



Demographic developments in Germany – avoiding a false sense of security

Presentation Macro Economy Research Conference

Demographic change, economic growth, and fiscal sustainability

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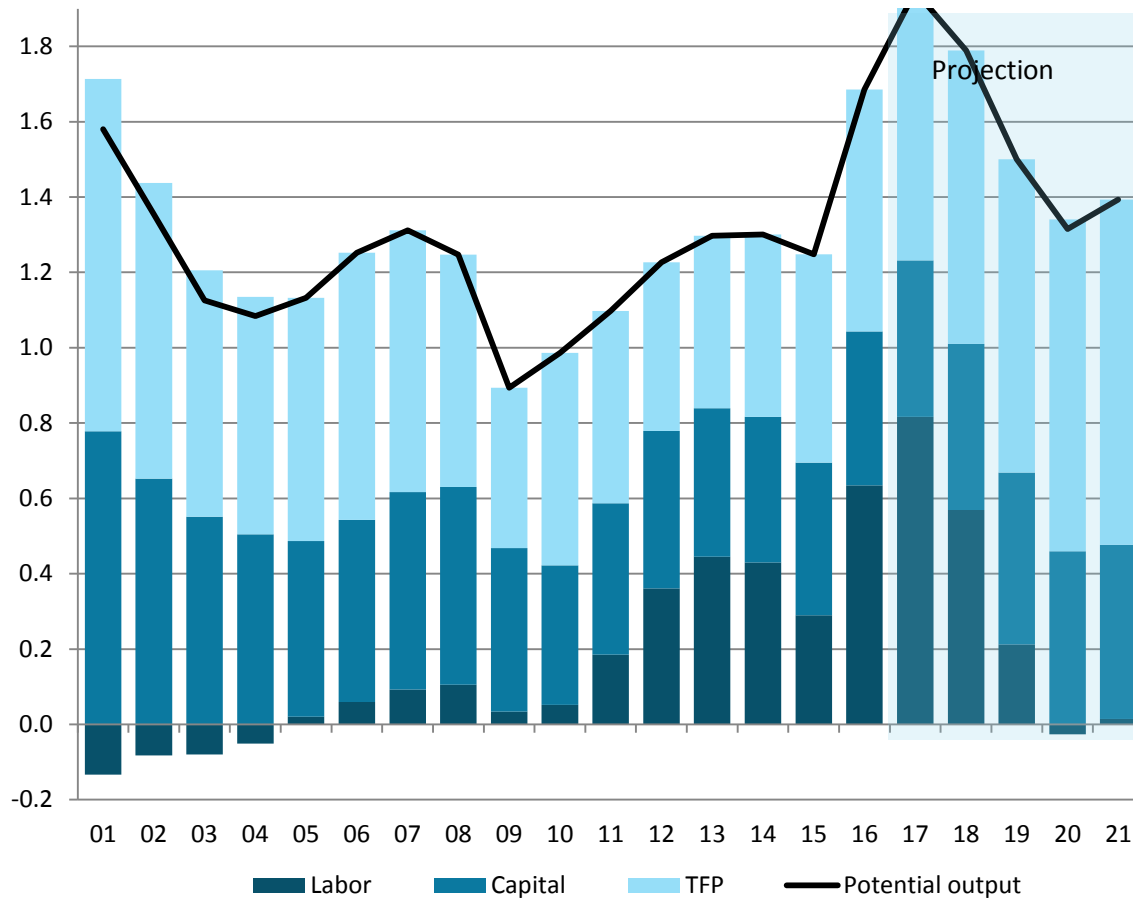
Torsten Schmidt

RWI – Leibniz Institute for Economic
Research

Motivation

- In Germany, the current demographic and economic situation is quite favorable.
- Immigration after the enlargement of the European Union and refugees from Africa and the Middle East has stabilized the German population
- Strong employment growth, associated with higher tax revenues and revenues of the social security system, and even surpluses in the federal budget.
- However, this favorable development hides that the demographic change in Germany is by and large an inevitable development in the long-run.
- Long-term projections are useful to show the consequence for economic growth and public finances.
- Necessary reforms should be implemented now.

Contributions to potential output growth



Source: Destatis; own calculations.

