The Return of Scarcity

Thieß Petersen

Over the last three decades, material wealth has increased worldwide. This is largely owing to a global economic order facilitating free trade, a rising share of the working age population on both sides of the equator and the exploitation of cheap primary commodities, such as fossil fuels. All three factors are, however, bound to change in the years to come, which in turn is likely to inhibit prospective growth in aggregate output.

Inflation has not been a pressing issue for policy makers in the Western world throughout the last three decades. Even after the global financial crisis (GFC), when every major central bank has considerably expanded monetary supply for several consecutive years, inflation rates still reached values below two percent. Also, scarcity manifesting itself as excess demand on various goods markets has been referred to as a problem globalization already solved. As a matter of fact, in the last three decades there has not been an inflationary price upsurge due to excess demand until the outbreak of the COVID-19-pandemic. The latter caused abrupt interruptions of global value chains (GVCs) and supply bottlenecks on consumer markets, which led to considerable economic upheaval and soaring prices in Europe and in the US. This is aggravated by the war in Ukraine, which fuels the average rise in prices.

Many economic areas are expected to suffer from increasing scarcity, which in turn will most likely cause inflation to increase. Both scarcity and inflation stage a comeback and appear to be “here to stay”. The result may be that distributional conflicts within and between countries may become more frequent as well as more severe.

Growth, prosperity and GDP

The worldwide increase in material wealth can be seen in the rise in real gross domestic product (GDP) – not only in absolute terms, but also per capita (see Fig. 1). GDP is the traditional indicator for measuring a country’s economic performance. It is a macroeconomic statistic that measures the total value of all physical goods and services produced in a country in a given year. Adjusted for inflation, the total value of goods and services is called real GDP. Despite all its shortcomings, it provides an economic snapshot and still is the key

indicator for economic performance in political debates. GDP guides strategic decisions made by both policy makers and businesses. Also, scientists make use of the GPD to estimate the size as well as the growth rate of a country.

Globally, the share of this age group in the total population rose from some 57 percent in 1965 to just under 66 percent in 2015 (see Fig. 2). The increase was particularly pronounced in Asia.

FIGURE 1:

Change in real GDP per capita between 1990 and 2021

In US dollar, purchasing power parity, constant prices

Region	1990	2000	2010	2020	2021	Change
G7 states	36.701	44.165	47.594	50.616	53.193	+ 45 %
European Union	29.992	35.015	39.463	42.121	44.204	+ 47 %
Emerging and developing countries in Europe	17.016	13.287	20.470	25.503	26.992	+ 59 %
Latin America and Caribbean	10.930	12.568	15.041	14.290	15.070	+ 38 %
Emerging and developing countries in Asia	2.011	3.387	6.735	10.934	11.633	+ 478 %
Middle East and Central Asia	8.463	8.758	10.921	10.827	11.013	+ 30 %
Sub-Saharan Africa	2.926	2.770	3.663	3.811	3.856	+ 32 %

Source: IMF 2021 (Data accessed March 27, 2022) | BertelsmannStiftung

Aiming for higher GPD growth is deemed to be desirable as a larger aggregate output goes hand in hand with more products and services, i.e. housing, clothing, food, transport, leisure activities hospitals, schools etc. Furthermore, empirical evidence shows that GDP growth moves in tandem with life expectancy at birth and personal freedom. It is, however, important to note that a high GDP should not be considered to be an end in itself, but merely a means to a decent, self-determined life with the greatest possible opportunities for participating in society (see Pies 2020: 18).

Three drivers are primarily responsible for the global increase in material wealth: the growth-promoting demographic structure on both sides of the equator (rising share of the working age population); ongoing globalization and with that, gains in specialization due to the international division of labor; and the availability of inexpensive natural resources.

Growth-friendly demographic structure

One factor that determines the level of real GDP per capita is the extent to which available labor resources are being used. Put another way, GDP growth is associated with a high employment rate. The latter constitutes a ratio of the employed to the working age population, which in turn is commonly referred to as people aged 15 to 64.

A growing working age population is tantamount to a growing labor supply. This in turn leads to a decrease in average labor costs, commonly known as wages. Companies are then more willing to enlarge production capacities by hiring additional workers.

In exchange for their labor power, workers receive an income. A certain share of this income is, however, not spent on consumption. Instead, employed people tend to save a certain share of their earnings. Their savings rate is considerably higher than those of retirees or young people. Ergo, if the working age population constitutes a large proportion of the entire population, the economy is more likely to have a high savings rate, which is a precondition for overall investment (see Petersen et al. 2020: 960–962). Investment is key for productivity improvements, since innovation at the workplace, research and development and new machines hinges on firms' ability to raise funds under uncertainty.

