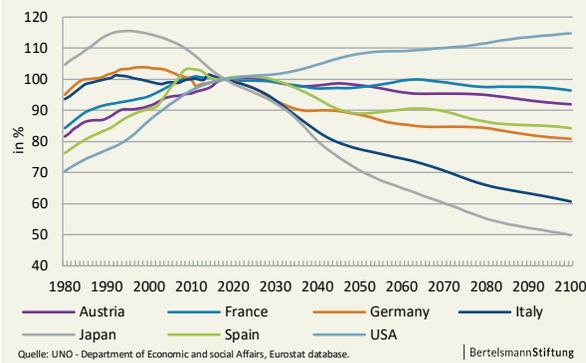




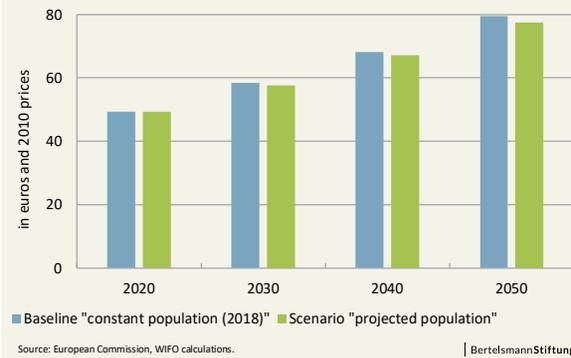
## Macroeconomic effects of demographic aging in Germany

Figure 1 Historic and expected development of working-age population (aged between 15-64 years), 1980- 2100



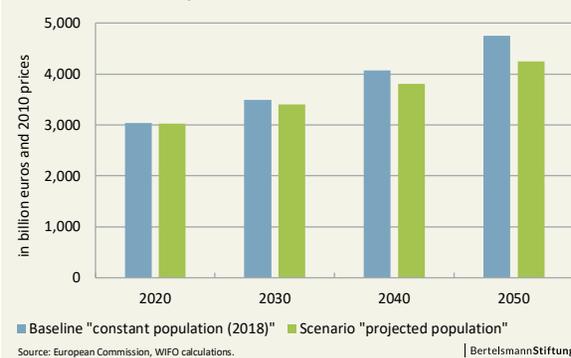
The working-age population in Germany is projected to initially age and to shrink continually over the next 30 years. The decline is expected to be around 11% between 2018 and 2050 (see Fig. 1). This will attenuate the country's overall economic productivity and will have considerable consequences for its overall economic development. This overview shows how demographic aging (the scenario "projected population") in Germany until 2050 will affect key macroeconomic indicators, compared to a scenario in which the population remains constant at the level of 2018 (the baseline "constant population (2018)").

FIGURE 2 Productivity per hour worked



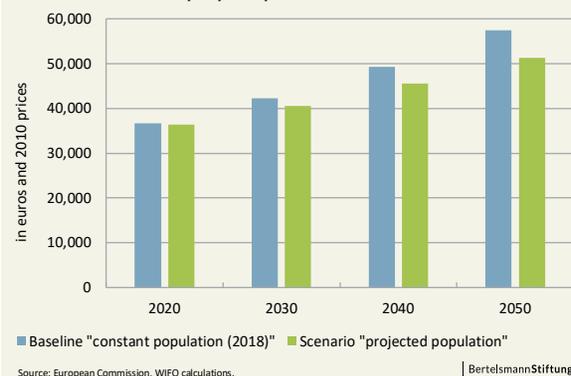
The negative effects of demographic aging are expected to attenuate the growth of labor productivity until 2050. The difference between the scenario "projected population" and the baseline scenario should increase from around 0,8 euros per hour worked in 2030 to 1,1 euros in 2040 and to almost 1,9 euros in 2050 (in 2010 prices) (see Fig. 2).

FIGURE 3 Potential output



The growth of the real gross domestic product (GDP) ought to be significantly attenuated by demographic aging in the next few decades (see Fig. 3). In comparison to the baseline scenario, the increase is expected to be 2.6% lower in 2030, 6.7% lower in 2040 and 10.7% lower in 2050. In absolute terms, demographic aging and its negative effects are expected to attenuate GDP by 274 billion euros in 2040 and by 507 billion euros in 2050 (in 2010 prices).

