Simulations with a fixed insurance level path

In addition to our calculations with a normal projection of the current pension value, we also simulate the effects of our scenarios on the contribution rates under the assumption of a fixed insurance level path which does not fall below the minimum of 43%. The reason is that it seems very unlikely that our rule-based approaches regarding the retirement age could also be able to stabilise the contribution rate and insurance level against the influences of all other demographic developments such as the steady low birth rates. We decided to simulate a fixed insurance level path because the threshold of 43% seems to be a necessary condition in order not to face severe old-age poverty problems and thus acceptance problems for the statutory pension insurance (see i.e. Joebges et al. 2012), while a violation of the contribution rate threshold of 22% seems to have less severe acceptance consequences. Hence the question here is how much our rule-based approaches can help to lower the contribution rate under these conditions, and how much more need for additional reforms there is.

For this simulation, a change in the calculation of the CPV is necessary. Instead of projecting it according to the Social Code VI, we iteratively calculate the CPV which is necessary to obtain the pre-defined insurance level in each year. The insurance level is hereby set to either its value in the normal “Reference 67” scenario simulation in the respective year or 43% if the value falls below this threshold. The rest of the calculations is done in the same way as described above for each scenario.

Results with the fixed insurance level path

Under the constraint that the insurance level is defined to follow the path of the “Reference 67” scenario until it reaches the minimum of 43% and then stay at this minimum for the rest of the retirement period, the outcomes of the scenarios can be measured by just one variable, the contribution rate. Figure 1 shows the development of the contribution rate in the “Baseline” scenario, the “Reference 67” scenario, and in both rule-based reform scenarios under the fixed insurance level constraint.

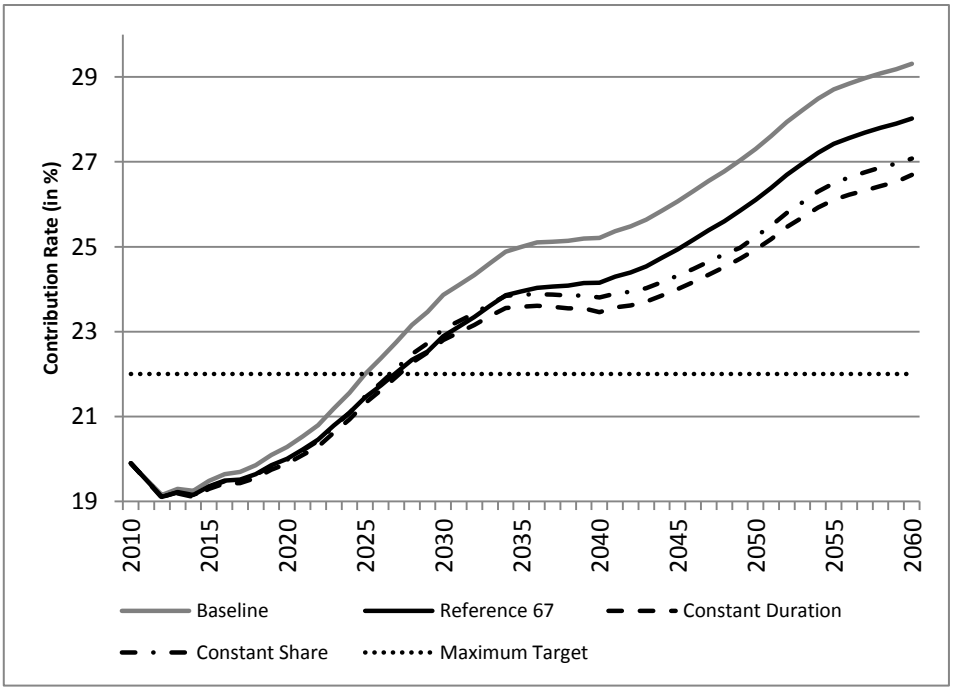

Figure 1: Contribution Rate in the Different Scenarios with a Fixed Insurance Level Path (Source: own calculations)

The rule-based approaches have rather big effects here. Their contribution rates reach a small peak in 2035 and then decrease slowly until 2040, where the hardly avoidable increase starts. But this increase is much more modest than in the "Reference 67" scenario, and much smaller values are reached by 2060. The difference compared to the "Reference 67" scenario grows up to almost a full percentage point in the "Constant Duration" scenario, while it still reaches almost half a percentage point in the "Constant Share" scenario. It is also noteworthy that the difference between both rule-based scenarios stays rather small, though this was expectable because of their rather moderate insurance level difference in the normal simulation and the almost insignificant contribution rate difference there.