All these factors interact, and the overall result is that a high (or increasing) share of working-age people usually leads to a high (or increasing) level of material prosperity per person.

Global reduction of trade barriers

In recent decades, customs duties have fallen considerably worldwide. Shortly after the end of

the Second World War, duties averaging 40 percent were still being imposed on cross-border trade. Since then, import duties have fallen sharply, amounting to less than 4 percent at the beginning of the 1990s.

Globalization gathered pace after the so-called Iron Curtain in 1989 had fallen. Eastern European economies gradually integrated into the international division of labor. Cross-border trade in goods and services, technology and flows of investment further intensified when China joined the World Trade Organization (WTO) in 2001.

The growing interdependence of the world´s economies, cultures and populations can spur GDP growth through various channels. Firstly, following one's comparative advantage while committing to dismantle trade barriers may increase the efficiency of the domestic factors of production. If every country specializes in producing goods, they are experts in, then all countries will experience the gains from this specialization, because they do use time and resources efficiently, thereby further accumulating capabilities.

Besides that, the ability to move factors of production – labor or capital – out of one production process into another, they can be deployed where they make the greatest contribution to the value creation process, thereby filling resource gaps. This may be especially important for regions where capital is scarce.

For the global economy, this means that a larger quantity of products and services is available, for which consumers pay a lower price.

Exploitation of allegedly abundant and cheap environmental resources

A third key driver of economic growth in recent decades has been the use of natural resources at a price that does not reflect all the costs associated with the consumption of those resources. The burning of fossil fuels such as oil, gas and coal results in the emission of greenhouse gases, thus causing global warming and climate change.

This results, inter alia in extreme weather events (heat waves, droughts, storms, etc.) which in turn damage buildings and infrastructure; an increase in heat-related deaths; severe consequences for ecosystems (e.g. mass extinction of animal and plant species); more forest fires; declining crop yields; and more acidic oceans due to greater concentrations of carbon dioxide (CO_2). The economic costs arising thereby are not – or only partially – included in market prices. In other words, the price consumers pay does not reflect the actual costs of the product. Since these additional costs are not included, there is an overuse of natural resources.

New challenges lurking beneath the surface

The economy is dynamic, constantly changing and chaotic, rather than always tending towards a state of equilibrium. So are the circumstances in which societies allocate resources to make a living. Most of the growth-promoting factors outlined above will soon change to the contrary. Or have already changed.

Rising life expectancy meets declining fertility

As discussed above, when a greater share of the overall population is of working age, it has a positive effect on real GDP per capita. Figure 2 shows, however, that this demographic group has been shrinking worldwide as a share of total population since 2015 – especially in Europe. Consequently, as the population ages, the growth-enhancing effects described above also diminish.

An age-related labor shortage means fewer production possibilities. The disposable incomes of those individuals who have reached retirement age are lower than those earned by people still in the workforce. This reduces the opportunities retirees have to save. For the economy as a whole, this is equivalent to a decline in savings, which results in fewer investment. A decline in investment has a negative impact on aggregate output as well as on labor productivity.

In addition to that, investment is also expected to decline on a global level due to population growth. According to estimates by the United Nations, the global population will increase from 7.7 to 9.7 million people between 2019 and 2050 (see United Nations 2019). A larger global population means greater demand for consumer goods. If scarce production resources are then used to manufacture consumer goods, then those resources will no longer be available to manufacture machines and other capital goods.

The greater demand for consumer goods will have serious consequences for those areas where the limited access to resources makes it impossible to expand supply as needed. Scarcity will increase which is followed by rising prices. This specifically applies to land and thus the production of food and the provision of housing.

