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ONE PILLAR CRUMBLING, THE OTHERS TOO SHORT: OLD-AGE PROVISION IN GERMANY

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One pillar crumbling, the others too short: Old-age provision in Germany

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Abstract

Responding to the challenges of demographic ageing, the German system of old-age provision has undergone substantial changes during the last two decades and is in fact still under reconstruction. Benefit levels deriving from the public pay-as-you-go scheme will decline until 2060, while contribution rates may still go up substantially. Additional cover from private or occupational pension schemes is urgently needed. Thus far, steps in this direction have been half-hearted. The continuing crisis in financial markets and a more profound distrust in financial institutions and market-based instruments of old-age provision currently create obstacles to progress with this overhaul. Nevertheless, despite the differing traditions, Germany could learn important lessons now from other developed countries that have longer experience of funded pensions.

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Keywords: Old-age provision, public pensions, occupational pensions, precautionary saving; demographic ageing; pension reform; simulations

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1 Introduction

This paper provides a comprehensive description of the current situation and future perspectives for the overall system of old-age provision in Germany. The agenda for further reform of this system is particular in some respects, but the issues which need to be addressed are similar to those discussed in other developed countries, *e.g.*, in the UK. Following the traditional distinction between the three pillars of national pension systems (*cf.* the introduction of this issue), we will initially deal with first pillar – the public pension scheme (Section 2). Following a series of reforms, it currently benefits from strong labour-market performance, but is heavily challenged because demographic ageing will soon enter an acute phase. Then, we will turn to the second and third pillars (Section 3), discussing the role they have been assigned in the course of recent reforms and the problems that have surfaced. Section 4 concludes, summarizing the options for what remains to be done.

2 The first pillar: Statutory Pension Insurance

2.1 Basic principles and the reforms taken thus far

Public pensions provided by Statutory Pension Insurance (*gesetzliche Rentenversicherung*, GRV) are still the dominant pillar within the German system of old-age provision. Certainly until the late 1990s, pensions provided by the scheme were meant to contribute in a substantial fashion to maintaining the earlier living standards of members with full earnings records. Participation in the scheme is mandatory for about 75 percent of all workers,[1] while more than 90 percent of those aged 65 and older receive some amount of public old-age pension (linked to at least 5 qualifying years). Benefit assessment is based on a "points system" (Robalino and Bodor 2007) translating individual work records and life-time earnings into old-age pension entitlements. Point values and, hence, benefits are uprated using a complex indexation rule which has far-reaching consequences for benefit levels and individual replacement rates, as it implicitly also applies to the valorization of life-time earnings in the assessment of benefits at award.

The Statutory Pension scheme has been openly unfunded since the 1950s. As a consequence, its budgetary situation and financial outlook are directly linked to the performance of domestic labour markets and to the demographic structure of the resident population. Over the years, demographic ageing has become more and more prominent as a reason for the implementation of reforms. But a long-lasting increase in "structural" unemployment which was reinforced, but not caused, by German unification has been another major driver. The reforms which have been enacted in several rounds in the 1990s and early 2000s share major ingredients with pension reforms taken in other developed countries (Diamond 2002; Disney 2003; Martin and Whitehouse 2008; Meier and Werding 2010).

Initially, a number of changes were made to strengthen actuarial fairness. However, room for manœuvre was limited in this respect, given the traditional set-up of the scheme. Subsequently, the

[1] Important exemptions relate to civil servants, the self-employed, and most individuals with monthly pay below the lower earnings limit of 450 Euro; there is also an upper limit for covered earnings of around 6,000 Euros per month.

traditional logic of providing a predefined level of benefits was modified through reforms which eventually implied a partial switch to a system with "notionally defined contributions" (Disney 1999; Börsch-Supan 2005).[2] Originally, annual benefit upratings had been based on pure gross-wage indexation (until 1991) and then on different variants of net-wage indexation (from 1992 onwards, with a modification taking effect in 2001); the current rule (established in 2004) reflects changes in the following determinants: gross wages, pension contribution rates (plus a "recommended" rate of private old-age savings; see Section 3.1), and the system-dependency (*i.e.*, pensioner-to-contributor) ratio. This latter element, called the "sustainability factor", establishes automatic adjustments of benefit levels in response to adverse demographic changes, effectively sharing the growing burden of demographic ageing between old and young. The immediate effects of these reforms for pension finances were small. Yet, when applied year after year, they make an enormous difference with respect to levels of individual benefit entitlements and total pension expenditure. Last but not least, an increase in the statutory retirement age was enacted in 2007, as a result of which the age threshold for claiming full benefits will gradually rise from 65 to 67 years by 2031. Among the general public, this change is still highly controversial. In the context of the 2001 reform, politicians also legislated a move towards higher pre-funding. However, they decided to do this outside of the public pension scheme (see Section 3).

