

Session 4A: Ageing society
Time: Tuesday, August 7, PM

*Paper Prepared for the 32sec General Conference of
The International Association for Research in Income and Wealth*

Boston, USA, August 05-12, 2012

**Post Reform Pension Entitlements in Germany:
The Need for Another Reform**

Jens Gruetz

For additional information please contact:

Name: Jens Gruetz

Affiliation: Eurostat, Luxembourg, Luxembourg

Email Address: jens.GRUETZ@ec.europa.eu

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Jens Gruetz
Eurostat, Luxembourg

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Abstract

All European countries are facing severe demographic challenges. Costs resulting from foreseeable demographic changes (e.g. increase in life expectancy, decrease in the birth rate) are the keywords. Concerning the German statutory pension insurance contribution rates from 36% to 41% for the year 2030 have been forecasted already 25 years ago - in 1987. After several reforms and the introduction of a sustainability factor, the system is more independent from the labour market and demographic changes but discussions regarding the sustainability of pay-as-you-go pension schemes are on-going. One popular proposal is the transition towards a (partly) funded pension scheme. The likely consequences of this proposal focussing low income earners are analysed in this article. Starting point is the analysis of the distribution of age specific pension entitlements of the statutory pension insurance in Germany. Calculations show that the additional burden of financing two pension schemes, the old pay-as-you-go pension scheme and the new funded scheme, would affect different generations to a different extent. While the young generation can profit from a long contribution period the older generations will face additional burdens. Moreover: The positive result for the young generation is true only if the assumption of a larger rate of return of funded systems really holds. Taking into account the different capacities of different social groups to bear the intrinsic risks of funded pension schemes the intention to give more room to funded schemes should be reached by other means. The lowering of the contribution ceiling (the upper threshold for social contributions) and the widening of the contribution base via inclusion of civil servants and self-employed into the statutory pension insurance is one possible approach.

1 Introduction

The list of pension reforms in Germany is considerably long. The chronicle¹ compiled by the German statutory pension insurance (Deutsche Rentenversicherung) stretches over 40 pages. The chronicle starts very early, in 1128, with first examples related to social protection initiated by trade guilds. This article won't concentrate on this period but on more recent events.

Ten years ago the so called 'Riester-pension', named after the former Minister of Labour and Social Affairs, Walter Riester, was introduced in Germany. This pension reform marked a fundamental change in the history of statutory German pension insurance. Until 2001 the statutory pension insurance was the predominant pillar of old age provision in Germany. The German pension insurance guaranteed a certain pension level, a net replacement ratio of 70%². The public pension scheme is organised as a pay-as-you-go pension scheme. With the 'Riester-pension' it was (partly) replaced by a private, voluntary and funded pension scheme. The reasoning behind this transition towards a (more) funded pension scheme are demographic challenges: Costs resulting from demographic changes like the increase in life expectancy and the decrease of the fertility rate.

This article will show how different generations may be affected by the transition towards a more funded pension scheme; in theory and in practise. After a short description of the structure of old age provision in Germany (chapter 2) and the reform period from 1992 onwards (chapter 3) the transition to a funded pension scheme is analysed in chapter 4. Chapter 5 provides empirical evidence on the outcomes of the reforms while chapter 6 presents some conclusions.

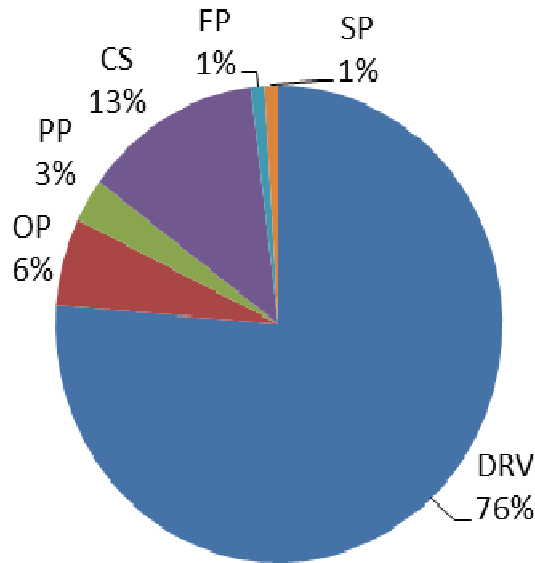
2 German old age provision at a glance

The German statutory pension insurance (Deutsche Rentenversicherung, DRV) is with more than 50 million insured the most important pension scheme in Germany. The DRV provides about 76% of all old age benefits. The pension payments amounted to 224 billion EUR or 9% of gross domestic product in 2010. Schemes for civil servants (CS) of central and local government add another 10% while occupational pension schemes (OP) pay out 6% of all benefits. Special schemes for agriculture (FP) and professional pension schemes (SP) complete the picture (**Chart 1**).

¹ See DRV: Time series on pension insurance (Rentenversicherung in Zeitreihen), chapter 15, Chronicle, 2011, Berlin.

² The net replacement ratio is the ratio of the standard disposable pension to average disposable earnings (after tax and after social contributions). The ratio is calculated for the so-called standard pensioner who has earned the average income for 45 years, paid corresponding contributions and retires at age 65.

Chart 1: Old Age Provision in Germany – Proportion of schemes on total spending; in per cent



Source: Alterssicherungsbericht 2008

As shown above, the German statutory pension insurance, DRV, provides the bulk of old age provision in Germany. The DRV is part of social security being organized and controlled by general government³.

The financing of the German pension insurance follows the pay-as-you-go principle. No specific funding apart from a buffer fund is available. The buffer fund should stabilize the contribution rate of the scheme over a longer period. Employers and employees pay one half each of the contributions. Since January 2012 the contribution rate is fixed at 19.6%. Individual gross wages and salaries up to the contribution ceiling of 66,000 EUR⁴ are subject to contributions.

Pension entitlements are accumulated in a so called 'earnings-point' system. An insured will receive one 'earnings-point' (per year) if she or he has earned the average income. In case of an individual income equalling 150 per cent of the average income 1.5 'earnings-points' are collected by the insured. Right now, in 2012, one 'earnings-point' equals a pension entitlement of 28.07 EUR per month. Hence, following a working career of 45 years with an individual remuneration equal to average earnings a gross old age pension of 1230 EUR is available to the insured; the so called standard pensioner.

As a general rule the pensions are indexed with wages. In addition the pension indexation formula takes into account the development of several factors like the so

³ The legal framework for the DRV is the Social Security Code (Book VI). Unions and employer associations jointly run the DRV.

