



Population and economy

Population structure and dynamics are directly interlinked with economic development. Declining birth rates and the resulting long-term drop in the labor force, ageing populations and the associated increase in welfare spending, an outflow of the working-age population, migration and refugee movements, to name only a few, all impact the economy. The links are often complex and many changes in the population and age structure create uncertainties and new challenges for the economic system. A closer look at the economic consequences of the demographic changes shows however, that general pessimism about the future is not justified, because knowledge about these changes will provide new options for adaptation and opportunities.

Income trends in Europe

How have age-specific income trends in Europe changed in recent years? What is the role of employment, wages, and social transfers such as family and retirement benefits in explaining these trends? A study of 9 European countries has shown that between 2008 and 2017 the GDP has dropped in only 2 out of 9 countries, while the average per capita income has dropped in 5 countries. Furthermore, not only the level of income, but also its structure has changed: Taxes as well as transfer income have increased in all countries analyzed (relative to the primary income). There are large differences in age-specific income trends. In most countries, the mean income in the population at age 20-39 stagnat-

ed or declined, while income increased for the elderly population aged 60+. The main drivers of these differences are a decline in employment rates and wages of the younger population, and an increase in employment rates and wages in the older population.

This trend is expected to continue. The retirement of the baby boomers, for example, and the resulting increase in social welfare contributions, but also the consequences of the COVID-19 pandemic will burden young Europeans. To be able to find better responses to economic crises, it is therefore important to closely monitor age-specific income trends.

Depopulation

Is population decline cause for pessimism? In the past years, some countries have already experienced a drop in population, and for many other countries this will be the new reality in the 21st century. As a result, some economists and policy makers fear negative economic consequences, including a collapse of social security and retirement systems, a decline in (particularly rural) infrastructure and innovation, and a brain drain caused by emigration. New research shows, however, that higher investments in education and health can considerably counteract these negative developments.

This raises the question if shrinking regions will face a shortage of productive and well-educated workers. Some aspects contradict this assumption. With falling birth rates the labor force participation rate of women increases, which, over a certain period, leads to a rise in the number of workers relative to the total population

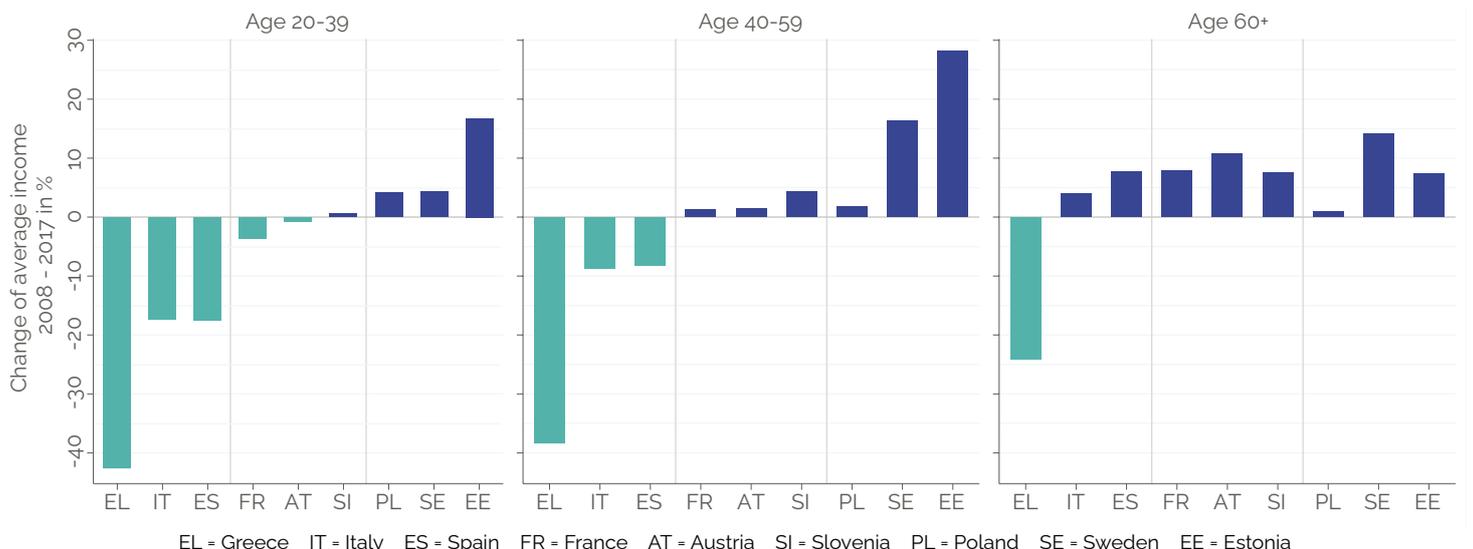
Aggregate measures such as the GDP mask the fact that the situation of young adults has worsened – with far-reaching consequences. For example, the countries that face the highest loss of income also have the lowest birth rates.

