



Wirtschaftliche Untersuchungen,  
Berichte und Sachverhalte



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## Inequality revisited

An international comparison with a special focus on the case of Germany  
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## Executive Summary

Both income and wealth are unequally distributed around the world and by far not all people have equal access to education, health, and prosperity. Nevertheless, the world has made great progress towards a better and more inclusive place in recent decades and was especially successful in combating extreme poverty. But it is also true that positive changes have not occurred everywhere, and many successes are now jeopardized by the Corona pandemic. The report highlights some major global trends before analysing the situation in Germany in more detail.

### Global inequality

- **Global income inequality** has changed significantly over the past 200 years resulting in a more equal distribution of global income and less extreme poverty. The 19<sup>th</sup> century is characterized by the rise of Western countries through industrialization, while the 20<sup>th</sup> century is marked by advances in South-East Asia. In the first period, global income inequality increased, while it has decreased in the second period when populous countries such as China and India began their catch-up process. Since the late 1980s, global income inequality measured by the Gini coefficient decreased from 0.68 in 1988 to 0.62 in 2013 due to narrowing income gaps between countries around the world (the Gini coefficient can be expressed on a 0 to 1 or 0 to 100 scale). At the same time, though, the contribution of within-country inequality to global inequality has increased.
- **Global earnings inequality** follows similar patterns as global income inequality. The respective Gini coefficient has decreased from around 0.7 in the 1970s to around 0.6 by the year 2015. The largest reduction took place in the late 90s and 2000s. The main driver of equalizing global earnings was a reduction of earnings inequality between countries, while earnings inequality within countries increased on average. The effects of the Corona pandemic are uncertain yet. Although some vulnerable groups like low-skill workers are hit harder by the crisis than other groups, government support can mitigate some of the negative effects on incomes. Hence, it is not clear so far, how global earnings or income distribution will be affected in the short- and long-run.
- **Global net wealth inequality** has constantly decreased since 2000 according to data from the Credit Suisse Global Wealth Databook: the Gini coefficient decreased from around 91.9 in 2000 to 88.5 in 2019. At the end of 2019, North America and Europe accounted for 55 per cent of total global net wealth, while they represented 17 per cent of the world adult population. It is also most Europeans and North Americans who belong to the top 10 per cent of the global rich. Nevertheless, although wealth is still far more concentrated than income, the economic rise of Asia, and China in particular, has contributed to a discernible reduction in global net wealth inequality: In 2000, the net wealth share of the top 10 per cent amounted to 88.5 per cent but decreased to 81.7 per cent in 2019. In contrast, the net wealth share of the top 1 per cent remained almost unchanged and has been varying around 45 per cent.

- Ending **global extreme poverty** by 2030 is the foremost goal of the United Nations and large progress has been made during the last decades. Global extreme poverty decreased substantially from 42 per cent in 1981 to 10 per cent in 2015 if measured as the percentage of the global population living on less than \$1.90 a day at 2011 PPP dollar. This is slightly more than 700 million people in 2015 living in extreme poverty compared to 1.9 billion people in 1981. Using a higher poverty threshold of \$3.20 (\$5.50) a day also shows a significant reduction of poverty from 57 (66) per cent in 1981 to 26 (46) per cent in 2015. China and India contributed to a large extent to this success story, since economic integration and productivity growth were able to lift people out of extreme poverty. However, productivity growth has slowed down since the financial crises and accompanied output losses imply large, missed opportunities for more rapid poverty reduction. The COVID-19 pandemic will likely further decelerate productivity growth and will be a threat to the achievement of the reduction of (extreme) poverty. Thus, the pandemic and the associated loss of income could even increase global poverty for the first time in more than 30 years and reverse the progress of previous years.

### The case of Germany

- As in many developed countries, **net income inequality** measured by the Gini coefficient is higher in Germany today than it was in the 1990s. It increased from 0.25 in 1991 to 0.29 in 2017 according to household panel data from the Socio-Economic Panel (SOEP). The rise in net income inequality predominantly occurred between the late 1990s and 2005. Since 2005, inequality in net incomes remained almost unchanged, a year that represents a turning point in the development of income inequality in Germany. Compared to other countries, Germany still exhibits a relatively equal distribution of net incomes. Among the member countries of the Organisation for Economic Co-operation and Development (OECD) countries, values of the Gini coefficient vary between 0.25 in more egalitarian countries like the Slovak Republic and 0.50 in more unequal countries like Costa Rica.
- Germany is certainly not a role model in every socio-political area and has some fairness deficits, as well. When it comes to **educational mobility**, for example, pupils are segregated relatively early in their school careers, which is likely to limit educational opportunities of children from less well-off families who are comparatively less likely to acquire a university degree. However, Germany manages to compensate for some of these disadvantages through its dual vocational training system, which enables people without a college degree to pursue well-paid professions. A career as a skilled worker is, thus, a good alternative to a bachelor's degree. This is also a major reason why Germany performs rather poorly in terms of educational mobility but shows significantly better results in terms of **income mobility**; an often-used indicator of equal opportunities. According to comparative studies, Germany ranks in the midfield among industrialized nations. In addition, it is more mobile in terms of labour income than the United States (US) in both absolute and relative terms.
- **Net wealth inequality** has remained comparatively stable over the past decade in Germany, too. The Gini coefficient of individual net wealth has been varying around 0,78 since 2002. The stable trend in net wealth inequality is observed in a period of low interest rates and

rising asset prices, which mainly resulted from the loose monetary policy after the financial and economic crisis in 2008/2009. In particular, the value of owner-occupied real estates has strongly increased during the last ten years, especially in urban areas. Since owner-occupied real estate is the major wealth component of the middle class, they were able to benefit relatively strongly from rising real estate prices. In contrast, business assets are particularly important at the top of the wealth distribution but are often not covered very well in household surveys. By now, there are various attempts to estimate the missing wealth at the top from rich lists. The results show that the share of the top 10 per cent is underestimated, while time trends are rather robust to top-wealth-adjustments. In international comparison, wealth inequality in Germany is rather high. However, comparatively high wealth concentration is rather typical for those European countries which are characterized by generous welfare state, below-average net income inequality and high levels of living standard.

- Although there is no commonly accepted definition of **the German middle class**, most approaches that try to operationalize this group rely on income related measures and define income boundaries relative to the median net income of the population. Using the IW-income-classes it can be shown that the development of the middle class since reunification can be divided into three phases: During the East German catch-up process, the share of the middle class in the narrow sense initially increased from 50.4 to 54.7 per cent until its peak in 1997. By 2005, its share had fallen again to 50.1 per cent, and barely changed since then: The share of the population in the middle class in the narrow sense equals 49,4 in 2017 which is very close to the middle class share in 2005.

### Determinants of inequality in Germany

- Income and wealth inequalities are caused by many factors and originate from different sources. Thus, the effect of each factor on the macro and micro level is difficult to identify and many factors depend on each other. One important factor is the **primary distribution of income**, namely the distribution between capital and labour. Contrary to the common belief, the share of labour income is not constantly decreasing. In fact, after a sharp decline from about 70 per cent in 2003 to 64 per cent in 2008, the labour income share recovered after some ups and downs following the 2008 financial crisis and, with a share of around 72 per cent in 2019, is at a level similar to the 1990s. At the same time, there is no clear relationship between the evolution of the labour income share and the distribution of market incomes, that is a higher labour income share does not automatically correspond with a more equal distribution of market incomes. In contrast, the comparison of changes in the distribution of market incomes and gross hourly wages over time reveals more similar trends, but differences remain here, too. Inequality in both market incomes and gross hourly wages increased between 1991 and 2005/2006. While gross wage inequality has slightly declined in the following years, market income inequality remained almost unchanged.
- The introduction of the statutory **minimum wage** in Germany in 2015 increased gross hourly wage rates for low-income earners, especially in Eastern Germany. This did not result in an unambiguous lower level of market income inequality, though, merely due to working hours adjustments. Compared to other EU countries, the low-wage sector is rather pronounced in

Germany, while youth unemployment and unemployment among the less-educated is comparatively low. Furthermore, even when accounting for purchasing power differences, wage levels in Germany are comparatively high. With respect to time trends, there were no further remarkable changes of the low-wage sector nor of atypical employment since 2007.

- Another factor that influences the trends in market and disposable income inequality is the change in the **composition of the population**. For example, a rising number of single households in Germany has increased inequality in disposable incomes. Migration from Eastern Europe since 2010 as well as the influx of refugees from 2015 onwards also had an impact on the development of inequality and counteracted decreasing inequality trends in recent years, since most migrants and refugees first belong to low-income groups when entering the country. This is reflected, among other things, by the observation that at-risk-of-poverty rates are higher for persons with a migration background and that poverty risks have increased among this group in recent years. Meanwhile, the share of low-income earners without migration background has been constant or has even declined in some age groups. Counterfactual analyses reveal that when isolating the increase in employment since 2005, it would have resulted in decreasing inequality.

### COVID-19 and income inequality in Germany

It is yet not clear to what extent the Corona pandemic will change existing income inequalities. With respect to the worldwide development, analyses project that the pandemic will likely increase income inequality and poverty since job losses could disproportionately affect the income and labour participation of low-skill workers. However, the impact of the pandemic also depends on the measures taken by local governments to counteract the negative effects of the crisis. Hence, **market and disposable incomes can be affected very differently**. Whether the pandemic will result in long-lasting negative effects does also depend on its duration and whether a quick economic recovery is feasible or not.