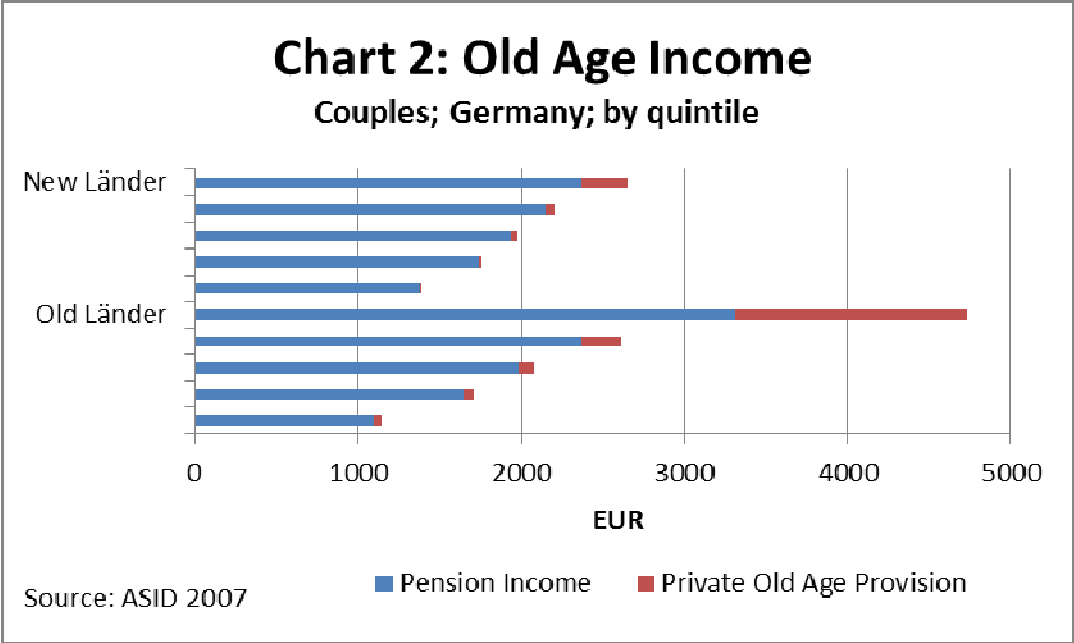
⁴ This figure refers to the western part of Germany for the year 2011. For the eastern part of Germany the contribution ceiling is fixed at 57600 EUR.

called 'sustainability factor'. The 'sustainability factor' reflects the ratio of pensioners to contributors. An increase of this ratio reduces c. p. the pension indexation.

At present the legal retirement age is 65 for men and women. Starting in 2012 the retirement age will rise stepwise and reach 67 for those born after 1964. If the insured retires before the legal retirement age an amount of 0.3% per month of early retirement will be deducted from his pension entitlement. A bonus for a longer working career, beyond the legal retirement age, is embedded in the scheme design as well.

The German pension insurance pays out not only old age pensions but provides disability and survivor benefits. In addition almost 50% of the health and long-term care contributions of pensioners are borne by the pension insurance. In 2010 the pension insurance spent 224.4 billion on pension benefits. The overall expenditure of the German pension insurance reached 249.2 billion EUR.

The different types of old age income play a different role for different types of households. While the statutory pension insurance is by far the most important scheme for the so called 'New Länder'⁵ other schemes, like occupational schemes and schemes for civil servants are more relevant in the 'Old Länder'. Supplementary income from private old age provision plays only a minor role in Germany. Only 7% of the income of the population aged 65 and older comes from interest, letting or life insurance⁶. The population of the New Länder is significantly underrepresented in this income category. **Chart 2** demonstrates that in particular households with low income, the first quintal, receive almost no supplementary income. Especially in the fourth and fifth quintal income from private life insurance contracts, letting and interest plays an important role.



⁵ With the German unification the German Democratic Republic (GDR/East Germany) joined the Federal Republic of Germany (FRG/West Germany). The end of the unification process is officially referred to as German Unity (3 October 1990).

⁶ See Old-age pension provision in Germany (ASID 2007), Federal Ministry of Health and Social Security.

3 Pension reforms in Germany – 1992 onwards

Usually demographic changes need a long time before they affect the labour market and the old age provision schemes. This is definitely an advantage and leaves time to adapt to a changing environment. Since the 1970's the net reproduction rate in West Germany was well below the level one⁷, life expectancy rose significantly and the period in retirement almost doubled from 9.9 years in 1960 to 18.4 years in 2010.

Already in 1990 the time spent in retirement reached 15.4 years and at this time the elements of an important pension reform were discussed in Germany. All political parties agreed on the pension reform law 1992⁸, named after the year of the implementation of the reform. In preparation of the reform several scenarios for future development of demography, economy and pension insurance were conducted by the Swiss Prognos institute⁹. With respect to future contribution rates the results of the status quo scenario, applying unchanged pension rules, were alarming. The projections showed contribution rates from 36% to 41% for the year 2030 and demonstrated the huge impact of demographic changes on the pension scheme. The designer of the 1992 pension reform agreed on the following measures:

- The pension indexation should follow net wages instead of gross wages
 - New target: Maintain a net replacement rate of 70%

Old indexation formula:

$$(1) APV_t = APV_{t-1} \cdot AGW_{t-1} / AGW_{t-2}$$

New indexation formula:

$$(2) APV_t = APV_{t-1} \cdot AGW_{t-1} / AGW_{t-2} \cdot NR_{t-1} / NR_{t-2} \cdot PNR_{t-1} / PNR_{t-2}$$

APV= actual pension value (for one 'earnings point')

AGW= average gross wages

NR= net earnings ratio (employees)

PNR= net earnings ratio (pensioners)

- Legal retirement of 65 (instead of 60) for
 - Women
 - Long-term insured
 - Unemployed
- Introduction of actuarial calculated deductions for early retirement
 - 0.3 % per month of early retirement

⁷ The situation in East Germany was slightly different. Incentives for more children were accepted by the population. Time series on selected demographic indicators are available at <http://forschung.deutsche-rentenversicherung.de> or in the print version "Rentenversicherung in Zeitreihen, October 2011" published by German statutory pension insurance, Deutsche Rentenversicherung Bund, Berlin.

⁸ The 1992 pension reform was discussed and agreed by unions, employers and major political parties.

⁹ Prognos AG: Gesamtwirtschaftliche Entwicklungen und gesetzliche Rentenversicherung vor dem Hintergrund einer schrumpfenden Bevölkerung.- Untersuchung im Auftrag des Verbandes Deutscher Rentenversicherungsträger, 1987, Basel.