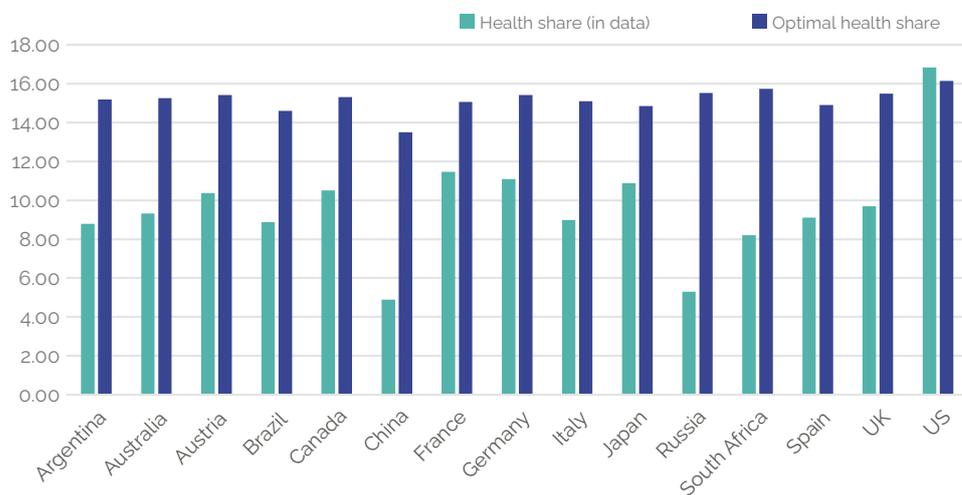
– even if the total population declines. Furthermore, falling birth rates result in an increase in private and public educational investments per child. These children, in turn, will be better educated and more productive in later life. Over one generation, this effect could compensate for about 10% of depopulation. Additionally, economic policies can make a big difference. With sufficient investments in health, people will live longer and stay healthier at old age, and can therefore participate in the labor market longer and more productively. Hence, flexible retirement models are desirable that enable those people who are healthy and want to work longer, to do so.

Does depopulation hinder technical and economic progress? New studies indicate the contrary. A declining labor force implies a stronger incentive to invest in the adoption of automation. In countries with declining or lower population growth, the number of industrial robots in relation to the total workforce is comparatively high. The cross-country average shows that a 1 percent reduction in population growth is associated with a 1.5 to 2 percent growth rate of robot density. Thus, advances in automation can help overcome negative economic effects of declining populations.

Change of average income 2008-2017 in percent, selected European countries

Source: Own calculations based on EU-SILC





Health systems

Should health expenditures be reduced to increase the efficiency of the healthcare sector?

For a long time, in the public discourse concerns were expressed about whether the health systems in western economies are too big and expensive, and would therefore be an obstacle to economic growth. Recent studies show that, while there is potential for cost reduction in many areas of health care, this does not imply that also fewer resources should be spent on health at the macroeconomic level.

The size of a country's health system can be measured by the health expenditures as a share of GDP. The optimal share of public spending on health is derived from a comparison of the welfare gains that would result from an increase in life expectancy made possible by additional health expenditures, with the welfare gains that would result if the additional health expenditures were used for consumption instead. For most countries, the optimal health expenditure share would be above 15 percent, a value that, with the exception of the USA, is more or less clearly above the actual realized shares of health expenditures in GDP. In most high-income economies high health expenditures are justified because the benefit of additional consumption in

"saturated" societies is on average considerably lower than the benefit of additional years of life, particularly, if they are spent in relative wealth. This welfare economics perspective shows, that in most countries there is still considerable potential for growth in the health sector.