Despite these uncertainties, first simulation results for Germany show that market incomes per capita could have decreased by around 6 per cent in 2020 compared to 2019 and that individuals in lower income groups suffered the greatest losses in relative terms. However, the losses in disposable incomes were much smaller – less than 1 per cent on average –, since the automatic stabilizers of the social security system like unemployment benefits but also additional measures like short-time work allowances (*Kurzarbeitergeld*) helped to cushion income losses. Overall, while the Corona pandemic is expected to increase market inequality in Germany, simulation analyses suggest no change of disposable income inequality in the short run. However, long-run effects of the Corona pandemic on income but also wealth inequality are still highly uncertain. Similar results can be found for other European countries.

### The inequality-growth-nexus

The relationship between inequality and growth regained renewed interest when the International Monetary Funds (IMF) and the OECD closely in time published to studies on this topic in the year 2014. Their results implied that economic growth is negatively affected by income inequality and there is no trade-off between equity and efficiency. However, the results heavily

depend on model assumptions, for example by assuming a linear relationship between both dimensions. If non-linear relationships are considered it becomes apparent that the negative effect of increasing inequality on economic growth crucially depends on the initial level of inequality, the level of economic development of countries, and the scope of redistribution by taxes and transfers. According to a global comparison of 113 countries, up to a value of the Gini coefficient of 0.35, rather a positive correlation between inequality and growth can be presumed. If this threshold value of inequality is exceeded, rather negative consequences of increasing inequality on economic growth can be expected.

## 1 Introduction

Many debates about the distribution of income and wealth are highly political and lack a comprehensive view of the facts. Two big challenges in international comparisons are the availability of appropriate data and the great heterogeneity of countries, which differ in many ways: Be it their general level of development in terms of GDP per capita, their population structures, or the extent of social security systems. It is precisely these differences that highlight the need for a differentiated debate guided by facts, since looking at different dimensions of inequality can lead to very different assessments of the extent of inequality. Ultimately, however, the question of how much inequality in income, wealth, health, education, or opportunity is optimal for a society will always remain a normative one.

As Anthony Atkinson has made very clear in his book "Inequality. What can be done?", the question to be answered first is which inequalities one is talking about and among whom (Atkinson, 2015). Different delineations of income can yield sometimes large differences in the extent and evolution of inequalities. Accordingly, one can distinguish between market, gross, and net incomes of households or individuals, which reflect very different aspects of economic opportunities and consumption possibilities. For example, if market incomes were considered alone, redistribution through taxes and transfers would be neglected. But it is precisely for the very young and the very old, or for the sick and those unable to work, that transfers represent essential parts of their income from which they make their living, and which are an expression of solidarity-based redistribution from the strong to the weak – at least in well-established welfare states. Thus, from a welfare-theoretical perspective, an examination of net incomes provides a better approximation of the distribution of economic resources and opportunities in a country than market incomes. Since social security systems vary largely between countries, differences in these systems, for example in pension systems, should always be considered carefully in inequality analyses. Equally important is the question of whether to look at the individual or household level, since in many cases intrafamily redistribution of resources and mutual protection against life risks already takes place in the household even before the state intervenes.

In this report, we attempt to provide an overview of the current trends in income and wealth inequality in Germany and the world. In doing so, we not only describe the income and wealth concepts used and their differences from one another, but also address the challenges of comparing different countries, which is difficult in many cases due to a lack of suitable and harmonized data. In detail, we will first discuss the differences in the extent and evolution of inequality in high-, middle-, and low-income countries and then turn to the specific developments in Germany. Regarding low-income countries, it stands out that the fight against extreme poverty was very successful in the decades before the Corona pandemic and large progress was made in providing sufficient resources to the poor to cover basic needs. However, extreme poverty is still not abolished and the fight against it should continue to have the highest priority to achieve the number one goal of the United Nations (UN) Sustainable Development Goals (SDG) by 2030. Action is especially needed in Sub-Sahara Africa and new challenges from the Corona pandemic are threatening former achievements. Furthermore, there was large convergence between mid-



dle- and high-income countries starting around the 1990s, which led to a decline in global inequality and lowered between country inequalities. The economic rise of China and other South Asian countries are main drivers of this development. At the same time, income and wealth inequalities within countries were on the rise in many but not all countries. In Germany, for example, while income (wealth) inequalities have been rising until the early 2000s (until the financial crisis), they have been almost unchanged since 2005 (2008). In general, it is difficult to assess whether inequality is too high or too low when talking about developed countries with high living standards and large economic resources. As a result, issues of equal opportunity are becoming more of a focus in these countries since it is almost impossible for a society to agree on optimal levels of outcome inequality.

## 2 Global inequality

### 2.1 Income inequality

With an increasing availability of appropriate data there is also an increasing literature (and interest) on the development of global economic inequality. When mapping global economic inequality, incomes must be made comparable. Thus, approaches to measure global inequality first convert incomes into so called international dollar, which is a hypothetical currency that represents the amount of goods and services one could buy with the amount of one dollar in the US in a certain year. In a second step, individuals are sorted in ascending order of their adjusted income. Figure 2-1 plots the resulting global income distribution for three different points in time. The changes of the distribution have gained considerable attention and can be summarized as follows:<sup>1</sup>

Back in the 19<sup>th</sup> century, only a few countries have achieved economic growth. In contrast, the majority of the worldwide population lived in conditions which could be referred to as extreme poverty. Graphically this results in a frequency distribution of incomes with one hump, which illustrates that the bulk of the global population had very low incomes at that time. Especially in the aftermath of the Second World War, the shape of the global income distribution changed substantially. With increasing economic growth in Northern America, Europe, Oceania and parts of South America and East Asia (for example Japan) many people in those regions experienced considerable income gains, thus, moving to the righthand-side along the income-axis. Therefore, the graphical representation of the global income distribution changed into a bimodal distribution, with one hump below the international poverty line and a second hump representing people with considerably higher incomes. Therefore, global inequality has increased strongly, the world had divided into two clearly distinguishable regions – the developed world and the developing world. However, this also means that millions of people were lifted out of extreme poverty by economic progress and even the poorer half was able to do slightly better in absolute terms.

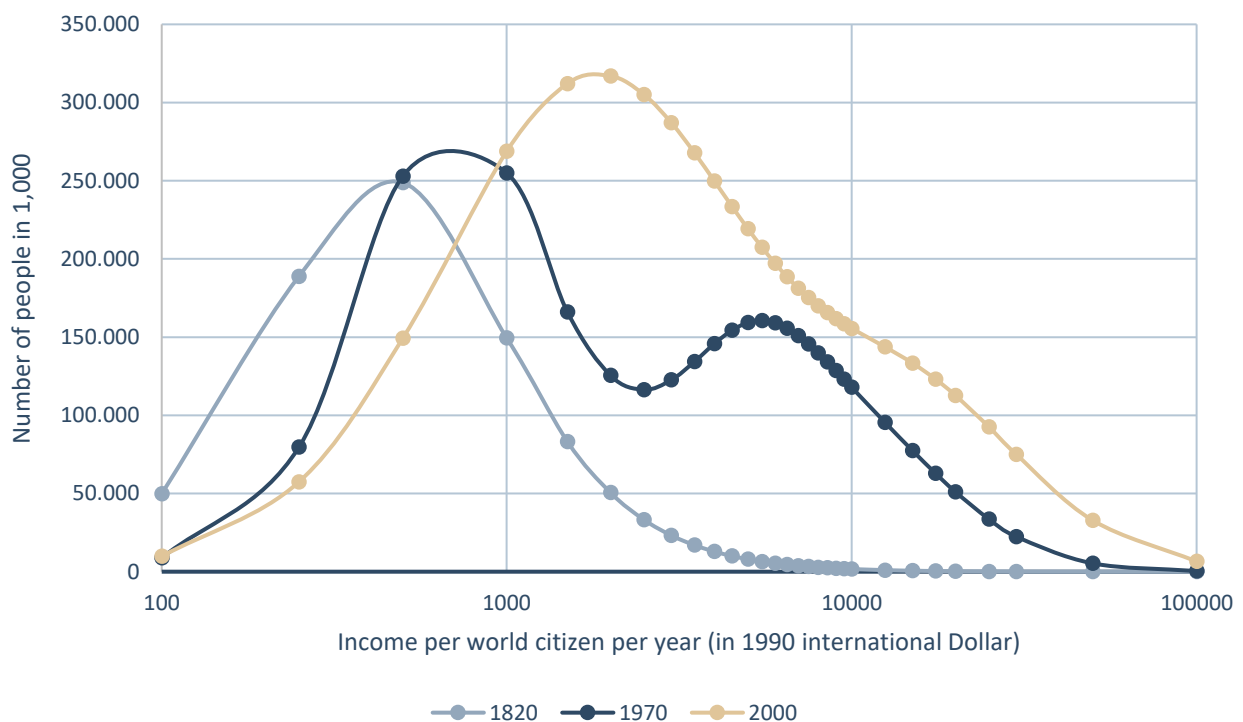
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<sup>1</sup> See <https://ourworldindata.org/global-economic-inequality> (by Max Roser) for detailed descriptions, further references and illustrations about the development of global economic inequality.

Starting around the 1980s the global income distribution changed again. Due to the rapid economic development in Asia, especially in China and India, incomes in some poor countries have grown faster than incomes in rich countries – thus, the global income distribution has become more equal. The distribution function has again changed to a “one-hump-world”, implying that the clear-cut division into a developing and developed world no longer remained. However, the far stretch between those world inhabitants with low incomes and those with high incomes underlines that global incomes are still very unequally distributed.

