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The German Public Pension System: How it Was, How it Will Be

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Abstract

Germany still has a very generous public pay-as-you-go pension system. It is characterized by early effective retirement ages and very high effective replacement rates. Most workers receive virtually all of their retirement income from this public retirement insurance. Costs are almost 12% of GDP, more than 2.5 times as much as the U.S. Social Security System.

The pressures exerted by population aging on this monolithic system, amplified by negative incentive effects, have induced a reform process that began in 1992 and is still ongoing. This paper has two parts. Part A describes the German pension system as it has shaped the labor market from 1972 until today. Part B describes the reform process, which will convert the exemplary and monolithic Bismarckian public insurance system to a complex multi-pillar system. We provide a survey of the main features of the future German retirement system introduced by the so called "Riester Reform" in 2001 and an assessment in how far this last reform step will solve the pressing problems of the German system of old age provision.

The German Public Pension System:

How it Was, How it Will Be

by Axel H. Börsch-Supan and Christina B. Wilke

1   Introduction: A historical perspective

The German pension system was the first formal pension system in the world, designed by Bismarck almost 120 years ago. It has been very successful in providing a high and reliable level of retirement income in the past at reasonable contribution rates, and became a model for many social security systems around the world. It has survived two major wars, the Great Depression, and more recently, unification. It has been praised as one of the causes for social and political stability in Germany

As opposed to other countries such as the United Kingdom and the Netherlands, which originally adopted a Beveridgian social security system that provided only a base pension, public pensions in Germany were from the start designed to extend the standard of living that was achieved during work life also to the time after retirement. Thus, public pensions are roughly proportional to labor income averaged over the entire life course and feature only few redistributive properties. We therefore call the German pension system "retirement insurance" rather than "social security" as in the United States, and workers used to understand their contributions as "insurance premia" rather than "taxes" – although this has dramatically changed in recent years. The insurance character is strengthened by institutional separation: the German retirement insurance system is not part of the government budget but a separate entity. This entity is subsidized by the federal government. Rationale for this subsidy – about 30 percent of expenditures – are the non-insurance benefits such as benefits paid to German immigrants after opening the iron curtain. However, surplus contributions cannot be used to decrease the government deficit as it does in the United States.

The German retirement insurance started as a fully funded system with a mandatory retirement age of 70 years when male life expectancy at birth was less than 45 years. Today, life expectancy for men is more than 75 years but average retirement age is less than 60 and even lower in East Germany.[1] The system converted to a de facto pay-as-you-go system when most funds were invested in government bonds between the two world wars. After a long and arduous debate, the German Bundestag decided in 1957 to convert the system gradually to a pay-as-you-go scheme. The remainder of the capital stock was spent about 10 years later. Since then, the German system is purely pay-as-you-go with a very small reserve fund lasting less than 14 days of expenditures in February 2003.

The retirement behavior visible in current data is mainly influenced by the 1972 reform which made the German pension system one of the most generous of the world. The 1972 system is generous in two respects. First, the system has a high replacement rate, generating net retirement incomes that are currently about 70 percent of pre-retirement net earnings for a worker with a 45-year earnings history and average life-time earnings.[2] This is substantially higher than, e.g., the corresponding U.S. net replacement rate of about 53 percent.[3] The high initial level of public pensions was exacerbated by indexation to gross wages. Second, the 1972 reform abolished the mandatory retirement age of 65 years in favor of a flexible choice during a "window of retirement" between age 60 and 65, with no actuarial adjustments. Adding to these very generous early retirement provisions were easy ways to claim disability benefits, further increasing the number of beneficiaries.

Hence, it is no surprise that the German public pension system is the single largest item in the social budget. In the year 2000, public pension expenditures amounted to some 200 billion Euro, representing 21% of public spending, and 11.8% of GDP. It is the second

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[1] Average retirement age in a given year is the average age of those workers receiving public pension income for the first time. Source: VDR Zahlen.

[2] This replacement rate is defined as the current pension of a retiree with a 45-year average earnings history divided by the current average earnings of all dependently employed workers. It is different from the replacement rate relative to the most recent earnings of a retiring worker that are usually higher than the life-time average.

[3] Using the same replacement rate concept as in footnote 2.

largest pension budget in the OECD, surpassed only by Italy (14.2% of GDP). It is more than 2.5 times as expensive as the U.S. Social Security System (4.4% of GDP).[4]

While the generosity of the German public pension system is considered a great social achievement, negative incentive effects and, most importantly, population aging is threatening the very core of the pension system. All industrialized countries are aging, however, Germany – together with Italy and Japan – will experience a particular dramatic change in the age structure of the population. The severity of the demographic transition has two causes: a quicker increase in life expectancy than elsewhere, partly due to a relatively low level still in the 1970s, and a more incisive baby boom/baby bust transition (e.g., relative to the United States) to a very low fertility rate of 1.3 children per women, only a bit higher than the rock-bottom fertility rate of 1.2 in Italy and Spain. Consequently, the ratio of elderly to working age persons – the old age dependency ratio – will increase steeply. According to the latest OECD projections, the share of elderly (aged 65 and above) will exceed a quarter of the population in 2030, and the German old age dependency ratio will almost double from 24.0 percent in 2000 to 43.3 percent in 2030.[5]

The increase in the dependency ratio has immediate consequences for a pay-as-you-go social insurance system because fewer workers have to finance the benefits of more recipients. The German social security contribution rate, in 2003 at 19.5 percent of gross income, was projected at the end of the 1980s to exceed 40 percent of gross income at the peak of population ageing in 2035 if the accustomed replacement rates and the indication of pensions to gross income were maintained.[6] This lead to a major pension reform in 1992. This reform abolished the indexation of pensions to gross wages in favor of net wages. While this is still more generous than indexation to costs of living (such as in the U.S.), it was an important move away from the destabilizing feedback loop in which pensions increased when taxes and contributions increased. In addition, the 1992 reform introduced adjustments of benefits to early retirement age. They are, however, not fully actuarial and

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[4] OECD (2001).

[5] OECD (2001). The OECD dependency ratio relates persons age 65 and older to persons between ages 15 and 64.

[6] Prognos (1989).

are being introduced with a very long delay. First cohorts started experiencing these adjustments in 2001; the adjustments will be fully phased in by 2017.

It became quickly clear that the 1992 reform was too little and too late to put the German system on a stable path. Another "parametric" reform due to become law in 1999 failed after a change in government in 1998, but the then secretary of labor Walter Riester succeeded to pass a major reform bill through parliament in 2001. This reform bed farewell to the pure pay-as-you-go system and introduced a multipillar pension system with a small, but growing funded pillar. The new system will be fully phased in about 2050, but its main implications will be felt from 2011 onwards.

Future reforms are likely.[7] The 2001 did not touch the early and the normal retirement age which are ages 60 and 65, respectively. This may come as a surprise, since in the light of a prolonged life span, increasing the active part of it appears to be a rather natural reform option, in particularly since it simultaneously increases the number of contributors and decreases the number of beneficiaries and because age-specific morbidity rates appear to have shifted in line with mortality.[8] As noted before, average, median and modal retirement age was about 60 years in 2002, the earliest eligibility age for old-age pensions and more than 5 years younger than the so-called "normal" retirement age in Germany. In late Fall of 2002, the government established a reform commission, and concrete proposals are due by May 2003. Further cuts in the replacement rate of the pay-as-you-go pillar and attempts to increase the effective retirement age are likely candidates of a new reform package.

The paper is structured as follows. Part A (Sections 2 and 3) describes the institutional background for private sector and civil servants' pensions as they shaped the retirement behavior between 1972 and today. Part B (Sections 4 and 5) describes and assesses the reform process, culminating in the "Riester reform" of 2001. Section 6 concludes with the question whether the 1992-2001 reforms will solve the problems of the German pension

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[7] See Börsch-Supan (1998, 2000a) and Schnabel (1998) for descriptions of the problems, and Birg and Börsch-Supan (1999) and Börsch-Supan (2001) for concrete reform proposals.

[8] Cutler and Sheiner (1998).

system. Our answer is unequivocal: there is further work to be done in order to stabilize the German pension system.

Part A: The German Public Pension System How it Was

2   Private Sector Pensions

In this section we describe the 1972-2000 situation of the German "public retirement insurance" ("Gesetzliche Rentenversicherung", GRV) which covers about 85% of the German workforce.[9]   Most of these are private sector workers but the GRV also includes those public sector workers who are not civil servants. Civil servants, about 7 percent of the workforce, have their own pension system, described in Section 3. The self-employed, about 9 percent of the work force, are partly self-insured, partly participants in the public retirement insurance system. For the average German worker, occupational pensions do not play a major role in providing old-age income. Neither do individual retirement accounts, but there are important exceptions from this general picture. Broadly speaking, the German system as it was created in 1972 was very monolithic.

2.1   Coverage and Contributions

The German public pension system features a very broad mandatory coverage of workers. Only the self-employed and, until 1998, workers with earnings below the official minimum earnings threshold ("*Geringfügigkeitsgrenze*," 15 percent of average monthly gross wage; below this threshold are about 5.6 percent of all workers) are not subject to mandatory coverage.

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[9] These sections are updated versions of Börsch-Supan, Schnabel, Kohnz and Mastrobuoni (2002).

Roughly 70 percent of the budget of the German public retirement insurance is financed by contributions that are administrated like a payroll tax, levied equally on employees and employers. Total contributions in 2003 are 19.5 percent of the first Euro 5,100 of monthly gross income (upper earnings threshold, "*Beitragsbemessungsgrenze*," about twice the average monthly gross wage).[10]   Technically, contributions are split evenly between employees and employers. While the contribution rate has been fairly stable since 1970, the upper earnings threshold has been used as a financing instrument. It is anchored to the average wage and has increased considerably faster than inflation.

Private sector pension benefits are essentially tax free. Pension beneficiaries do not pay contributions to the pension system and to unemployment insurance. However, pensioners have to pay the equivalent of the employees' contribution to the mandatory medical insurance. The equivalent of the employers' contribution to health insurance is paid by the pension system.