Assumptions for long-term projections

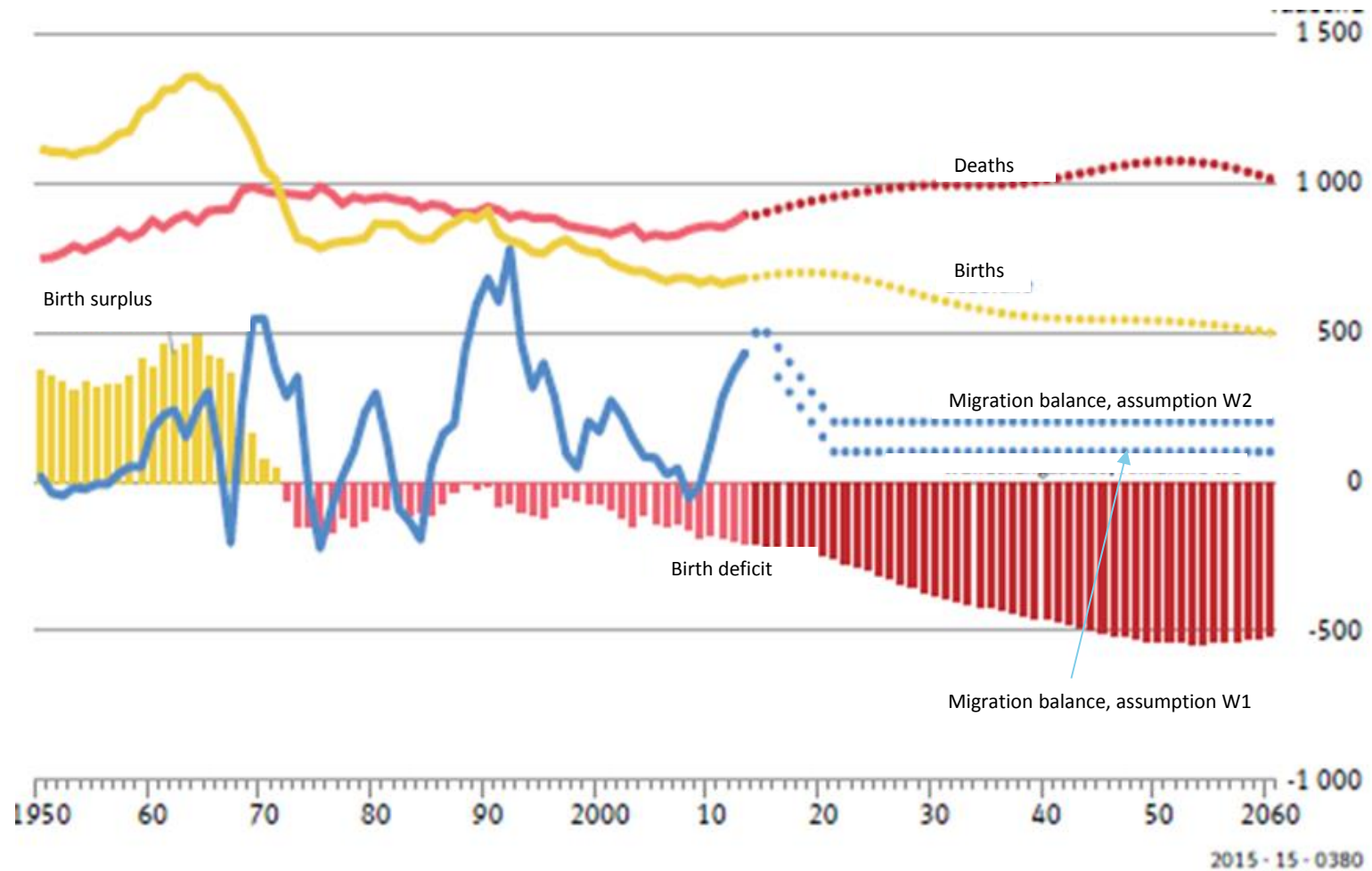
Scenario 1 (T-):

- The birth rate stays at its long-term average of 1.4 children per woman.
- Life expectancy of women increases from 82.8 to 90.4 and for men from 77.7 to 86.7 years.
- Net migration is assumed to be 100 000 person per year.

Scenario 1 (T+)

- The birth rate increases to 1.6 in 2028.
- Life expectancy of women increases to 88.8 and for men from 84.8 years.
- Net migration is assumed to be 200 000 person per year after 2020.

