

Dynamic microsimulation of income inequality and poverty risk for government

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* The model was developed together with Gijs Dekkers and Raphaël Desmet. They bear no responsibility for this presentation.

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Institutional context

- Belgian Federal Planning Bureau
 - “Independent Fiscal Institution” within the Federal Government
 - Mission: “The FPB is an independent public agency that makes forecasts, carries out research and analyses public policy measures. Its main mission is to support the political decision-making process.”
- Yearly report of the Study Commission on Ageing
 - Long-term rojections of government expenditure, focusing on the consequences of the ageing of the population
 - Projections of the social adequacy (also long-term) of the public pension schemes



Institutional context

- Projections of social adequacy of the pension system:
 - Indicators: poverty risk and income inequality among pensioners and older people
 - Up to 2070
 - Instrument: Dynamic microsimulation model MIDAS
 - Microsimulation for the Development of Adequacy and Sustainability
 - Fundamentally revised in 2022-23
 - Dekkers et al., 2010; Dekkers et al., 2023
- Projections are not predictions!



Institutional context

- MIDAS projections must be consistent with other projections of the FPB
 - Demographic projections of population by age and sex
 - Including immigration and emigration
 - Household composition (relationship to reference person)
 - Labour market position (employed, unemployed, disabled, retired ...)
 - By age bracket and sex
 - Average wage growth
 - Indexation of social benefits (assumption)
- This is achieved by alignment
 - A constraint
 - But also supporting framework for the MIDAS projections



The credibility of MIDAS projections

- Worry that the projections of income inequality and risk of income poverty are to a considerable extent an artifact of the model threatens their credibility.
 - Klevmarken (2022): “Contributing to the skeptics of the Economics profession is also the view that the science of Economics has not yet given us knowledge such that it is meaningful to build large micro simulation models for policy analysis and policy advice”
- More specifically, if social gradients in e.g. paid work are not maintained in simulation, projections of inequality and poverty risk might be biased downwards
 - Or at least the distribution of poverty risks across socio-economic categories might be too equal
- How did we cope with this worry? Two examples.