The remaining approximately 30 percent of the social security budget are financed by earmarked indirect taxes (a fixed fraction of the value-added tax and the new "eco-tax" on fossil fuel) and a subsidy from the federal government. The subsidy is also used to fine-tune the pay-as-you-go budget constraint because it has a reserve of only about 14 days worth of benefits expenditures (February 2003).

2.2   Benefit Types

The German public retirement insurance provides *old-age pensions* for workers aged 60 and older, *disability benefits* for workers below age 60 which are converted to old-age pensions latest at age 65, and *survivor benefits* for spouses and children. In addition, pre-retirement (i.e., retirement before age 60) is possible through several mechanisms using the public transfer system, mainly unemployment compensation. We begin by describing old-age pensions.

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[10] About 20% less in East Germany. 1 Euro has a purchasing power of approximately 1 US-$.

2.3 Eligibility for Benefits and Retirement Age for Old Age Pensions

Eligibility for benefits and the minimum retirement age depend on which type of pension the worker chooses. The German public retirement insurance distinguishes five types of old-age pensions, corresponding to normal retirement and four types of early retirement.

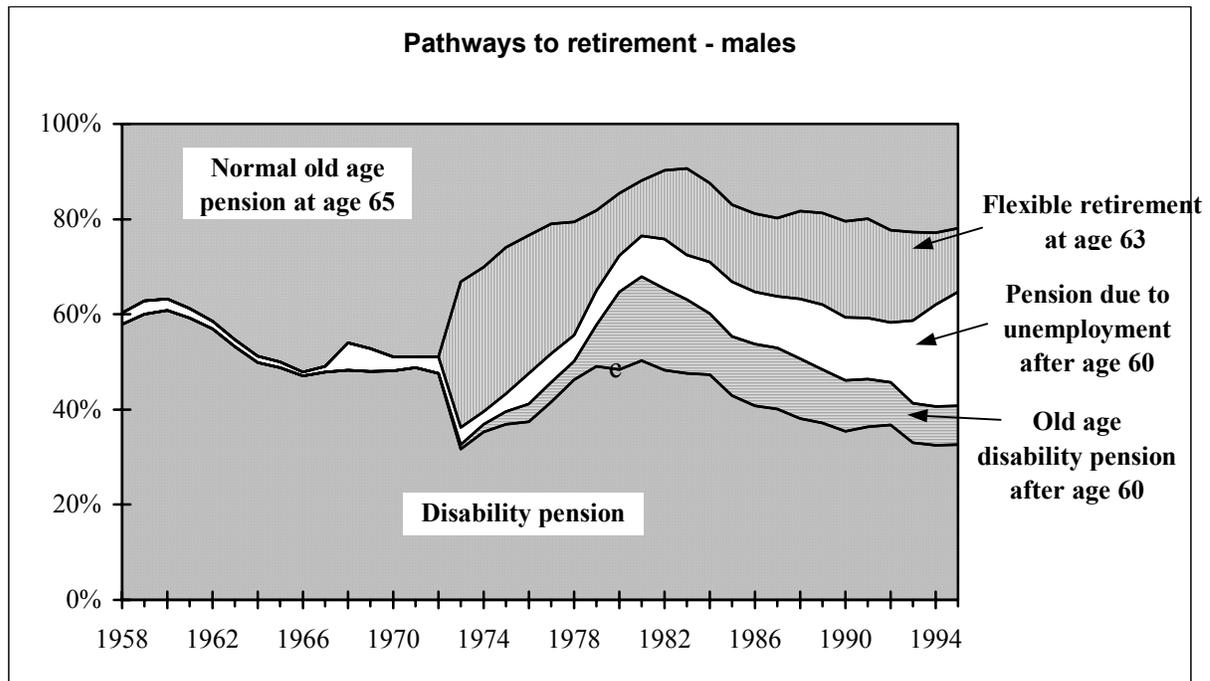**Table 1: Old-Age Pensions (1972 Legislation)**

Pension type	Retire-ment age	Years of service	Additional conditions	Earnings test
A Normal	65	5		No
B: Long service life ("flexible")	63	35		Yes
C: Women	60	15	10 of those after age 40	Yes
D: Older disabled	60	35	Loss of at least 50% earnings capability	(yes)
E: Unemployed	60	15	1.5 to 3 years of unemployment (has changed several times)	Yes

Notes: This legislation was changed in the reform of 1992. It has been effective until the year 1998.

This complex system was introduced by the 1972 social security reform. One of the key provisions was the introduction of "flexible retirement" after age 63 with full benefits for workers with a long service history. In addition, retirement at age 60 with full benefits is possible for women, unemployed, and older disabled workers. "Older disabled workers" refers to those workers who cannot be appropriately employed for health or labor market reasons and are age 60 or older. There are three possibilities to claim old age disability benefits. One has to (1) be physically disabled to at least 50 percent, or (2) pass a strict earnings test, or (3) pass a much weaker earnings test. The strict earnings test is passed if the earnings capacity is reduced below the minimum earnings threshold for any *reasonable* occupation (about 15 percent of average gross wage) ("*erwerbsunfähig," EU*). The weaker earnings test is passed when no vacancies for the worker's *specific* job description are available and the worker has to face an earnings loss of at least 50 percent when changing

to a different job ("*berufsunfähig,*" *BU*). As opposed to the disability insurance for workers below age 60 (see below), full benefits are paid in all three cases.

Figure 1: Pathways to Retirement, 1960-1995.

Pathways to retirement - males

Normal old age pension at age 65

Flexible retirement at age 63

Pension due to unemployment after age 60

Old age disability pension after age 60

Disability pension

Source: Börsch-Supan and Schnabel (1999)

Figure 1 shows the uptake of the various pathways,[11] including the disability pathway described below (adding to 100% on the vertical axis) and their changes over time (marked on the horizontal axis), mostly in response to reforms, benefit adjustments and administrative rule changes, in particularly the tightening of the disability screening process.

The 1992 social security reform and its subsequent modifications, the age limits types of early retirement will gradually be raised to age 65. These changes will be fully be phased in by the year 2004. The only distinguishing feature of types B and C of "early retirement" will then be the possibility to retire up to five years earlier than age 65 if a sufficient

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[11] See Jacobs, Kohli and Rein (1990) for this concept.

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number of service years (currently 35 years) has been accumulated. As opposed to the pre-1992 regulations, benefits will be adjusted to a retirement age below age 65 in a fashion that will be described below.

2.4   Benefits

Benefits are strictly work-related. The German system does not have benefits for spouses like in the U.S.[12] Benefits are computed on a life-time basis and adjusted according to the type of pension and retirement age.   They are the product of four elements: (1) the employee's relative earnings position, (2) the years of service life, (3) adjustment factors for pension type and (since the 1992 reform) retirement age, and (4) the average pension. The first three factors make up the "personal pension base" while the fourth factor determines the income distribution between workers and pensioners in general. See Part B, Section 4.1, for a more detailed explanation of the benefit formula.

The employee's relative contribution position is computed by averaging her or his annual relative contribution positions over the entire earnings history. In each year, the relative contribution position is expressed as a multiple of the average annual contribution (roughly speaking, the relative income position). A first element of redistribution was introduced in 1972 when this multiple could not fall below 75 percent for contributions before 1972 provided a worker had a service life of at least 35 years. A similar rule was introduced in the 1992 reform: for contributions between 1973 and 1992, multiples below 75 percent are multiplied by 1.5 up to the maximum of 75 percent, effectively reducing the redistribution for workers with income positions below 50 percent. In 2001, this system has been abolished in favor of a guaranteed minimum pensions ("*Grundsicherung*") at the level of social assistance plus 15 percent.

Years of service life are years of active contributions plus years of contribution on behalf of the employee and years that are counted as service years even when no contribution were made at all. These include, for instance, years of unemployment, years of military service, three years for each child's education for one of the parents, some allowance for advanced

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[12] There are, of course, survivor benefits.

education etc., introducing a second element of redistribution. The official Government computations such as the official replacement rate ("*Rentenniveau*") assume a 45-year contribution history for what is deemed a "normal earnings history" ("*Eckrentner*"). In fact, the average number of years of contributions is about 38 years. Unlike to the U.S., there is neither an upper bound of years entering the benefit calculation, nor can workers choose certain years in their earnings history and drop others.

Since 1992, the average pension is determined by indexation to the average net labor income. This solved some of the problems that were created by indexation to gross wages between 1972 and 1992. Nevertheless, wage rather than cost of living indexation makes it impossible to finance the retirement burden by productivity gains.

The average pension has provided a generous benefit level for middle income earnings. The net replacement rate for a worker with a 45-year contribution history is 70.5% in 1998. For the average worker with 38 years of contributions, it is reduced in proportion to 59.5%. Unlike to the U.S., the German pension system has only little redistribution as is obvious from the benefit computation.[13] The low replacement rates for high incomes result from the upper limit to which earnings are subject to social security contributions – they correspond to a proportionally lower effective contribution rate.

Before 1992, *adjustment of benefits to retirement age* was only implicit via years of service. Because benefits are proportional to the years of service, a worker with fewer years of service will get lower benefits. With a constant income profile and 40 years of service, each year of earlier retirement decreased pension benefits by 2.5 percent, and vice versa.

The 1992 social security reform will change this by the year 2004. Age 65 will then act as the "pivotal age" for benefit computations. For each year of earlier retirement, up to five years and if the appropriate conditions in Table 1 are met, benefits will be reduced by 3.6 percent (in addition to the effect of fewer service years). The 1992 reform also introduced rewards for *later* retirement in a systematic way. For each year of retirement postponed past the minimum age indicated in Table 1, the pension is increased by 5 percent in addition to the "natural" increase by the number of service years.

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[13] See Casmir (1989) for a comparison.