Deglobalization and geopolitical conflicts are on the rise

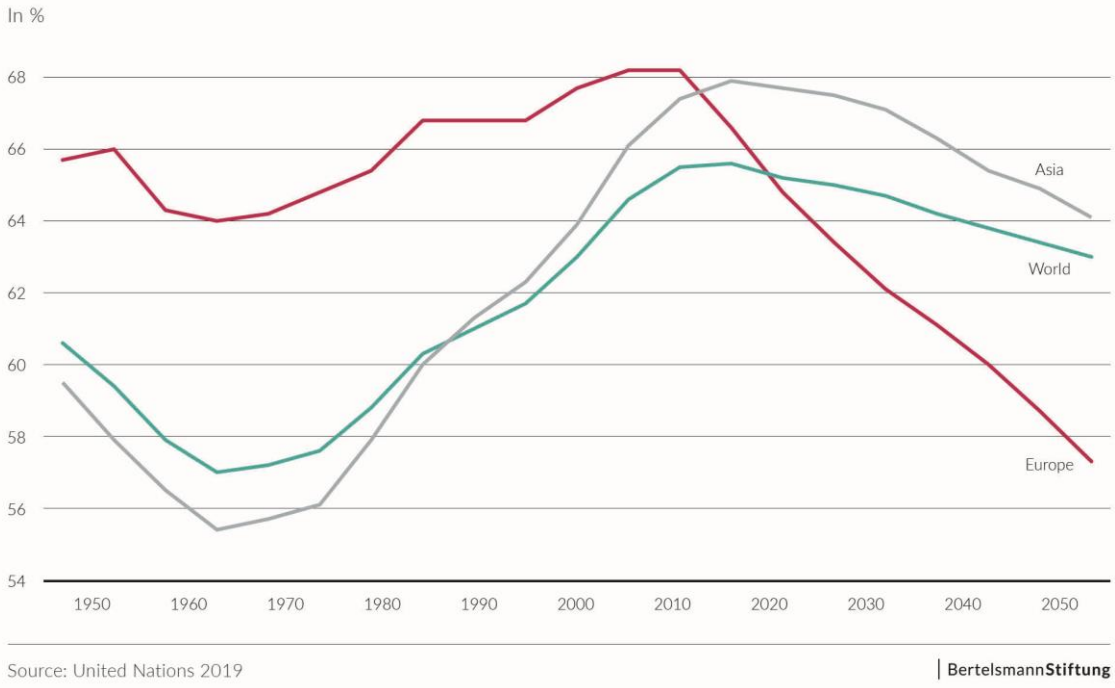
Protectionist measures have becoming significantly more popular in the recent past. The use of restrictions on Foreign Direct Investment (FDI), domestic clauses in public procurement or non-tariff barriers has risen in the last few years. An overall surge in trade distortion is observable. A lot of signs indicate that this trend is to be continued. This, however, limits the potential gains from specialization. Apart from customs duties, protectionist measures include so-called non-tariff trade barriers, such as bureaucratic requirements, technical specifications, or quantity limits. These trade barriers have been increasing since the global financial and economic crisis in 2008. Since crises tend to be followed by protectionist moves, the COVID-19-pandemic has made trade barriers more popular, with many countries restricting exports of essential medicines, respirators and food in order to prevent shortages at home.

nological leadership or to increase the zone of influence – with increasing frequency, as the geopolitical landscape has undergone significant changes. The still ongoing trade war between the US and the Peoples Republic of China constitutes a case in point. Apart from reducing their massive trade deficit, the US also aimed at maintaining their pole-position in key future technologies. Due to the fact that geopolitical tensions have increased further in recent years, there is reason to believe that a growing number of economies will use trade policy more and more as a tool to promote their own political interests. In addition to customs duties and non-tariff trade barriers, potential instruments include inter alia sanctions, export restrictions and export bans (see Görg and Kamin 2021: 854 f.).

The war in Ukraine is also likely to fuel the ongoing restriction of free trade. A new economic order might emerge comprising of mainly two blocs – on the one side, democratic, market-oriented countries in Europe, the Americas, Oceania and Asia (i.e. Japan and South Korea) and, on the other

FIGURE 2:

Change in the share of 15- to 64-year-olds in the overall population between 1950 and 2050 globally, in Europe and in Asia



Moreover, an increasing ‘geopoliticization’ of trade is observable since the 2010s. Major trading blocs, such as the US, the EU or China, also use trade policy as a tool to promote strategic interests – i.e., protecting national security interests, tech-

side, authoritarian states (China, Russia and their main trading partners). A third bloc could also emerge comprised of countries such as India that attempt to avoid being classified as clearly belonging to one group or the other and which try to maintain economic relations in both spheres.

Rising CO_2 prices, supply chain disruptions and the desire for self-sufficiency in key technological areas all suggest that there will be increased reshoring, i.e., the repatriation of production processes from distant low-wage countries to Germany or Europe.

Climate change and decarbonization

Both climate change and policies geared towards mitigating its effects tend dampen growth while at the same time aggravating scarcity in various areas.