### Figure 2-1: Income per world citizen per year

In 1820, 1970, and 2000



Source: OECD (van Zanden et al., 2014, p. 281, Figure 11.1), data retrieved from <https://www.maxroser.com/roser/graphs/WorldIncomeDistribution1820to2000/WorldIncomeDistribution1820to2000.html> [21.12.2020]

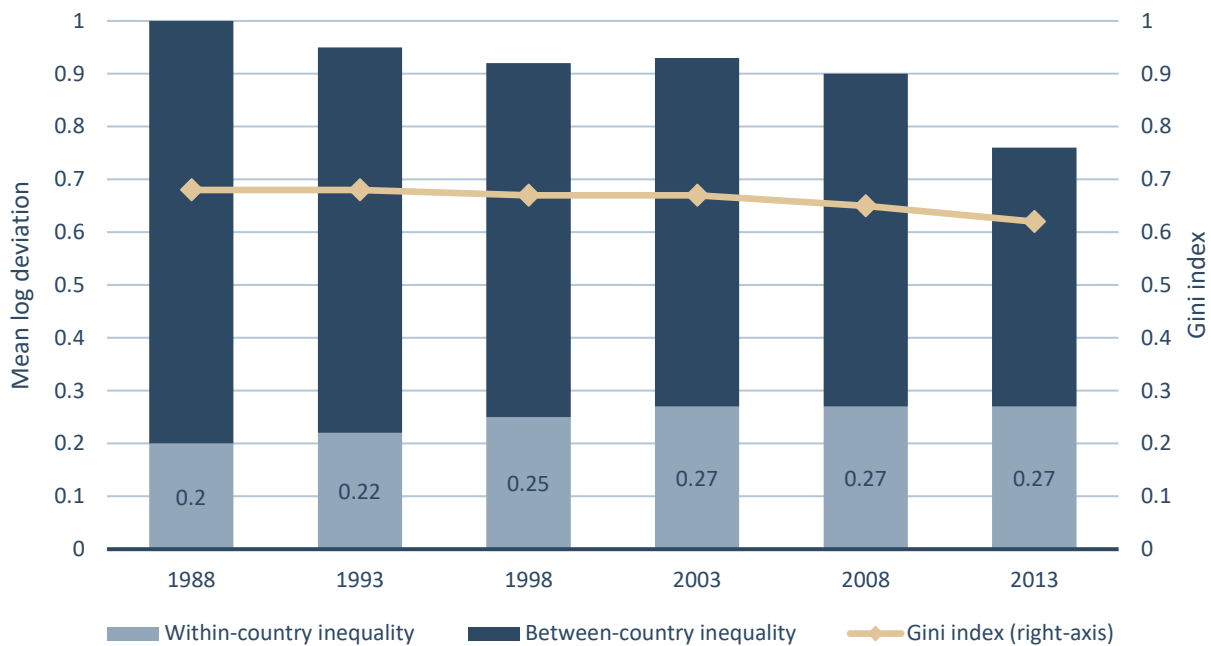
Figure 2-1 focuses on a long-term – and even historical – perspective on the development of global economic inequality. In a recent paper, Hellebrandt and Mauro (2015) show that after the turn of the millennium, global incomes further equalized. According to their analysis, the Gini coefficient of the global income distribution declined from 68.7 in 2003 to 64.9 in 2013.<sup>2</sup> What is more, global median income almost doubled from 1,090 international dollar per year to 2,010 over this period (in 2011 international dollar), implying that a considerable share of people with very low incomes have gained substantial income increases. On the basis of projected annual growth rates of different regions, the researchers also made a forecast of the global income distribution up to the year 2035 and expect that by then, median income will

<sup>2</sup> These numbers slightly differ to the results in Figure 2-2 due to different data sources.

approximately double again and that the Gini coefficient will further decrease to 61.3. However, although these estimations show substantial improvements of incomes, even in 2035 it can be expected that the bulk of worldwide population will live with rather low incomes of less than 5,000 dollar per year (in 2011 international dollar) and that there is a large spread between low and high incomes – illustrating that global inequality will still be rather high in 2035.

**Figure 2-2: Global inequality**

1988-2013



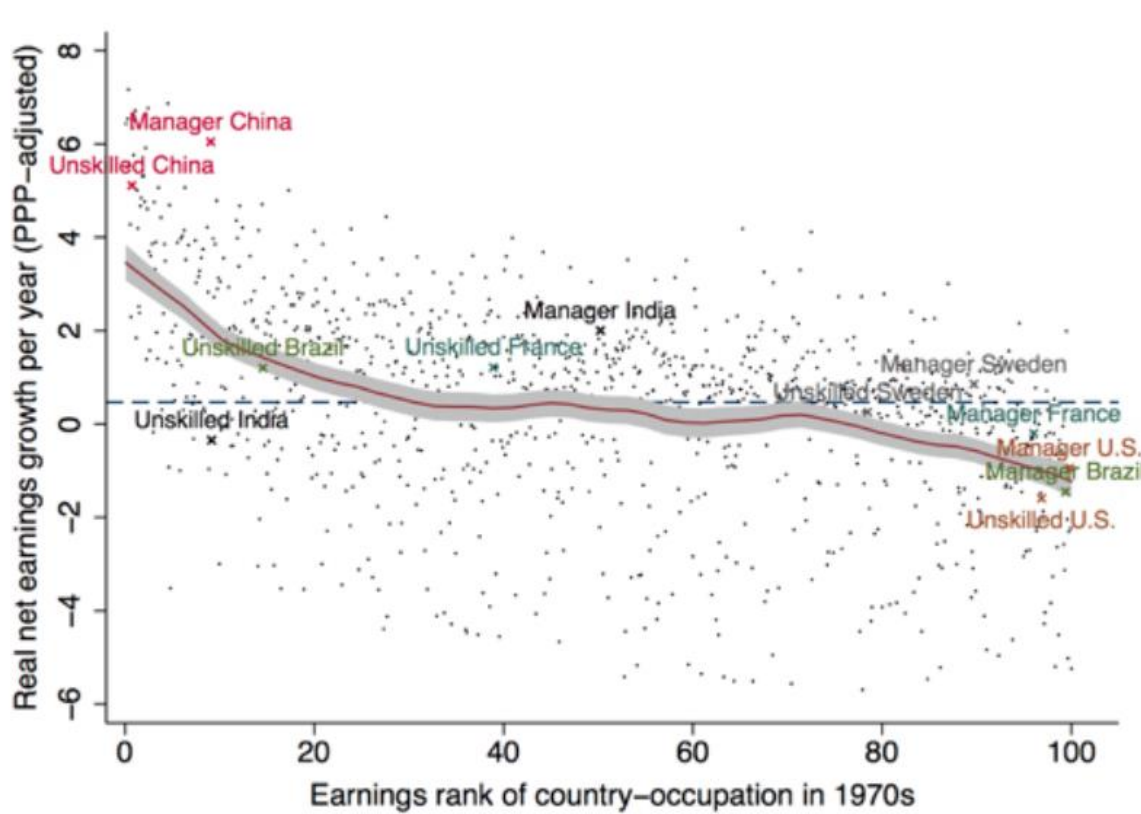
Source: World Bank, 2016, p. 81, Figure 4.5

While increasing incomes in the course of continuing global integration raised the average living standard in some of the poorest economies, some of those catching-up countries simultaneously experienced increasing inequality within their borders. In fact, global inequality depends on both, differences in average incomes between countries and inequalities in the distribution of incomes within countries. Global inequality can be decomposed to illustrate the contribution of both explanatory factors. Therefore, in addition to the Gini coefficient, Figure 2-2 also includes the development of the mean-log deviation, which belongs to the group of the additively decomposable inequality measures. Compared to the Gini coefficient, the mean-log deviation is more sensitive to changes at the bottom of the income distribution. As Figure 2-2 shows, between 65 and 80 per cent of total inequality can be attributed to differences in average incomes across countries. It also reveals that the reduction of inequality is driven by a convergence of average incomes between countries. In fact, during the 1990s the reduction of global inequality is in part counteracted by increasing inequality within countries, a development which stabilized around the turn of the millennium. Overall, these trends implied that by 2013, the contribution of within country inequality to total inequality has increased. Nevertheless, the

largest fraction of inequality is still explained by enormous differences in average incomes across countries, emphasizing the importance of economic growth in poorer countries.

Hammar and Waldenström (2017) ran a similar analysis on the development of global earnings inequality based on a unique earnings survey database run by UBS. The results basically confirm the trends which have also been observed on the basis on income (or consumption) inequality. In particular, they reveal that global earnings inequality was very high in the 1970s (with a Gini coefficient of around 0.7) which has fallen to a level of around 0.6 by the year 2015, with the main equalization taking place in the late 90s and 2000s. Beyond, they also found that decreasing earnings inequality between countries was the main driver of equalizing global earnings, while the contribution of within-countries earnings inequality has increased.

**Figure 2-3: Growth incidence of country-occupations (1970s-2010s)**



Notes: Each point represents a country-occupation. Dashed line shows average growth for all observations, and solid line a smoothed local polynomial with 95% confidence interval.