2.2 Effects of strong labour-markets performance

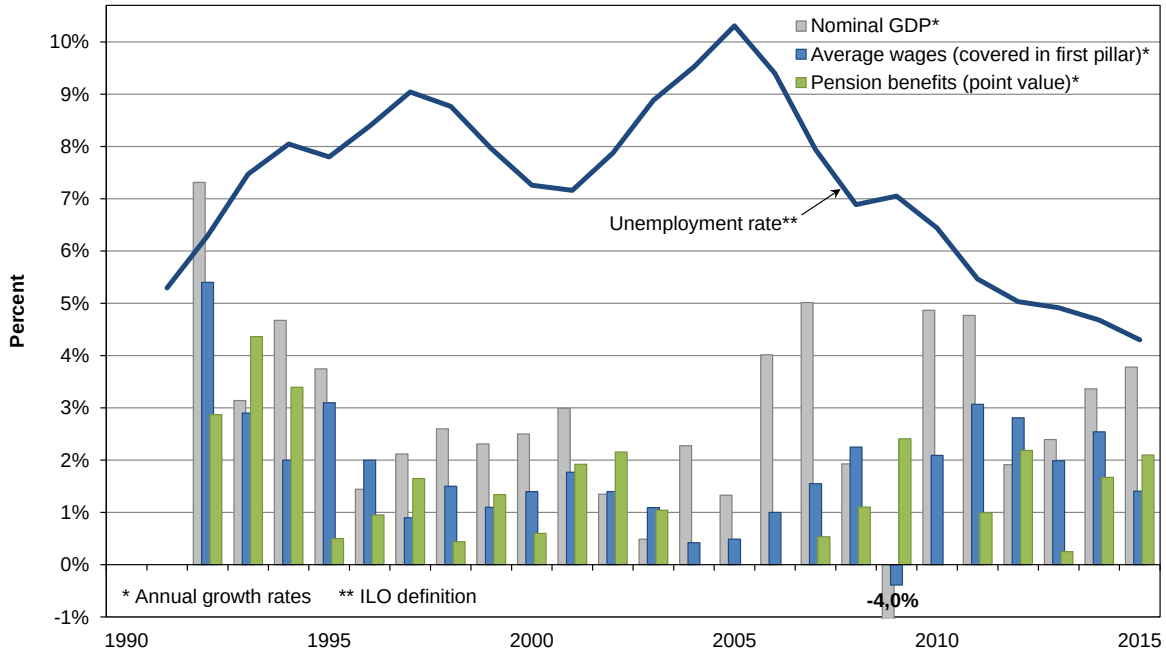
The institutional set-up of a pay-as-you-go pension scheme with earnings-related benefits has its weaknesses and its strengths. Potential strengths can be seen, for instance, in how the German public pension scheme fared through the Great Recession and the following period of turmoil in financial markets. Before the crisis, a continued upward trend in unemployment which can be traced back to the 1970s had created growing pressure on the budget of Statutory Pension Insurance. However, this trend changed its direction in 2005-06. When the financial crisis reached the real economy, there were fears that this short period of recovery would be stalled. Germany was hit by a downturn of production which was even stronger than in most other developed countries. From 2008 to 2009, real GDP fell by 5.6 percent (United States: –2.8%; United Kingdom: –4.2%; Japan: –5.5%; OECD 2015) which created an enormous risk for employment, while wage growth practically stopped.

In the public pension scheme, lower employment and lower wage growth could have implied a temporary increase of both contribution rates and benefit levels until around 2020, and a lasting reduction of pension benefits in absolute terms (Börsch-Supan *et al*. 2009; 2010). In reality, however, not much of this has actually materialized. The decline in unemployment was suspended by the crisis for less than a year and continued immediately afterwards (see Figure 1); current rates are now the lowest since the early 1980s. GDP and wages grew at accelerated rates after 2009. Even pension benefits, which follow these developments with a delay and are subject to a number of moderating factors, have started to increase at higher rates. There is of course no genuine counterfactual for what would have happened in the absence of the crisis, but the data support the impression that all of the

[2] See Werding (2007) for a brief description, Gasche and Kluth (2011) for an in-depth treatment.

consequences that directly matter for the pension budget were surprisingly small and only temporary in their nature.

Figure 1: Unemployment, wages and benefits (1991–2015)