Table 2 displays the retirement-age-specific adjustments for a worker who has earnings that remain constant after age 60. The table relates the retirement income for retirement at age 65 (normalized to 100 percent) to the retirement income for retirement at earlier or later ages, and compares the implicit adjustments after 1972 with the total adjustments after the 1992 social security reform is fully phased in. As references, the table also displays the corresponding adjustments in the United States and actuarially fair adjustments at a 3 % discount rate.[14]

Table 2: Adjustment of Public Pensions by Retirement Age

	Pension as a percentage of the pension that one would obtain if one had retired at age 65				
	Germany		**United States**		**Actuarially**
Age	**pre-1992[a)]**	**post-1992[b)]**	**pre-1983[c)]**	**post-1983[d)]**	**fair[e)]**
62	100.0	89.2	80.0	77.8	80,5
63	100.0	92.8	86.7	85.2	86,3
64	100.0	96.4	94.4	92.6	92,8
65	100.0	100.0	100.0	100.0	100,0
66	107.2	106.0	103.0	105.6	108,1
67	114.4	112.0	106.0	111.1	117,2
68	114.4	118.0	109.0	120.0	127,4
69	114.4	124.0	112.0	128.9	139,1

Notes: a) GRV 1972–1992. b) GRV after 1992 reform has fully phased in. c) US-Social Security (OASDHI) until 1983. d) US-Social Security after 1983 Social Security Reform has fully phased in. e) Evaluated at a 3% discount rate, 1992/94 mortality risks of West-German males and an annual increase in net pensions of 1%.
Sources: Börsch-Supan and Schnabel (1999).

While neither the German nor the American system were actuarially fair prior to the reforms, the public retirement system in Germany as enacted in 1972 was particularly distortive. There was less economic incentive for Americans to retire before age 65 and only a small disincentive to retire later than at age 65 after the 1983 Reform, while the German social security system tilted the retirement decision heavily towards the earliest

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[14] The actuarially fair adjustments equalize the expected social security wealth for a worker with an earnings history starting at age S=20. A higher discount rate yields steeper adjustments.

retirement age applicable. The 1992 Reform has diminished but not abolished this incentive effect.

2.5 Disability and Survivor Benefits

The contributions to the German retirement insurance also finance *disability benefits* to workers of all ages and *survivor benefits* to spouses and children. In order to be eligible for *disability benefits*, a worker must pass one of the two earnings tests mentioned earlier for the old-age disability pension. If the stricter earnings test is passed, full benefits are paid ("*Erwerbsunfähigkeitsrente,*" *EU*). If only the weaker earnings test is passed and some earnings capability remains, disability pensions before age 60 are only two-thirds of the applicable old age pension ("*Berufsunfähigkeitsrente,*" *BU*). In the 1970s and early 1980s, the German jurisdiction has interpreted both rules very broadly, in particular the applicability of the first rule. Moreover, jurisdiction also overruled the earnings test (see below) for earnings during disability retirement. This lead to a share of *EU*-type disability pensions of more than 90 percent of all disability pensions. Because both rules were used as a device to keep unemployment rates down, their generous interpretation has only recently lead to stricter legislation.[15]

Survivor pensions are 60 percent (after 2001: 55 percent) of the husband's applicable pension for spouses that are age 45 and over or if children are in the household ("*große Witwenrente*"), otherwise 25 percent ("*kleine Witwenrente*"). Survivor benefits are a large component of the public pension budget and of total pension wealth as will be shown in part III. Certain earnings tests apply if the surviving spouse has her own income, e.g., her own pension. This is only relevant for a very small (below 10 percent) share of widows. Only since recently, male and female survivors are treated symmetrically. As mentioned before, the German system does not have a married couple supplement for spouses of beneficiaries. However, most wives acquire their own pension by active and passive contribution (mostly years of advanced education and years of child education).

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[15] See Riphahn (1995) for an analysis of disability rules.

2.6 Pre-Retirement

In addition to benefits through the public pension system, transfer payments (mainly unemployment compensation) enable what is referred to as "pre-retirement".Labor force exit before age 60 is frequent: about 45 percent of all men call themselves "retired" at age 59. Only about half of them retire because of disability; the other 50 percent make use of one of the many official and unofficial pre-retirement schemes.

Unemployment compensation has been used as pre-retirement income in an unofficial scheme that induced very early retirement. Before workers could enter the public pension system at age 60, they were paid a negotiable combination of unemployment compensation and a supplement or severance pay. At age 60, a pension of type E (see table 1) could start. As the rules of pensions of type E and the duration of unemployment benefits changed, so did the "unofficial" retirement ages. Age 56 was particularly frequent in West Germany because unemployment compensation is paid up to three years for elderly workers; it is followed by the lower unemployment aid. Earlier retirement ages could be induced by paying the worker the difference between the last salary and unemployment compensation for three years; and further years the difference between the last salary and unemployment aid – it all depended on the so-called "social plan" which a firm would negotiate with the workers before restructuring the work force.
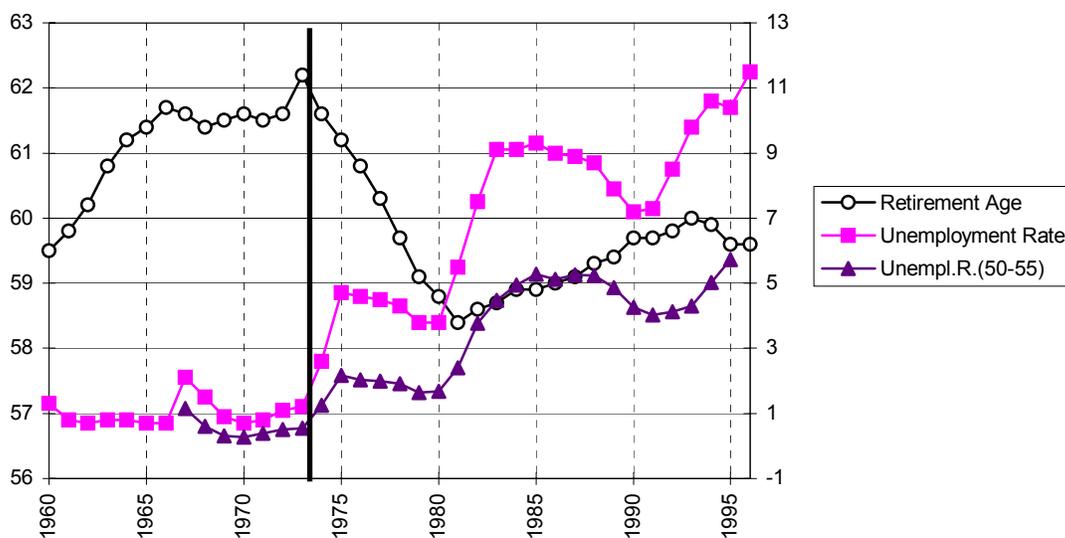
In addition, early retirement at age 58 was made possible in an official pre-retirement scheme ("*Vorruhestand*"), in which the employer received a subsidy from the unemployment insurance if a younger employee was hired. While the first (and unofficial) pre-retirement scheme was very popular and a convenient way to overcome the strict German labor laws, few employers used the official second scheme.

2.7 Retirement Behavior

The retirement behavior of entrants into the German public retirement insurance system has been summarized by Figure 1. The fraction of those who enter retirement through a disability pension has declined, see Figure 1, and was 29% in 1998. Only about 20% of all entrants used the "normal" pathway of an old-age pension at age 65.

The average retirement age in 1998 was 59.7 years for men and 60.7 years for women. These numbers refer to West Germany. In the East, retirement age was 57.9 years for men and 58.2 years for women. The average retirement age has dramatically declined after the 1972 reform, see Figure 2. We interpret this as a clear sign of a policy reaction, in particular, since it does not coincide with labor demand effects generated by the rise in unemployment.[16] The most popular retirement age is age 60, see Figure 3. The close correspondence to the pathways in Table 1 is another clear sign for a behavioral response to the incentives created by the pension system, and in particular the change of the peaks and spikes after the 1972 reform. [17]
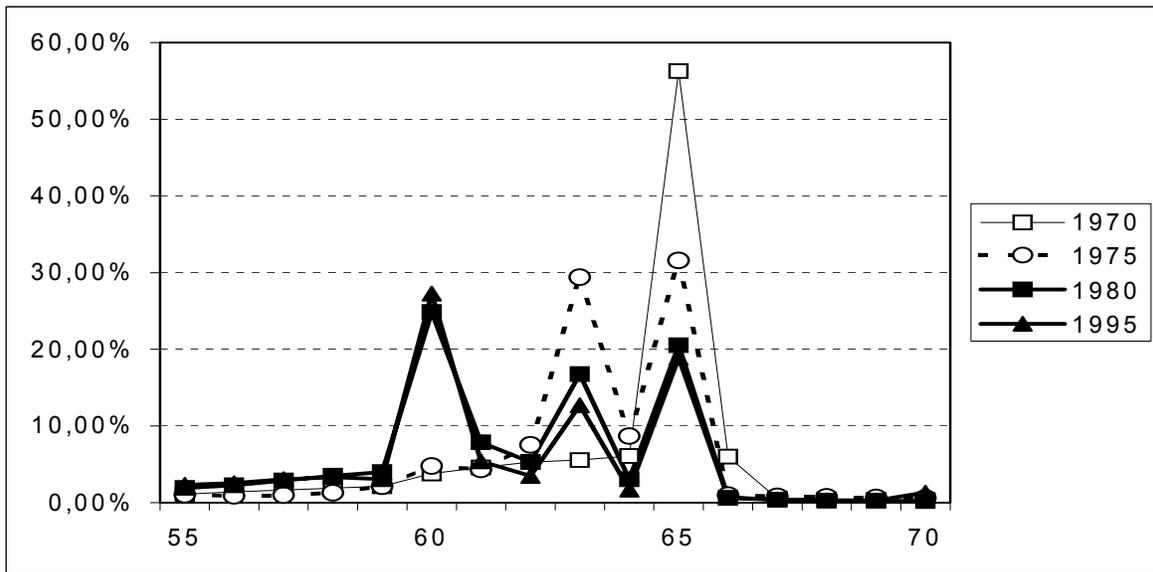
Figure 2: Average Retirement Age, 1960-1995

Note: "Retirement Age" is the average age of all new entries into the public pension system. "Unemployment rate" is the general national unemployment rate. "Unempl.R.(50-55)" refers to male unemployed age 50-55.
Source: VdR 1997 and BMA 1997.