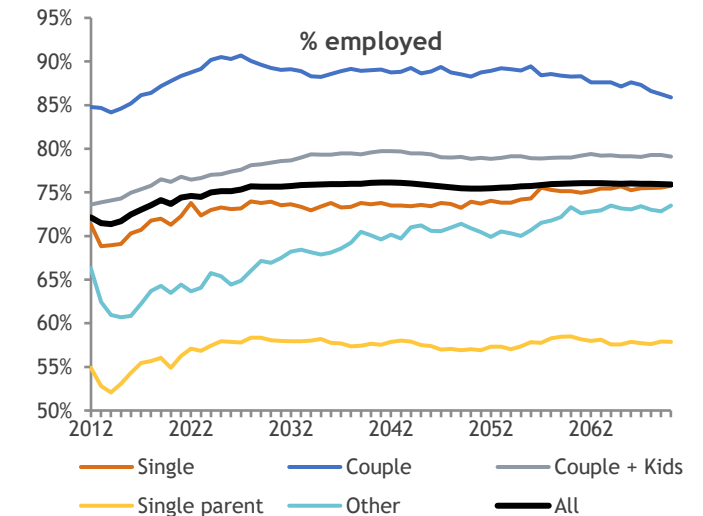
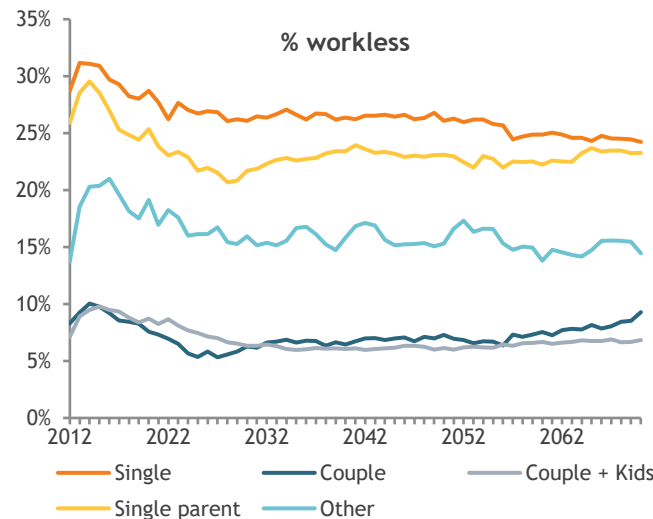
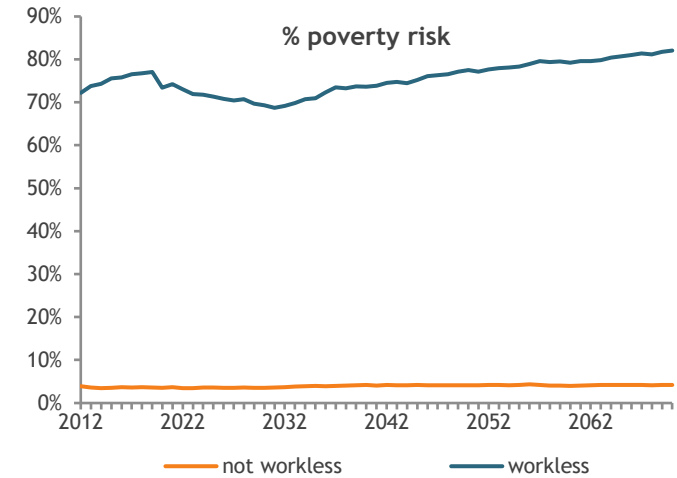
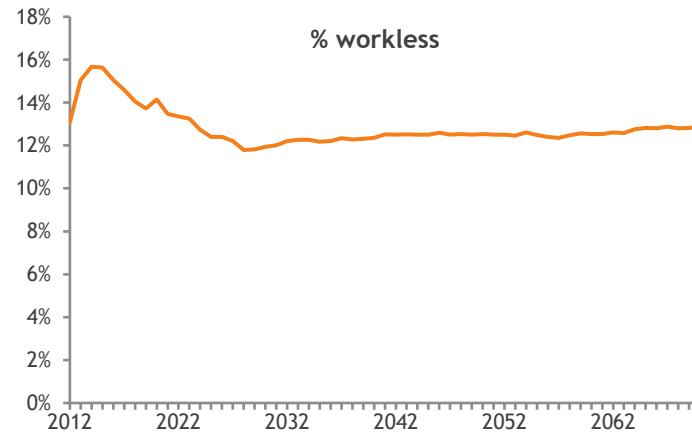
Example 1: poverty risk and workless households

- Workless households at active age have a very high risk of poverty
- The proportion of workless households is a function of:
 - The employment rate
 - Household formation
 - Polarization: employment is not distributed randomly over households
 - Single people have a lower employment rate than people in couples
 - More no-earner couples than expected if employment would be distributed randomly
- Therefore, projecting the poverty risk involves careful projection of:
 - Household formation
 - Taking account of, inter alia, education and migration status
 - Employment
 - Taking account of, inter alia, education, migration status and household composition

