Social Security and Declining Labor-Force Participation in Germany

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Germany has one of the most generous retirement systems in the world. At the same time, Germany also faces one of the most incisive population aging processes. The ratio of workers to pensioners will decrease to less than 1:1 within the next generation. This will put the German pay-as-you-go social-security system under severe pressure. Already, Germany has experienced a sharp increase in the contribution rate to the social-security system.

This paper shows that the German public pension system is a textbook example of negative incentive effects on system participation and old-age labor supply. The design of the current system will make coping with the future demographic challenges particularly difficult.

Incentive effects of private U.S. pension plans on retirement behavior have been surveyed by Lawrence Kotlikoff and David Wise (1987) and formalized in the option-value analysis by James Stock and David Wise (1990). Costas Meghir and John Edwards (1993) exploit the “opt out” mechanism of the state earnings-related pension system in the United Kingdom. What makes the German case particularly interesting is the universality of the German public pension system: its incentive effects influence almost all workers’ behavior.

I. The German Public-Pension System

Germany has the oldest formal social-security system, introduced in 1889 by Chancellor Otto von Bismarck. Originally a fully funded disability insurance, it soon became a mandatory retirement insurance system and was converted to a pay-as-you-go (PAYG) scheme after its capital stock had been severely eroded during World War II. In the course of the 1960’s and 1970’s, the German system evolved to a universal and very generous pension program both in terms of its replacement rate and its early-retirement provisions.

The German public pension system1 is almost universal for two reasons. First, it is mandatory for every worker except for the self-employed and those with very small labor incomes. Because almost all German workers have been dependently employed at least at some point in their working career, almost every worker has a claim on a public pension. Second, the system has a very high replacement rate, generating net retirement incomes that are currently about 70 percent of prereirement net earnings for a worker with a 45-year earnings history and average lifetime earnings. This is substantially higher than the corresponding U.S. net replacement rate of about 53 percent. In addition, it provides relatively generous survivor benefits that constitute a substantial proportion of the total pension liability. Social-security income represents about 80 percent of household income of households headed by a person aged 65 and over, the remainder about equally divided among firm pensions, asset income, and private transfers. On the aggregate level, public pensions are 10.6 percent of GDP, a share more than 2.5 times larger than in the United States.

The German public pension system provides old-age pensions for workers aged 60 and older, disability benefits for workers below age 60, which are converted to old-age

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1 The institutional description refers to the “Gesetzliche Rentenversicherung.” Some branches have their own but similar PAYG retirement systems (e.g., civil servants, miners). For a detailed description see Börsch-Supan and Schnabel (1998).
pensions by age 65, and survivor benefits for spouses and children. In addition, preretirement (i.e., retirement before age 60) is possible using other parts of the public transfer system, mainly unemployment compensation. A main feature of the German old-age pensions is “flexible retirement” from age 63 for workers with a long service history. In addition, retirement at age 60 is possible for women, the unemployed, and workers who cannot be appropriately employed for health or labor-market reasons.

Benefits are computed on a lifetime contribution basis and adjusted according to the type of pension and retirement age. They are the product of four elements: (i) the employee’s relative wage position, averaged over the entire earnings history, (ii) the number of years of service life, (iii) adjustment factors for pension type and (since the 1992 reform) retirement age, and (iv) the average pension level. The first three factors make up the “personal pension base” which is calculated when entering retirement. The fourth factor determines the income distribution between workers and pensioners in general and is adjusted annually to net wages. Thus, productivity gains are transferred each year to all pensioners. Due to a generous exemption, social-security benefits are tax-free unless income from other sources is high.

Roughly 80 percent of the budget of the German public pension system is financed by contributions, the rest by federal government revenue. Contributions are collected like a payroll tax, levied equally on employees and employers. The tax rate in 1998 is 20.3 percent of monthly gross income, and the tax base is capped at about 180 percent of average wages.

II. Disincentives on System Participation

The pay-as-you-go system started in 1957 and has produced fairly large rates of return during maturation. Labor-productivity increases were exceptionally high during the German “economic miracle,” and the labor force has been steadily increasing. However, these golden times are gone. Labor productivity now increases at a rate only slightly higher than in the United States, and the size of the labor force has been falling since 1992.