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[16] See Börsch-Supan and Schnabel (1998).

[17] See Börsch-Supan (2000c).

Figure 3: Distribution of Retirement Ages, 1970, 1975, 1980 and 1995

3 Civil Service Pensions

Civil servants are exempted from the public pension system described in Section 2. They do not pay explicit contributions for their pensions as the other employees in the private and public sectors do.[18] Instead, the "gross" wage for civil servants is lower than the gross wage of other public sector employees with a comparable education. Civil servants acquire pension claims that are considerably more generous than those described in the previous section, and they have rather distinctive early retirement incentives. While the private sector pensions described in Part A have undergone a incisive reform process (see Part B), civil servants have largely been protected from benefit cuts so far.

3.1 Eligibility: Pathways to retirement for civil servants

There are three pathways for civil servants: the standard, the early, and the disability retirement option. The standard retirement age is 65. Before July 1, 1997 the early

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[18] Civil servants are also exempt from unemployment insurance contributions, since civil servants have a life-time job guarantee. The government pays a certain fraction of health expenses of the civil servant and his or her dependents (ranging from 50 to 80%). The rest has to be covered by private insurance.

retirement age for civil servants was 62 and thus 1 year less than the early retirement age in the social security system. In 1997 early retirement age was raised to 63. Discount factors for early retirement are phasing in linearly between the years 1998 and 2003, and will reach 0.3 percentage points per month of early retirement, the same as in the private sector and substantially smaller than actuarially fair.[19]

Filing for disability is a third pathway to retirement for civil servants. In the case of disability a civil servant receives a pension which is based on his or her previous salary. The replacement rate depends on the number of service years reached before disability retirement and the number of service years that could potentially have been accumulated to age 60. For those who did not reach the maximum replacement rate before disability, one additional year of service raises the replacement rate by only 1/3 percentage point per year.

3.2 Computation of pensions

The standard pension benefit for civil servants is the product of three elements: (1) the last gross earnings level, (2) the replacement rate as function of service years, and (3) the new adjustment factors to early retirement. There are three crucial differences between civil servants pensions and private sector benefits. First, the benefit base is gross rather than net income. In turn, civil servants' pensions are taxed like any other income. Finally, the benefit base is the last salary rather than the life-time average.

Benefits are anchored to the earnings in the last position and then updated annually by the growth rate of the net earnings of active civil servants. If the last position was reached within the last two years before retirement, the pension is based on the previous, lower position. Due to the difference in the benefit base, gross pensions of civil servants are approximately 25 percent higher (other things being equal) than in the private sector.

The maximum replacement rate is 75 percent of *gross* earnings which is considerably higher than the official replacement rate of the private sector system which is around 70 percent of *net* earnings. The replacement rate depends on the years of service. High school

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[19] Very specific rules apply to some civil servants. E.g., the regular retirement age for police officers is age 60; for soldiers it is even lower and depends on their rank.

and college education, military service, and other work in the public sector are also counted as service years. For retirement after June 1997 the college education credit is limited to 3 years.

Before 1992 the replacement rate was a non-linear function of service years. The replacement rate started at a value of 35 percent for all civil servants with at least 5 years of service. For each additional year of service between the 10th and the 25th year the increment was 2 percentage points. From the 25th to the 35th year the annual increment was one percent. Thus, the maximum replacement rate of 75 percent was reached with 35 service years under the old rule. This is much more generous than the private sector replacement rate of 70 percent which requires 45 years of service.

For persons retiring after January 1, 1992 the replacement rate grows by 1.875 percentage points for each year of service. Thus, the maximum value is reached after 40 years of service. However, there are transitional modifications to that simple rule. First, civil servants who reach the standard retirement age (usually age 65) before January 1, 2002 are not affected at all. Second, for younger civil servants, all claims that have been acquired before 1992 are conserved. These persons gain one additional percentage point per year from 1992 on. All persons who have acquired 25 service years before 1992 have reached 65 percentage points and would also have gained only one additional point per year under the old rule. Only persons with less than 25 service years in 1991 can be made worse off by the reform. The new proportional rule only applies if it generates a higher replacement rate than the transitional rule.

The generosity of gross pensions received by civil servants vis-a-vis the private sector workers is only partially offset by the preferential tax treatment of private sector pensions. Since civil servants' pensions are taxed according to the German comprehensive income taxation, the net replacement rates of civil service pension recipients depends on their position in the highly progressive tax schedule. In general, the net replacement rate with respect to the pre-retirement net earnings is higher than 75 percent and thus considerably more generous than in the private sector.

3.3 Incentives to retire

Currently, most civil servants reach the maximum replacement rate by the age of 54. Persons who have started to work in the public sector before the age of 23 have reached a replacement rate of 75 percent when taking into account the disability rules. This also holds for civil servants, who – like professors – receive lifetime tenure late in their life-cycle. For those groups the starting age is usually set to age 21. Additional years of service beyond the age of 54 increase pensions only if the civil servant is promoted to a position with a higher salary. Retirement incentives therefore strongly depend on promotion expectations.

For persons who cannot expect to be promoted after age 54 the pension accrual is zero or very small. For those who have already reached the replacement rate of 75 percent, the accrual of the present discounted pension wealth is negative. Since the replacement rate is 75 percent of the gross earnings in the last position before retirement, the negative accrual of postponing retirement by one year is simply 75 percent of the last gross earnings. This is equivalent to a 75 percent tax on earnings.

For persons who expect to climb another step in the hierarchy the gross wage increase is on average 10.5 percent. This raises the pension by approximately 10 percent. In order to cash in the higher pension, the civil servant has to defer retirement by at least one year.[20] In this extreme case the social security wealth increases 10 percent through the effect of higher pensions and decreases by 5 percent through the effect of pension deferral. In this extreme case the pension accrual is positive. If the civil servant has to wait several years for the next promotion (or for the promotion to have an effect on pension claims) the accrual of working becomes negative; hence, it makes no financial sense to keep working.

3.4 Retirement behavior

The retirement behavior of civil servants reflects the very generous disability and early retirement rules. The average retirement age for civil servants in the year 1993 was age 58.9 and thus about one year lower than in the private sector. Disability is the most important pathway to retirement for civil servants: 40 percent of those who retired in the

year 1993 used disability retirement. Almost one third used the early retirement option at the age of 62. Only about 20 percent of civil servants retired at the regular retirement age of 65.

Part B: The German public pension system how it will be

4   The German Pension Reform Process

Three dates mark the pension reform process so far: 1992 and 2001 have seen two major pension reforms, and a reform due to become law in 1999 failed after the 1998 elections. In addition, there was a constant flurry of smaller adjustments in between.
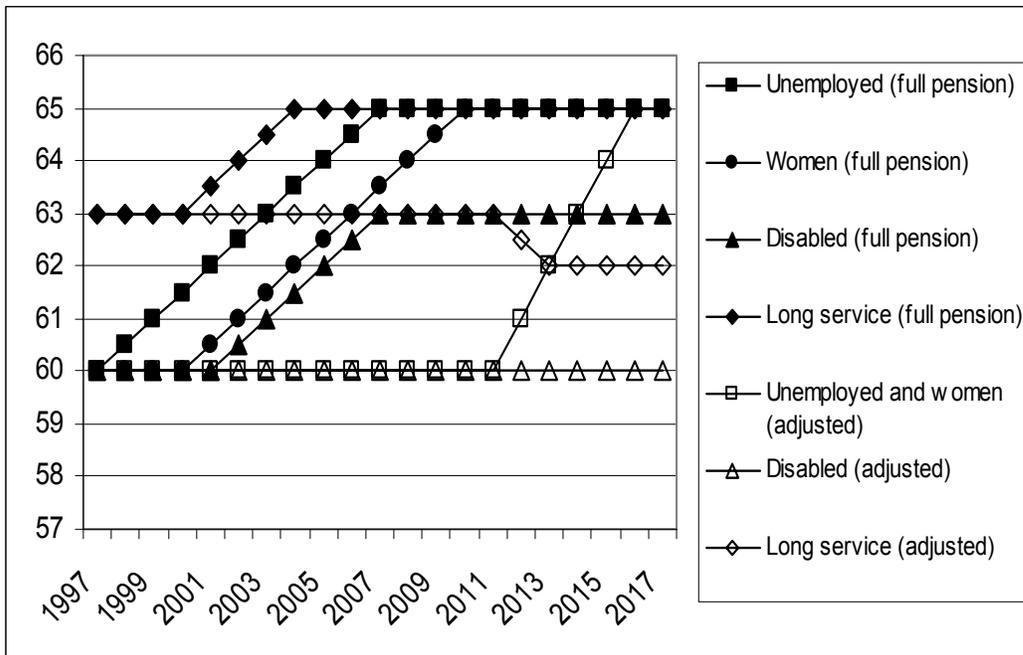
4.1   The 1992 Reform

The main changes in the 1992 reform were to anchor benefits to net rather than to gross wages. This implicitly has reduced benefits since taxes and social security contributions have increased, reducing net relative to gross wages. This mechanism is particularly important when the population aging will speed up since it implies an implicit mechanism of burden sharing between generations. The other important change in the 1992 reform was the introduction of adjustments to benefits in some but not all cases of early retirement and a change in the "normal" retirement age for women. These changes have been described in Subsection 2.4. They will be fully effective in 2017 and reduce the incentives to retiree early, although they are still not actuarially fair even at low discount rates.

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[20] For the higher earnings to take effect on pensions it is usually required to work several years after the promotion.

4.2 The 1999 Reform

The 1999 pension reform was supposed to lower the replacement rate according to a pre-specified so-called demographic factor, a function of life expectancy plus several "correction factors". It was revoked after the change of government in 1998. A side effect of this reform, which was not revoked, was a gradual change of eligibility ages for pensions for women and unemployed (types C and E in Table 1) from age 60 to age 65. This change will be fully implemented by 2017 and effectively leave a "window of retirement" for healthy workers only if they have at least 35 years of service. Figure 4 depicts the adjustment paths for the various pension types described in Table 1.