Source: Hammar/Waldenström, 2017, <https://voxeu.org/article/new-data-global-earnings-inequality> [21.12.2020], Figure 2

Their dataset is also unique in so far, that it allows to follow each occupational group in each country over time. On this basis, Figure 2-3 plots the earnings-growth of each country-occupation since 1970 against its initial rank in the global earnings distribution. The illustration of this so-called non-anonymous growth-incidence curve reveals that average earnings-growth has

been higher in the lower half of the global distribution, whereas in the upper half of the distribution earnings growth often was below-average and for some country occupations it was even zero or negative. The results are particularly interesting because while they confirm the increasing earnings dispersion between managers and unskilled workers in the US, the results reveal that both occupations experienced negative real PPP-adjusted earnings-growth over the observed period. For France, the picture is even reversed. As the illustration suggests, unskilled workers experienced higher earnings-growth than managerial occupations in France.

In this regard the results somehow differ from the results of the growth-incidence curve based on the real income changes at various percentiles of the global income distribution, which has become known as the so-called “elephant-curve” (its shape resembles the outline of an elephant). The (anonymous) global incidence curves suggests that the largest gains between 1988 and 2008 were realized around the median of the global income distribution and among the top 1 per cent (Lakner/Milanovic, 2016). Income growth was rather negligible around the 80<sup>th</sup> and 90<sup>th</sup> percentile in these years. Further analysis reveals that seven out of ten people in these percentiles are from the lower halves of ‘old rich’ OECD countries.<sup>3</sup> The picture becomes less dramatic when a quasi-non-anonymous growth-incidence curve is applied. It reveals less growth for the “former” top per cent of the income distribution than for the rest of the distribution. Though, the general finding about rather stagnating middle class incomes in developed countries remain. Since Germany often holds as an exemplary case with merely stagnating middle class incomes, the report will focus on the development of Germany in some more detail in section 3.

The previous remarks have revealed that global income inequality decreased, and that this development was mainly driven by a decline in between country inequality and, thus, by average income convergence. Figure 2-4 represents the development of a key determinant of cross-country per capita income convergence, which is labour productivity. According to the research on the impact of productivity growth on cross-country differences in per capita income growth rates, up to 60 to 90 per cent of the cross-country variations in per capita income can be attributed to differences in productivity growth.<sup>4</sup> Thus, labour productivity is the main driver of the catch-up process through which developing countries with lower-income per capita can reach per capita income levels observed in advanced economies. Figure 2-4 shows the different trends in productivity growth in advanced economies versus emerging markets and developing economies (EMDE). The graphical representation reveals that in advanced economies productivity growth has experienced a long-run decline over the past 40 years. In contrast EMDE labour

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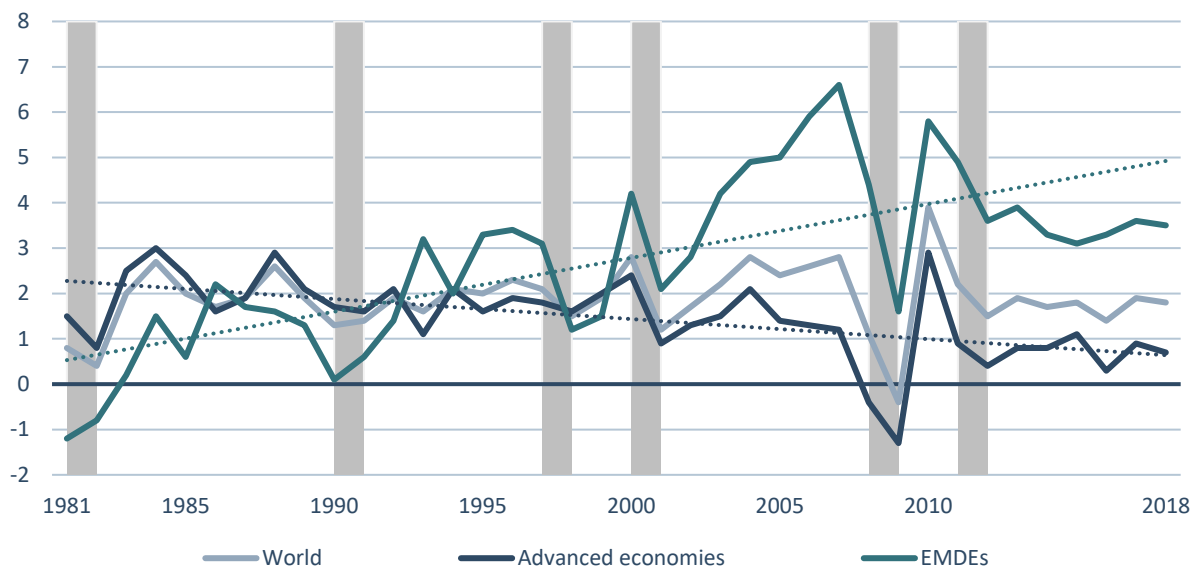
<sup>3</sup> New data covering the years from 2008 to 2013/14 shows that the elephant has lost its trunk (Milanovic, 2020). Real income growth of the global top 1 per cent was remarkably lower in this period than for most other parts of the global income distribution. And “it is these broad-based large differences in real growth that are the main engine behind the reduction of global inequality” within this period (Milanovic, 2020, 36). But this also means that incomes in developed countries, which comprise large parts of the upper tail of the global income distribution, recovered relatively slowly after the financial crisis in 2008.

<sup>4</sup> Easterly and Levine (2001) find that it is rather productivity growth than differences in schooling and capital accumulation (as suggested by neoclassical growth theory) which drives differences in economic growth. According to Klenow and Rodriguez (1997) the overwhelming majority of growth divergence can be explained by productivity growth. See Mayer-Foulkes (2019, p. 39 f.) for further references.

productivity growth has rather trended up over the same time horizon. After severe declines in productivity growth in the 1980s and early 1990s, growth rose sharply from the late 1990s onwards. Starting in 2000, average productivity growth in EMDE was larger than that in advanced economies. In fact, in 60 per cent of EMDE productivity growth exceeded the average rate of advanced economies over the past two decades. The observed differences in productivity trends over the last decades built the ground for income convergence across countries and the remarkable reduction of between country inequality. Nevertheless, the productivity gap between EMDE and advanced economies is still extensive, with labour productivity in EMDE being less than one-fifth of the average level of advanced economies and the pace of convergence is still relatively small.

**Figure 2-4: Productivity growth in developed versus developing countries**

In per cent



Notes: Productivity is defined as output per worker in US dollar (at 2010 prices and exchange rates). Sample of 29 advanced economies (AEs), and 74 emerging market and developing economies (EMDEs) including 11 low-income countries (LICs), as of 2019 World Bank classifications. Aggregate growth rates are GDP-weighted at constant 2010 prices and exchange rates. Shaded regions indicate global recessions and slowdowns.

Source: World Bank 2020, Figure 1.1A (based on Conference Board; Penn World Table; World Bank, World Development Indicators)

The highlighting of recessions reveals that global economic downturns are regularly followed by decreases in labour productivity growth, with more pronounced declines in less advanced economies. The global financial crisis, though, marked a turning point in the global development of labour productivity because in the aftermath of this recession global productivity growth slowed down dramatically. In contrast to previous recessions, the deceleration of productivity growth after the global financial crisis seems to be persistent. Thus, even before the emergence of the COVID-19 pandemic there were concerns about productivity growth in EMDE. Given the experience with previous recessions it is likely, that the pandemic will lead to further losses in



productivity growth and will further slowdown global productivity and, thus, income convergence.

Nevertheless, it is yet not clear, how the still ongoing Corona pandemic will affect global income inequality in the short- and long-run. A recent study by Deaton (2021) shows that countries with more deaths saw larger declines in income. For the period under observation, it was in fact a number of higher-income countries who suffered more deaths per capita despite their better health care systems (one reason for this might be the higher share of older people in high-income countries who were more vulnerable to the virus than younger ones). As a result, the fall in per capita incomes was more pronounced in higher-income countries and global income inequality decreased. However, the results on global income inequality change if countries are weighted by their population such that the influence of populous countries like India or China increases. Thus, when considering population-weighted income changes, global income inequality increased, “because Indian incomes fell, and because the disequalizing effect of declining Indian incomes was not offset by rising incomes in China, which is no longer a globally poor country” (Deaton, 2021, p.1).