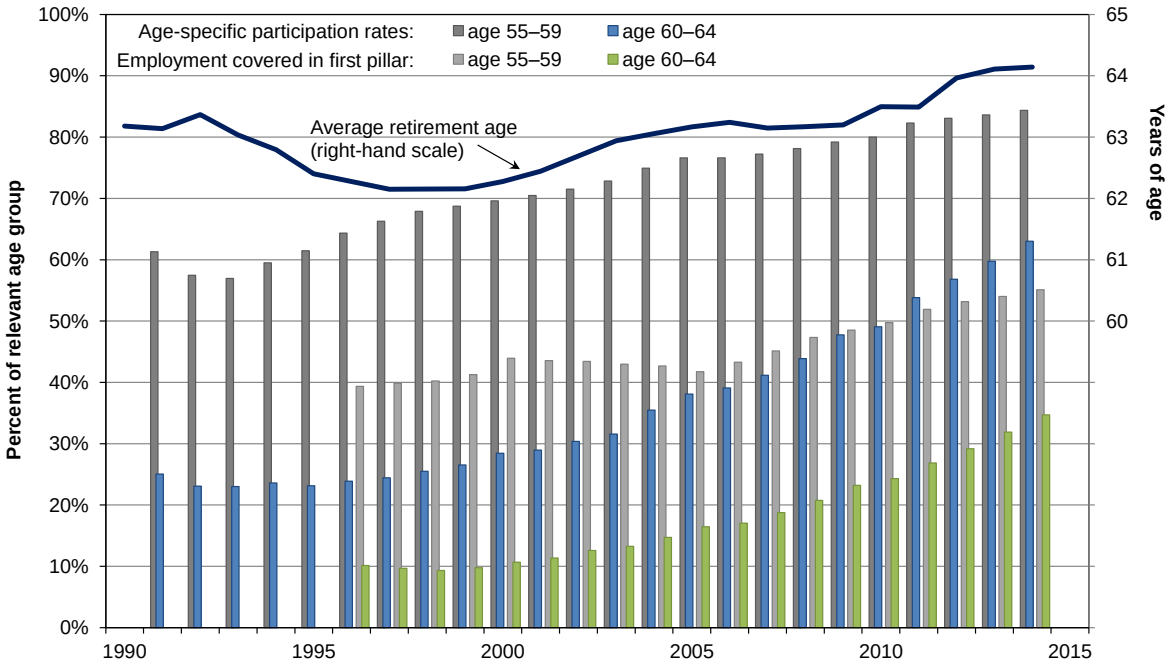


Sources: Federal Employment Agency; Federal Statistical Office; German Pension Insurance; own calculations.

While unemployment began to decrease only after 2005, labour-force participation has increased steadily since the early 1990s. Among those aged 15 to 64, it has risen from about 81 percent to 85 percent for males and from 64 percent to 78 percent for females. Therefore, the total labour force and total employment are now at unprecedented highs in absolute figures. The same is true for employment covered by the Statutory Pension scheme, which had been declining from 1991 to 2005.

A remarkable trend has been the increase in labour-force participation among older workers. While, compared to other developed countries, it was rather low some 20 years ago, it is now among the highest in the OECD. Currently, participation rates among those aged 55 to 59 exceed 80 percent, and among those aged 60 to 64 they are just above 60 percent (see Figure 2). Corresponding rates for employment covered by Statutory Pension Insurance are lower but have also increased against the 1990s, especially for the 60-to-64 age group. These trends have been fuelled by improved labour-market performance, but they also point to more profound changes in incentives to retire early and in the way individuals prepare for the consequences of demographic ageing. As a result, the average retirement age for old-age pensions provided by the Statutory Pension scheme stopped a long-term decline in the second half of the 1990s and has risen by 2 years since then. While the statutory age threshold reached 65 years and 3 months in 2014, the actual average retirement age is 64 years and 2 months. As the former figure will be gradually scaled up to 67 over the next 15 years, the latter should be expected to continue increasing.

Figure 2: Labour-force participation at higher ages and retirement age (1991–2014)



Sources: Federal Employment Agency; Federal Statistical Office; own calculations.

All in all, Statutory Pension Insurance is currently in a favourable budgetary situation. Although this cannot be expected to last long (see Section 2.3), this has created a temptation for politicians to relax their strict course of reforms to the system. In 2014, the financial reserves of the scheme reached their legal limits. For the first time in many years, the current grand-coalition government introduced additional types of benefit entitlements which may not be excessively costly (Werding 2014) but which will still be effective when demographic ageing becomes really acute.[3] Furthermore, the most expensive elements of the reform do not address actual challenges and are partly at odds with the trend of earlier reforms, with the risk of undermining their credibility.

2.3 The challenge of demographic ageing

While the linking of public pensions to labour-market performance turned out to be favourable in recent years, the dependence on domestic demographics definitely brings forth a severe challenge. Demographic ageing will unfold over the next twenty to thirty years. Compared to other countries, the process will be particularly strong in Germany. The drivers are the same as everywhere in the developed world. The expected increase in longevity is of a regular order of magnitude. However, following a "baby boom" in Germany which was rather late and relatively small, the total fertility rate fell to a very low level already in the first half of the 1970s and, in West Germany, has remained

[3] In this package, moderate increases in disability benefits can be justified as a protective measure for a group which is particularly vulnerable during the process of on-going adjustment. The same cannot be claimed for a new form of early retirement (at age 63, without any reductions in benefits) for workers with very long work records. Börsch-Supan *et al*. (2015) show that these workers have much higher benefit entitlements and are also much healthier than average individuals who are just about to enter retirement. A third major element – increases in child-related benefit entitlements – fixed a perceived inequity between mothers of children born before or after 1992; but it was not designed to alter incentives to have children and to invest in their human capital – which is how pay-as-you-go systems are actually "pre-funded" (Cigno and Werding 2007).

constant since then; in East Germany, it showed some fluctuations after 1980 and in the aftermath of unification, but has now fully adjusted to the West German level.

As a result, old-age dependency will almost double until about 2035 and may then remain stable or increase even further at a more moderate speed (see on-line appendix). Realistic variations in the underlying assumptions do not alter these trends substantially. The demographic outlook for Germany is that the population will start continuously shrinking and ageing soon, with each new generation being about two-thirds the size of the preceding one. The country therefore needs an overall system of old-age provision which is adapted to this situation.