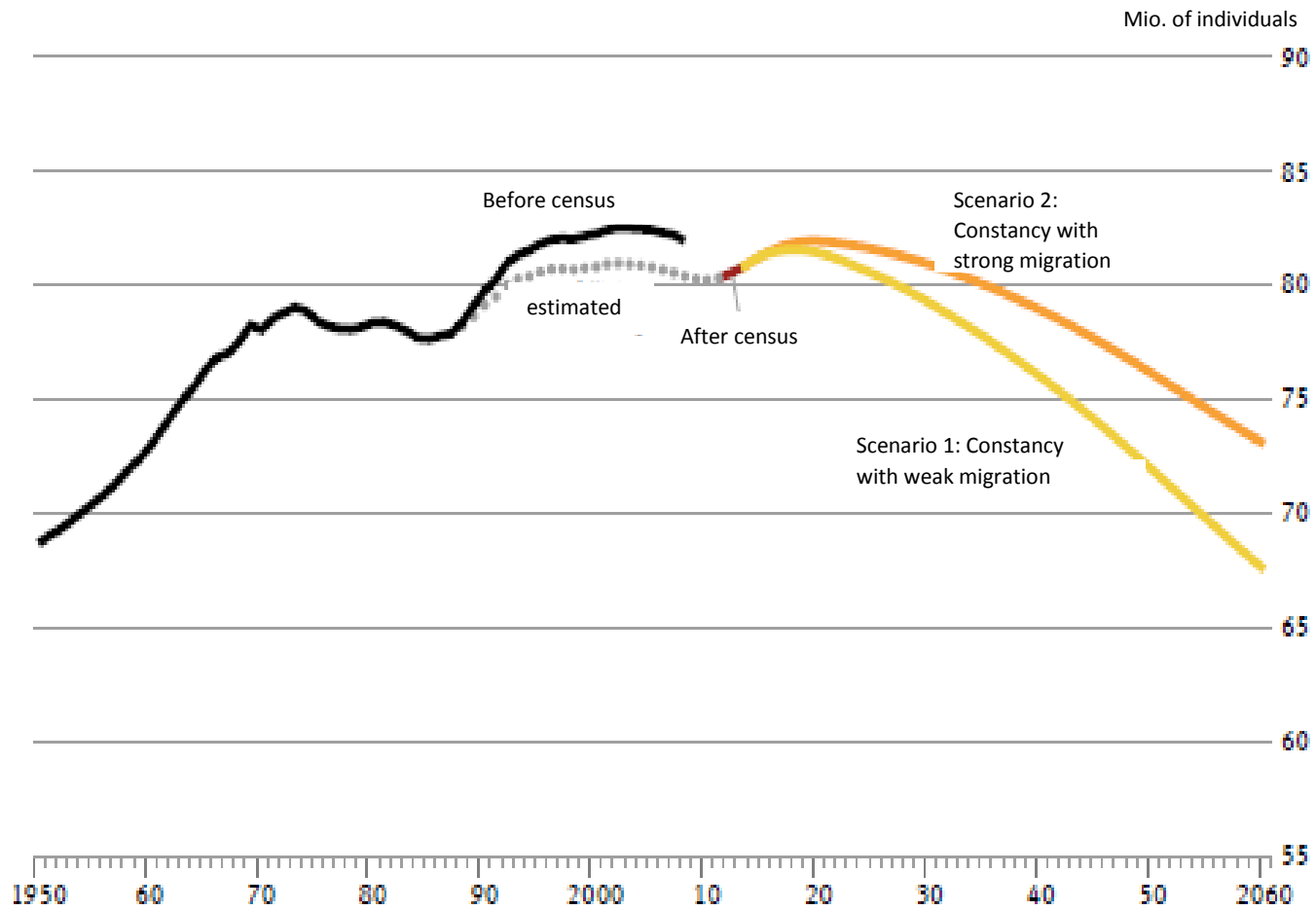
Fertility, mortality, migration



2015 - 15 - 0380