Conclusion of the simulations with a fixed insurance level path

If no future scope for a decrease of the insurance level below the current threshold of 43% can be politically tolerated (i.e. due to rising old-age poverty problems), then the contribution rate has to carry the whole demographic burden. Our simulations with a fixed path for the insurance level constantly remaining at this threshold show that both rule-based reform approaches could significantly improve the development of the contribution rate in comparison with the current legislation regarding the retirement age, at best by almost a full percentage point. On the other hand, the contribution rate exceeds its target maximum by far and reaches unsustainable values in all three scenarios.

Brief sensitivity analysis regarding our labour market reaction assumptions

In our labour market module we assume an almost full transmission of the rise of the retirement age to a rise of the actual years in work. As explained there, this is a quite realistic assumption as the flexibility of the retirement age is low in Germany. However, to analyse the sensitivity of our results against smaller reactions on the labour market, we have also conducted the otherwise exactly same simulations under the most radical assumption that is possible: the assumption that the labour market does not react at all, and that the actual entry into retirement takes place in the same age as without any change in the statutory retirement age. The results are shown in Figure 2 and Figure 3. A comparison to the respective figures within the paper (those representing a full labour market reaction) shows that there is almost no difference in both variables, so our result seem to be very stable against different labour market assumptions. The reason for this is that the various underlying effects cancel each other out in the projection of the current pension value, the numbers of pensioners and contributors and thus in the budget of the pension insurance. We hereby acknowledge that this is just a brief sensitivity analysis and further investigations on the influence of labour market assumptions might be helpful in the future.

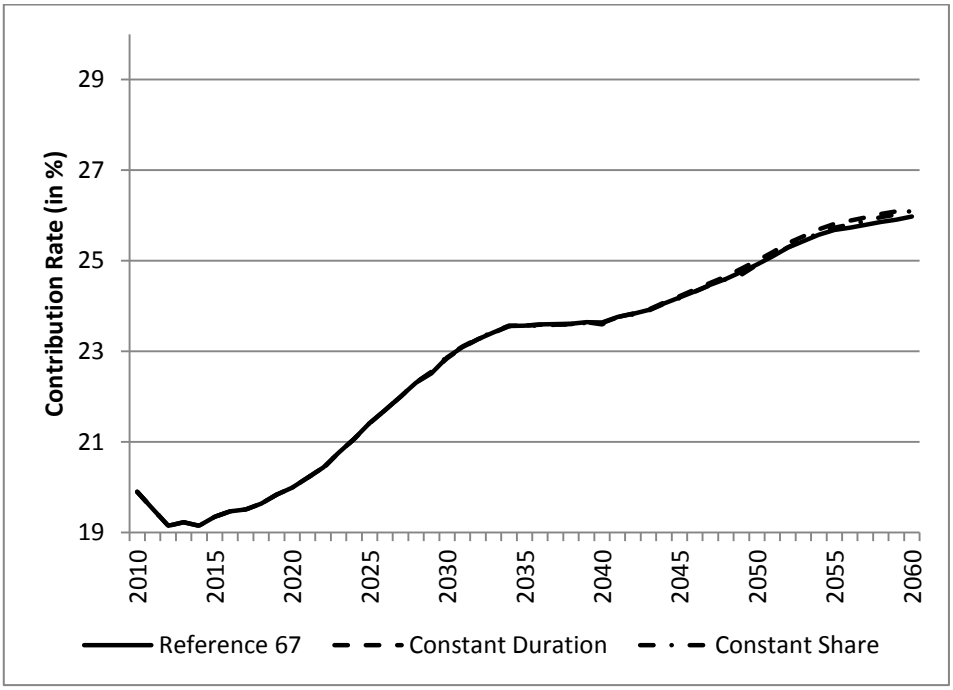

Figure 2: Contribution Rate under the Assumption of no Labour Market Reactions (Source: own calculations)