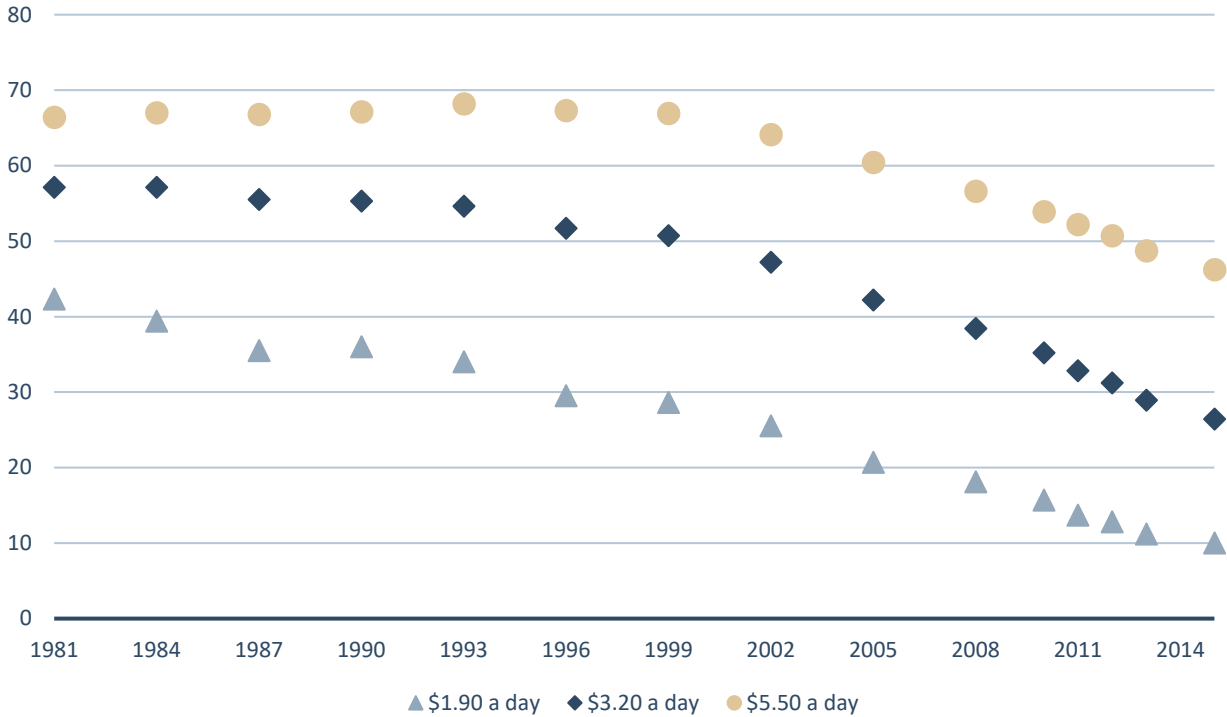
## 2.2 Extreme Poverty

The first and foremost goal of the United Nations is the eradication of extreme poverty by the year 2030. Living in extreme poverty means that basic needs like health, education, and access to water and sanitation are not fulfilled. For this reason, this goal is written in the first place of the Sustainable Development Goals of the UN and is of the highest priority. Extreme poverty is defined in terms of an absolute poverty threshold: Anyone who has less than \$1.90 per day to live on is considered as extremely poor (in 2011 PPP dollar). The threshold is expressed in purchasing power parities (PPPs), which are the rates of currency conversion that try to equalise the purchasing power of different currencies, by eliminating the differences in price levels between countries for a similar basket of goods and service. However, the level of the poverty threshold is subject of constant debate, and it is often criticized as being too low to guarantee a minimum subsistence level. Therefore, there are two other thresholds that are used in particular for more advanced countries with higher consumption levels: \$3.20 per day (PPP) and \$5.50 per day (PPP).

Available data from the World Bank suggests that the fight against extreme poverty has been very successful since the 1980s (Figure 2-5). Global extreme poverty has decreased substantially from 42 per cent in 1981 to 10 per cent in 2015 if measured as the percentage of the population living on less than \$1.90 a day at 2011 PPP dollar. This is slightly more than 700 million people in 2015 living in extreme poverty compared to 1.9 billion people in 1981. If extreme poverty is measured as having less than \$3.20 (\$5.50) a day, the share of people living in extreme poverty declines from 57 (66) per cent in 1981 to 26 (46) per cent in 2015. Thus, large progress has been made in fighting extreme poverty worldwide although there are still too many people who face great challenges to make their daily living. Nevertheless, it seemed feasible to end extreme poverty by 2030.

## Figure 2-5: Extreme poverty

Poverty headcount ratios for different poverty thresholds (in 2011 PPP dollar)



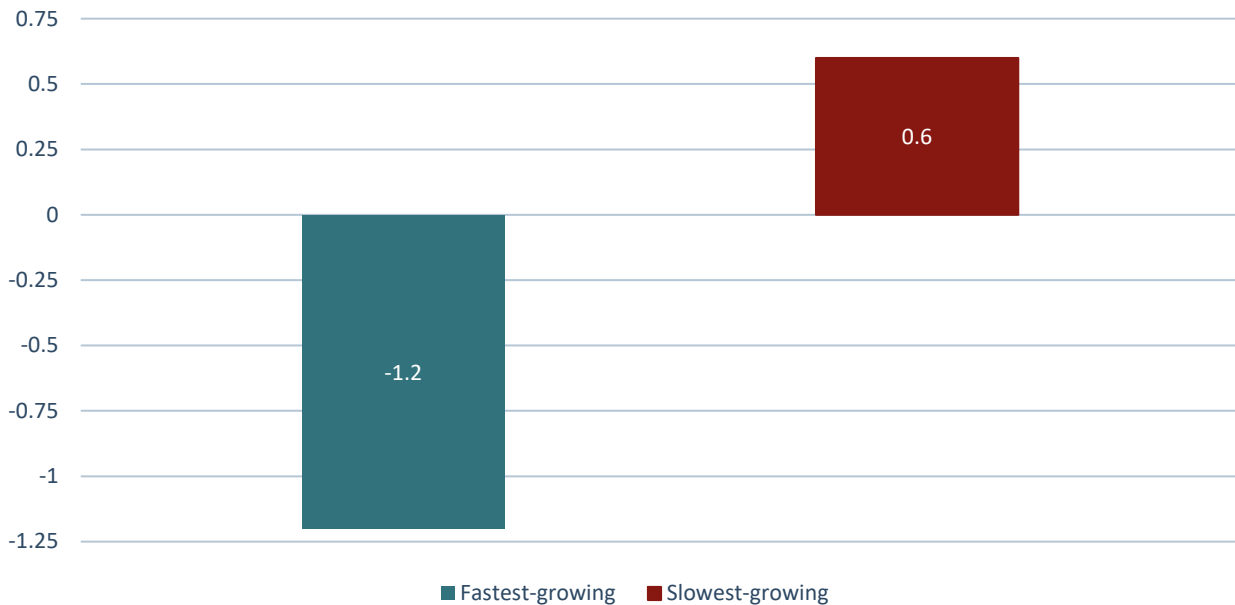
Source: World Bank DataBank, 2020; <https://databank.worldbank.org/home.aspx>

Especially China and India contributed to a large extent to this success story, since economic achievements and inclusive growth were able to lift people out of extreme poverty. Building on the importance of productivity for income convergence, Figure 2-6 illustrates its relevance for poverty reduction. Those EMDE in the top quartile of productivity growth reduced their extreme poverty rates by an average of more than one percentage point per year since 1981. In contrast, in those countries in the lowest quarter of productivity growth poverty rates increased throughout the same period. Further analyses show that the slowdown in productivity growth since the financial crises and accompanied output losses implied large, missed opportunities for more rapid poverty reduction. The COVID-19 pandemic will likely further decelerate productivity growth and, thus, will be a threat to the achievement of development goals, in particular the reduction of (extreme) poverty. Thus, the pandemic and the associated loss of income could even increase global poverty for the first time in more than 30 years and reverse the progress of previous years. Projections suggest that 71 to 100 million people may be pushed back into extreme poverty in 2020 (Lakner et al., 2020). Those forecasts underline the importance to facilitate conditions to return to the previous productivity path as soon as possible.



## Figure 2-6: Poverty reduction and productivity

Annual change in poverty rates in EMDEs by productivity growth, in percentage points



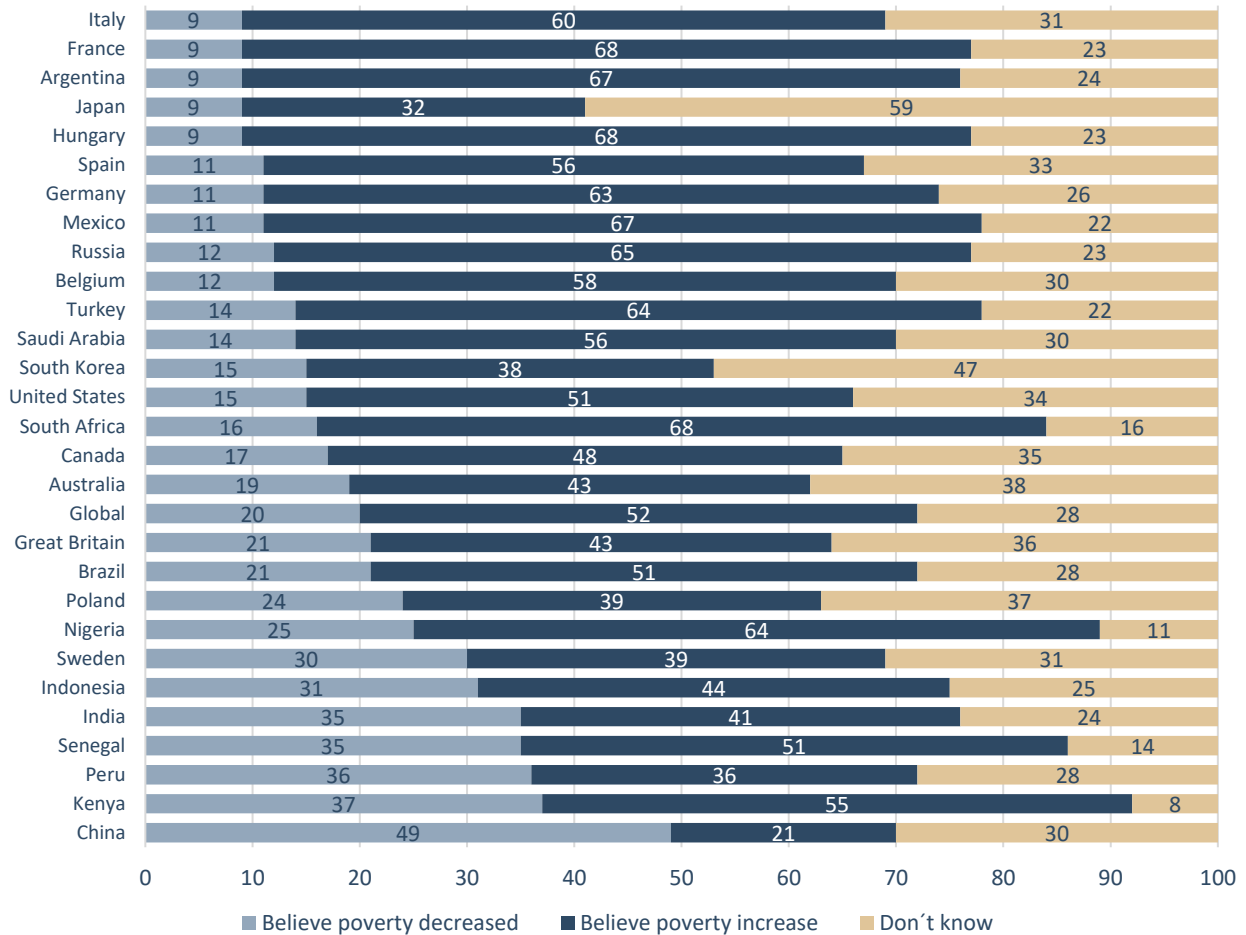
Labour productivity is defined as output per worker in US dollar (at 2010 prices and exchange rates). Data is from a sample of 74 EMDEs. Unweighted averages using annual data during 1981-2015. Fastest-growing EMDEs are those in the top quartile by productivity growth; slowest-growing EMDEs are those in the bottom quartile of labour productivity growth. Poverty rate defined as the share of the population living on less than \$1.90 a day (2011 PPP).