The all over result of the reform was the implementation of the social policy target of a stable net replacement rate for the future decades in combination with a contribution rate which remains well below 30% until 2030. The key element of the 1991 reform, the net replacement rate, was fixed at 70%. In order to maintain this replacement rate the pension indexation had to be in line with the development of average net wages and salaries. The target of 70 % was assumed to be sufficient to guarantee an adequate income level for the elderly.

During the next years repeated smaller pension reforms led to cuts with respect to the valorisation of periods of education (school/university) or for the first years in employment. Furthermore new rules for severely handicapped persons were discussed and adopted. In addition the financing of the German pension insurance was modified. The part of pension benefits financed by general government increased.

The most important pension reform with respect to the general set-up of pension provision in Germany was adopted in 2001. After long discussions - the pension reform had to be split into two laws - the centre of gravity of pension provision was shifted from the pay-as-you-go scheme with a guaranteed replacement rate towards a supplementary funded old age pension, the 'Riester-pension'. The first law¹⁰ modified the statutory pension insurance, introduced a modified pension indexation formula, reduced pension entitlements for survivors and led to lower future contribution rates:

- Lower replacement rates within the statutory pension insurance. New target:
 - Modified gross replacement rates instead of net replacement rates

$$(3) APV_t = APV_{t-1} \cdot AGW_{t-1}/AGW_{t-2} \cdot (100-CR_{t-1}-RCR_{t-1}) / (100-CR_{t-2}-RCR_{t-2})$$

CR= contribution rate; statutory pension insurance
RCR= contribution rate; 'Riester pension' insurance

- Reduced pension entitlements for survivors
 - Pension reduced from 60% to 55%
 - Additional provision for children
- Lower contribution rates of 22% and 23% in 2020 and 2030 respectively.

The second law¹¹ introduced the new funded and voluntary supplementary pension scheme:

- Government provided incentives in order to participate in the funded scheme for those being affected by the lowered replacement rates in the statutory schemes¹²:
 - Basic allowance
 - Child allowances
 - Tax incentives

¹⁰ See: 'Altersvermögensergänzungsgesetz'; 2001. [http://www.bgbl.de/Xaver/start.xav?startbk=Bundesanzeiger_BGBI&bk=Bundesanzeiger_BGBI&start=//*\[@attr_id=%27bgbl101s0403.pdf%27\]](http://www.bgbl.de/Xaver/start.xav?startbk=Bundesanzeiger_BGBI&bk=Bundesanzeiger_BGBI&start=//*[@attr_id=%27bgbl101s0403.pdf%27])

¹¹ See 'Altersvermögensgesetz', 2001. <http://www.collogia.de/fileadmin/pm/pdf/avmg.pdf>.

¹² In the beginning only persons with a link to the statutory pension insurance were entitled to the incentives. After a comparable reform of the old age provision of civil servants these were entitled as well.

Government pays the allowances directly into the individual pension plans of the eligible population. The tax incentive is provided to citizens within the framework of their tax declaration. The local tax office checks whether the tax incentive is more favourable than the payment of the basic allowance and reimburses the money directly to the citizen.

The 2001 reform was supplemented by two important pension reforms in 2004 and 2007¹³. In 2004 the 'Commission for sustainable funding of the Social Security Systems' proposed to enlarge the indexation formula by the so called 'sustainability factor'. The sustainability factor lowers the pension indexation when, broadly speaking, the ratio of retirees to employees rises and vice versa. The new indexation formula has the following design:

$$(4) APV_t = [APV_{t-1} \cdot AGW_{t-1}/AGW_{t-2} \cdot (100-CR_{t-1}-RCR_{t-1}) / (100-CR_{t-2}-RCR_{t-2})] \cdot [(1 - (PR_{t-1}/PR_{t-2}) \cdot \alpha + 1)]$$

PR = pensioner ratio

α = burden relation contributors to pensioners

In 2007 the stepwise rise of the statutory retirement age was agreed¹⁴. Starting in 2012 and affecting those born in 1947 the statutory retirement age will rise until 2029. From 2030 onwards the statutory retirement age is fixed at 67. Exempted from the increased retirement age are insured with more than 45 years of membership in the statutory pension insurance.

The most crucial reform element of the past two decades was definitely the introduction of an additional funded scheme. We'll focus on this in the next chapter.

4 The transition towards funding - Some approaches

The analysis of the transition towards a more funded pension set-up will be undertaken in several steps ways. First of all, the presentation provided by the German government is presented in part 4.1 of this chapter. A first theoretical analysis in part 4.2 is amended by results of computable models in part 4.3.

All parts deal with the question: What's the outcome of the transition? Is everybody better off afterwards?

4.1 Towards funding – the governments' presentation

The German government reasoned in the explanatory statement of the Riester-reform that in order to maintain the standard of living, while facing demographic challenges, a supplementary, voluntary and funded old age provision is absolutely necessary.¹⁵ The statutory pension insurance in combination with the supplementary old age provision should

¹³ For a comprehensive description of the reforms of the German statutory pension insurance from 1990 to 2009 see Schmähl (2011); in: Handbuch der Rentenversicherung, p. 169 ff; Berlin.

¹⁴ See: 'RV-Altersgrenzenanpassungsgesetz', 2007. <http://dipbt.bundestag.de/dip21/brd/2007/0002-07.pdf>

¹⁵ The new pension legislation, being adopted by parliament, is documented in the following official publication: Bundestagsdrucksache 14/5146. <http://dipbt.bundestag.de/dip21/btd/14/051/1405146.pdf>

guarantee a joint replacement rate which, in the long run, is even higher than the rate which was projected for the old scheme.

Prior to the 'Riester-reform' all generations of standard pensioners¹⁶ faced an identical net replacement ratio of 70%. After the reform the calculation of one single replacement ratio is no longer possible. This is due to the different length of the contribution period of different generations to the supplementary pension scheme. Hence, the joint replacement ratios given below refer to those generations retiring in the very year.