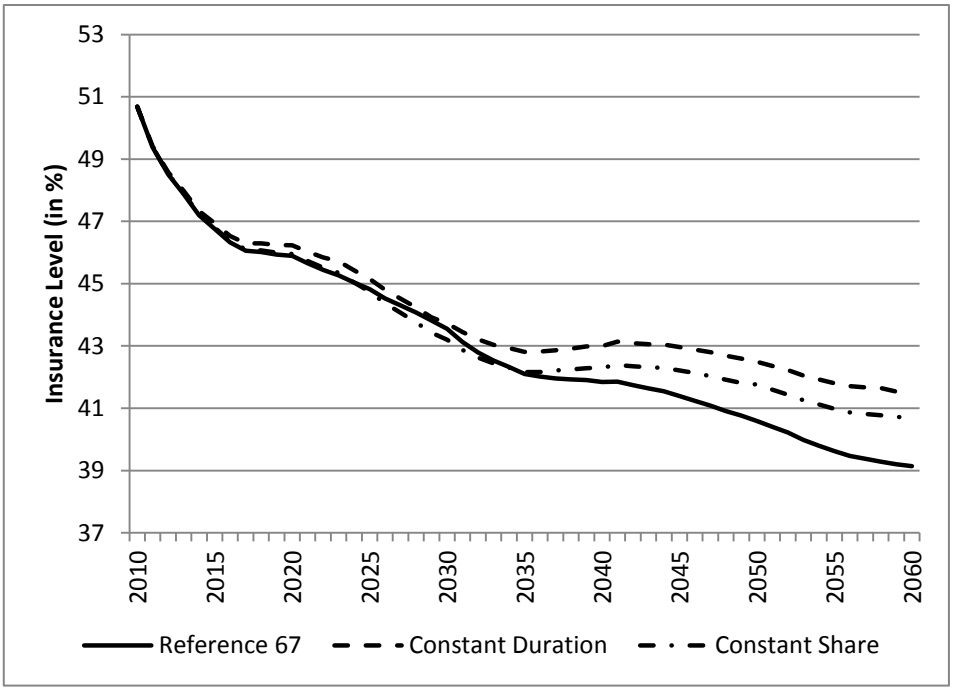

Figure 3: Insurance Level under the Assumption of no Labour Market Reactions (Source: own calculations)

Net migration

The net migration in each simulated year is depicted in Figure 4. The method of projection is described within the paper in the paragraph “Population Projection Module”.

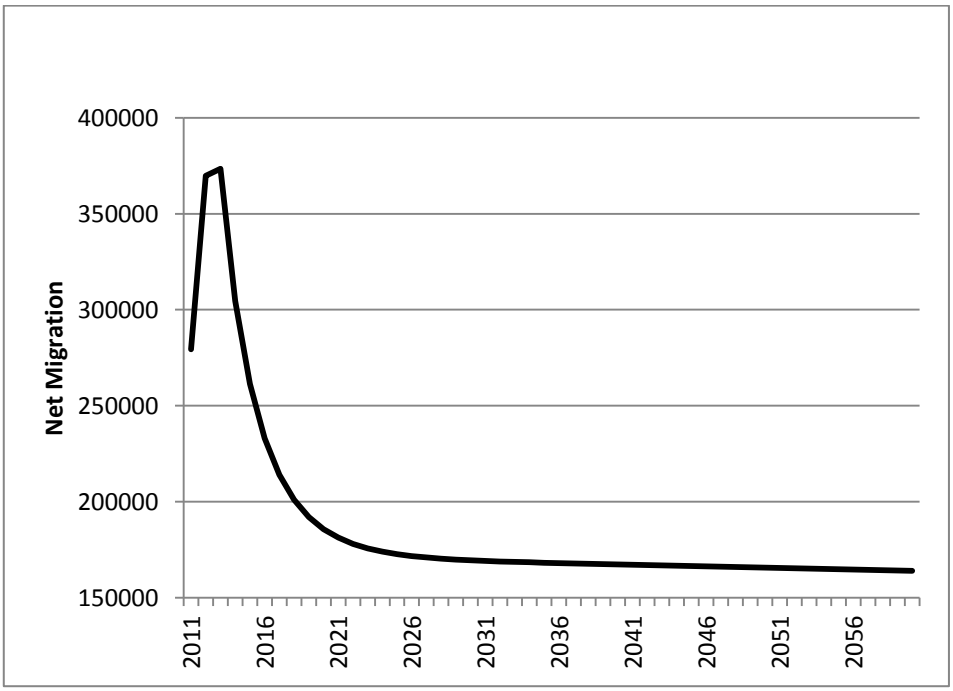

Figure 4: Net Migration (Source: own calculations)