Sources: World Bank, 2020, Figure 1.2A (on basis of Conference Board; Penn World Table; PovcalNet; World Bank, World Development Indicators)

Although the consequences of the COVID-19 pandemic trigger concerns about the further development, the empirical numbers unambiguously show that extreme poverty has substantially declined over the past decades. However, if people are asked about what they think about the development of extreme poverty over the last two decades, half of those asked around the world believe that extreme poverty has increased (Figure 2-7). Especially in advanced economies the overwhelming majority believes that poverty was on the rise. In Germany, for example, only 11 per cent of respondents correctly guessed that the proportion of the world population living in extreme poverty has declined over the last 20 years. The misperception of positive trends is broad-based. According to a study by the Bertelsmann Stiftung, two-thirds of the EU population believe that the world used to be a better place (de Vries/Hoffmann, 2018). The pessimistic view on global development will likely further encourage negative views on globalization, economic integration, and free-market systems. Processes and structures, which have, in fact, helped to lift millions of people above the poverty line.

**Figure 2-7: Believes on the development of extreme poverty**

In per cent



Question: In the last 20 years, the proportion of the world population living in extreme poverty has ...?

Source: Ipsos Perils of Perception – Global Impact of Development Aid, September 2017

### 2.3 Wealth inequality

International comparisons of wealth are often associated with great difficulties regarding the (time) consistent measurement of overall wealth and its components. Different national currencies and purchasing powers have to be considered, too. For example, until 2010 there were no harmonized data on the level and on the distribution of wealth in the Euro zone. It was only with the Household Finance and Consumption Survey (HFCS) that this basis was created under the supervision of the European Central Bank (ECB). Despite this progress, even these household survey data are not perfect and, for example, do not fully represent all the wealth at the top of the distribution. A global database on net wealth does not exist so far, although there are initiatives like the OECD Wealth Distribution Database to make progress on this issue, at least for OECD countries. However, the actuality of the data is limited and likewise many gaps can be found in them.

Although comprehensive harmonized data on net wealth is still missing on the global level, there are also initiatives like the Credit Suisse Global Wealth Databook led by Anthony Shorrocks that try to combine available data sources for different countries to monitor the trends of global wealth inequality. For this purpose, various available national wealth data sources are combined and supplemented with regression-based estimates whenever data is missing. The basis of this approach is existing household survey data from industrialized countries that is extended by information from household balance sheets, financial balance sheets, or a combination of them.

In the latest report, the determinants of per capita wealth were estimated with data from 53 countries, when at least one year was available. These estimates, then, were used to predict missing wealth information for 119 additional countries. Hence, information on most countries is not directly observed but estimated. Furthermore, since information on the extremely wealthy is lacking in household survey data, additional information from the Forbes list and other comparable sources is used to estimate missing information at the top of the wealth distribution. In addition, assets in different currencies are converted into current US dollar such that the estimates also depend on the current national exchange rates to the US dollar, which may be subject to large fluctuations, especially in developing countries. Therefore, short-term changes should be treated with great caution. Differences in purchasing powers are not considered.

If one accepts the uncertainties of the data and looks at how the distribution of global net wealth has developed since 2000 – net wealth is defined as the sum of all financial and non-financial assets of a household minus its debts including private pension fund assets but excluding entitlements to state pensions –, a decline in the inequality of net wealth can be observed at a high level (Figure 2-8).<sup>5</sup> Overall, the Gini coefficient decreased from around 91.9 in 2000 to 88.5 in 2019. Accordingly, wealth is unequally distributed around the globe and far more concentrated than net income. At the end of 2019 North America and Europe accounted for 55 per cent of total global net wealth, while they represented 17 per cent of the world adult population. It is also most Europeans and North Americans who belong to the top 10 per cent of the global rich. In 2000, the net wealth share of the top 10 per cent amounted to 88.5 per cent but decreased to 81.7 per cent in 2019. In contrast, the net wealth share of the top 1 per cent remained almost unchanged and has been varying around 45 per cent. It was only temporarily affected by the financial crisis back in 2008, where it decreased to 41.3 per cent but recovered relatively fast afterwards. In 2019, it amounted to 45 per cent and, thus, is only slightly smaller than in 2000. Nevertheless, the economic rise of Asia, and China in particular, has contributed to a discernible reduction in global net wealth inequality. For example, net worth per adult in China increased by 12.8 per cent in 2019, rising to an average of \$70,962 per adult in current US dollar. Africa also experienced an increase of 10.7 per cent in 2019. However, the average net worth per adult was only \$7,372. In comparison, net worth per adult in North America (Europe) grew by 11.4 per cent (6.1 per cent) in the same year, while remaining significantly higher at an average of

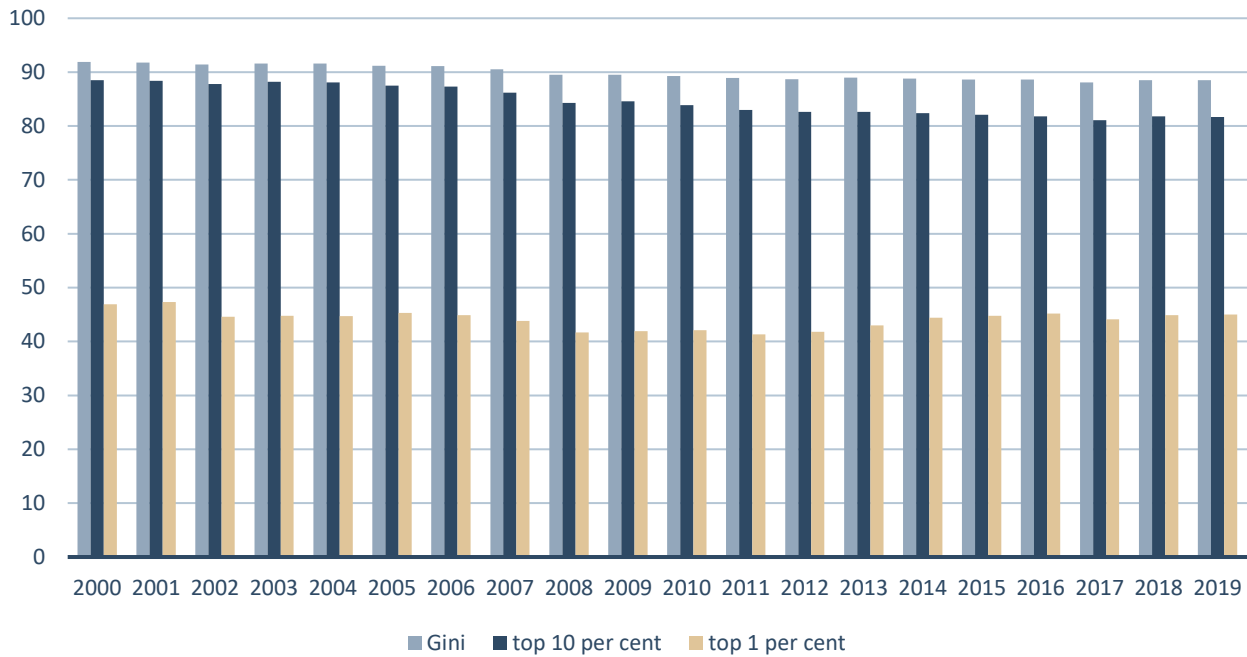
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<sup>5</sup> The Gini coefficient is not bounded to values between 0 and 100 in this case, since net wealth contains negative values which change the codomain of the Gini.

\$446,638 (\$159,730) per adult.<sup>6</sup> Despite convergence between countries, existing differences in levels between them remain pronounced (Shorrocks et al., 2020).