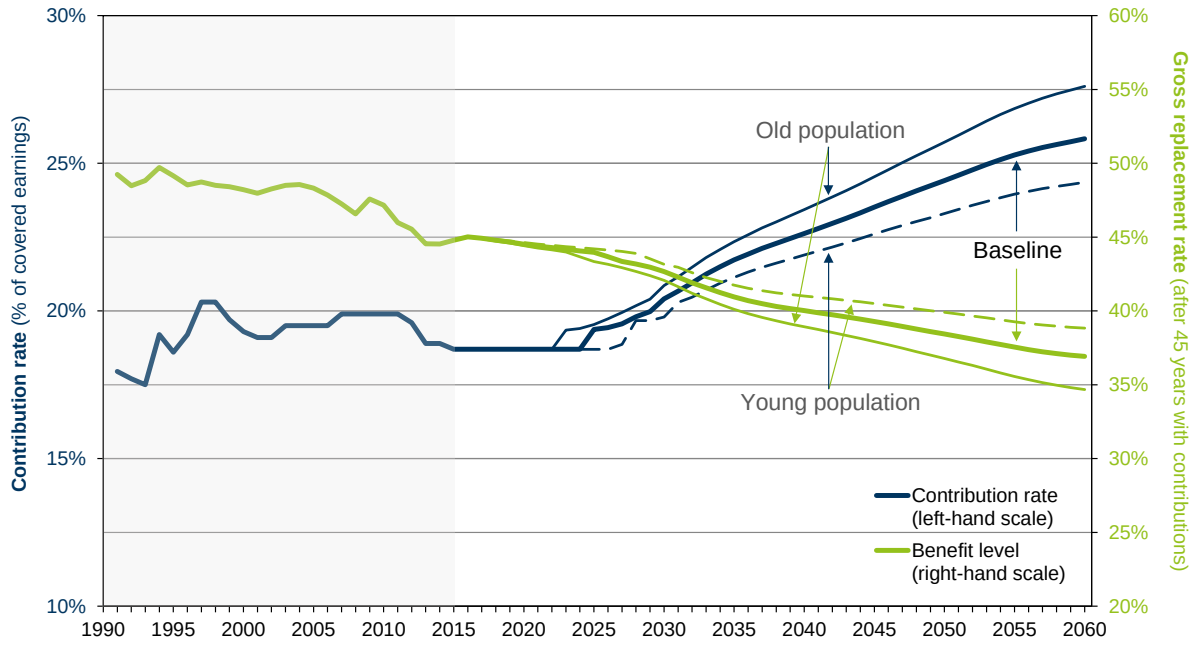
Given the scale of demographic ageing, the Statutory Pension scheme will be less and less able to make a substantial contribution to securing the earlier living standards of pensioners. This was its ambition until about the mid-1990s, when it provided for a gross replacement rate of 50 percent (translating into a net replacement rate of about 70 percent).[4] Since then, reforms have been gradually reducing the level of future pension benefits to keep the contribution rate under control. Figure 3 shows the implications for replacement rates and contribution rates in the period until 2060 under the assumptions for what is considered to be a meaningful "baseline scenario".[5]

Under current rules, the gross replacement rate can be roughly stabilized until 2030 at a level which is already 5 percentage points lower than around 1995. The contribution rate may remain constant (at 18.7 percent) until around 2025. Afterwards, it will start increasing continuously. It can be expected to exceed 20 percent around 2030 and to reach 26 percent by 2060, while the benefit level drops by another 6 to 7 percentage points. In spite of all earlier reforms, the scheme is thus still not prepared for the period after 2030, and further adjustments will be needed.

[4] These figures are "quasi-replacement rates" based on benefits deriving from a full earnings record with 45 qualifying years at average earnings compared to the average earnings of current contributors. They are uniform at any level of covered wages.

[5] The simulations have been prepared using the Social Insurance Model, version 2013 ("SIM.13"; Werding 2013). The model entails a macro-level production function and exploits the empirical literature on links between tax rates and employment to include some of the most important endogenous adjustments to the impact of ageing. Intermediate results for labour-market performance and economic growth in the "baseline scenario" are summarized in the online appendix.

Figure 3: Statutory Pension Insurance – Benefits and Contributions ("baseline scenario" and sensitivity tests, 1991–2060)



Sources: German Pension Insurance; SIM.13.

Clearly, these simulations should never be taken as point estimates, but the fundamental trends they reveal are rather strong and robust. As a substitute for a larger number of sensitivity tests (*e.g.*, regarding the impact of participation rates, unemployment, productivity growth, *etc.*),[6] two demographic variants are included here which are rather extreme, one representing a "young" population, the other an "old" population (see on-line appendix). The results show that immediate changes in demographic trends will not make a difference until around 2040. The alternative scenarios indicate a band of uncertainty around the baseline results, but the basic picture is always the same and never looks particularly positive.

Among the reforms already taken, increasing the statutory retirement age is an elegant approach which sidesteps the simple algebra of pay-as-you-go systems. As benefits are paid out for a shorter time period, annual benefit levels will actually increase *vis-à-vis* earlier rules, while contribution rates are nonetheless reduced. Also, if "full" earnings records are gradually extended by up to two years, benefit levels will stabilize fully in the period until 2030. Therefore, increasing the age limit beyond age 67 (a point that will be reached in 2031) definitely needs to be considered. This could be done by establishing an automatic link to increases in life expectancy, as already legislated for in Denmark. Otherwise, there appears to be no way around further reductions in annual benefit levels to keep contribution rates within acceptable limits. Doing something to complement first-pillar pensions through additional cover for a vast majority of workers should thus be a first-rate priority, for individuals and policy-makers alike.

[6] Sensitivity with respect to labour-force participation and labour-market performance is strong (see Section 2.2). Changes in productivity growth would increase or decrease wages and pension benefits in terms of absolute figures, while relative figures such as benefit *levels* or contribution *rates* would be largely unaffected. In an ageing society, therefore, higher productivity growth would not take away the financial pressure that arises, but it could make it easier to deal with this problem politically.

