that societies differ in the degree of risk and inequality that citizens are prepared to face, this is likely to be reflected in the design of their welfare programs.[35] Ross (2000) notes that there are two main ways of thinking about pension reform: those stressing individual responsibility argue in favour of funded schemes, those stressing collective responsibility support PAYG schemes. This difference also runs across international institutions[36] and within countries.

8. Have the objectives of the reforms been achieved?

8.1 Effects on public expenditure

Even if the recent pension reforms introduced in industrialised countries have been spurred by concerns for sustainability, there is no single and comprehensive indicator to evaluate to what extent they have actually improved the financial outlook of European social security programs.

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[35] Among others, Alesina and Glaeser (2004) provide an interpretation along these lines of transatlantic differences in the shape and size of welfare states.

[36] See the different policy prescriptions of the International Labour Office (2001) and the World Bank (1994).

One indication concerning expenditure trends is provided by the analysis of the factors underlying the projections on expenditure growth. Between 1960 and 1985 a large part of the expansion in pension expenditure in most Western countries was caused by the increase in the eligibility and transfer ratios, that is by policy decisions concerning the benefits to be provided to citizens.[37] On the contrary, the projections of OECD (2001) and Economic Policy Committee (2001)[38] show that in several countries expenditure ratios in the next decades are expected to grow much less than the rise in the dependency ratio (Table 7). This indicates that in most countries present pension policies are quite different from those implemented in the previous decades. The phase of extension of coverage and improvement of benefits seems over, although in a few countries past extensions and improvements are still affecting expenditure growth. In most countries only demographic trends are presently exerting an upward pressure on the expenditure-to-GDP ratio while policy changes are restraining it.

Futhermore, the expenditure projections carried out by national institutions in the mid-Nineties pointed to smaller increases in spending with respect to the more recent exercises coordinated by the European Commission (Economic Policy Committee, 2000, 2001 and 2003).[39] This would indicate that either the early forecasts were optimistic or the reforms introduced in recent years did not significantly modify expenditure trends.

A different indication is provided by the comparison of the results of the projection exercise coordinated by the European Commission in 2001 and 2003. The latest forecasts, which take into account the German reform of 2001 and the French reform of 2003, point to smaller expenditure increases. It seems to show that these legislative changes have limited the projected increases in spending.

Finally, there are studies examining the impact of pension reforms on social security gross liabilities, *i.e.* the present value of current and future benefits implied by the current legislation. McHale (2001) points to sizeable reductions in pension wealth for a representative worker after some major reforms of the early Nineties.[40]

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[37] Changes in the ratio of pension expenditure to GDP can be decomposed into changes of the *dependency ratio* (*i.e.* the number of elderly as a fraction of the working age population), changes in the *benefit ratio* (the ratio of the average pension to GDP per worker) and changes in the *eligibility ratio* (the ratio of the number of beneficiaries to the number of persons older than the minimum eligibility age). The latter two indicators point to the generosity of the pension system. OECD (1988) shows that between 1960 and 1985 the dependency ratio contributed for less than 25 per cent to the rise of the ratio of pension spending to GDP.

[38] Both institutions use the same macroeconomic and demographic assumptions, but cover partially different groups of countries.

[39] According to the national forecasts of the early Nineties, the ratio of pension spending to GDP would increase up to 2030 by 2.6 percentage points in the optimistic scenario and 3.3 points in the pessimistic one (Franco and Munzi, 1996). According to Economic Policy Committee (2003), the pension-spending ratio would increase by 3.0 percentage points between 2000 and 2030 and by 3.6 points by 2040.

[40] For example, the social security wealth of Italian workers has been cut by 38 for men and by 29 per cent for women after the 1992 reform. After the 1983 reform, the social security wealth of American workers was 26.6 per cent lower than before for men and 16 per cent lower than before for women. The Balladur reform of 1993 in France reduced wealth by 13.5 per cent for men and 15.3 per cent for women. The German reform in 1992 produced negative changes of 7.3 per cent for men and 26.2 per cent for women.