## Figure 2-8: Global net wealth inequality

Gini coefficient and top net wealth shares (in per cent)



Source: Credit Suisse Global Wealth Databook, 2019, p. 143, Table 5-1

Similar to Credit Suisse, the Allianz also publishes a global wealth report focussing on the development of gross and net financial assets at regular intervals (Allianz Research, 2020). Consequently, only part of the total wealth of private households is considered and the methodological challenges are the same as before. Nevertheless, Allianz also gives a positive assessment of the development over the past two decades. For example, 600 million people have moved up into the global wealth middle class and 2.5 billion people recently reached net financial assets of around EUR 3,000. That is ten times more than at the turn of the millennium. As a key determinant of this positive development, Allianz names open markets and free trade and highlights the welfare increasing effect from globalization starting with the integration of former Soviet Union member states and China 30 years ago.

The influence of the Corona pandemic on levels of net wealth and trends in wealth inequality still remain uncertain for the time being. A first glimpse into possible consequences is given by Shorrocks et al. (2020, p. 13): “The initial impact was felt through asset prices, causing global household net worth to decline by USD 17.5 trillion during January-March 2020, a 4.4% reduction. Actions taken by governments and central banks then reversed this fall. By June, global wealth was USD 1 trillion above the starting value. However, reduced GDP and rising debt will

<sup>6</sup> The lower growth rate in Europe is partly due to the fact that the euro depreciated by 2,3 per cent against the US dollar in 2019 (Shorrocks et al., 2020, p. 9).

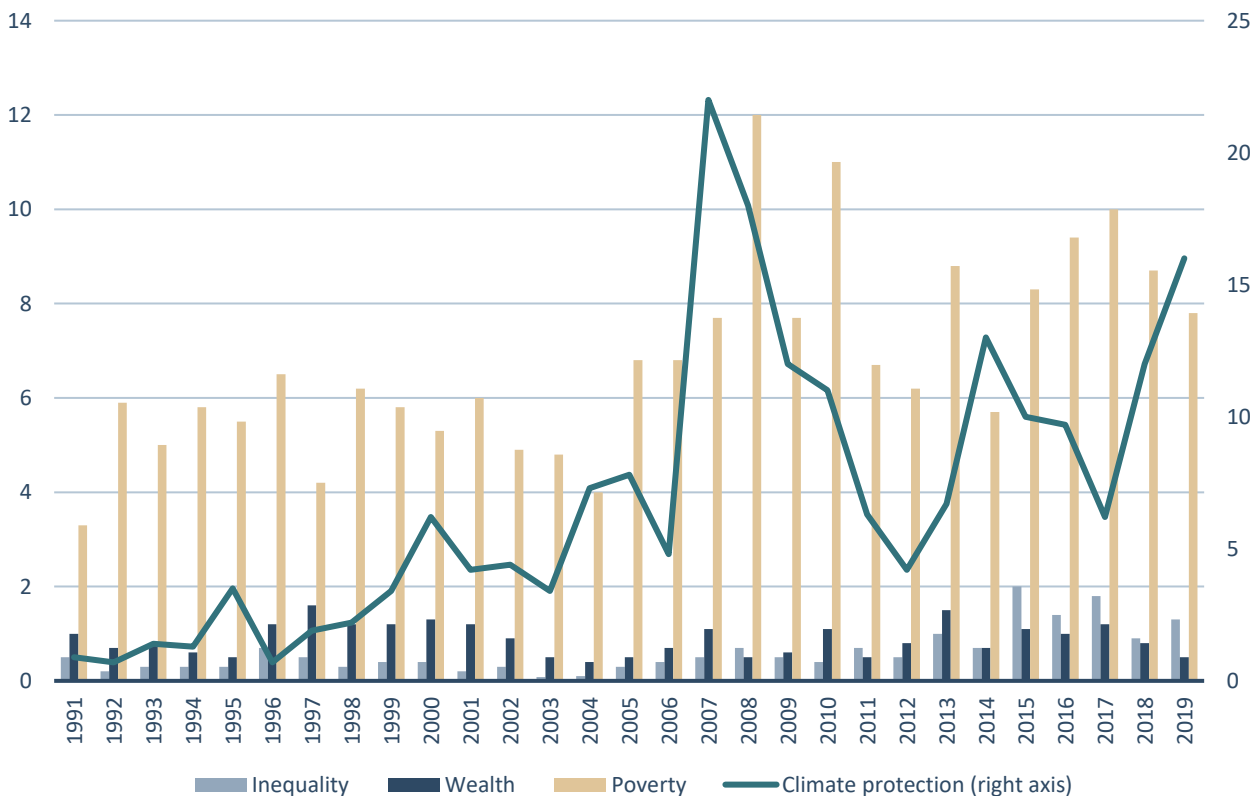
result in long-term damage, so wealth growth will be depressed for the next couple of years, and likely longer.”

### 3 The case of Germany

The topics of inequality, wealth, and poverty have also frequently been the subject of heated debates in Germany. This is exemplified by how often these terms have been used in speeches in the plenary debates of the German Bundestag since 1991. The word poverty is an often and increasingly used term and was mentioned around 8 times per 100,000 words in 2019. Certainly, this was not always about income poverty and related combinations of the word are not included (the ZEIT online tool only allows to use single words). In comparison, wealth was mentioned only 0.5 times per 100,000 words, while inequality was mentioned every 1.3 words per 100,000 words. Although poverty was frequently discussed in the Bundestag, other topics like climate protection (*Klimaschutz*) were even more frequently used. After being highly debated in 2007, climate protection has once again moved strongly into the centre of the debate and was mentioned 16 times per 100,000 words in 2019. Thus, it occurred almost twice as often as the topic of poverty in the same year.

**Figure 3-1: This is what the German Bundestag is talking about**

Number of mentions per 100,000 words



Source: ZEIT Online, 2020, 70 Jahre Bundestag: Darüber spricht der Bundestag | ZEIT ONLINE

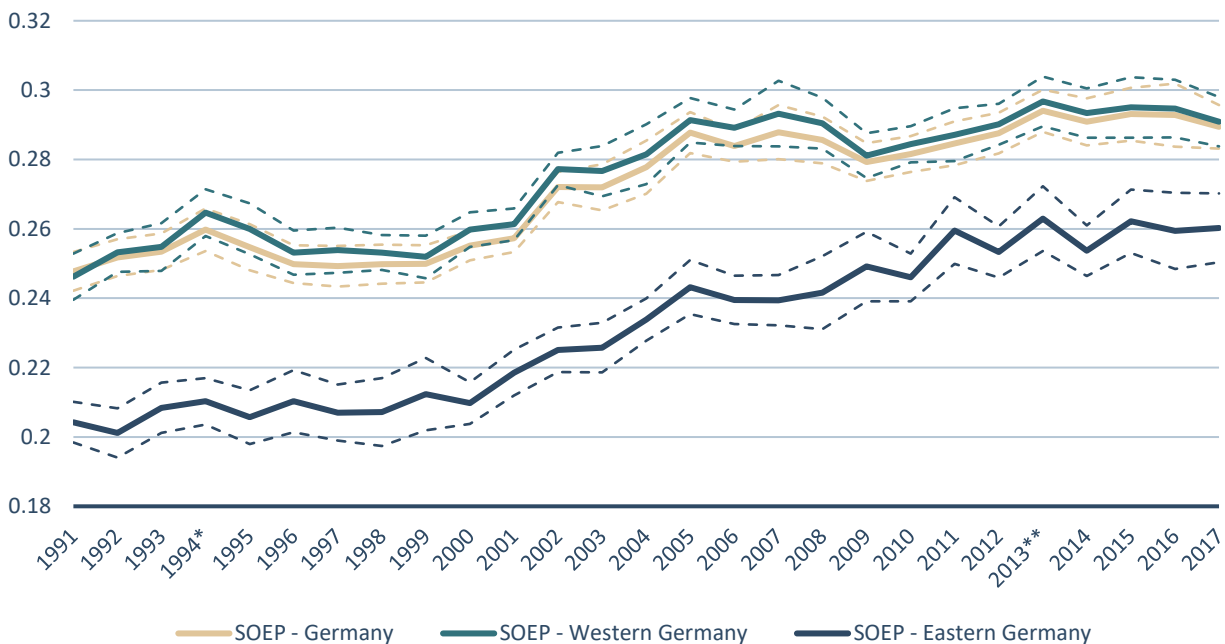
Unfortunately, the data series ends in the summer of 2019 and with the Corona pandemic it is very likely that the questions of poverty and wealth will be discussed more frequently again. Some parts of the left-wing parties are already considering a wealth tax or a one-time wealth levy to finance the financial burdens of the pandemic. Although the financial consequences of the Corona pandemic are still largely unclear and these claims are more political in nature, the question remains how unequally income and wealth are distributed in Germany and how the Corona pandemic will affect both dimensions.

### 3.1 Income inequality

As in many developed countries, net income inequality measured by the Gini coefficient is higher in Germany today than it was in the 1990s.<sup>7</sup> As depicted in Figure 3-2, the level of the Gini coefficient has increased from 0.25 in 1991 to 0.29 in 2017 according to household panel data from the SOEP (Goebel et al., 2019). But the distribution of net incomes has not changed uniformly over time: Between 1991 and 1999, the Gini coefficient initially varied between 0.25 and 0.26, despite the major upheavals after reunification. Between 2000 and 2005, the level of income inequality increased, reaching a temporary peak of 0.29 Gini points in 2005.

**Figure 3-2: Net income inequality over time**

Gini coefficients of equivalized real disposable household income



Notes: The new OECD scale is used for equivalisation, dotted lines represent 95% confidence interval; Note on SOEP data: \*Time series break due to integration of subsample D (migration 1984-1994) and change in income retrieval/recording; \*\*Time series break due to integration of subsample M1 (migration 1995-2011).