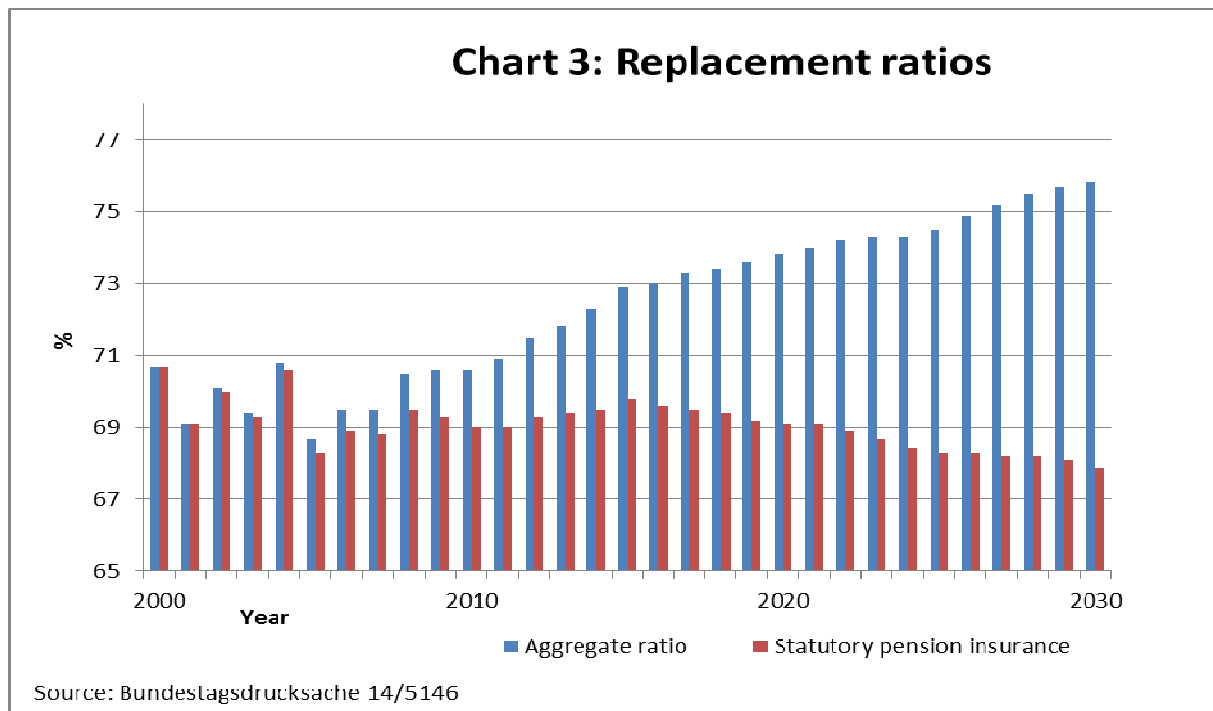
The government presented the following data¹⁷ in order to illustrate the transition (**Chart 3**). The second bar, the red time series represents the replacement ratio of the German statutory pension insurance. The first bar reflects the combined replacement ratio, statutory pension insurance plus supplementary pension insurance. As the supplementary scheme starts in 2001, the first generation of retirees may benefit from this scheme in 2002 – after one year of supplementary saving they would receive a monthly supplementary pension of about two Euros. The generations retiring in the subsequent years will save for increasingly longer periods and will accumulate interest on their savings. For those retiring in 2020 the supplementary pension will amount to 242 Euros and the generation which retires in 2030 will profit from an additional pension payment of about 550 Euros. This leads in combination with the statutory pension, this replacement rate is down to 67.9%, to an overall replacement rate of 75.8% in 2030. Regarding the calculations the government assumed that:

- Every eligible employee participates in the supplementary scheme,
- the contributions in the supplementary scheme will start with 1% of wages and salaries in 2002 and will reach 4% of wages and salaries in 2008 and that
- the interest received by the beneficiaries amounts always to 4% (in nominal terms).

Following the first two assumptions the pension indexation is lowered during the introductory phase of the supplementary pension scheme by about 0.6 percentage points per year. The second assumption guarantees that the combined replacement ratio reaches more than 75% in 2030.

¹⁶ The so-called standard pensioner has earned the average income for 45 years, paid corresponding contributions and retires at age 65.

¹⁷ See <http://dipbt.bundestag.de/dip21/btd/14/051/1405146.pdf>.



The calculations of the government show that, with respect to the joint replacement ratio, at least future retirees should be better off. On the other hand: The members of the statutory pension insurance which have already retired in 2002 won't profit. They are not able to participate in the supplementary pension scheme and won't receive supplementary pensions. In addition, the introduction of the new scheme will lead to lower pension indexations for them. This is done via the inclusion of the contribution rate of the supplementary pension scheme into the indexation formula of the statutory pension scheme.¹⁸ Furthermore at least some fraction of the financing of the supplementary pension is to be borne by the already retired. The extent will differ, depending on the way of financing of the allowances for the supplementary scheme. Most of the retirees in Germany don't pay any income tax at all. Hence a financing via direct taxes won't affect many pensioners. The impact of a financing via indirect taxes would be larger as pensioners are part of the buying public.

In a nut shell: The younger generations will profit from the transition. They'll pay lower contribution rates and receive, according to the assumptions, a high and stable return within the funded scheme. The situation is different for the elderly. According to calculations of Fehr and Jess¹⁹ the generation 1960 is in a more or less unchanged position after the reform, while older generations are worse off.²⁰

¹⁸ See pension indexation formula (3).

¹⁹ See Fehr, Hans and Jess, Heinrich: Die rot-grüne Rentenreform in Deutschland: Ein erster Schritt in Richtung Kapitaldeckung; Würzburg; 2001. http://www.vwl.uni-wuerzburg.de/fileadmin/12010500/user_upload/skripte/ws04/themenoz/rotgrun.PDF

²⁰ The German central bank published comparable results. See Deutsche Bundesbank: Monthly report; p. 61, November 2000; Frankfurt.

4.2 Towards funding – a theoretical approach

The presentation of the German government of the transition towards funding clarified at least one issue. If a higher internal rate of return for the funded scheme is assumed future generations will be better off. They can ‘buy’ the same pension for a lower ‘price’; for a lower contribution. Now, a theoretical analysis is necessary in order to clarify if these future generations can compensate the losses of the old generations. In other words: Is a Pareto-improving transition achievable? ²¹