3 Second and third-pillar pensions

If pay-as-you-go financing meets serious limitations through adverse demographics, expanding pre-funded provisions is the only alternative (Sinn 2000). Higher pre-funding does not necessarily lead to higher aggregate savings and real investment – hence, higher output (Barr 2002; Barr and Diamond 2006). Funded schemes, however, dissolve the direct links from pension finances to domestic employment and domestic demographics. They create possibilities for greater diversification in the sources of old-age income, including the option of increasing (ownership in) real investment abroad. This may involve incurring new types of risk, but should also promise higher returns. Pre-funding pensions is thus not unambiguously superior to pay-as-you-go financing (Breyer 1989; Fenge 1995; Sinn 2000), but the two approaches are not equivalent, certainly not in the context of demographic ageing. Also, when successfully established, funding implies an intertemporal and intergenerational shift of existing burdens. For quite a while, it may not reduce, but possibly increase, current consumption forgone through social insurance contributions and retirement savings. However, it can reduce excessive costs accruing in the future.

Funded schemes located in the second pillar of old-age provision have a long tradition in Germany, less so purely private provisions classified as third pillar. In the past, the latter was in fact considered an issue mainly for the self-employed. Occupational pensions were used more widely to top up the public pensions of employees with high earnings (not fully covered in the Statutory Pension scheme) or to remunerate privileged sub-groups of "core" employees. Over time, some employers closed their plans to cut costs, many others switched from DB to DC-type arrangements to avoid funding risks, but the overall diffusion did not really decline.

3.1 Private provision: Still in search for a useful framing

In 2001, German law-makers agreed to strengthen supplementary, funded provision for old age. They defined a number of conditions which "certified" products should fulfil.[7] Certain types of occupational pension plans were captured by the definition, but the vast majority of relevant products belonged to the third pillar. A savings rate of 4 percent of gross earnings, phased in over several years, was considered sufficient to close the gap in retirement income which would be created over time by reductions in the benefit levels of public pensions. Originally, the plan had been to make additional cover mandatory for working individuals subject to the public pension scheme. However, this idea met forceful public resistance. One reason was that, during a period of transition, the combination of contribution rates and forced savings sounded like an unreasonable burden – higher than when the public scheme had been continued without any change. Another reason was widespread lack of experience – and even some mistrust – in financial markets and financial intermediaries among average workers.

[7] *E.g.*, no withdrawals before age 62; at least 70 percent of accumulated wealth must be annuitized; nominal amounts of savings paid in have to be guaranteed by providers.

Faced with this situation, politicians dropped the idea of using compulsion. With the "Riester pensions" that were finally enacted,[8] participation was voluntary but publicly subsidized. Subsidies are offered through deferred taxation and also through direct, state-financed co-payments.[9] All active members of the Statutory Pension Insurance are eligible, along with their spouses (plus civil servants and their spouses, as their pension scheme was subjected to parallel reforms).

Take-up of this scheme was initially low, but then gained momentum. The number of contracts rose quickly between 2004 and 2010. Since then, the increase has slowed down and is now levelling off at around 16 million contracts (Federal Ministry of Labour and Social Affairs 2015), although this figure needs to be corrected for contracts which have been terminated or abandoned (Federal Statistical Office 2014). Also, the overall size of the target group of the scheme cannot easily be determined.[10] Estimates suggest that about one third of those who are eligible have actually been reached within the 10-plus years since implementation. This share may not grow much further under current rules. Participants tend to have more children than average, in line with the design features of the scheme. They have relatively high earnings and tend to be financially literate, while individuals with low earnings are underrepresented, contrary to intentions and the form of subsidization (Bucher-Koenen 2011; Pfarr and Schneider 2013).

Subsidized plans could simply displace other forms of precautionary savings. However, apart from owner-occupied housing, private provision for old age was not very widespread before the new scheme was established (TNS Infratest 2012, pp. 28, 47–49). In-depth research shows that reluctance to enter Riester contracts is related to the desire to buy housing property[11] and to bequest motives (Börsch-Supan *et al*. 2008). With respect to other forms of old-age provision, there are indications of crowding-in, rather than crowding-out (Börsch-Supan *et al.* 2012). All in all, the programme therefore seems to be operational, but only with limited success in terms of coverage.

From the very beginning, Riester pensions were perceived as complicated and intransparent. They were criticized for providing low effective rates of return and involving high fees. As to the first type of objection, several changes have been made over time that were meant to alleviate comparisons between competing products. Low returns are partly caused by guarantees (and other regulation of the providers' business) which are considered indispensable. However, they also result from the simple fact that private provision with individual counselling and marketing activities is a high-cost approach. Furthermore, while rigorous assessments of the incidence are missing, one should not be surprised if creating a special market segment with certified products has led to opportunities for providers to extract substantial parts of the subsidies. Finally, inexperienced customers may purchase products that are not ideal in terms of risks and expected returns – if they buy anything at all. When the scheme was initiated, examples already existed that were likely to perform much better in many of these respects, such as the Swedish "Premium Pension" scheme which is fully mandatory and rather

[8] Named after the Federal Minister of Labour and Social Affairs who was responsible for this reform.

[9] These co-payments are basically fixed and have a strong child-related component, so that subsidization is much more pronounced for participants with low earnings or with several children.

[10] The sub-groups of those who are eligible by their employment status and by a marriage may overlap.

[11] Since 2009, Riester plans can also be used as an instrument of saving for owner-occupied housing.

transparent, offering a standard portfolio as a meaningful default option and still giving individuals who are interested considerable discretion over their investment at rather low transaction costs.