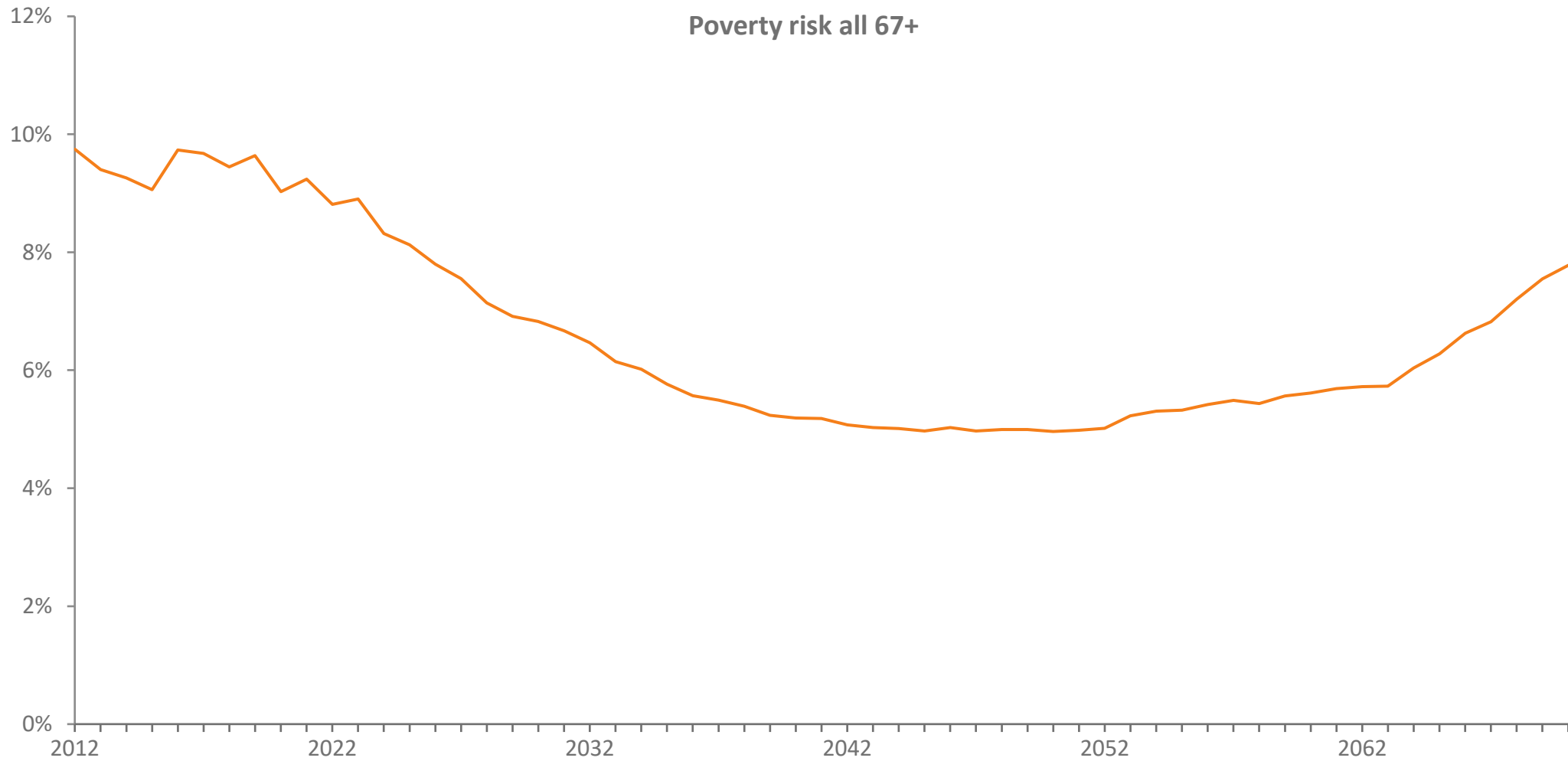


Example 1: poverty risk and workless households

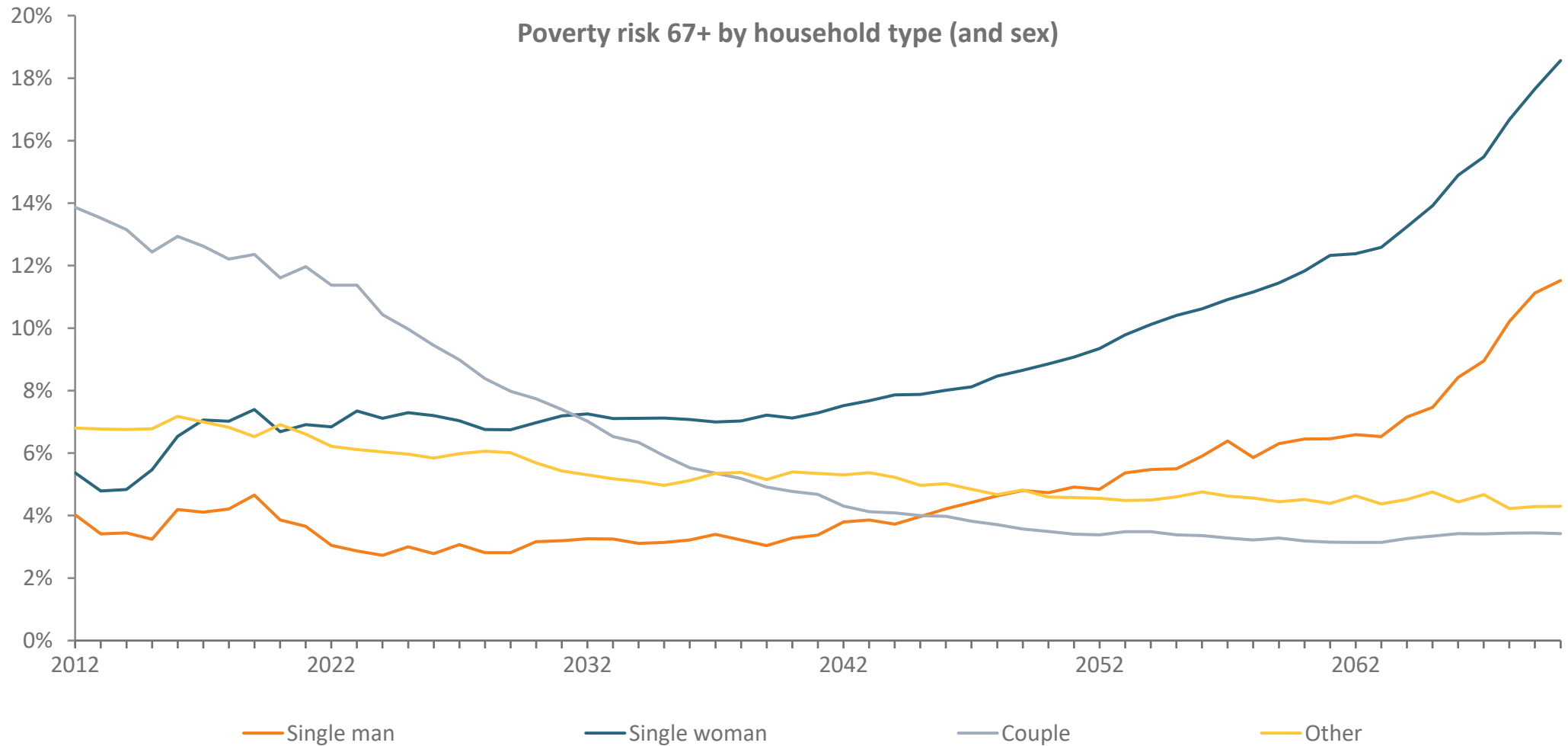
- Results for population 18-54
- Interpretation trend of poverty risk in terms of:
- Employment rate: increasing up to 2030, stable thereafter
- Indexation of social benefits, relative to average wage growth



Example 2: poverty risk of the elderly (67+)

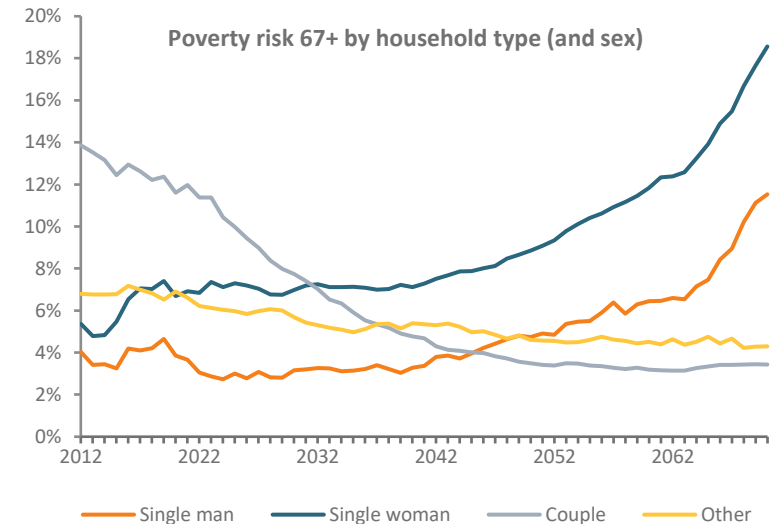


Example 2: poverty risk of the elderly (67+)