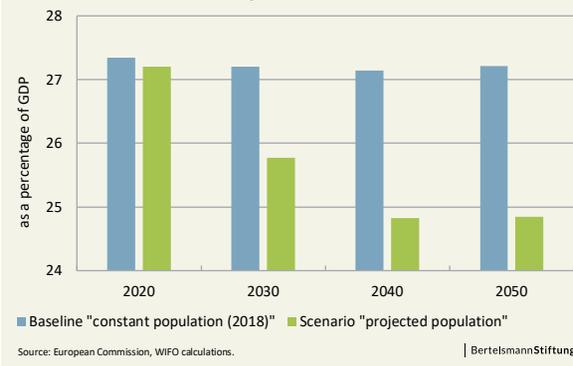
FIGURE 4 Potential output per capita



With respect to real GDP per capita, which is in effect the average material prosperity per inhabitant, this is expected to result in the following: In 2030 GDP per capita will amount to around 1,600 euros lower than if the demographic aging of the coming decades had not taken place. In 2040 it will be lower by around 3,700 euros and in 2050 by about 6,000 euros (in 2010 prices) (see Fig. 4).

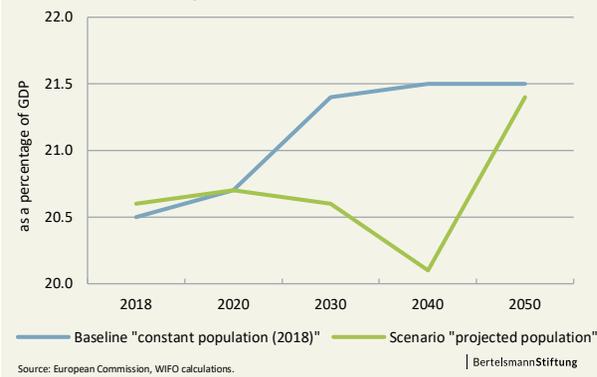


FIGURE 5 Gross domestic saving



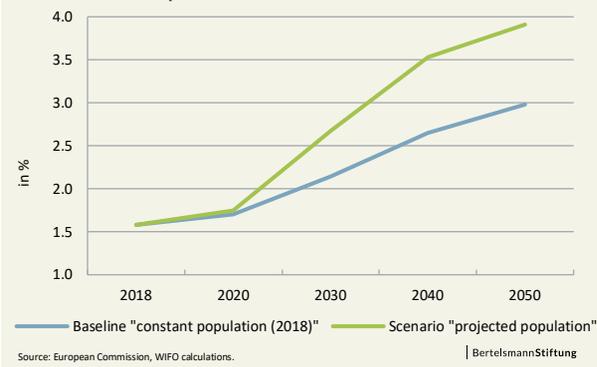
In the baseline scenario, the savings rate remains virtually unchanged until 2050 (see Fig. 5). Demographic aging will bring about a sharp rise in the number of people of retirement age and a simultaneous decline in the working-age population. This will lead to a significant decline in the savings rate in the coming decades. The drop is expected to amount to nearly 3 percentage points (or 10%) between 2018 and 2040 or 2050, respectively. In the years 2040 and 2050, the savings rate will therefore be expected to amount to about 2.4 percentage points (or about 8.5%) lower than it would be without demographic aging.

FIGURE 6 Gross fixed capital formation



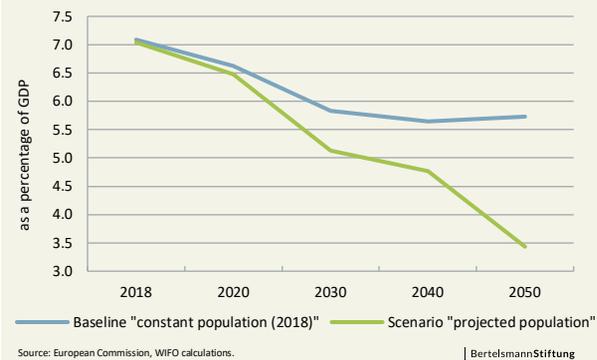
This will also reduce the supply of domestic capital and thus the scope for domestic investment (see Fig. 6). In 2040, the investment rate is expected to be about 1.4% lower than in the baseline scenario. However, in an open economy, the domestic capital supply can be supplemented by capital inflows from abroad.

FIGURE 7 Consumer price inflation rate



The simulation calculations also confirm the theoretical assumption of rising inflationary pressure due to demographic aging (see Fig. 7). In 2040, the inflation rate in the scenario "projected population" is expected to be almost 1 percentage point higher than in the baseline scenario, and the same applies in 2050.

FIGURE 8 Current account balance



The declining savings rate and a simultaneously rising consumption rate, due to the growing share of pensioners, are in turn expected to lead to an increase in domestic consumption. This means that fewer goods and services will be available for export. The rising price level, due to the growing inflation rate, in turn means that foreign demand for domestic goods tends to decline. Fig. 8 reflects the decline of the current account surplus in Germany due to aging. It is projected to decline from about 7% of GDP to nearly 5% of GDP between 2018 and 2040 and to 3.4% of GDP by 2050. Nevertheless, the current account balance is expected to remain positive.

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