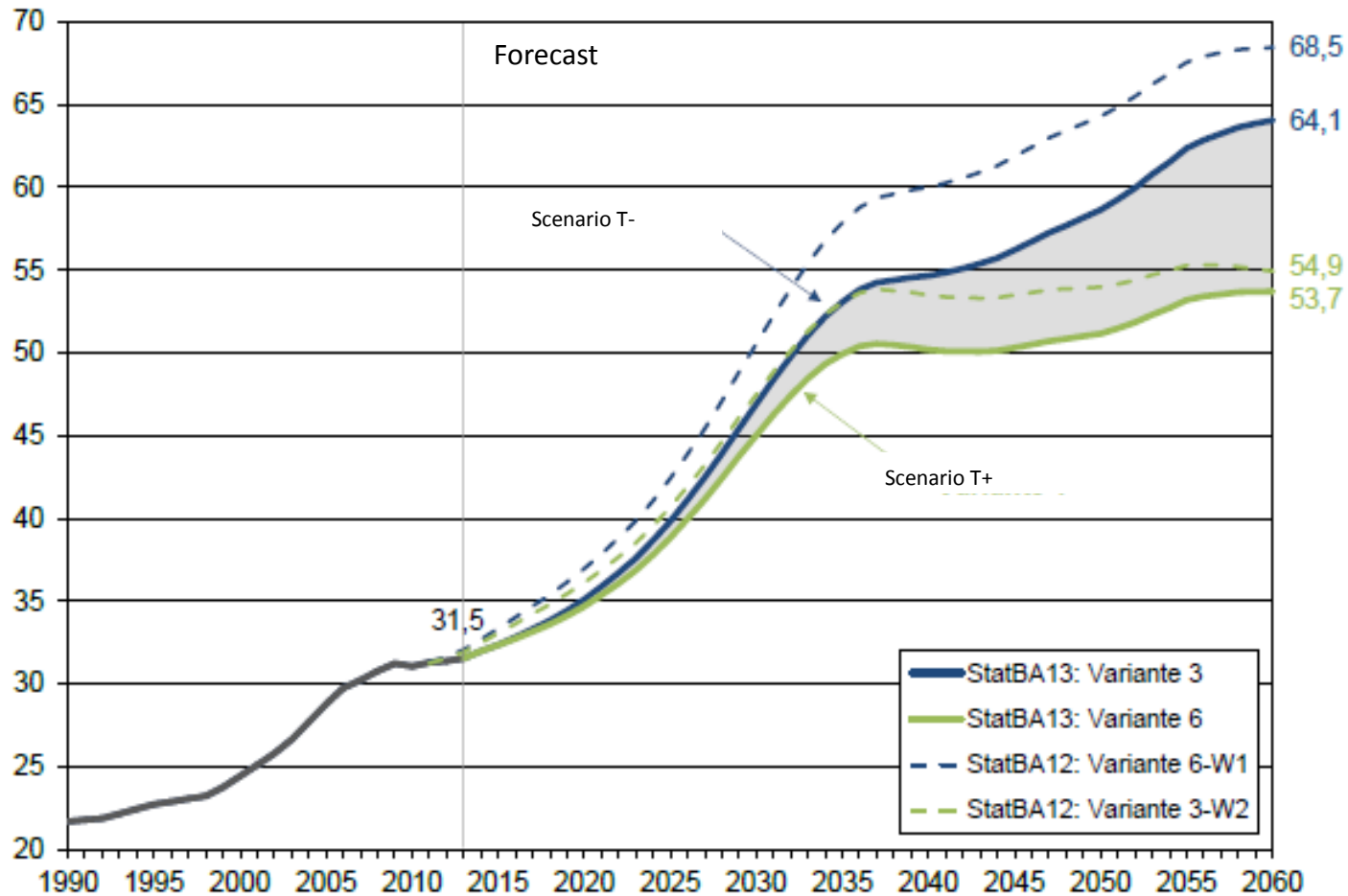
Source: Destatis (2015).

Population in Germany



Source: Destatis (2015).