Demography is the main threat to the German public pension system. The share of German elderly will increase from 21 percent in 1995 to 36 percent in the year 2035, when the aging process will peak. This will be the highest share in the world (a distinction shared with Switzerland and Austria). The old-age dependency ratio will far more than double from 21.7 percent in 1990 to 49.2 percent in 2030.

The tax base for the German PAYG system will therefore severely erode, and there is nothing that can rescue the generosity of the current PAYG system. Holding the current replacement rate and labor-participation patterns constant, the demographic change implies an increase of social-security contributions from 21 percent in 1998 to 34 percent in 2035. Adding this to an already high tax burden and increasing contributions to mandatory health and long-term care insurance, a policy of tax increases appears unsustainable. While an increase in female labor-force participation and higher immigration may help in the short run, the magnitude of the demographic change requires a substantial shift in retirement age combined with a severe cut in the replacement rate.

The main insight is that whatever the future policy mix may be (consisting of a tax increase, a benefit reduction, and a shift in retirement age), the rate of return will invariably go down. Figure 1 shows projections by Schnabel (1997) based on the official population projection and labor-force assumptions detailed in Börsch-Supan (1998) that bracket the real rate of return by birth cohort between the two extreme policies which either put the entire burden on the younger generation or on the older generation. The real rate of return will be below 1 percent from about birth cohort 1950 on, and negative for cohorts born after 1980. This creates a huge disincentive problem for participation.

There is mounting evidence that these disincentive effects induce German workers to vote with their feet against the PAYG system by increasingly using exceptions from mandatory participation. The share of self-employed has gone up since 1991, and the number of part-time jobs with salaries below the social-security contribution threshold have
increased dramatically at the same time. The clearest evidence of voting with the feet occurs among the self-employed who can choose between participation in the public pension system and market-based pension plans. Figure 2 shows that the proportion of male self-employed who actively contributed to the public system decreased from 62 percent in 1985 to 22 percent in 1995. This reduced participation exhibits a strong age and cohort effect. Self-employed individuals who are age 45 and younger added less than a quarter of what self-employed individuals aged over 55 have added to the minimum contribution.

III. Incentives for Early Retirement

Before 1992, there was no adjustment of benefits when a worker retired earlier than at age 65. Only because benefits are proportional to the years of service, a worker with fewer years of service would 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, much less than the actuarial adjustment, which increases from about 5.5 percent at age 60 to 8 percent at age 65. The 1992 social-security reform is gradually changing this by introducing retirement age-specific adjustment factors to the benefit formula, but they remain about 2-percent below those required for actuarial fairness.

The lack of actuarial fairness creates a negative accrual of pension wealth during the early-retirement window at a rate reaching −9 percent when retirement is postponed from age 64 to age 65 (Fig. 3). Expressed as a percentage of annual labor income, this loss corresponds to a tax which exceeds 50 percent. After 2004, when the 1992 reform will have phased in, the negative accrual rate will reach −5 percent, corresponding to an implicit tax rate of almost 30 percent when retirement is postponed by one year at age 64.

The labor-supply disincentive for older workers created by this implicit tax is reflected in the data. Male labor-force participation plunges after age 55, when it is almost 90 percent, to 38 percent at age 60. It is less than 8 percent at age 65. Figure 4 shows the cross-sectional distribution of retirement ages that has its maximum at age 60, the earliest age at which retirement due to health and

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2 Active contribution refers to contributions that exceed the minimum amount (about $50 per month at purchasing power parity) necessary to maintain a claim on the minimum pension and on disability pensions.
labor-market reasons without formal claims to disability benefits is possible. The other spikes correspond to age 63 for flexible retirement and to age 65 for workers with short work histories.