Currently, returns are low also as a consequence of the latest financial crisis. While losses in pension wealth during the early stage of the crisis have been limited in Germany (Gasche *et al*. 2010; Bucher-Koenen and Ziegelmeyer 2014),[12] the long-lasting impact on returns is very harmful for all types of pre-funded old-age provision. Probably even worse, among workers and politicians the crisis has further undermined trust in financial markets and existing providers. However, the low diffusion of supplementary savings is not only detrimental with respect to the adequacy of future old-age income. It actually jeopardizes the overall reform strategy of a shift between unfunded and funded pillars. If alternative sources of retirement income are lacking, politicians may be unable to continue reforming the public pension scheme with respect to what is expected to happen after 2030.

3.2 Occupational pensions: A better platform for reaching high coverage?

Clearly, private provision could be made mandatory as originally intended. However, this would not solve the problem of high costs. Also, the problem of a lack of trust makes it highly unlikely that such a change could be legislated for in the near future. So what other options are there for broadening supplementary cover and making participation more binding?

Given the existing level of cover, occupational pensions might be a more promising a base for further expansions than purely private provisions. Riester pensions started at zero participation in 2002 and have now reached about 33 percent of active workers (and their spouses). Occupational pensions covered close to 50 percent of workers in 2002, and this share has now gone up to almost 60 percent (TNS Infratest 2015, p. 12). Employer-based coverage is again lower for workers with low earnings. It is also low for workers in small and medium-sized enterprises, and there are differences between females and males or between East-Germany and West-Germany. Yet dealing with gaps of this kind could be easier than starting from scratch elsewhere.

The legal framework for occupational pensions has been amended more than once since the early 2000s (Buttler 2015, ch. 1 and 8), although not as a core element of the shift towards higher pre-funding. Most notably, a new type of pension plans has been admitted (called "*Pensionsfonds*") which can be designed in line with current DC-practices and is subject to investment regulation that is far less restrictive than for more traditional plans. Also, employees now have a legal right to ask for deferred-compensation plans ("*Entgeltumwandlung*", without the financial participation of employers) even if their employers do not offer any form of occupational pension. This latter rule has contributed to the recent expansion of employer-based provisions.

Another interesting development is that, in several branches of industry, social partners have turned their attention to the challenge of demographic ageing and included occupational pensions in

[12] Regarding Riester contracts, this is simply due to existing regulation of investments. But it seems to apply on a broader scale to private, old-age provisions in Germany.

collective agreements of considerable coverage. As a result, workers in these industries[13] can choose between a small number of alternative plans which are administered by professional providers of financial services. Premiums are shared between employers and employees in a way which could be adjusted through renegotiation, and can be topped up by both parties on a voluntary basis. Workers can opt-out of contributing to any of the plans that are available if they do not want to (further) reduce current consumption. In this case, they may forgo co-payments by employers, or these co-payments may shrink to a minimum.

In the light of these trends, the option arises that German corporatism – which clearly had its merits and disadvantages in the past – could probably be used as a vehicle for the further expansion of supplementary provisions. The result could be occupational pensions for a considerable share of the labour force which are established and monitored through collective, industry-level agreements of the social partners. To trigger such a process, the state could define certain (minimum) requirements to which such arrangements would have to conform, plus stricter rules that only become binding in the absence of collective settlements.[14]

To fill the gaps in coverage that remain – *e.g.*, in industries where collective bargaining is too weak to set standards for total sectoral employment – experience gathered in the Anglo-Saxon countries may be helpful. In particular, the British "Workplace Pensions" programme with automatic enrolment – not coercion – supported by the National Employment Trust Fund (NEST) as a reliable default solution, provides a remarkable example of a stringent framework for employer-based supplementary cover. In the US, the participation of employers and employees is voluntary, but "non-discrimination" rules for 401(k) pension plans provide an instrument for expanding cover by linking tax advantages for employers to the inclusion of particular groups of employees.

In Germany, a renewed strategy for strengthening pre-funded old-age provision mainly in the second pillar could have important advantages over the current framework for third-pillar arrangements. First of all, offering a limited number of standardized products for larger groups of individuals would ease individual choice and should definitely reduce transaction costs. If these products are pre-selected and co-determined by social partners in certain industries, it can be expected that they will be sufficiently tailored to specific needs of participants – and still allow for a sufficient degree of competition in financial markets. Last but not least, providing a central role for employers and for workers' representatives might be a key means of (re-)establishing trust in products and providers as well as in the underlying strategy. This, in turn, could render the ongoing process of reforming the overall system of old-age provision credible and fully operational.

[13] Agreements of this type have been made for metal workers and for the chemical industry. Interestingly, collective wage negotiations have a very different style in these two industries, being rather aggressive in the first case, much more co-operative in the second one.

[14] This strategy has been effectively used in recent years in the context of temp-work regulation and the implementation of a national minimum wage.

4 Conclusions

Old-age provision in Germany is currently in the midst of a transition which is far from complete. The traditional public pay-as-you-go scheme fared surprisingly well through the Great Recession. However, it is heavily challenged by the consequences of demographic ageing which will be very pronounced in Germany when compared with other developed countries. Reforms taken since the 1990s have ensured the financial viability of this scheme until around 2030. Nevertheless, further reforms are still needed to make the system sustainable in the long run.