Figure 4: Retirement age with and without "actuarial" adjustments (1992 and 1999 reforms)

Source: Authors' compilation

4.3 The Riester Reform in 2001

On May 11, 2001 a new pension reform act, popularly referred to as the Riester reform after the then labour minister Walter Riester, was ratified in Germany. The 2001 reform is a major change in the system. It will change the monolithic German system of old-age provision to a genuine multi-pillar system. The most important aspect of the reform, which came into effect on January 1, 2002, is a partial substitution of pay-as-you-go by funded pensions. The reform aimed to achieve three main objectives:

(1) Sustainable contribution rates

Key objective of the Riester reform is to stabilize contribution rates and thus first to help to limit the extent of further increases in non-wage labour costs and second to guarantee a fairer balance of intergenerational burdens. The law actually states that contribution rates to the public retirement insurance scheme will stay below 20% until 2020 and below 22% until 2030. Failure must precipitate government action.

(2) Secure the long-term stability of pension levels

Pensions will be gradually reduced from the current level of 70% of average net earnings to around 67–68% by the year 2030. At the same time, however, the Riester reform changed the computational procedure for the reference earnings, now subtracting a fictitious 4% of gross earning to be invested into the new funded supplementary private pensions. In comparison with the definition of net earnings which applied prior to the reform, this means that actual PAYG pension levels will fall by a larger margin (some 10%) than suggested by the new definition.

(3) Spread of supplementary private pension savings

The decline in public pensions is expected to be offset by supplementary (occupational and private) pensions. In order to achieve this aim, supplementary private pensions will subsidized, either by tax deferral and tax deduction, or by direct subsidies into individual and occupational pension plans. These supplementary pensions are, however, not mandated.

Table 3 gives an overview over the main changes. Subsections 4.4 describes how costs in the PAYG pillar are cut. Subsection 4.5 introduces the subsidies for the supplementary

funded pensions which are supposed to fill the emerging pension gap. Subsection 4.6 describes the changes in occupational pensions. An assessment of the likely economic success of the Riester reform follows in our concluding Section 5.

Table 3: Overview of the core elements of the Riester–Reform

Measure	Content	Pillar
Introduction of a needs-oriented basic income	Minimum social security guarantee for old age/reduction in earning capacity secured by means of needs-oriented basic income	0
Abolition of occupational incapacity pensions	Discontinuation of occupational incapacity pensions; partial disability/occupational incapacity pensions replaced by two-tier general invalidity pension	1
New adjustment formula	Reduction in pension level by about 10 percent	1
Reform of women's and survivors' pensions	Modification of income rules for survivors' pensions; introduction of "pension splitting for married couples"	1
Reformed framework for occupational pensions	Introduction of a legal right to convert salary into pension contributions; relaxation of vesting rules; introduction of pension funds; DC-plans permitted	2
Establishment of funded (voluntary) supplementary pension provision	Introduction of individual retirement accounts; rules for the recognition of financial services products eligible for state subsidies (Retirement Pension Contracts Certification Act); provision of state subsidy; introduction of deferred taxation	3

Source: Authors compilation

4.4 The PAYG pillar: Reducing the replacement rate

Public pensions in Germany are contribution related – benefit rates are, to a first approximation, proportional to life-time contributions. Contributions, in turn, are proportional to earnings, capped at about 2 times the average earnings. Unlike to the U.S. Social Security, there is no element of redistribution or progressivity in this part of the benefit calculation. Life-time contributions are computed by adding "earnings points" over a worker's earnings history. Earnings points (EP) reflect the relative earnings position is every year: one EP corresponds to average earnings; 0.5 EP to 50% of average earnings, and 2 EP to earnings twice as large as average earnings in this year.

The earnings points are then converted to monthly pension benefits by multiplying them with the "current pension value" (PV). This pension value is indexed to the annual changes in the level of wages and salaries net of pension contributions and thus enable pensioners to share in the rising prosperity generated by the economy.

The monthly value of a pension $MP_{t,i}$ in year t for pensioner i is thus the product of accumulated earning points EP_i and the current pension value for that year PV_t:

$$MP_{t,i} = EP_i \cdot PV_t.$$
(1)

The calculation of the current monthly pension value for a specific year t takes account of the development of the earnings of all those workers liable to compulsory insurance contributions. This procedure is intended to guarantee that the so called "standard pension replacement rate" remains stable and does not fall behind the development of current average earnings.[21] Before the 2001 reform, the objective of safeguarding standards of living in old age was considered to be met if pensions are worth 70% of average net earnings. Thus they more than maintain the purchasing power of the level of pension entitlements acquired when a person retires. Until the 2001 reform, the German pension system was essentially run by adapting the contribution rate to this 70% standard replacement rate.

Typical for the philosophy of the German public pension system, the law specified a mathematical formula for the calculation of the current monthly pension value PV. The stability of this formula has created a sense of actuarial fairness, and workers perceived the contributions largely as insurance premia. However, this has changed when the formula was changed several times since 1992. Until 1992 pensions were indexed to gross wages, between 1992 and 1999 to net wages. The Budget Consolidation Act of 1999 contained provisions to index pensions in 2000 and 2001 to the respective previous year's rate of inflation. The perception of discretionary changes, and the prospect of further reductions in the pension generosity has led to a great deal of dissatisfaction with the German pension

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[21] The reader is reminded that the word replacement rate may be misleading: In the German context, it does NOT refer to last earnings before retirement. Rather, the "standard replacement rate" refers to the pension of a worker, who had 45 earnings points, divided by the average net earnings off all current workers.

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system, in particularly among younger workers. Surveys show that by 2001, contributions were largely perceived as taxes.[22]

Starting with 2002, a rather complex new adjustment formula will be effective, which relates changes in the pension value (PV_t) to lagged changes in gross income (AGI_t), modified by the actual contribution rate to public pensions (τ_t) and a fictitious contribution rate to the new private pension accounts (δ_t), gradually increasing from 1 percent in 2003 to 4% in 2008. In addition, the "sensitivity factor" d_t is 100 until 2010, then decreases to 90 which effectively increases the sensitivity of PV to increases in τ.

$$PV_t = PV_{t-1} \frac{AGI_{t-1}}{AGI_{t-2}} \frac{\frac{d_t}{100} - \delta_{t-1} - \tau_{t-1}}{\frac{d_t}{100} - \delta_{t-2} - \tau_{t-2}}. \tag{2}$$

The complex design of the formula reflects the balance between the two opposing aims of the reform: to keep the contribution rate below a fixed level (20% until 2020, 22% until 2030), and to keep the redefined standard replacement level above 67% until 2030.

4.5 The new funded pillar: Introducing supplementary funded pensions

The second component of the Riester reform is the introduction and significant promotion of supplementary funded private pensions. The objective of this element of the reform is to offer incentives for people to take out supplementary private pension cover which, in the long term, should compensate for the future cuts in public pensions. However, there will be no legal compulsion for people to invest in additional private schemes. It remains to be seen, how many workers actually start building up private pensions.

The new pillar pensions can be occupational or individual pensions. In either case, many restrictions apply. They are detailed below. The main restriction is on payment plans. Since additional private pension schemes are intended to supplement or replace benefits from the public pension scheme, the government decided that incentives will only be available for investment vehicles which guarantee payment of a life annuity payable from the date of

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[22] Boeri, Börsch-Supan and Tabellini (2001).

retirement. Investment vehicles which provide for disbursement of benefits in a single payment are not subject to state subsidies.[23] This restriction has already met with considerable criticism in public debate as it excludes other forms of provision for old age (such as investments in old-age or nursing homes).

The incentives provided by the state can take two forms: direct savings subsidies or tax-deductible special allowances. The tax authorities automatically compute which of the two forms versions is most advantageous.

Direct savings subsidy. All dependently employed and certain self employed workers who pay personal contributions to a certified retirement pension policy are entitled to receive a direct retirement savings subsidy. The subsidy is paid directly into the beneficiary's saving account. A basic subsidy and a child subsidy for each child for which child benefits were received during the previous year is paid. Child subsidies are payable to the mother. In the case of married couples, both partners receive a basic subsidy if they have each taken out their own supplementary private pension policy. In addition, non-entitled partners (such as mothers not in paid employment) are also entitled to receive the full subsidy for their own retirement pension policy provided that the respective married partner subject to compulsory insurance contributions has paid his or her minimum personal contribution to their supplementary retirement pension policy (see below).

Table 4: Direct savings subsidies

From	Savings rate	Basic subsidy in Euro/year	Child subsidy in Euro/Year
2002	1%	38	46
2004	2%	76	92
2006	3%	114	138
2008	4%	154	185

Table 4 shows the maximum incentive subsidies available as of 2002. In order to qualify for the maximum subsidy the beneficiary must invest a specified percentage of his or her

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[23] If a lump-sum payment is chosen, all subsidies have to be reimbursed to the tax authorities.

gross earnings (denoted as "saving rate"). This percentage increases until 2008 in four steps ("*Riester-Treppe*"). The percentage is applied to the actual earnings level, capped at the same cap as the PAYG contributions are (about 2 times average earnings). If less money is invested, the state subsidy is reduced accordingly. The scheme is complicated by the fact, that the subsidy is included in the savings amount. Hence, the actual saving rate necessary for the maximum subsidy is lower than the percentages indicated in the second column of Table 4. In turn, certain minimum amounts are necessary, see Table 5:

Table 5: Minimum savings

Year	No child	One child	Two or more children
2002 – 2004	45	38	30
As of 2005	90	75	60

Tax deductable special espenses. Alternatively, qualifying retirement savings can be deducted as "special allowances" from income taxes. This is usually more advantageous for workers with higher than average earnings. Saving rates, caps etc. are the same as in the subsidy case. Table 6 shows the maximum tax-deductible contributions to private retirement savings accounts:

Table 6: Maximum savings

From	Tax deductible special expenses in Euro/year
2002	525
2004	1.050
2006	1.575
2008	2.100

Criteria for individual pension plans eligible for subsidies/tax relief. Individual retirement accounts only qualify for state promotion if they meet criteria laid down in the new Certification of Retirement Pension Contracts Act ("*AltZertG*"). It contains a long list

of rules which make the system complex for customers and potential insurers alike, see Section 5. Qualifying pension plans require certification by the Federal Financial Markets Authority ("*Bundesanstalt für Finanzdienstleistungs- und Finanzmarktaufsicht*") which will be granted automatically if they fulfill the following preconditions:

1. The investor must be committed to making regular, voluntary pension contributions.

2. Pension benefits may only be paid out when the beneficiary reaches the age of 60 at the earliest or upon reaching retirement age.