Table 7

Breakdown of Pension Spending Projections – Change 2050-2000
percent of GDP)

Countries	Pension spending	Dependency ratio (a)	Employment ratio (b)	Eligibility ratio (c)	Benefit ratio (d)
Austria	2.4	10.5	–2.2	–3.0	–2.9
Belgium	3.3	5.2	–0.9	0.9	–2.0
Denmark	2.7	4.1	–0.2	0.5	–1.7
Finland	5.0	6.6	–0.1	–1.3	–0.1
France	3.9	7.7	–0.9	0.7	–3.6
Germany	4.8	6.2	–0.7	2.0	–2.7
Greece	11.7	9.9	–3.6	1.4	4.0
Ireland	4.3	4.5	–0.9	1.4	–0.7
Italy	0.2	9.5	–3.1	–1.4	–4.9
Netherlands	5.5	5.4	–0.6	0.5	0.2
Portugal	3.3	6.7	–1.1	–2.4	0.1
Spain	7.5	8.2	–2.4	2.0	–0.3
Sweden	1.7	3.9	–0.5	0.8	–2.6
United Kingdom	–1.0	2.4	0.0	–0.1	–3.0
EU 15 - average	**3.1**	**6.4**	**–1.1**	**0.6**	**–2.8**

(a) persons aged 55+ as percent of persons aged 15-64.
(b) persons aged 15-64 as percent of persons employed.
(c) pension beneficiaries as percent of persons aged 55+.
(d) average pension as percent of GDP per person employed.

Source: EPC (2001).

All in all, it seems that recent reforms have gone some way to counter the rising expenditure trends. It remains to be seen whether these cuts to public pensions, especially the significant reduction in individual average benefits, will prove sustainable from the political and social point of view (Franco and Sartor, 2005). The measures aimed at developing other pillars of the pension systems can be viewed as an effort to find a viable solution to this problem.

8.2 Labour market effects

Recent calculations provided by Duval (2003) show that in several countries social security systems in the Nineties have become more actuarially neutral (sometimes this does not yet show up clearly in the data, as some reforms will phase in very slowly).

Table 8

Employment Rates for Male Workers Aged 55-64

Countries	1970	1980	1990	1995	2000
France	74.0	65.3	43.0	38.4	38.5
Germany	78.9	64.1	52.0	48.2	48.2
Italy	47.8	39.0	35.4	44.7	40.9
Spain	82.7	71.5	57.2	48.4	55.2
Sweden	84.1	77.5	74.4	64.4	67.8
United Kingdom	n.a.	62.6	62.4	56.1	59.8
United States	80.7	69.7	65.2	63.6	65.6

Source: OECD (2002).

Recent figures (OECD, 2002) also document that, over the same period of time, the declining trends in participation and employment rates for older workers have been stopped and in some cases have been reversed (Table 8). However, employment rates usually remain well below the levels of the Seventies and Eighties.

Increased labour supply must be accordingly matched by a rise in labour demand, which in turn may require changes in wage setting practices and institutions and more emphasis on active labour market policies (employment services, training, subsidies to employment and job creation).

8.3 Effects on savings

Many governments have implemented legislative changes aimed at increasing the size of funded pension schemes. All in all, these efforts do not seem highly successful (European Commission and European Council, 2003).

Taking as an indicator of the impact of the reforms the stock of financial assets managed by pension funds, one can notice that in the countries (e.g. Italy and France) which have tried to start a funded pillar in the Nineties this stock is growing but remains very small with respect to the USA and the UK (OECD 2003; Table 9).

Changes in the size and composition of pension assets seem more related to parallel and independent capital market developments than to reform measures.[41]

Even in a context in which financial markets are well developed, a shift to funding seems to require a strong policy action involving tax incentives and a good regulatory framework. It may also require significant cuts in the replacement ratios provided by PAYG schemes.

9. Conclusions

The demographic changes under way in developed countries have called into question the soundness of the pension systems designed in the past. There is a need to guarantee adequate living standards to an increasing number of elderly citizens without imposing an excessive cost on taxpayers. Significant changes are also required in most countries to improve the incentive structure of pension schemes.

The issue of pension reform has gradually gained ground in the political agenda both in Europe and the USA. The results are somewhat mixed. A number of important reforms have been introduced: expenditures growth has been curbed, incentives systems have been better designed, risks are being gradually diversified by complementing PAYG schemes with a funded pillar. Reforms have been guided both by macro (the need to control expenditure growth) and micro (the need to mitigate the adverse effects induced by retirement rules on the labour market) considerations as well as distributive concerns.