Climate change diminishes the global production of consumer goods through at least three channels: first, through the destruction of physical production facilities, transportation routes and other important infrastructure components due to extreme weather events, such as heavy rainfall and flooding, heat waves, droughts and storms; second, through climate-related crop losses resulting from water shortages, droughts, storms and flooding; and third, through a growing shortage of water in general. The latter not only refers to lack of drinking water or water for agricultural production, but also water needed to cool production facilities, and production processes requiring large amounts of water, such as those used in the chemical, metalworking, food and paper industries.

Another important point is that the transformation of our mode of production requires extensive investments in order to create climate-neutral public and private infrastructure for production and transportation. This is expected to tie up a considerable share of productive resources (i.e. machinery and labor), which in turn will no longer be available for manufacturing consumer goods. Diverting resources to climate change mitigation or adaptation measures might have a negative impact on the supply of consumer goods.

Moreover, as the ecological transformation proceeds, biofuels will increasingly be substituted for fossil fuels. Consequently, there will be greater demand for grains, plant-based oils, soyabeans, corn and other agricultural products, which can no longer be used to feed people. In light of the ongoing rise in the global population, this will result in greater food shortages.

Policy responses to address upcoming issues

If both scarcity and inflation are “here to stay”, the result may be that distributional conflicts within and between countries become more frequent as well as more severe. To address these issues, economic policy should facilitate the production of sustainable goods to address prospective scarcities and put greater emphasis on mitigating adverse effects arising therefrom. The report identifies five different fields of action together with concrete measures:

#1 Productivity is key for addressing scarcity over the course of the green transition:

The structural transformation towards a carbon-neutral economy bears the challenge of various factors of production – such as labor, natural resources or energy – becoming increasingly scarce, which in turn can lead to excess demand. One way to address this issue is to increase output by improving productivity. This might be achieved by a coherent policy mix consisting of – amongst other things – facilitating human capital investment, incentivising research and development in promising areas and ramping up private and public investment.

Productivity gains will also arise from the widespread and systematic use of digital technologies in the production process. Even though the digital age can be observed everywhere but in the productivity statistics, there is scientific consensus that the thorough integration of the tools the 4th industrial revolution brought forth, will ramp up firms’ productivity. Digital production technologies, to take a single example from the manufacturing industry, merge the digital and the physical realms of products and production via sensors, thereby providing live information on how efficient machinery is used or when maintenance is due. What is commonly known as Internet of Things (IoT) can improve working capital management dramatically. Besides that, artificial intelligence (AI) enables companies to automate increasingly complex tasks, thereby unlocking new potential to accelerate innovation (Andreoni and Anzolin 2019).

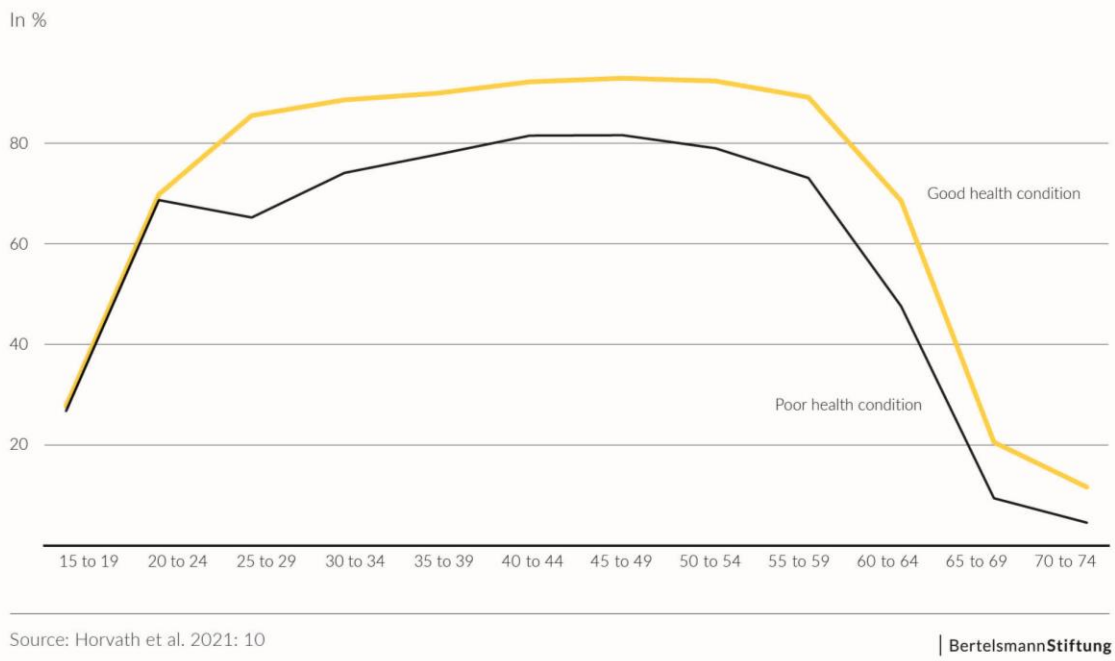
#2 Raising the labor force participation is crucial to counter bottlenecks on the labor market:

The demographic structure of many advanced economies and regions in the Global North will most likely lead to bottlenecks on the labor market. Thus, Western economies, especially on the European continent, would be well advised to rearrange their institutional tool-box – updating the educational system, revising migration-laws or labor market policy – and increase public health, so that the needs of business and households can be fulfilled.

Health constitutes a key factor in an individual´s ability to acquire new skills and knowledge. The

latter determines one´s human capital, which is related to one´s productivity and the demand for his or her labor. Ergo, there is an intimate and empirically observable correlation between health and labor force participation. In Germany, to take a single example, a glance at the labor force statistics reveals that, labor force participation is significantly higher among those who have been given a clean bill of health. (see Fig. 3).

FIGURE 3:
Labor force participation rates by health status and age in Germany in 2016



Source: Horvath et al. 2021: 10 | BertelsmannStiftung

Another proposal to increase overall labor supply is a reform of the tax system, that incentivizes secondary wage earners to extend working hours. It is expected that this could considerably increase female labor participation (see Blömer, Brandt and Peichl 2021: 8).

#3 Filling the renewable-energy-gap with imports and intensifying multilateral action to combat climate change makes good economic sense:

Climate change forces societies all over the world to decarbonize their economies. In this transformation the energy-system plays a pivotal role. The prevailing opinion among experts is that renewable power sources should be at its core in the future. Although building up indigenous capabilities to produce carbon-free energy is undoubtedly important, it may be more efficient to fill renewable-energy-gaps with imports from countries where solar, wind and other renewable energy sources are abundant. A smart mix of imports and domestic energy generation can minimize the costs arising from the decarbonization efforts.

Policies geared towards climate neutrality are – at least in the short run – expected to scale up the costs for primary materials as well as for the transportation of goods. Therefore, some argue that the path to net-zero goes hand in hand with a decrease in international trade. However, it is also conceivable that the fight against climate change spurs the international division of labor. In order to cope with this Herculean task, national governments could pool forces, thereby re-writing the rules of international trade and investment. Advancing multilateral cooperation in climate action may translate into policy instruments, such as multilateral funds to reduce greenhouse gas emissions (GHG) globally. The latter can kill two birds with one stone, as funds might be directed to areas where capital is scarce. This in turn not only makes decarbonization economically more attractive but also lays the foundation for prospective demand for sustainable goods and services.

#4 Supporting lower-income households to mitigate adverse effects arising from scarcities:

Once a good or a service becomes scarce, its price is expected to rise. Although a rise in prices negatively affects the disposable income of all households, not every household is hit equally. What matters is the price elasticity of demand.

The demand for energy, to take a single example, may well be referred to as inelastic. An increase in the cost of energy disproportionally affects lower-income households, as they have to spend larger proportion of their income on energy for heating, cooking etc. To mitigate adverse effects arising from scarcities, lower-income households should, thus, be supported with tax cuts or need-based transfers. The latter can take the form of a payment or a tax relief for households whose annual income does not exceed a predefined threshold (see Baumgartner et al. 2022: 9).

One should also take public investments, e.g. in green public transport, into consideration. Investments in a more equitable and cleaner transport system would address two of the most critical issues of our time. Firstly, clean transportation investments will be a determining factor in reaching climate goals. The modal shift towards ecologically more sustainable means of transport is, however, not only conducive for the environment. Especially lower-income households benefit from greater investments in an accessible public transport system, as their tight budget-restriction make use of private means of transportation impossible. An attractive and affordable system of transport enhances mobility for lower-income households both in the literal sense and with regard to the social ladder, as it promotes independence and higher spending on other essentials. A case in point is the Viennese “365-Euro-Ticket”, a flat fee public transport ticket that entitles the holder to use all means of public transport within Vienna for exactly 365 days at the price of €365 (see BUND 2017: 9).