We assume identical individuals in each generation; all households within one generation receive the same pension benefits and take the same decisions on consumption and savings. Starting point of the considerations is the budget constraint of the pay-as-you-go pension scheme. The sum of contributions in period t matches with the benefits to the pensioners in the same period. The contributions constitute of an implicit tax element and an implicit savings element. The savings element yields interest. The implicit taxation (IT) in a pay-as-you-go scheme amounts to the difference between the internal rates of return of a funded (r) and a pay-as-you-go scheme (n) times the present value of the implicit pension debt (ID):

$$1) \quad IT = (r - n) ID$$

Of course, there would be no implicit taxation for the new pension entitlements in case of a transition towards a funded scheme. But the already existing pension entitlements have to be financed, either via taxation or through the issuance of government bonds. These financing costs are determined - again - by the return to capital, r . An equal intergenerational distribution of these costs is possible, when the implicit debt is transformed to an explicit debt via public borrowing. We assume that the debt ratio should remain constant and that public debt should rise with the rate n . One part of the annual interest payments is financed via additional public borrowing while the rest is financed via taxes. In order to finance the interest an additional tax (AT) is necessary equalling the implicit tax:

$$2) \quad AT = (r - n) ID$$

This illustrates that in the course of a transition towards funding nobody can be better off without somebody else facing a poorer situation. Under the assumptions mentioned above a Pareto-improving transition is not possible. The implicit pension debt and implicit tax rate of the pension scheme are transformed into explicit public debt and tax figures. The welfare of future generations remains unchanged²². In order to arrive at efficiency gains which may be used to compensate the old generations further assumptions are needed. Crucial are the labour market assumptions: The distortions of labour supply caused by the pension scheme have to be larger than the distortions caused by the tax scheme²³. Only in this case efficiency gains may result and may be used in order to compensate the transition generation.

²¹ This paragraph follows the presentation given by the German Central Bank. See Deutsche Bundesbank: Möglichkeiten und Grenzen einer verstärkten Kapitaldeckung der gesetzlichen Alterssicherung in Deutschland, Monthly report, Dezember 1999; Frankfurt.

²² See Breyer, Friedrich: On the Intergenerational Pareto Efficiency of Pay-as-you-go Financed Pension Systems; Journal of Institutional and Theoretical Economics 145; p. 643-658; 1989 or Sinn, Hans-Werner: Why a Funded Pension System is useful and Why it is not Useful, International Tax and Public Finance 7, p. 389-410; 2000.

²³ See Conesa, J.C. and Garriga, C; Optimal Fiscal Policy in the Design of Social Security Reforms; International Economic Review, 49 (1), p. 291-318; 2008. Conesa and Garriga showed that such a Pareto-improving transition is achievable only by means of (unrealistic) cohort specific labour taxes.

4.3 Towards funding – computable models

The current discussion of the transition issue concentrates on market distortions. The labour market, the financial and the insurance market as well are not always perfect. Insurance markets e.g. may suffer from moral hazard and adverse selection. Many researchers take into account uncertainty, risk and risk sharing while evaluating the transition question in a quantitative way.

Krueger and Kubler²⁴ show that when the rates of return of the schemes, return to capital and wages, are affected to a different extent by aggregate shocks, the provision of old age benefits through social security can reduce the consumption variance of all generations. Social security is so to say a tool to share aggregate risk²⁵. Krueger and Kubler arrive at results which indicate that the Pareto-efficient introduction of a pay-as-you-go scheme is possible. However, for a standard selection of parameters the (negative) crowding out effect dominates the (positive) social security effect.

A further analysis of computable general and partial equilibrium models in order to find answers to the transition question was undertaken by Fehr²⁶. Fehr stresses the importance of the optimal life-cycle portfolio allocation in the presence of financial risk. In a pay-as-you-go scheme it is possible to spread macroeconomic risk across generations. Fehr analyses the long-run welfare gains from improved intergenerational risk sharing via a pay-as-you-go pension scheme and compares them to the crowding-out of the capital stock due to unfunded social security. Fehr reports that stochastic computable general equilibrium models suggest that for many preference and technology parameters the positive effects of social security dominate the negative incentive and liquidity effects. The results suggest that even pension schemes with a strong flat benefit part may be part of a solution where the benefits from risk-sharing are stronger than the effects coming from labour market distortions. In addition Fehr mentions that stochastic models with non-standard preferences show that privatisation of social security may result in significant welfare losses. This holds when the economy is populated by myopic consumers.

4.4 Towards funding – First conclusions

The considerations above demonstrate that an easy answer to the transition question is not at hand. But the following should be noted²⁷:

- Increasing capital formation as a basis for more growth is not available for free. In a closed economy an additional capital accumulation implies increased savings and reduced consumption.
- A high(er) return to capital doesn't matter while assessing the transition costs. The costs occur at different points in time and have to be calculated as a present value. Discounting high future benefits with a high discount rate just offsets the discounted costs of the transition.

²⁴ See Krueger, D; Kubler, F: Pareto Improving Social Security Reform when Financial Markets are Incomplete!?! ; Pennsylvania; Mannheim, 2005.

²⁵ This holds if financial markets are incomplete.

²⁶ Fehr, Hans: Computable Stochastic Equilibrium Models and their Use in Pension- and Ageing Research, Paper presented at the Netspar Panel, 2009, Tilburg.

²⁷ See Breyer, F: Why funding is not a solution to the "Social Security Crisis", IZA DP No. 328, 2001, Bonn.

- The theoretical arguments advocating or rejecting the proposal for a transition towards funding have to be analysed taking into in the country specific set up of labour market, financial market and tax benefit system.

5 Towards funding- Empirical evidence in Germany

The ‘Riester-reform’ was twofold: The past German pension reforms impacted on the costs and benefits related to the statutory pension insurance and introduced a supplementary, voluntary and funded pension scheme. The presentation of the empirical findings will follow this structure. The first part summarizes the impact of the past reforms on the statutory pension insurance while part two concentrates on the key condition of the supplementary scheme: the participation in the scheme. The other key condition of the funded scheme, the favourable rate of return, is taken as granted: Past empirical data show that the return to capital has been higher than wage growth²⁸; at least on average.