Age dependency ratio

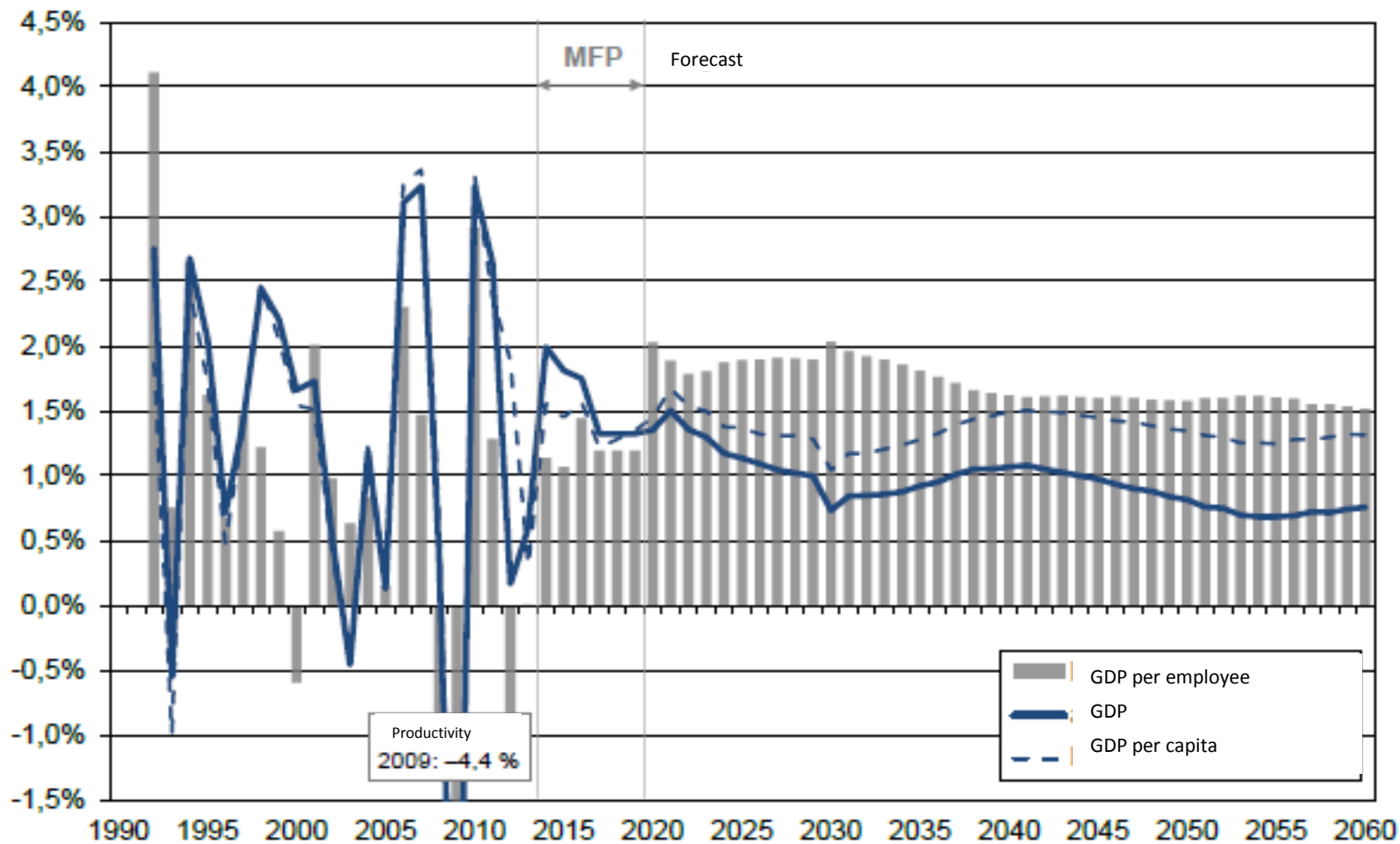


Source: Werding (2016). Dotted lines are projections based on data from the old census. Solid lines are based on data of the new census.

Effects of demographic change on economic growth

- Long-term projections consider the effect of the demographic change on the labor force
 - Reduction of the size
 - Increase of the average age
- Other channels are neglected by assuming that
 - The investment to GDP ratio is constant in the long-run
 - The real interest rate is constant
 - The growth of total factor productivity is independent from the demographic change