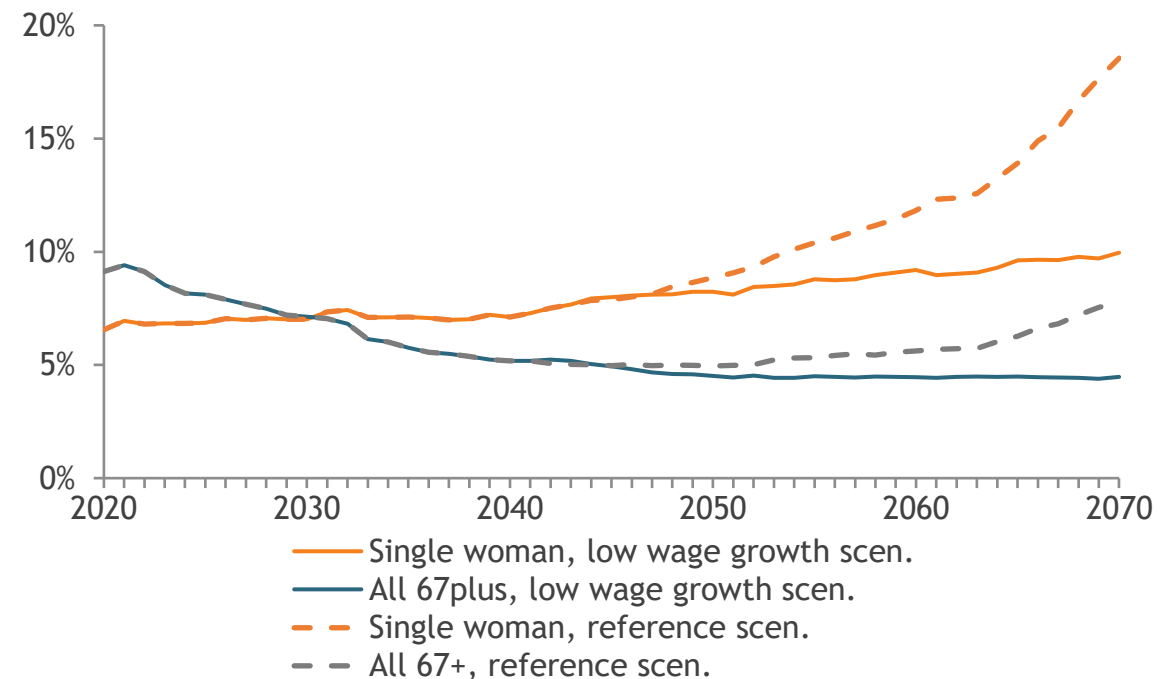
Example 2: poverty risk of the elderly (67+)

- Evolution of poverty risk is result of shifting balance of four factors:
 - More married women with their own pension
 - Due to longer and better careers of women
 - → Decline of poverty risk among couples up to 2050
 - Fewer single women are widowed
 - Due to increase in longevity of men
 - and more divorce and cohabitation < 67
 - → Increase of poverty risk among single women
 - Fixed indexation of minimum pensions at 1% p.y.
 - While average wage growth gradually increases from < 1 % now to 1.5% from 2045 on
 - → Minimum pensions increase relative to threshold up to 2040, decline thereafter
 - → Increase of poverty risk after 2040 among single women and men
 - Increasing proportion of immigrants among the elderly, who have a high poverty risk
 - Due to shorter careers



Example 2: poverty risk of the elderly (67+)

- Shortfall of indexation of benefits relative to assumed average wage growth is an important factor in the long term
 - Low wage growth scenario:
 - 1 % p.y. from 2040 on
 - Instead of 1.5 %
 - Indexation of minimum benefits: 1 % p.y.



Conclusion

- Credibility is – pragmatically – sought by
 - **Identification** of the factors and developments that are important for trends in poverty risks
 - **Careful modeling** of these
- Note that results are interpreted in terms of developments and policies that are:
 - Already ongoing
 - And / or exogenously given
 - Labour market careers of women, indexation, marriage rates, immigration, average wage growth
- Dynamic microsimulation models can provide **quantitative** estimates of the future implications of these known developments for the income distribution
 - (Subject to all kinds of qualifications)