#5 Putting an end to consumerism is part and parcel of the policy mix to deal with increasingly scarce resources:

The prevailing consumption habits in most advanced and emerging economies are the result of a growth model that relies on carbon-intensive and ever-increasing production. They are ecologically unsustainable and counteract other efforts to cope with increasingly scarce resources. For that reason, policy makers should resort to tools nudging households towards resource-efficient consumption and promote ecologically sustainable lifestyles.

As behavioural sciences have shown, very often people do not act on well-informed preferences. Instead, they rely on habits, mental shortcuts and are biased. In case a potentially harmful behaviour – such as environmentally harmful consumption – is the result of the very same biases or habits, citizens can be “nudged” toward actions that are more beneficial for society. Habits are both powerful and malleable. Experimental evidence from Scandinavia shows that, if vegan food is presented as a default option or listed on the top of the menu, meat-eaters order vegan meals more often. Apart from facilitating ecologically sustainable consumption, providing information at the time when decisions are usually made, might also have a similar effect. Another Swedish study shows that, information about the energy cost of tumble driers presented on labels in store contributed to a decrease in energy consumption among the sold driers. Ergo, nudges constitute promising policy tools for facilitating a more sustainable consumption. Citizens´ can be influenced without restricting freedom of choice or imposing mandatory obligations (see Lehner et al 2015).

References

Andreoni, A., Anzolin, G., (2019). A revolution in the making? Challenges and opportunities of digital production technologies for developing countries. UNIDO – Inclusive and Sustainable Industrial Development Working Paper Series WP 7, Vienna.

Baumgartner, J., G. Felbermayr, C. Kettner-Marx, A. Köppl, D. Kletzan-Slamanig, S. Loretz and M. Schratzenstaller (2022). "Stark steigende Energiepreise – Optionen für eine Entlastung von Haushalten und Unternehmen". WIFO Research Briefs 6/2022. Vienna.

Bertelsmann Stiftung (ed.) (2022). Megatrend-Report #4: Die Rückkehr der Knappheit – Wie globale Demografie, Deglobalisierung und Dekarbonisierung Verteilungskonflikte verschärfen. Gütersloh.

Blömer, Blömer, M., P. Brandt and A. Peichl (2021). Raus aus der Zweitverdienerinnenfalle – Reformvorschläge zum Abbau von Fehlanreizen im deutschen Steuer- und Sozialversicherungssystem. Bertelsmann Stiftung (ed.). Gütersloh.

BUND (Bund für Umwelt und Naturschutz Deutschland) (2017). *Perspektive Deutschland 2030: Suffizienz in der Praxis.* Berlin.

Görg, H., and K. Kamin (2021). "Globalisierung trifft Geoökonomie". Wirtschaftsdienst (101). 854–857.

Horvath, T., S. Kaniovski, T. Leoni, M. Lizarazo López, T. Petersen, M. Spielauer and T. Url (2021). *Effekte von Bildung und Gesundheit auf Erwerbsbeteiligung und Gesamtwirtschaft im demografischen Wandel.* Bertelsmann Stiftung (ed.). Gütersloh.

IMF (International Monetary Fund) (2021). World Economic Outlook Database – October 2021 Edition. (https://www.imf.org/en/Publications/WEO/weo-database/2021/October/).

Lehner, M., Mont, O., Heiskanen, E. (2015) "Nudging - A promising tool for sustainable consumption behaviour?". Journal of Cleaner Production, Volume 134, Pages 166-177, https://doi.org/10.1016/j.jclepro.2015.11.086

Petersen, T., M. Lizarazo López, S. Kaniovski and T. Url (2020). "Makroökonomische Folgen der demografischen Alterung – Simulationen für Deutschland, Japan und die USA bis 2050". Wirtschaftsdienst (100). 958–963.

Pies, I. (2020). "Joe Kaeser, Luisa Neubauer und die Moral der Klimapolitik: Ordonomische Reflexionen zur Wirtschafts- und Unternehmensethik". Discussion Paper No. 2020-02, Martin-Luther-Universität Halle-Wittenberg, Lehrstuhl für Wirtschaftsethik. Halle (Saale).

United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1. (https://population.un.org/wpp/).

Imprint

© Juni 2022
Bertelsmann Stiftung
Carl-Bertelsmann-Str. 256
33311 Gütersloh

Contact

Dr. Thieß Petersen
Senior Advisor
Program Sustainable Social Market Economies
Bertelsmann Stiftung
Phone 05241 81-81218
Mobile 0173 71 63 044
Fax 05241 81-681218
thiess.petersen@bertelsmann-stiftung.de
www.bertelsmann-stiftung.de

Cover picture
© appledesign – stock.adobe.com