Economic Growth in Scenario T-

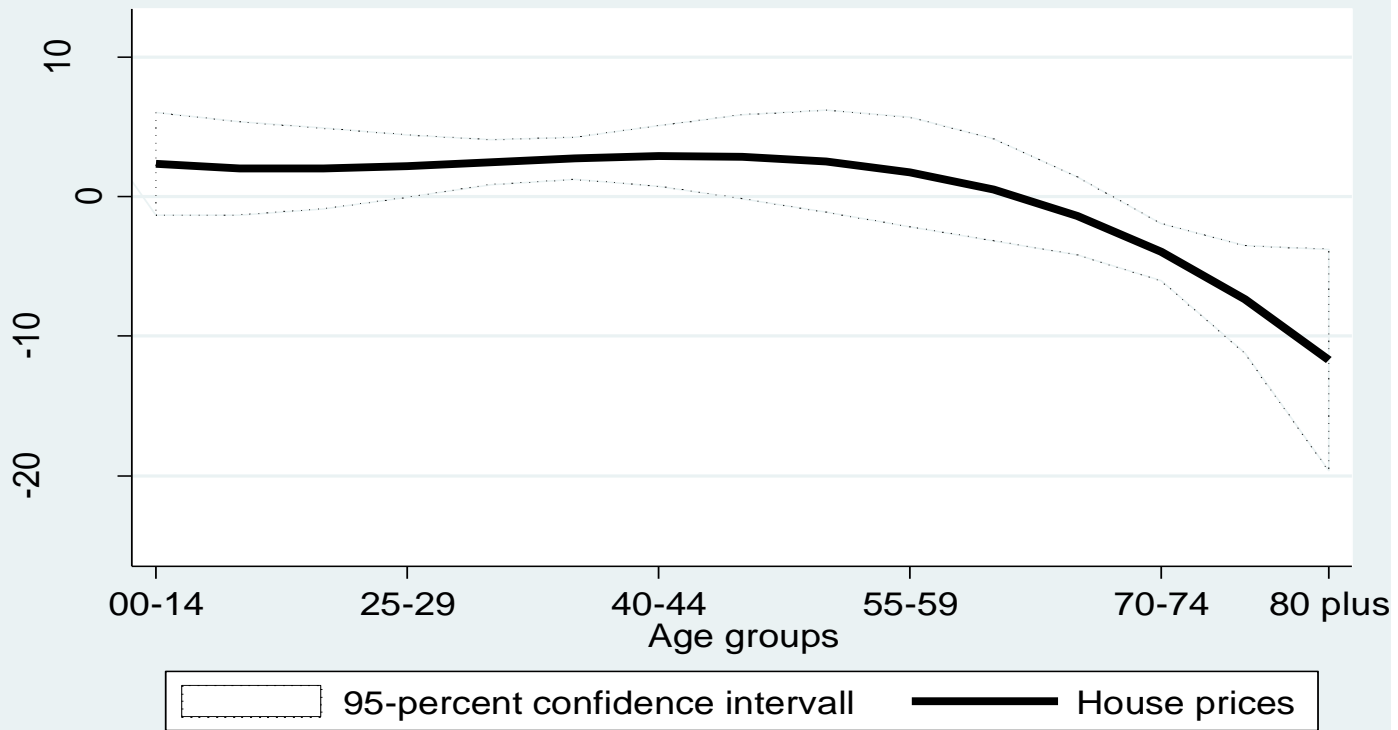


Source: Werding (2016).

Additional channels of the demographic change on economic growth

- **Effects on the capital stock**
 - Changes in private saving will have an effect on private investment
 - A reduction in the cohort size has a negative effect on saving
 - An increase in life expectancy has a positive effect on saving
 - Aging could also have a negative effect on public investment
- **Effects on Productivity**
 - Aging could have a positive effect on productivity because workers become more experienced
 - There is a negative effect because the stock of knowledge depreciates during working life
 - Aging could have a negative effect on R&D output