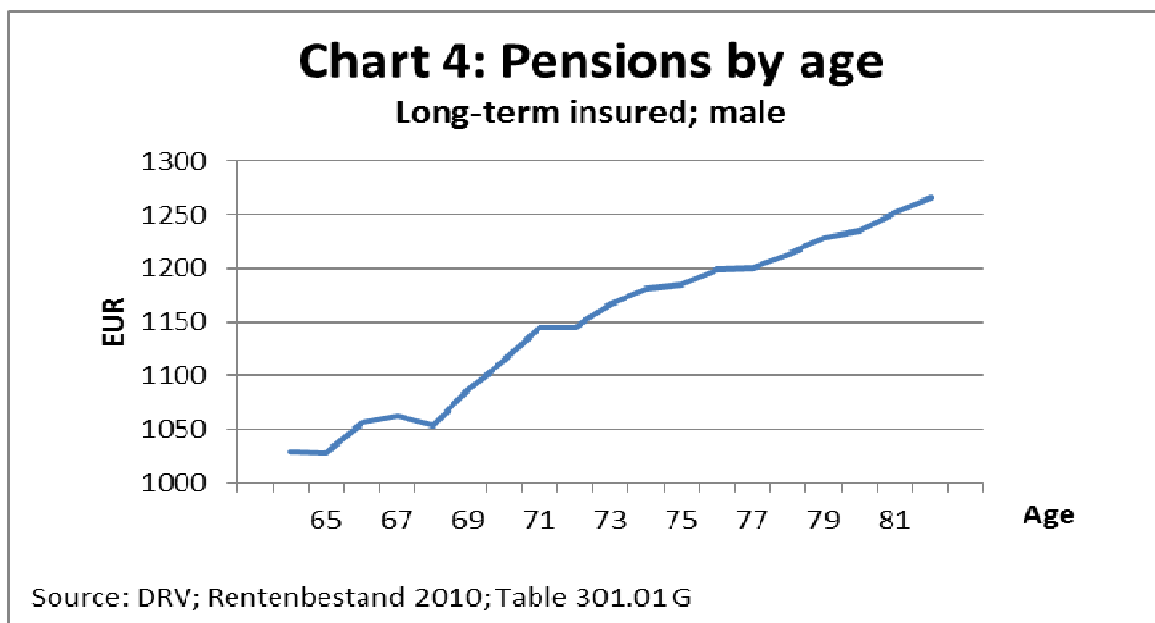
5.1 Impact of pension reforms on the German statutory pension insurance

The reforms of the past decades were very successful in reducing the estimates of future contribution rates. Instead of about 40% only 22% in 2020 and 23% in 2030 are projected right now. On the other hand, inevitably, the reforms impacted on the level of individual pension payments.

The graph below focuses on one central group of the German pension insurance: Men with a long membership in the German statutory pension insurance. This group represents roughly those which are the so called ‘standard-pensioners’. Persons aged 63 and up are eligible for a special type of pension, the pension for long-time insured. The youngest long-term insured, aged 63 receive a pension of roughly 1000 Euros per month. Those who retired 20 years ago receive a significantly higher pension, 28% higher. Of course, several reasons account for this difference. But changes to the scheme rules played an important role²⁹.

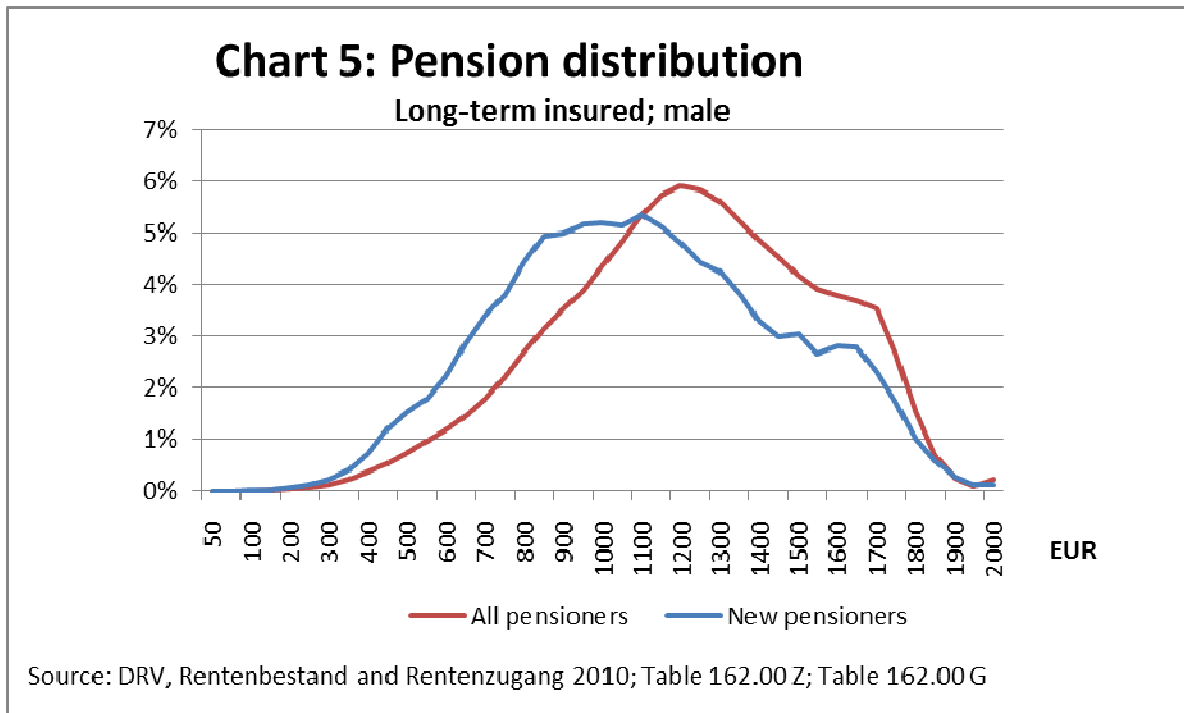
²⁸ In a dynamic efficient economy return to capital is higher than wage growth.

²⁹ For a detailed analysis see Eckerle and Eitenmüller: *Versorgungslücken in der Alterssicherung – Privater Vorsorgebedarf für den Schutz im Alter, bei Erwerbsminderung und im Hinterbliebenenfall*; 1999; Berlin.



An average pension payment of 1000 EUR is still well above the level of social assistance. But the process of downsizing, in particular when the future development of the replacement rates given with Chart 3 is taken into account, will continue in the future. Furthermore, the average pension payment doesn't provide the full picture. It may serve as a starting point for an analysis but the analysis of the pension distribution provides additional information. **Chart 5** presents two pension distributions. The first graph represents all pensioners, long-term insured with 35 or more years of membership. It shows a comparably narrow distribution with an average pension of about 1200 EUR. The second distribution represents the 'new pensioners' of 2010, again with 35 years or more of membership in the statutory pension insurance. We see that especially the left part of the distribution, representing low individual pensions changed. The percentage of insured receiving a pension below the level of social assistance rose significantly. The data on the different income sources shows that actually only few pensioners receive social assistance payments. But as already demonstrated: The future development of the replacement rate will put further pressure on the pension level in Germany. This holds not only for employees with a fragmented working and contribution career but for long-time insured as well³⁰.

³⁰ A analysis of the replacement ratios in several OECD countries see: OECD; Pensions at a glance; Paris; 2007. The OECD stressed the success of German pension reforms but recognized the low pension payments which low income worker will receive in the future.