The incentive effects are even stronger if one manages to claim disability status for health or labor-market reasons, because no adjustments apply (not changed in the 1992 reform). Thus, implicit tax rates are similar to the pre-1992 regime, in excess of 60 percent for workers retiring before age 60. Disability is an important pathway to retirement. In 1981, at its peak, 68 percent of male workers retired through the pathway of disability benefits. Since then, disability eligibility was tightened, but still today more workers enter retirement through disability insurance (41 percent in 1995) than through regular old-age pensions (35 percent). In addition, “preretirement” schemes that combine severance pay and unemployment benefits with the early-retirement provisions for unemployed workers account for 24 percent of retirement entries.

Formal econometric analyses confirm that pension rules strongly affect retirement behavior. Börsch-Supan (1992), Sikandar Siddiqui (1995), and Börsch-Supan and Peter Schmidt (1996) exploit cross-sectional and time-series variation in the option value of postponing retirement to estimate the incentive effects of the German social-security system on early retirement. These studies use several variants of the option-value models compared in Robin Lumsdaine et al. (1992) and produce very robust results. The estimated coefficients can be used to compute the effect of the non-actuarial benefit adjustments on retirement age. According to Börsch-Supan and Schmidt (1996), the lack of actuarial fairness induces a shift of more than two years toward earlier retirement. The effects are most powerful for very early retirement (i.e., retirement before the official window period through disability or preretirement schemes). A shift to an actuarially fair system would cause retirement at ages 59 and below to drop from currently 32 percent to less than 18 percent. These potential effects are much larger than those simulated for the 1992 pension reform. Using the adjustment factors that will eventually be introduced by the 1992 reform, average retirement age is expected to increase by only about half a year, and very early retirement (before age 60) is expected to decline from 32 percent to only slightly above 28 percent.

The most convincing evidence that the early-retirement incentives are indeed causal for the low labor-force participation among older German workers is the “natural experiment” of the 1972 pension reform that introduced the “flexible retirement” option described in Section I. Before 1972, the earliest retirement age was 65 except for disabled
workers. Figure 5 shows the sudden decrease in the average retirement age after the 1972 reform.\(^3\) Average retirement age dropped from about 61.5 in 1971 to 58.5 in 1981 and has remained below age 60 since then. The spike in the 1973 average retirement age is due to an interesting composition effect also induced by the reform. In 1973, when the ‘‘flexible retirement’’ option was opened, the share of retirees entering through disability retirement decreased sharply, while the share of retirees claiming old-age pensions increased. At the same time, average retirement age dropped in both the old-age and the disability branch of the public pension system.

The effect of the 1972 reform is also clearly visible in the quickly shifting distribution of retirement ages. Figure 6 shows that in 1970 age 65 was the retirement age, while in 1975, about half of the retirees preferred to retire earlier. Five years later, the pattern of today (cf. Fig. 4) started to emerge.

IV. Conclusions

The responsiveness of both active participation in the public pension system and retirement behavior to the incentives offered by the pension system has strong policy impacts. Rather than rewarding later retirement to reduce the negative effects on the German economy precipitated by quickly rising social-security taxes, social-security regulations in Germany have encouraged early retirement and thus aggravated the imbalance between the number of workers and pensioners in times of population aging. The 1992 German social-security reform has failed in this respect: it will only moderately decrease the distortions when fully phased in by the year 2004. Its effect on retirement age will be less than a quarter of what it would be if a truly age-neutral system had been implemented.

The renewed social-security debate in Germany, only a few years after the most recent reform in 1992, focuses on further changes in the benefit structure and applicable retirement ages. Major changes, such as a transition from the current PAYG system to a partially or fully funded system, are not seriously debated within the government. Given the large discrepancy between the rate of return of the PAYG system and capital-market returns, a further erosion of the tax base appears likely. The withdrawal of most of those workers who were permitted to opt out appears to be indicative of this.

\(^3\) Average retirement age in a given year is the average age of those workers receiving public-pension income for the first time.
The window of opportunity for a reform is rather narrow. Population aging shifts the majority of voters even further toward those who benefit the most from a generous PAYG system. In about 10 years, the median voter in Germany will be 50 years old. In addition, considerable time is needed to phase in a reform, due to grandfathering—particularly so, if a partially funded pension system is introduced that requires the accumulation of sufficient savings.

REFERENCES