3. At the beginning of the disbursement phase, the accrued pension contributions (inclusive of subsidies) must be guaranteed (i.e., the nominal rate of return must be nonnegative).

4. Pension payments must guarantee lifelong benefits which retain or increase their nominal value, i.e. in the form of a life annuity or disbursement plan linked to lifelong annual installments.

5. The disbursement plan must continue to provide benefits until the beneficiary reaches the age of 85 and subsequently provide a life annuity guaranteed by the capital available at the beginning of the disbursement phase.

6. Supplementary survivor's coverage must not have features which offset the original plan.

7. Initial commission and administrative charges must be spread equally over a period of at least 10 years.

8. The investor must be informed about the following issues before taking out the policy: The level and distribution over time of commission and administrative costs, the cost of switching to a different policy, the costs of financial management, the costs involved in changing to a different insurer.

9. The investor must be informed once a year during the term of the policy about how his or her contributions are being used, capital formation, costs and yields, and also about whether and to what extent the insurer takes account of ethical, social and ecological investment criteria.

10. The investor must have the right to suspend contributions during the saving phase, to allow the policy to continue running without making additional contributions, or to terminate the policy by serving three months notice to the end of the quarter.

11. Policy rights may not be assigned or transferred to third parties. Claims to pension benefits cannot, as a result, be bequeathed.

Products eligible for subsidy support and into which old-age pension contributions and the proceeds on such contributions may be invested include pension insurance and capitalization products, bank accounts with accumulated interest and shares in growth and distributing investment funds. These products are offered by life insurance companies, banks, capital investment companies, financial services institutions and securities services companies.

Deferred taxation. While old-age pension contributions will be tax exempt during the saving phase, pension payments during the benefit phase will be taxed in full as normal income. This applies to all benefits regardless of whether these accrue from contributions, subsidies or capital gains. One may regard this as another form of subsidy, since taxes occur later in life (hence, an implicit tax credit) and usually at a lower rate due to progressivity.[24]

4.6 Occupational Pension Schemes

The Riester reform remained largely undecided on the role of occupational pensions versus individual accounts. Traditionally, occupational pensions have played a minor role in Germany, particularly in comparison with other countries. Demand for participation in occupational pension schemes has also been falling in recent years.[25] On the other hand, occupational pensions may provide a psychological substitute for mandated private

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[24] Börsch-Supan and Lührmann (2000). The "tax credit" feature depends on the an income or consumption tax point of view.

[25] See Ruppert (2000).

pensions. In order to strengthen occupational pensions, additional (implicit and explicit) subsidies were introduced with the Riester reform.

The most important change is the general right to convert part of the salary directly into contributions to pension plans. This is a large implicit subsidy since the so-converted salary is not only subject to deferred taxation but also is exempt from social security contributions. However, collective bargaining agreements have precedence over the right to convert salary which means that an employee covered by a binding collective agreement is only entitled to convert his or her pay into pension if this is explicitly provided for in the terms of the collective agreement. This rule makes sure that employers and unions can impose their own rules on occupational pension plans.

In addition to this implicit subsidy, contributions to occupational pensions may enjoy the same direct subsidies or tax relief as contributions to individual accounts, if the occupational pensions meet certain criteria which are less restrictive than the criteria for individual pension plans.

5   An Assessment of the Riester Reform

Will the recent reforms, and in particular the Riester reform, solve the problems of the German public pension system? In subsection 5.1, we look first at the new voluntary supplementary private pensions, the so-called Riester pensions. Will they be accepted by the German workers who were used to the all-caring public system? Subsection 5.2 then asks, whether the new supplementary private pensions will suffice to offset the cuts in the PAYG pillar if workers actually participate. And finally, Subsection 5.3 poses the main question: Will the Riester reform put the German system of old age provision on a stable and lasting new foundation?

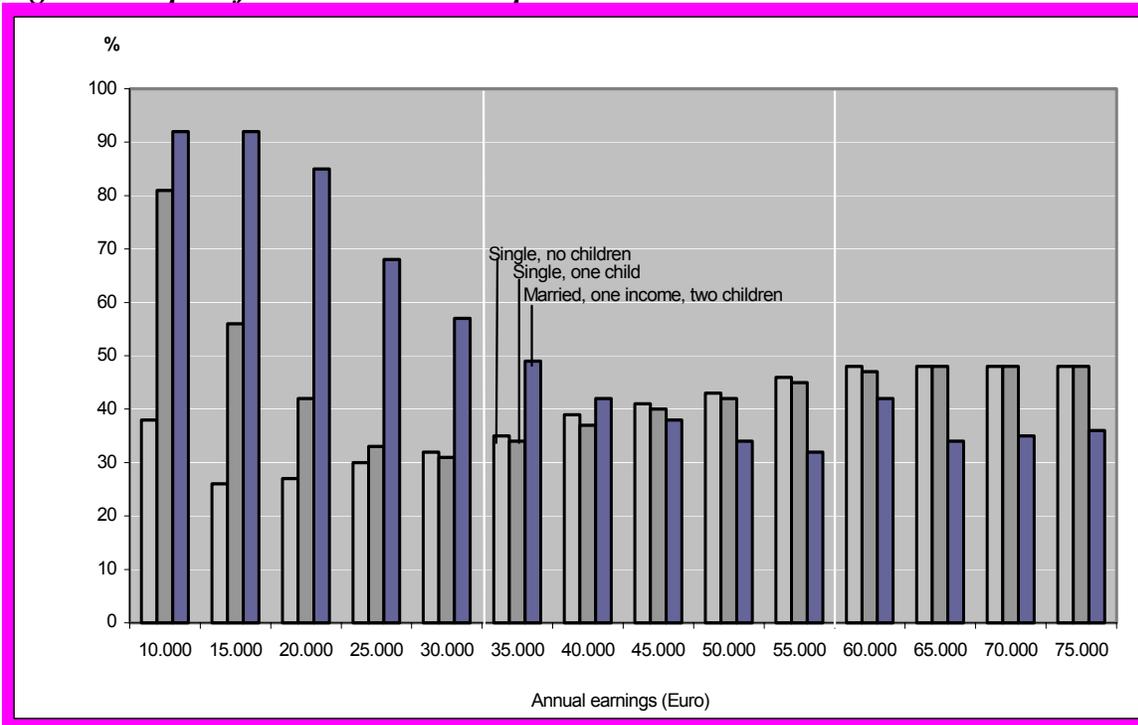## 5.1   Will the "Riester" pensions actually take off?

Since the new pensions are voluntary, one of the most debated issues in the Riester reform is the question whether workers will actually overcome the temptations to procrastinate. How many will build up supplementary pensions? How much will they save? At this point in February 2003, we had only one year since their introduction, and it is too early to tell with reasonable confidence. It took about 5 years to popularize a general subsidized dedicated savings program ("*Vermögenswirksame Leistungen*", directly deducted from payroll) which now enjoys almost universal participation. In the US, IRAs needed at least as long to be accepted by a large share of households.

The depth of Riester incentives. Two aspects need to be taken into account when assessing the benefits offered by Riester incentives: the subsidies during the contribution phase and any tax-related advantages or disadvantages which arise during the disbursement phase.

The direct subsidies during the contribution phase are very deep for those who have relatively low income and those who have children. The reverse is the case for the tax-deductible special allowances, due to the progressive tax system. Here, households with higher incomes benefit more. This results in a U-shaped relation between subsidies and income, visible in Figure 5 which shows the subsidy as a percentage of savings in form of the new supplementary pensions.[26]

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[26] We use the word "subsidy" for both the direct subsidy and the tax-deductible special allowance.

Figure 5: Depth of subsidies to Riester pensions

Note: direct subsidy/the tax advantage as a percentage of savings in form of the new supplementary pensions.
Source: Deutsche Bundesbank (2002).

For lowest income households, the subsidy is almost as large as the contribution itself. Even for the well-to-do, subsidy rates are high around 40-50 percent. Given these deep subsidies, uptake is likely to be high.

The picture of Figure 5, however, is misleading insofar as this U-shaped curve is flattened out during the disbursement phase when pension benefits will be taxed. This flattening effect is due to the impact of progressive taxation. Taxation will not affect pensioners in the lower half of the income distribution because their pension income is below a generous exemption for retired households. It will, however, considerably reduce the effective life-time subsidy to households with incomes above average.

The form of the Riester incentives. While the depth of the Riester incentives makes the Riester pensions rather attractive, the Riester pension is less flexible than other retirement investment products.

One of the main complaints is that most of the capital has to be annuitized and can therefore not be used as collateral or bequeathed. The argument lacks a certain logic since

the very objective of the Riester pensions is to provide annuity income in order to fill the pension gap emerging from the reduced PAYG pillar. In our opinion, the widely voiced argument is a clear indication that most workers have not yet realized that they will depend on the Riester pensions for a reasonable retirement income.

The extensive certification requirements which severely restrict private providers' scope to develop new private insurance products and which lead to higher costs is also disadvantageous. Certain cost items can result in total costs of up to 20%, compared with around 10% for a normal capital sum life insurance policy.[27]

What is more, the certification rules merely serve to create a formal product standard without creating the transparency needed in order to compare different investment vehicles and the relative rates of return they offer. As a result, customers are often not in a position to make truly informed private investment decisions. The guarantee of the nominal value of contributions does ensure that, on retirement, at the very least the nominal capital saved is available as pension capital. However, there are no rules which prescribe the sort of pension dynamisation which is needed in order to ensure that the value of pension benefits paid out from the saved capital can be maintained over the long term. Non-dynamised Riester benefits will very quickly lose their value, even at very modest rates of inflation.