5.2 Impact of pension reforms on funding

The results presented above show that the group of long-time insured with comparably low labour income will need an extra income from the supplementary pension scheme. Up to now private old age provision played a minor role in Germany. In 1999, before the introduction of the supplementary pension scheme, private old age provision accounted only for 10% of the income of the population aged 65 and up³¹. Walter Riester changed the situation. In 2011, after 10 years of Riester-pension almost 15 million contracts have been signed³²:

- 10.6 million life insurance contracts,
- 2.9 million investment funds saving plans,
- 0.7 million bank saving plans,
- 0.7 million dwelling saving plans.

15 million contracts is a large number. In comparison to 38.6 Million³³ being eligible for these kind of contracts roughly one third of the eligible population is participating. But some contracts have already been cancelled and others signed more than one contract. Hence a thorough analysis of the question 'Who is participating?' is needed.

The scheme design favours those with low earnings and a large number of children. If the employee pays 4% of her/his gross wage into a private contract he or she will be eligible for the following benefits:

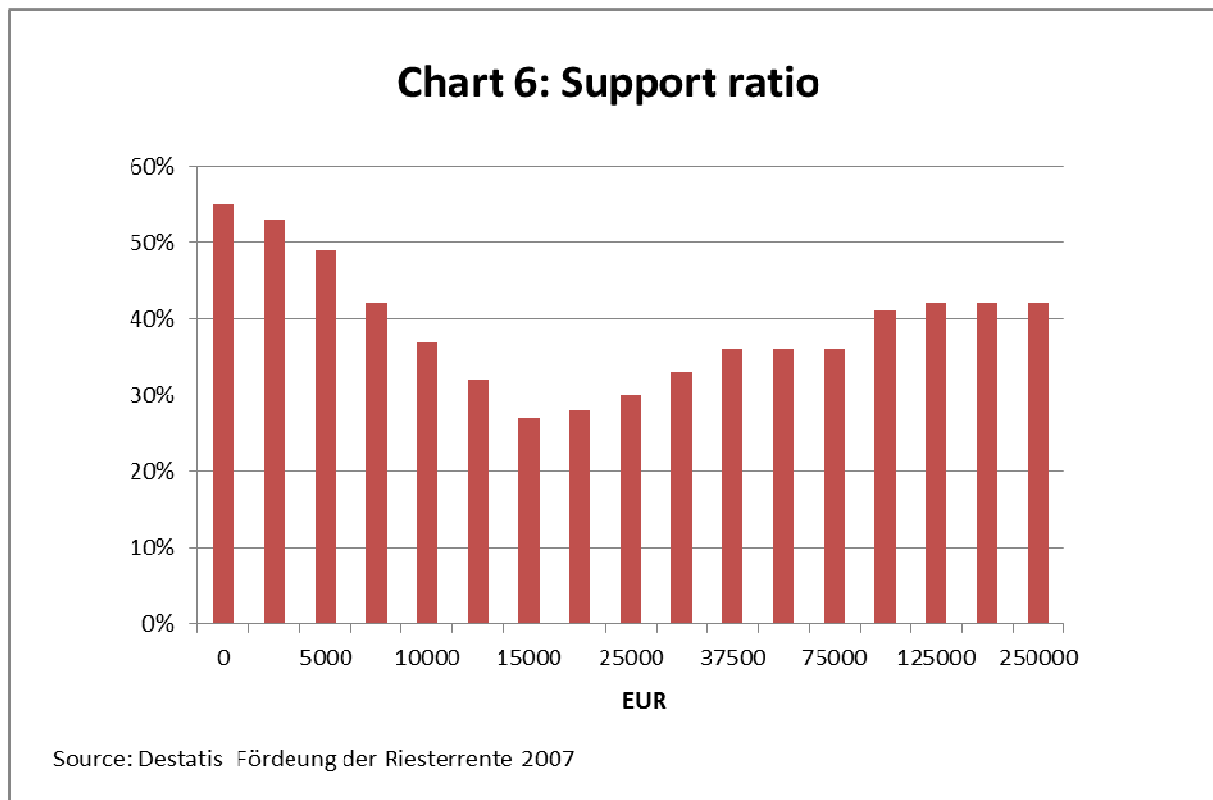
³¹ See BMAS Sozialbericht 2001, Bundesratsdrucksache 247/02.

³² See Stolz,U and Rieckhoff, C: Förderung der Riester-Rente für das Beitragsjahr 2008 – Mehr als neun Millionen Personen mit Zulagen; RVaktuell; 12/2011; Berlin.

³³ See press release of the Ministry of Labour and Social Affairs: Riester nähert sich der 15-Millionen-Grenze – 216000 neue Verträge im zweiten Quartal; 30 August 2011; Berlin.

- Basic allowance of 154 EUR
- Child allowance of 300 EUR³⁴
- Tax incentive (applicable for higher earnings only)

The empirical data on the Riester-contracts reflects the legal set-up of the scheme. The support ratio, describing the fraction of the pension saving which actually comes from the different allowances is given below (CHART 6). Even without any own labour income an allowance from government is available. This reflects the (derivative) right to sign a contract for the spouse of an insured in the statutory pension insurance. After this starting point, the support ratio is falling with rising income until high income recipients profit from the tax incentive.



The analysis of the income position of the Riester-contractors is not straightforward. Different data sources have different dimensions. The contract data from the central allowance institution (ZfA) provides no information regarding the family composition and the comprehensive income situation of the insured. Data from the Federal Statistical Office (Destatis) which combines contract data and data from the income tax statistics is not comprehensive for different reasons. For example, the income statistic doesn't cover those who don't fill in the income tax declaration due to their low income. Hence this group is under represented in the analysis of the Federal Statistical Office. Data from a household panel, the SOEP³⁵, is based on a quite large sample but certain groups, like households with very high income, are underrepresented.