The gradual reduction in benefit levels which is implied in the current legal framework calls for higher amounts of old-age income deriving from other sources. If pay-as-you-go financing faces serious limitations, the only alternative that exists is an expansion of pre-funded pensions, searching for a new balance between different pillars of the overall system. Recent attempts at strengthening the third pillar have been half-hearted. Coverage in private pension plans has increased to about one third of the target group, but this share may not grow much further under current rules. The existing framework also leads to high transaction costs and requires inexperienced individuals to make difficult choices. What is needed are more binding rules and a more stringent framing of individual decisions to participate. We have argued that occupational pensions might be a better vehicle for expanding supplementary cover for old age. Participation in this pillar has been much higher than in individual pension plans when Germany embarked on its pension reforms. Therefore, employer-based provisions, probably co-determined by social partners in many industries, might offer an approach that is more in line with German traditions and institutions.

International experience may help in further reforming the overall system. For example, the Swedish Premium Pension scheme constitutes a good example for improvements in the third pillar. A promising alternative for suitable second-pillar arrangements is offered by UK Workplace Pensions (or by tax rules applied in the US, incentivating participation of particular groups of workers who are difficult to target). Following the reforms that have already taken, the room for manœuvre to stabilize the first pillar is now limited. Further increases in the statutory retirement age will definitely be an issue in this context, ideally with a rule-based approach following the Danish example, as this is the only way to avoid further, direct reductions in benefit levels as a means to keep contribution rates from rising higher and higher over the next decades.

However, German politicians are now very reluctant to promote pre-funded instruments of old-age provision in whatever form. This is mainly due to the recent financial crisis which has undermined trust in financial markets and in the strategy behind earlier reforms. For the moment, it appears, old-age provision in Germany is trapped between the consequences of the latest crisis – although in different ways than many other national systems are – and an enormous ageing problem ahead.

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Appendix A.1: Demographic projections

Demographic projections for the simulations included in this paper have been prepared using the population module of SIM.13 (Werding 2013). They are based on data for total population (differentiated by gender and single years of age) provided by the Federal Office of Statistics and on cohort-wise, year-by-year projections using the following assumptions for the "baseline" scenario.

- The total fertility rate remains constant at 1.4 (children per woman) over the entire projection period (as this has been the case, in West-Germany, since 1975)
- Life expectancy at birth goes up to 90.4 years for females and to 86.7 years for males until 2060 (current figures are 82.8 and 77.7 years, respectively)
- Net immigration is 150,000 individuals per year starting from 2020 (when current, higher figures have been phased out) throughout the projection period

Results for total population and old-age dependency (population aged 65 and over per 100 individuals in the population aged 15 to 64) under these assumptions are shown in Figures A.1 and A.2 below.

Given the uncertainties about the determinants of future demographic trends, alternative scenarios are also considered, using the following variations of baseline assumptions.

- Total fertility rate: ± 0.2 children until 2060 (in a continuous process)
- Life expectancy at birth: ± 2 years for both females and males in 2060
- Net immigration: ± 100,000 per year throughout the projection period

Combining any of these assumptions yields 27 variants, of which two are considered to be particularly interesting. The "old population" scenario is based on assumptions implying declining fertility, a strong increase in life expectancy, and relatively low net migration. The "young population" scenario is based on assumptions implying increasing fertility, a weak increase in life expectancy, and relatively high net migration. Results for total population and old-age dependency for all these scenarios are included in Figures A.1 and A.2.

These projections do not reflect the unexpectedly high number of refugees which are currently arriving in Germany and may have added up to a total of 1 million individuals seeking asylum in the course of 2015. Thus far, too little is known about who these people are, how long they are going to stay and, if so, how they will integrate into the labour market. To deal with this issue in a very preliminary fashion, we add another projection. Here, the assumption is that 1 million refugees arrive in 2015 (instead of 250,000, as expected beforehand) and stay indefinitely, while further unexpected immigrants in subsequent years are neglected. The figures show that this has a visible effect for total population, but next to no impact on the time path of old-age dependency. If anything, the old-age dependency ratio is reduced by a small margin until 2040 and increased by a little bit towards the end of the projection period. This is a typical result of the assumption that the extra-immigration comes as a temporary wave, not as a permanent flow.

Figure A.1: Total population (2000–2060)