Preliminary evidence on take-up rates. First survey results show that demand for Riester products is sluggish: only around 9% had actually taken out a policy by mid 2002; a further 16% planned to conclude a policy by the end of 2002. By February 2003, however, the take-up rate was only about 15%.

This comes in spite of a growing trend for workers to enroll in supplementary pension plans – but only around half of those planning to enroll in such plans are considering doing so in the framework of a Riester policy. The other half prefer other savings and insurance products, and/or occupational pensions.[28]

Moreover, many households, especially in the higher income brackets, merely may restructure their existing pension plans in order to reap Riester subsidies. At this point, we

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[27] Stiftung Warentest (2002).

[28] Leinert (2002).

do not have much hard evidence on such substitution. Should these households have a fixed pension target, financing state subsidies via general taxation can actually have perverse effects which lead to a lower savings rate.[29]

Do we need mandatory private pensions after all? Surveys have shown that a large section of the population would actually welcome the introduction of mandatory supplementary private pensions.[30] This preference may be explained by savers' lack of confidence in their ability to exercise the discipline needed to build up additional old-age provision by themselves and the fiscal externality imposed by those who speculate on general social assistance rather than save.

The argument generally cited in favor of mandatory supplementary old-age provision are poverty in old age and adverse selection on the insurance market.[31] Poverty in old age, however, is currently not an important problem in Germany. This may change in the future because of the benefit cuts, but has been addressed by the Riester reform through the introduction of the new minimum income guarantee.

As far as adverse selection is concerned, compulsory provision could lead to a monopoly position being established by a single provider if this product and the offers it generates proves to be unattractive for smaller competitors in which case coercion would bring about even less rather than more product variety.

Finally, making supplementary pensions mandatory will give the savings a tax-like character and therefore create negative incentive effects.[32] The very idea of reducing the tax and payroll-tax-like contribution burden in order to stimulate economic growth would be jeopardized.

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[29] See Börsch-Supan and Lührmann (2000).

[30] Boeri, Börsch-Supan and Tabellini (2001, 2002a, b).
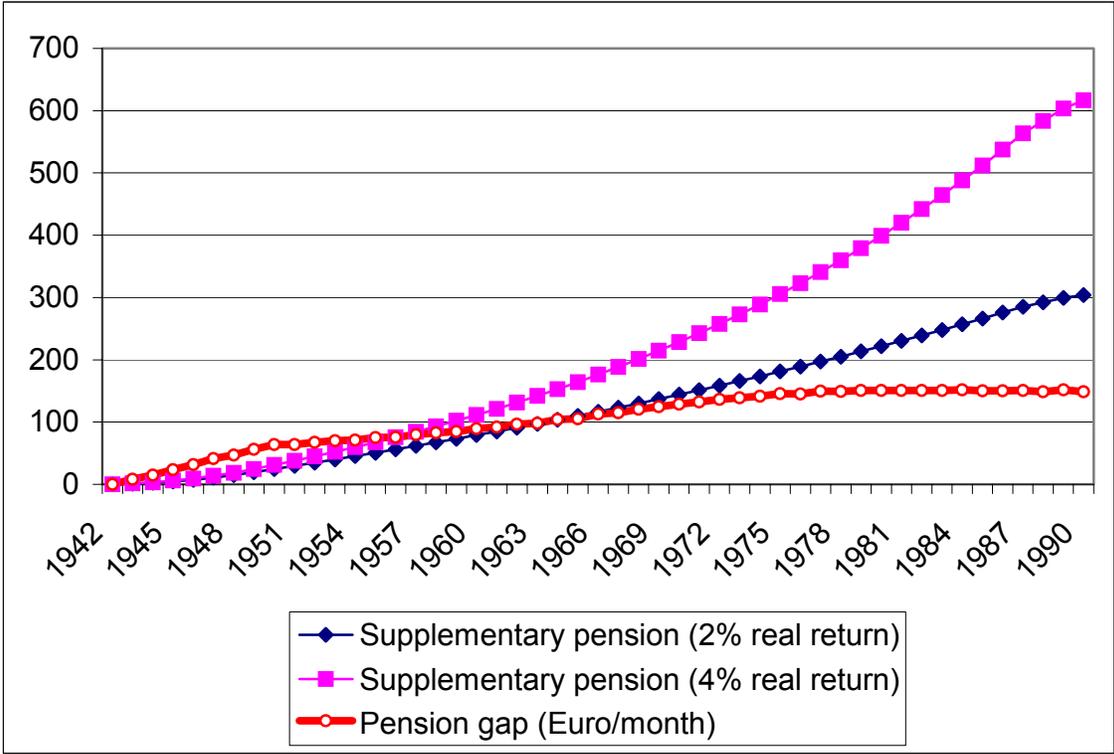
[31] Börsch-Supan (2002b).

[32] Summers (1989).

5.2 Will the "Riester" pensions fill the pension gap?

Main point of introducing the Riester pensions was to compensate for the reductions in the pay-as-you-go public retirement insurance scheme. Model calculations show that an envisaged savings rate of 4% of gross income is in principle sufficient to close the gap which will open up in old age provision as a result of the cuts in state pensions. Figure 6 illustrates the growing gap in provision and the level of benefit provided by the Riester pension based on a variety of different assumptions regarding rates of return.

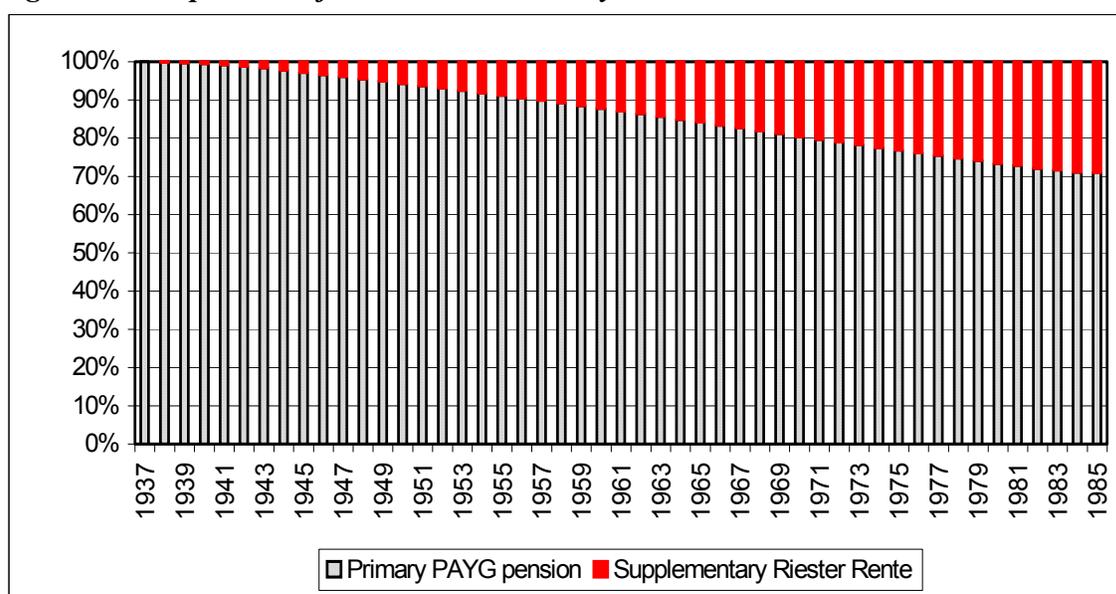*Figure 6: Filling the pension gap*

Source: Own calculations.

This is, however, not the case for all cohorts. While younger cohorts born after 1970 will be in a position to build up even higher pension entitlements than was previously the case, thanks to their supplementary pension savings, older cohorts will not be able to close this gap entirely during the time still available to them, unless they save more than the

envisaged maximum saving rates in Table 4. Effects such as these could be avoided by tailoring saving rates to cohorts.[33]

Given successful take-up, the future composition of retirement income will be quite different from the current monolithic one. Figure 7 outlines this development by birth cohort in the year of their retirement under the assumption that the insured cohorts have adhered to the recommended Riester savings rates of Table 4.

Figure 7: Composition of retirement income by birth cohort

Source: Own calculations.

Figure 7 shows that even at full uptake, the German PAYG system will remain the dominant pillar for old age provision. Riester pensions will make up about 30% of state organized retirement income. Should other income sources (currently about 15% of total retirement income) stay as they are, this would yield a share of PAYG pensions in total retirement income at about 60%. Some crowding out of existing occupational pensions and other private pensions by the new Riester pensions is likely, however, as mentioned earlier.

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[33] See the proposals by Birg and Börsch-Supan (1999) and Börsch-Supan (2002).

5.3 Will the "Riester" reform stabilize the German pension system?

Of course, the main litmus test of the Riester reform is whether the shift from PAYG to partially funded pension system will stabilize the contribution rates for the younger generation with acceptable replacement rates for the older generation. The Riester reform actually was quite courageous in writing into the law that the standard pension replacement level must not fall below 67% and at the same time that the contribution rate must not exceed 20% until 2020 and 22% until 2030. Can these promises be kept?