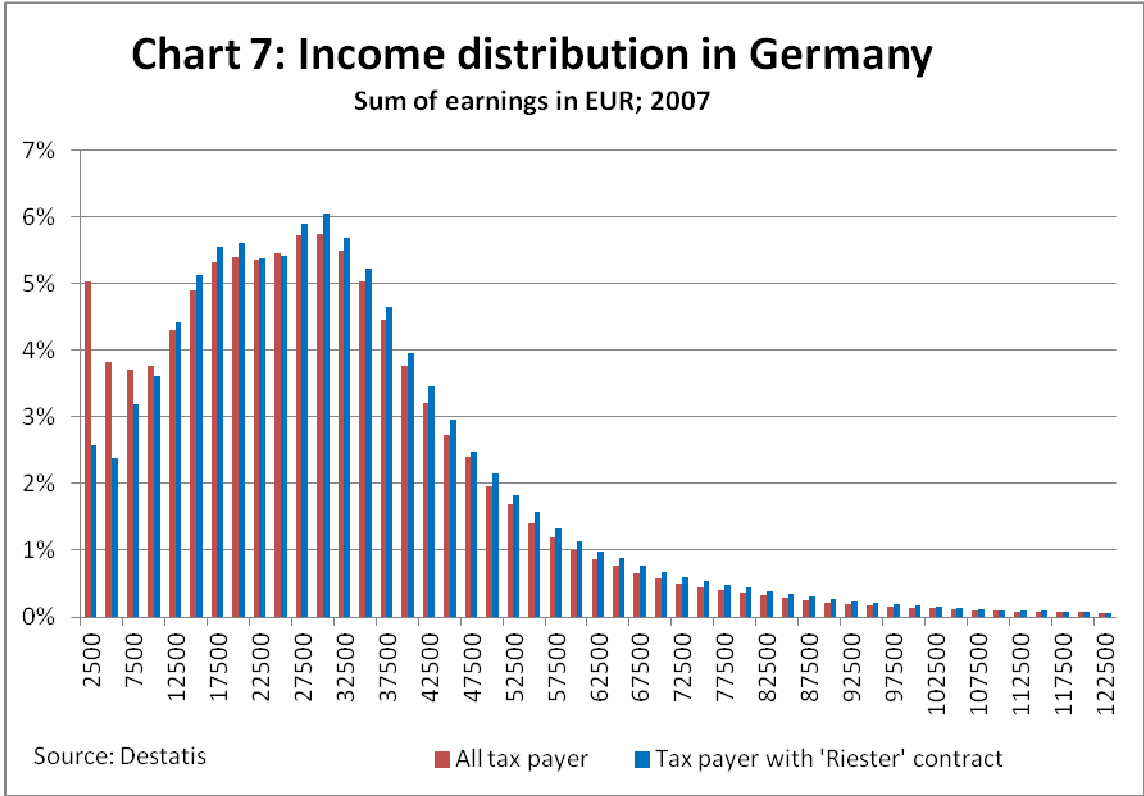
³⁴ The child allowance for children born before 2008 amounts to 138 EUR.

³⁵ The German Socio Economic Panel Study (SOEP) is a longitudinal study of private households, located at the German Institute for Economic Research (DIW); Berlin. Every year about 11000 households and more than

The data for 2008 of the central allowance institution shows that about 50% of the participants earned less than 20 000 EUR and about 70% earned less than 30 000 EUR. Preliminary results for 2009 and 2010 indicate a slight movement in direction of higher earnings. But overall the central allowance institution concludes that in particular persons with under average income applied for the allowances.

The Federal statistical office was able to match data from the allowance institution with data from the income tax statistics³⁶. Chart 7 shows that very low income earners with Riester-contract are underrepresented in the income tax data. This finding of the Federal Statistical Office is supported by SOEP data. The SOEP delivers two important results: an overall participation rates of 30% and low income earner participation rates from 22% to 25%³⁷.

To sum-up: The participation in the new voluntary scheme is reasonable. Regarding those with low labour income indications for a below average participation are available.



20000 persons are sampled. The data provide information on all household members, consisting of Germans living in the Old and New German States. The panel was started in 1984. The topics include household composition, occupational biographies, employment and satisfaction indicators.

³⁶ Destatis matched the data. This was possible for 4.2 Million taxpayers. See Destatis: Staatliche Förderung der Risterrente 2007, p. 8; 2011; Wiesbaden.

³⁷ See Geyer, J: Riester-Rente: Rezept gegen Altersarmut? In: DIW Wochenbericht; 45/2011, p16; Berlin.

6 Conclusions

Economic theory and current simulation exercises offer no clear answer to the question whether a pay-as-you-go scheme should be replaced, at least in parts, by a funded scheme. Regarding the usual risks of pension schemes the situation is well known. Capital markets offer prospects and capital markets may suffer³⁸. The empirical analysis of the 'Riester-reform' in Germany identified an additional risk. The 'Riester-pension' offers incentives to participate; especially for low income earners. But different data sources indicate that participation of low income earners is not above average. Apparently this group of low income earners comes with a limited ability and/or willingness to save. In other words: myopic behaviour is prevalent.

The analysis of economic theory on pensions and ageing shows that there seems to be evidence that in case of myopic behaviour a transition towards a pay-as-you-go scheme may offer welfare gains. In addition, the analysis proposes that structure(s) (may) matter(s): the structure of the tax system and the structure or set-up of the social security system.

With respect to the German statutory pension insurance we can identify the following set-up. The benefit formula takes into account the full working career of the insured and the calculation of pension entitlements is based on a strong link between contribution and benefits. It represents a well-designed scheme with a continuing high degree of acceptance. We identified the risk that the German scheme may provide a too low pension level in the future, in particular for low income earner. This may lead to a lower acceptance of the scheme.³⁹

The chronicle of German pension reforms demonstrates that the ability of the German pension insurance to adapt to a changing environment is in high gear. Hence, another pension reform is likely and the next pension reform should consider the findings listed above. In order to secure a reasonable pension level for low income earners the replacement ratio should return to a higher level. A higher pension level may affect the requirement of low contribution rates. A counter financing can be achieved in different ways: Via the inclusion of new groups of contributors into the statutory pension insurance,⁴⁰ like civil servants or self-employed or via taxes. In order to leave enough room for private savings outside social security the contribution ceiling of the statutory pension insurance may be fixed at a lower level.

³⁸ See Impavido, G and Tower, I: How the Financial Crisis Affects Pensions and Insurance and Why it Matters; IMF working paper; 09/151; p 19; 2009; Washington. Impavido and Tower report that pension plans of corporations in major stock indices lost around US\$1 trillion in asset values between 2007 and the first months of 2009. From their highest valuation for accounting purposes of US\$2 billion in June 2007, assets were down 42 percent as of March 2009.

³⁹ See Schwarze, J and Wunder, C: Alterssicherung: Gesunkene Zufriedenheit und Skepsis gegenüber privater Vorsorge; DIW Wochenbericht 22; 2004; Berlin. Schwarze and Wunder observe a shrinking acceptance of the statutory pension insurance for low income worker and women.

⁴⁰ See Eitenmüller, S.; Reformoptionen für die Gesetzliche Rentenversicherung; edition der Hans-Böckler-Stiftung 58; 2001; Düsseldorf.