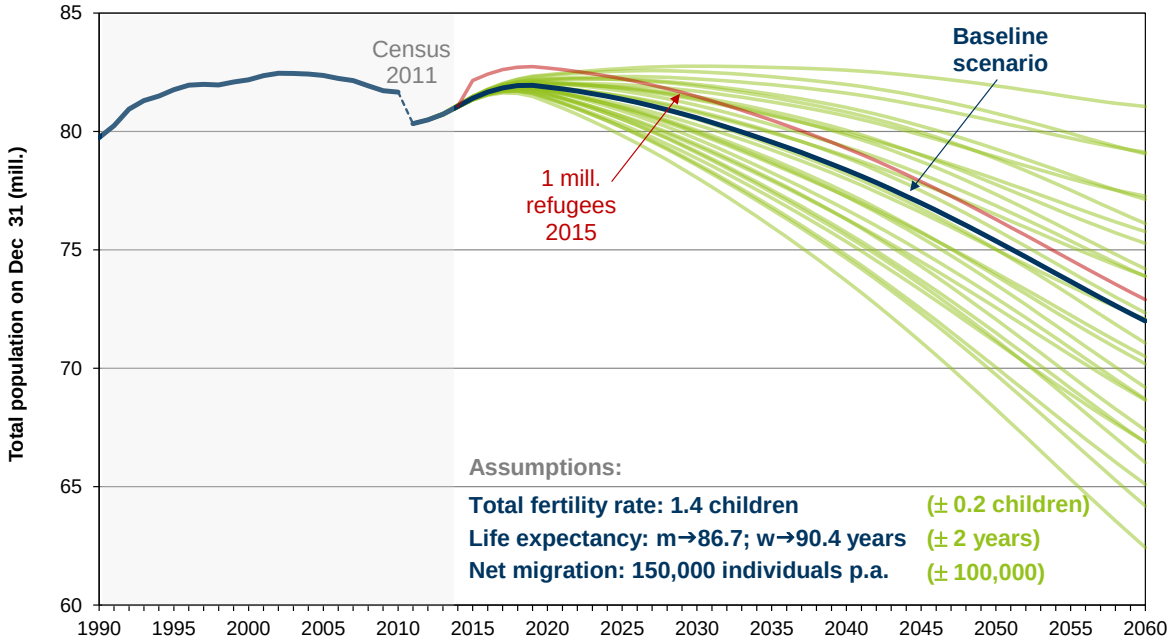
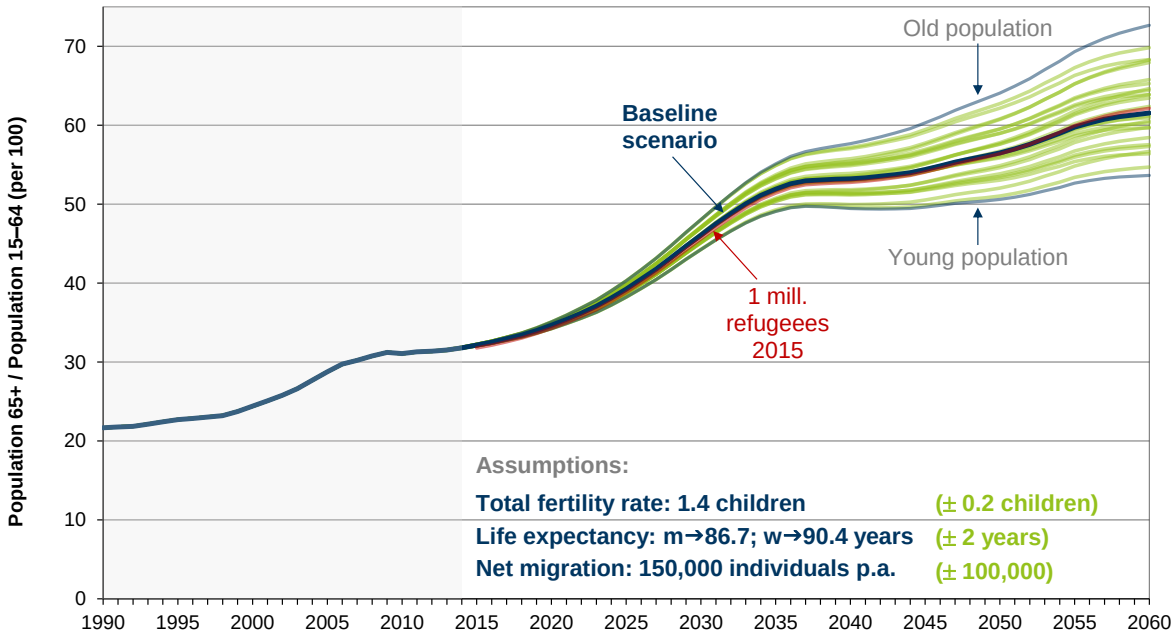


Figure A.2: Old-age dependency (2000–2060)



Sources: Federal Statistical Office; SIM.13.

Appendix A.2: Projections for the macro-economic background scenario

Table A.1: Selected results for the "baseline" scenario

	2000	2010	2020	2030	2040	2050	2060
Demography:							
Total population (mill.)	82.2	81.7	81.9	80.6	78.4	75.4	72.0
Old-age dependency ratio[a)]	24.4	31.1	34.7	46.1	53.2	56.5	61.5
Labour market:							
Participation rates (%)							
Females (15–64)	68.9	74.6	81.0	83.2	83.5	84.0	84.5
Males (15–64)	82.7	84.5	86.2	86.7	86.5	86.5	86.7
Labour force (mill.)	42.9	43.8	45.7	43.2	40.2	38.3	35.6
Employment (mill.)	39.9	41.0	43.9	41.3	37.9	35.6	32.8
Unemployment rate[b)] (%)	7.3	6.4	4.1	4.5	6.0	7.2	7.9
Macro-economic development:							
Labour productivity[c)] (%)	1.4	0.6	1.0	2.0	2.0	1.8	1.7
GDP[c)] (%)	1.7	0.9	1.6	1.4	1.1	1.1	1.0
GDP per capita[c)] (%)	1.4	0.9	1.6	1.6	1.4	1.5	1.4
Interest rate[d)] (%)	3.8	1.3	3.0	3.0	3.0	3.0	3.0

Notes:

Year-2010 figures are actual values taken from official sources; results reported for the years from 2020 onwards are projections, based on many assumptions, never prognoses.

a) Population aged 65 and older per 100 individuals in the population aged 15 to 64.
b) Percentage of the total labour force (ILO definition).
c) Annualized 10-year real growth rates.
d) Real interest rate on domestic government bonds.

Sources: Federal Statistical Office; Federal Employment Agency, Bundesbank; SIM.13.