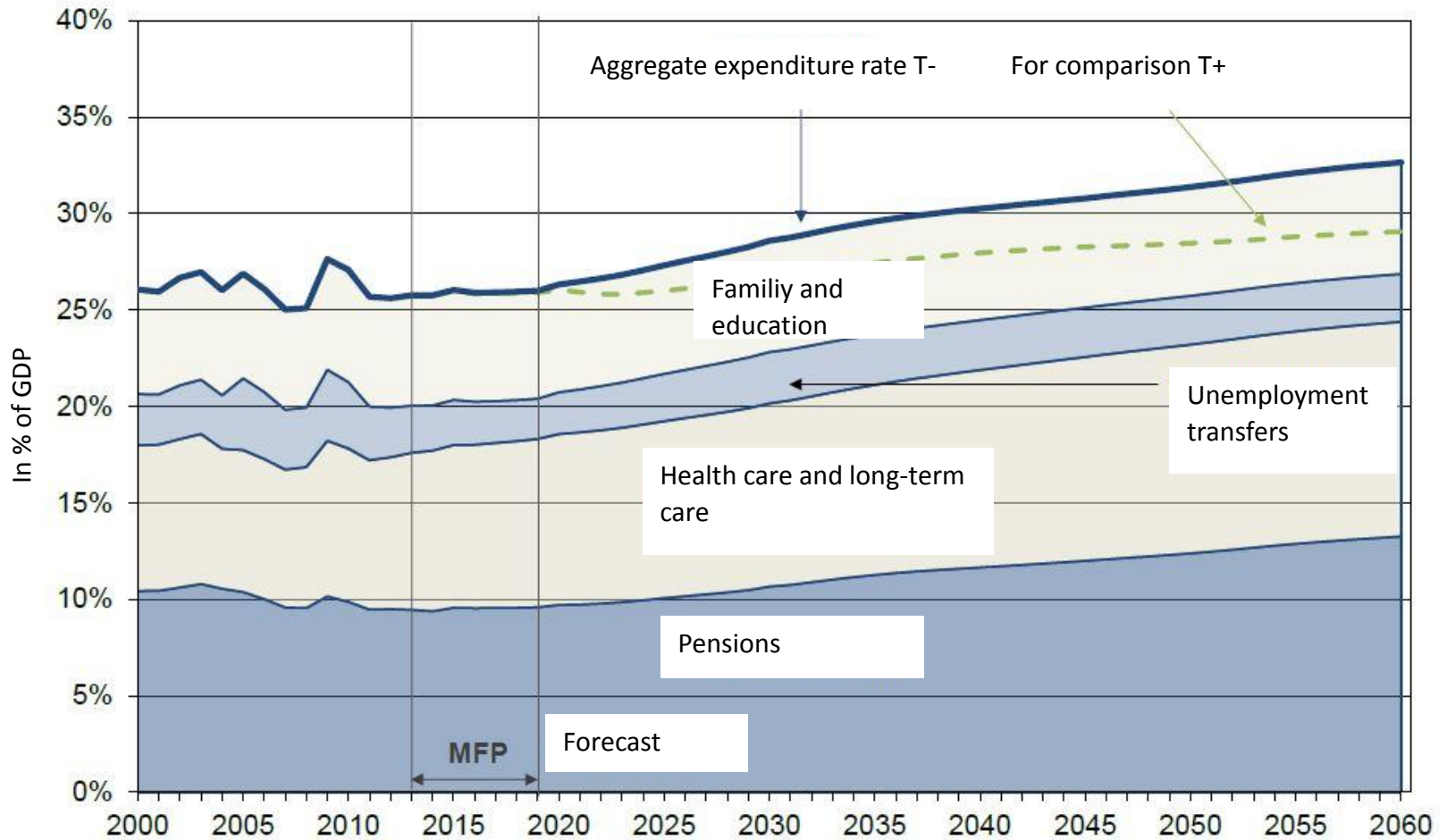
House prices and demographic structure: Level 1950-2012