However, the reforms include problematic features and the process is far from completion in most developed countries. In many countries the ratio of spending to GDP remains on a steep upward trend. In other countries cost containment relies on measures which may not prove socially and politically sustainable in the long run. The average effective retirement rate remains relatively low. In many countries the size of pension fund assets remain small.

The process is frequently slow and tortuous. The USA introduced a major reform in the Eighties but now introducing further changes appears difficult. In many European countries pension reform is an ongoing incremental process: the continuous debate about further measures creates uncertainty about future retirement rules. This depends on the fact that reform proposals face several political obstacles. Policymakers may prefer avoiding short-term political costs even if long-term economic returns are high. Politically influent minorities that would be particularly affected by changes can also block the reforms. More generally, policy changes are difficult because of the pervasive effects of pension systems on public finances, the labour market, intra- and intergenerational income distribution. Any change opens several difficult technical and policy problems. As there is no straightforward recipe

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[41] In Italy, while the assets managed by institutional investors increased from 28.2 per cent of GDP in 1993 to 94 per cent in 2001, the assets managed by pension funds remained almost stationary (from 3.7 to 4.4 per cent of GDP).

Table 9

Financial Assets of Pension Funds
(percent of GDP)

Countries	1993	2001	change
Australia	36.60	67.50	30.90
Austria	0.60	3.80	3.20
Belgium	3.00	5.60	2.60
Canada	37.00	48.30	11.30
Czech Republic*	0.10	2.50	2.40
Denmark	18.70	23.80	5.10
Finland	n.a.	3.40	
Germany	2.50	8.30	5.80
Hungary*	0.01	3.90	3.89
Iceland	51.50	87.30	35.80
Italy	3.70	4.40	0.70
Japan	13.60	18.50	4.90
Korea	3.30	3.20	–0.10
Mexico	n.a.	4.30	
Netherlands	83.60	105.10	21.50
Norway	5.80	5.60	–0.20
Poland	n.a.	2.60	
Portugal	5.40	11.40	6.00
Spain*	4.80	8.20	3.40
Sweden	2.00	3.70	1.70
Swizerland*	68.30	113.50	45.20
United Kingdom	71.80	66.40	–5.40
United States	50.50	63.00	12.50
Countries' average	**23.14**	**28.88**	**5.74**

*1994 instead of 1993.

Source: OECD (2003).

for a Pareto improvement, the costs and the length of the transition to a new system have to be properly accounted for.

Pension reform represents an interesting test to evaluate the ability of each country to adjust its institutions to new developments, manage complex long-term problems and reconcile multiple objectives. Interestingly, the need for reforming pension systems has spurred the development of new policy solutions, such as bipartisan committees, and new technical tools, such as long-term projections. Often, a trade-off between consensus building efforts and incisiveness of the reform has emerged. International organisations and the European Union have been taking an active role in the pension policy debate helping in eliciting government preferences, widening the technical discussion on the issue and improving the availability of information to assess the sustainability of public finances.

The policy processes which have led to the introduction of pension reforms have been very different. In many countries the reforms have been enacted at times of severe economic problems and budgetary pressure. In other cases sustainability considerations have driven the introduction of timely changes in the pension system leading to a more pronounced front loading.

Even though the international academic and policy discussion has not been short of plans and innovative ideas, most reforms have been gradual and incremental. Even apparently innovative schemes, such as NDC, do not change several of the main features of traditional PAYG schemes.

Two lines of action underlie most reform proposals: lengthening the working life in proportion to the increase in life expectancy; diversifying the sources of income of the elderly in order to avoid relying too much on scarce public resources. However, national peculiarities remain strong. European countries have taken different reform approaches, which are largely influenced by their traditional attitude towards social protection. Most countries have introduced parametric changes in traditional PAYG public schemes and have supported the development of funding; some countries have introduced notional funding in PAYG schemes. Several countries are trying to complement the PAYG system with a funded pillar.

The reform debate has taken different directions in Europe and the USA. While the US debate is essentially about the role of funding, in Europe it is mostly about the timing and features of the reform of PAYG schemes with a large consensus concerning the need to increase the role of funding. Both in Europe and the USA the debate about the role of funding has taken a somewhat ideological flavour. This has not helped reaching pragmatic solutions about feasible reform options.

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