The answer is – quite unambiguously – no. Even the more optimistic official projections which are due in March 2003 will confirm the following assessment which are based on a rather pessimistic long-run outlook on employment in Germany.[34]
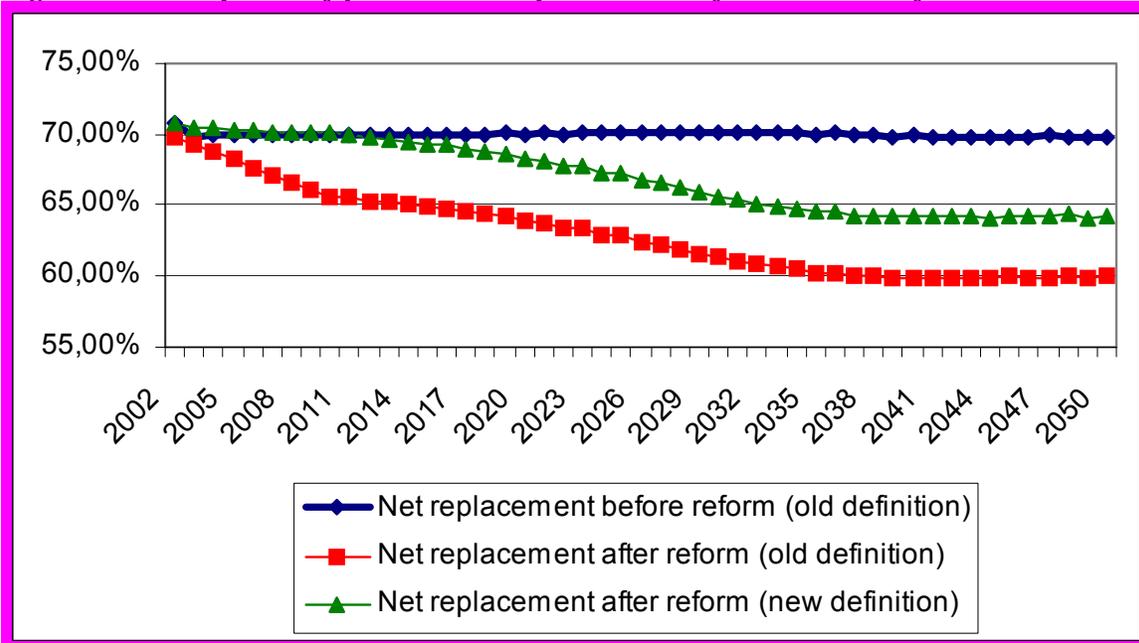
We look first at standard replacement rates.[35] Model calculations of the long-term impact of pension adjustments demonstrate that, as a result of the new adjustment formula, future pension levels will fall more than first predicted by the government, see Figure 8.[36]

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[34] Details on the projection can be found in Birg and Börsch-Supan (1999).

[35] The reader is reminded that the standard replacement rate does NOT relate to the LAST earnings before retirement. Rather, the "standard replacement rate" refers to the pension of a worker, who had 45 earnings points, divided by the average net earnings off all current workers.

[36] See also Bonin (2001) and Prognos (2001).

Figure 8: Development of pension levels prior to and after the 2001 reform
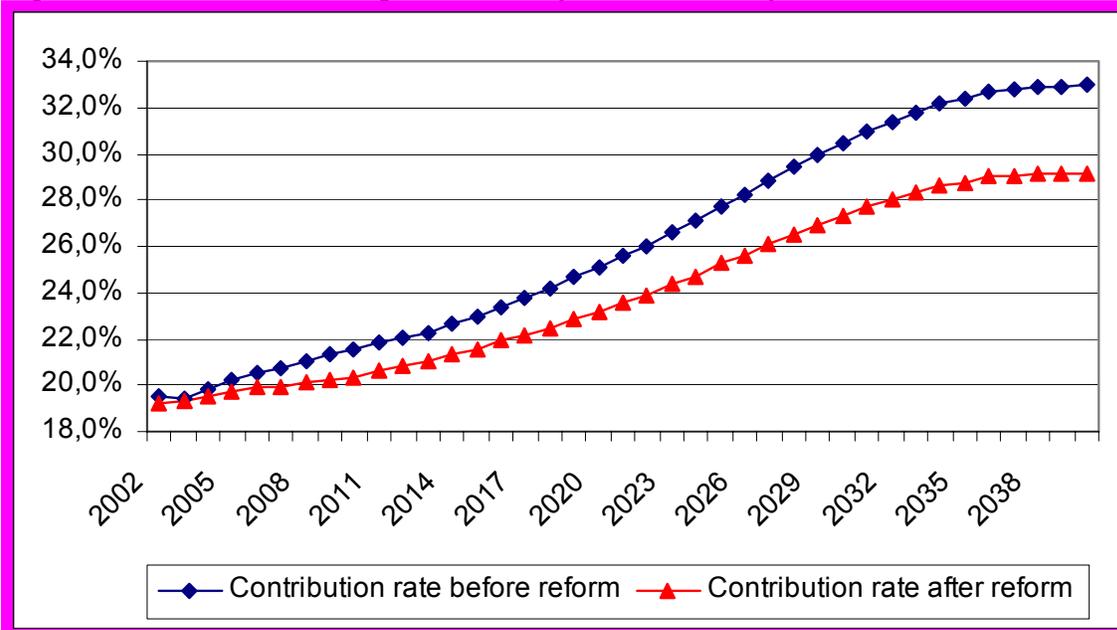

Source: Own calculations based on MEA population and earnings projections

They will fall below 67% in 2024, 6 years earlier than predicted. Particularly confusing for public opinion, however, was the redefinition of the "standard replacement level", the traditional yardstick for pension generosity in Germany. If, for the purpose of determining pension levels, net income continues to be calculated in the standard way without taking account of the deduction of the additional maximum state subsidy, future pension levels will be reduced even further than indicated by the new pension level measurement, will fall below 67% very quickly, and eventually reach 60%.

The scale of this reduction also clearly demonstrates that the pension benefits provided by the PAYG public retirement insurance scheme will not be sufficient in themselves – that is without supplementary pension provision - to safeguard pensioners' standards of living in old age.

Although the new adjustment formula will in effect bring about a larger reduction in pension levels than was perceived by public opinion, the most dramatic difference between promise and current projection relates to the objective of stabilizing contribution rates. Figure 9 depicts our projection for the long-term development of contribution rates prior to and after the reform.

Figure 9: Contribution rates prior to and after the 2001 Reform

Source: Own calculations based on MEA population and earnings projections

While the Riester reform substantively reduces the contribution rate to the PAYG pillar, Figure 9 shows that the 20% line will be exceeded by 2007, and 22% by 2018. As a matter of fact, the current contribution rate of 19.5% is unlikely to remain stable during 2004, and more likely to hit 19.9%, just below the psychological mark of 20%. Main reason is the unexpectedly high unemployment and the poor performance of the German economy in 2002 and 2003.

Based on these and other sets of more realistic assumptions than used in 2001, the measures implemented by the Riester reform will not be sufficient on their own to achieve the explicit aims of the reform with regard to contribution rates and pension levels.
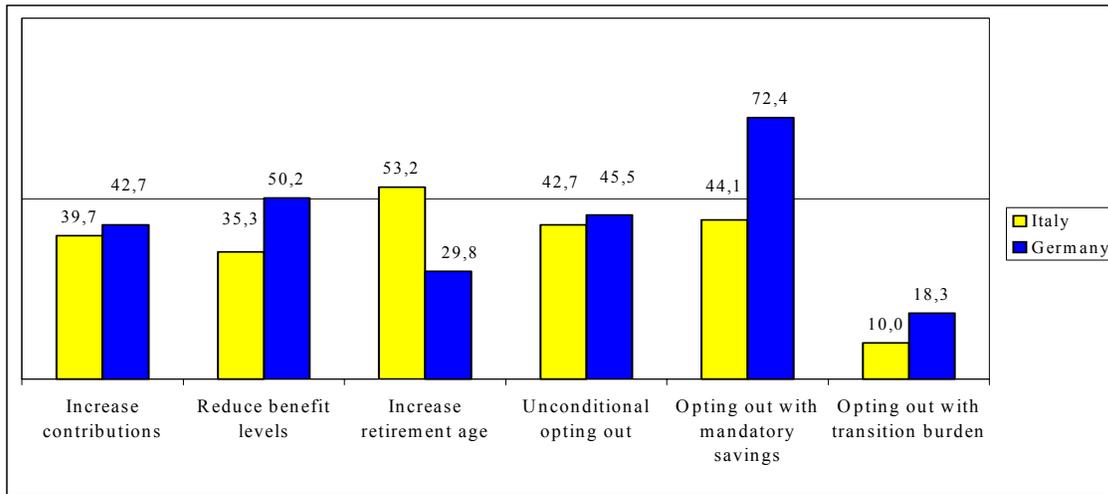
6 Conclusions

The first part of this paper described the generous German pension system, as it was in place between 1972 and now. It generated early retirement ages and high replacement rates, but at high costs to society in form of a large cost percentage of GDP (about 12%) and high contribution rates (about 28% of gross income, of which 19,5% are direct contributions and 8,5% indirect contributions for state subsidies financed by general taxes).

The Riester reform in 2001, described in Part B, attempts to reduce the tax and contribution burden by transforming the monolithic PAYG system to a multipillar system with subsidized or tax-privileged private pensions in individual accounts or as occupational pensions. The reform is an important first step towards solving the demographic problems confronting the pension system. It does not, however, stabilize the public PAYG pillar in the coming decades. While the uptake of the new Riester pensions is rather sluggish, it is not possible at this early point to reach a final conclusion on the success or failure of the Riester incentives.

Further reform is certainly necessary. But in which direction? The Riester reform did not change the retirement age, it did not change the slow phase-in process to steeper adjustments of pension benefits to retirement age, and it did not make them truly actuarially fair. The politics of shifting the retirement age, however, are not favorable. According to survey results by Boeri, Börsch-Supan and Tabellini (2001, 2002a and b), raising the retirement age is one of the most unpopular pension reform options in Germany, see Figure 10.

Figure 10: Popularity of pension reform options

Source: Boeri, Börsch-Supan and Tabellini (2002b)

An interesting result of this survey is that this option is particularly unpopular among those who are least informed about the costs of the current pension system. Hence, while early retirement is a well appreciated social achievement among Germans, awareness of the costs of early retirement may moderate the opposition to increasing the retirement age.

Another lesson from this survey is that any new reform should introduce flexibility in the hard choice between a later retirement age and a lower PAYG pension level, supplemented by private pensions which cut into consumption. As long as pensions are calculated in an actuarially fair fashion, there is no need for a "normal retirement age", and workers can decide themselves between working longer and saving more. The recent experience in the US in the aftermath of the bubble burst appears to indicate that workers are quite aware of this substitution. Flexibility minimizes the opposition to reform proposals relative to proposals which make cuts in only one direction, say, increasing the normal retirement age.

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