Data source: own calculations

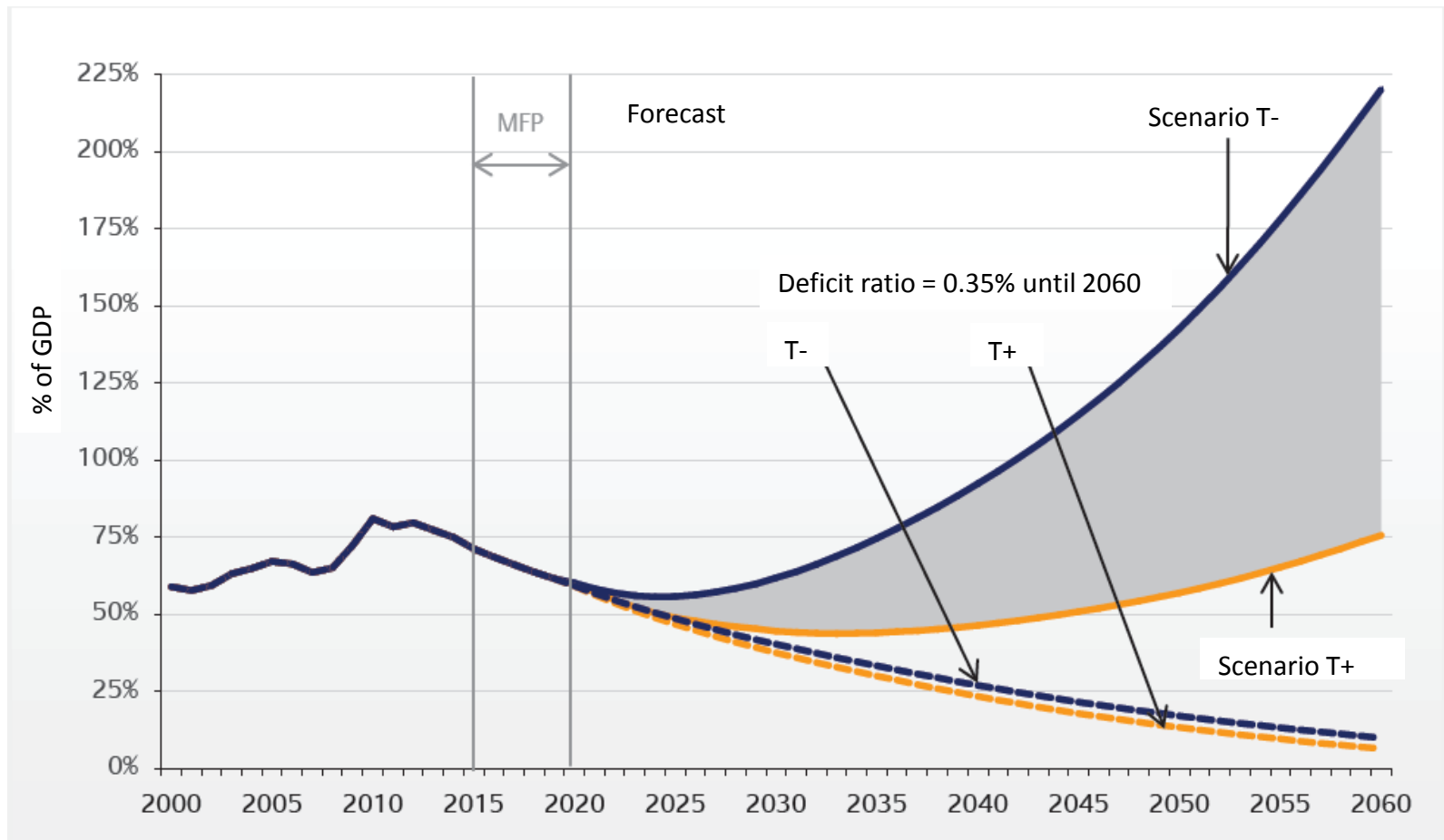
Source: Jäger and Schmidt (2017).

Development of public expenditures



Source: Werding (2016).

Public debt ratio



BMF (2016).

Sustainability indicators

- The first indicator (S1) measures the necessary annual improvement in the primary public deficit (in percent of GDP) that is necessary to reach a debt ratio of 60% in 2060. The goal of a debt to GDP ratio of 60% was established in the Maastricht treaty of the European Union.
- The second long-term indicator (S2) measures the necessary annual improvement in the primary public deficit (in percent of GDP) to meet the intertemporal budget constraint. Future revenues are sufficient to cover all future expenditures even from past debt.
- The first medium-term indicator (S12030) measures the gradual improvements that are necessary until 2020 to reach a debt ratio of 60% in 2060. s12030 measures the necessary annual steps.
- The second medium-term indicator (S2mt) measures the necessary gradual improvement until 2020 to meet the intertemporal budget constraint. s1mt measures the necessary annual steps.

Sustainability indicators for the general government budget in Germany

Indicators	Scenario T+	Scenario T-
Long-term sustainability gaps (immediate adjustments starting in 2016)		
S1 ^{a)}	0.27	2.31
S2 ^{b)}	1.22	3.81
Medium-term indicators (gradual adjustments from 2016 to 2020)		
1) cumulative consolidation need ("sustainability gaps")		
S1 ^{2030 c)}	-1.10	0.15
S2 ^{mt b)}	1.25	3.94
2) annual adjustments until 2020		
s1 ^{2030 c)}	-0.22	0.03
s2 ^{mt b)}	0.25	0.79

Annotations: All figures indicate reductions required in annual primary deficits of the general-government budget, measured as a percentage of GDP.

Underlying fiscal objectives:

- a) Reaching a debt ratio of 60 % of GDP by 2060.
- b) Observing the intertemporal government budget constraint over an infinite time horizon.
- c) Reaching a debt ratio of 60 % of GDP by 2030.

Source: SIM.13 („Social Insurance Model, 2013 version“).

Conclusions (I)

- The long-run demographic change in Germany is inevitable, even if the future immigration is uncertain
- It is not likely that the favorable economic environment will persist.
- It is therefore necessary to prepare the public sector, in particular the social security system for this demographic change

Conclusions (II)

- Dampen the demographic change
 - Increasing fertility
 - Manage immigration
- Strengthen economic growth
 - Increase the participation rate
 - Promote human capital accumulation
- Reform of social security
 - Heightening of the retirement age