The costs of COVID-19

How expensive is the COVID-19 pandemic for Austria? When estimating the economic costs of COVID-19, it is important to know that a country's spending on relief efforts does not correspond to the overall economic cost to that country. This is because public support payments represent a redistributive measure that flows back into the economic cycle. Thus, from an economic point of view, these support payments are not "lost". In contrast, macroeconomic costs are actual production or income losses of companies, households and the state, which would not have occurred without the pandemic. In order to es-

Against a measure of welfare that includes not only consumption but also life expectancy, health systems in most developed economies are too small.

Are current pension systems still appropriate?

In theory, the pension system serves as a social equalizer: the working population pays contributions in and people who no longer work receive a pension. But with demographic changes the population structure has become more complex. Today, people overall live longer, but the life expectancy of individuals is associated with their socio-economic status. A higher level of affluence, that is also associated with a higher level of education and income, mostly results in a longer life, and therefore a collection of pension payments over a longer time – a trend that will continue in the future. As a consequence, pension systems that have been conceptualized as progressive, will become regressive, i.e. a redistribution from the poor to the rich population segments takes place. Pension reforms are necessary, but they must take into account, that different population groups benefit from the pension system in very different ways.

estimate these losses for Austria in the short run, the first approximation is to compare the current GDP with the corresponding forecasts from before the outbreak of the pandemic. For Austria, this resulted in a difference of around 33 billion Euro by the first quarter of 2021. Since then, a high level of consumption growth has fueled the economy, while another lockdown in Nov/Dec 2021 has led to a short-term slump.

Compared to these short-term economic consequences the question arises, what is the long-run economic burden of the COVID-19 pandemic? To estimate the macroeconomic costs under a herd immunity approach (absence of behavioral or policy responses) in the USA, we have developed a detailed macroeconomic model that factors in reduced labor supply due to COVID-19, and production losses caused by a pandemic-related decline in investments. Depending on the assumptions made regarding the impairments due to Long Covid and how the suffering of those affected is quantified, the economic burden in the USA under the herd immunity approach could be up to 94 trillion US\$ over the 10-year time span 2020–2030.

CONTACT

Michael Kuhn
IIASA
kuhn@iiasa.ac.at

Klaus Prettnner
OeAW and WU Vienna
klaus.prettnner@wu.ac.at

Alexia Fürnkranz-Prskawetz
IIASA, OeAW and TU Vienna
alexia.fuernkranz@oew.ac.at

Web: www.wittgensteincentre.org
Email: press@wittgensteincentre.info
Twitter: [@WiCVienna](https://twitter.com/WiCVienna) (English) | [@demografie_wien](https://twitter.com/demografie_wien) (German)

PUBLICATIONS

- Abeliansky AL, Prettnner K (2021) Population growth and automation density: Theory and cross-country evidence. VID WP 02/2021. Wien: ÖAW.
- Bloom DE, Kuhn M, Prettnner K (2019) Health and economic growth. In: Oxford Encyclopedia of Economics and Finance. Hrsg. Hamilton JH, et al., 1-25. Oxford: Oxford University Press.
- Bloom DE, Kuhn M, Prettnner K (2020) The contribution of female health to economic development. Economic J, 130(630): 1650-1677.
- Bloom DE, Kuhn M, Prettnner K (2022) Modern infectious diseases: Macroeconomic impacts and policy responses. J. of Economic Literature 60(1), 1-47.
- Chen S, et al. (2021) The economic burden of COVID-19 in the United States: Estimates and projections under an infection-based herd immunity approach. J of the Economics of Ageing 20(C).
- Chen S, et al. (2021). Macro-level efficiency of health expenditure: Estimates for 15 major economies. Social Science & Medicine 287: 114270.

- Hammer B, Spitzer S, Prskawetz A (2021) Age specific income trends in Europe: The role of employment, wages, and social transfers. Soc Indic Res.
- Sanchez-Romero M, Schuster P, Prskawetz A (2021) Redistributive effects of pension reforms: Who are the winners and losers? ECON WPS 06/2021.
- Siskova M, et al. (2022) Does human capital compensate for depopulation? VID WP 02/2022. Wien: ÖAW.

RESEARCH PROJECTS

- Ageing Europe: An application of National Transfer Accounts (NTA) for explaining and projecting trends in public finances <http://www.agenta-project.eu/en/index.htm>. NTA Daten für Europäische Länder finden sich auf www.wittgensteincentre.org/ntadata
- National Transfer Accounts – Understanding the generational economy. www.ntaccounts.org