Source: Stockhausen/Calderón, 2020

<sup>7</sup> Net income (also known as disposable income) is defined as total market income (sum of gross earnings, self-employment income, capital income), plus the current private and public transfers received, less the taxes and social security contributions paid. It also includes the imputed value of owner-occupied housing.

However, inequality in net incomes remained almost unchanged since 2005, a year that represents a turning point in the development of income inequality in Germany. Thus, contrary to the general perception, the so-called “Hartz” labour market reforms did neither lead to an increase in income inequality nor in the low-wage sector. While the “Hartz” reforms were gradually implemented between 2003 and 2005, the rise in net income inequality predominantly occurred between the late 1990s and 2005. The “Hartz” reforms rather led to more flexibility in the labour market and were not associated with a further increase in income inequality. While there were initially signs of a slight decline in the Gini coefficient in the aftermath of the labour market reforms, it moved slightly upward again in subsequent years. In the latest available income year 2017, the Gini coefficient was around 0.29 points according to the SOEP. Considering statistical uncertainties that can be represented graphically by adding 95% confidence intervals, the data does not suggest an increase in inequality in disposable incomes of private households in Germany since 2005 (Stockhausen/Calderón, 2020).

Compared to other countries, Germany still exhibits a relatively equal distribution of net incomes and a high degree of redistribution via taxes and transfers is considerable large in Germany. Values of the Gini coefficient vary between 0.25 in more egalitarian countries like the Slovak Republic and 0.50 in more unequal countries like Costa Rica (see Figure 4-3). A regional differentiation between Eastern and Western Germany also reveals that net incomes are more evenly distributed in the Eastern part of Germany which includes the federal states of the former German Democratic Republic. However, absolute mean income levels are still significantly lower in the East than in the West. Since most of the German population lives in the Western federal states, the overall Gini coefficient is closer to the level of inequality in the West than to the one in the East. Nevertheless, some convergence took place between both regions and overall trends have been quite similar in the past. With the exception that the rising trend in net income inequality in Eastern Germany happened just until 2011 and did not reach its turning point in 2005 as in the Western part of Germany.

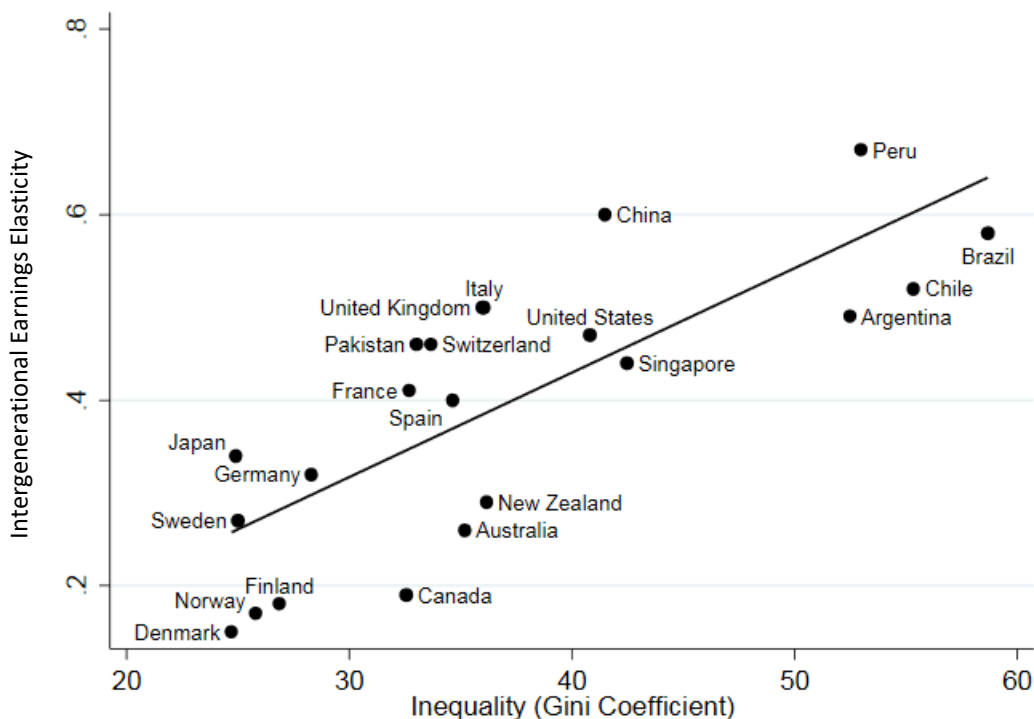
Although the level of net income inequality is moderate, Germany is certainly not a role model in every socio-political area and reveals some deficits in inequality-related areas. For example, pupils are segregated relatively early in their school careers and despite some progress in the last years there is still less early childhood support in kindergarten compared to other OECD countries, which particularly limits educational opportunities of children from less well-off families. This is illustrated in a rather low share of university accesses from children from less-privileged families. However, Germany manages to compensate for some of these disadvantages. To stay with the example: Thanks to the dual vocational training system, which links theory and practice, it is not always necessary to have a university degree to pursue a well-paid profession. A career as a skilled worker is a good alternative to a bachelor's degree, especially for people with greater practical talents. Advanced training such as master craftsmen and technicians offers these dual-qualified individuals very good career opportunities, and many master craftsman qualifications are accompanied with income opportunities similar to those offered by a university degree. This is also a major reason why Germany performs rather poorly in terms of educational mobility and why the educational success of children depends more on that of their parents than in the US or the United Kingdom (UK) (OECD, 2018; Neidhöfer/Stockhausen, 2018).

However, Germany shows significantly better results in terms of income mobility, which is often used as an indicator of equal opportunities. According to comparative studies by Corak (2016), Germany ranks slightly above average among industrialized nations. In addition, it is more mobile in terms of labour income than the US in both absolute and relative terms (Schnitzlein, 2016; Stockhausen, 2018a).

Surprisingly, the OECD's (2018) most recent findings have shown Germany to be less mobile. However, these results are striking outliers compared to other existing literature. This is mainly due to the fact that only dependent employees were considered in their main analysis and that quite restrictive income definitions were applied in measuring permanent incomes of parents and children. Accordingly, these results were sharply criticized in Germany (Hufe et al., 2018; Stockhausen, 2018b). Overall, Germany is characterized by a comparatively low level of net income inequality and an above average degree of income mobility measured by the intergenerational elasticity between father and son earnings. The relationship between both measures got famous as the so-called Great Gatsby Curve. It generally shows that there is an inverse relationship between inequality and mobility. In countries with low-income inequality, intergenerational income mobility is higher and vice versa Corak (2016).

### Figure 3-3: The Great Gatsby Curve

Intergenerational elasticity between father and son earnings; Gini coefficient of equivalized net incomes



Note: The higher the elasticity coefficient, the lower the income mobility. The higher the Gini coefficient, the higher the income inequality.

Source: Corak, 2016



### 3.2 Wealth inequality

Although net wealth is generally more concentrated than disposable income, net wealth inequality has also remained comparatively stable over the past decade in Germany (Figure 3-4). The Gini coefficient of net wealth has been varying around 0,78 since 2002, if information on individual net wealth is used from the SOEP. At the household level, net wealth inequality is somewhat lower and is showing a downward trend rather than an upward trend. It slightly decreased from around 0,76 in 2002 to less than 0,74 in 2017. Similar results persist if micro data from the German Bundesbank (PHF) or from the so-called “Einkommens- und Verbrauchsstichprobe” (EVS) are used. Both datasets provide wealth information on the household level and have different limitations (see Stockhausen/Calderón (2020) for more details).

The stable trend in net wealth inequality is observed in a period of low interest rates and rising asset prices, which mainly resulted from the loose monetary policy after the financial and economic crisis in 2008/2009. In particular, the value of owner-occupied real estates has strongly increased during the last ten years, especially in urban areas. Since owner-occupied real estate is the major wealth component of the middle class, they benefited relatively strongly from rising real estate prices. This has contributed to a stabilization of the net wealth distribution over time in Germany (Deutsche Bundesbank, 2019).<sup>8</sup> However, all available micro data sets with information on wealth suffer from the fact that they often fail to capture the top of the wealth distribution adequately. Therefore, there have recently been numerous efforts to add missing wealth information at the top. Information from rich lists is used for this purpose mostly. In general, this increases net wealth concentration among the top (see Westermeier/Grabka (2015) or Bach et al. (2019) for earlier attempts).

A unique top-wealth sample was recently collected for Germany as part of the SOEP (Schröder et al., 2020). This allows a detailed analysis of the wealthiest Germans for the first time. Unlike in the middle of the net wealth distribution, business assets play a greater role at the top and are a major source of wealth for the very rich. The wealth share of the top 10 per cent (top 1 per cent) increases from 58,9 per cent (21,6 per cent) to 67,3 per cent (35,3 per cent) in 2018 when both information from the top wealth sample and information from rich lists is used. These results are as expected and are mostly in line with earlier work by Westermeier/Grabka (2015) which shows similar changes in net wealth shares by adding information from rich lists. In fact, even when adding top-wealth information – on a higher level – the development of net wealth inequality remained rather stable for the years from 2002 to 2012.

Furthermore, the deficits in the wealth data do not only relate to the top. There are also regular discrepancies between the wealth aggregates from micro data and from national accounts data. This is due, on the one hand, to difficulties in defining individual wealth components and, on the other hand, to the fact that some wealth components are simply under-reported in the micro

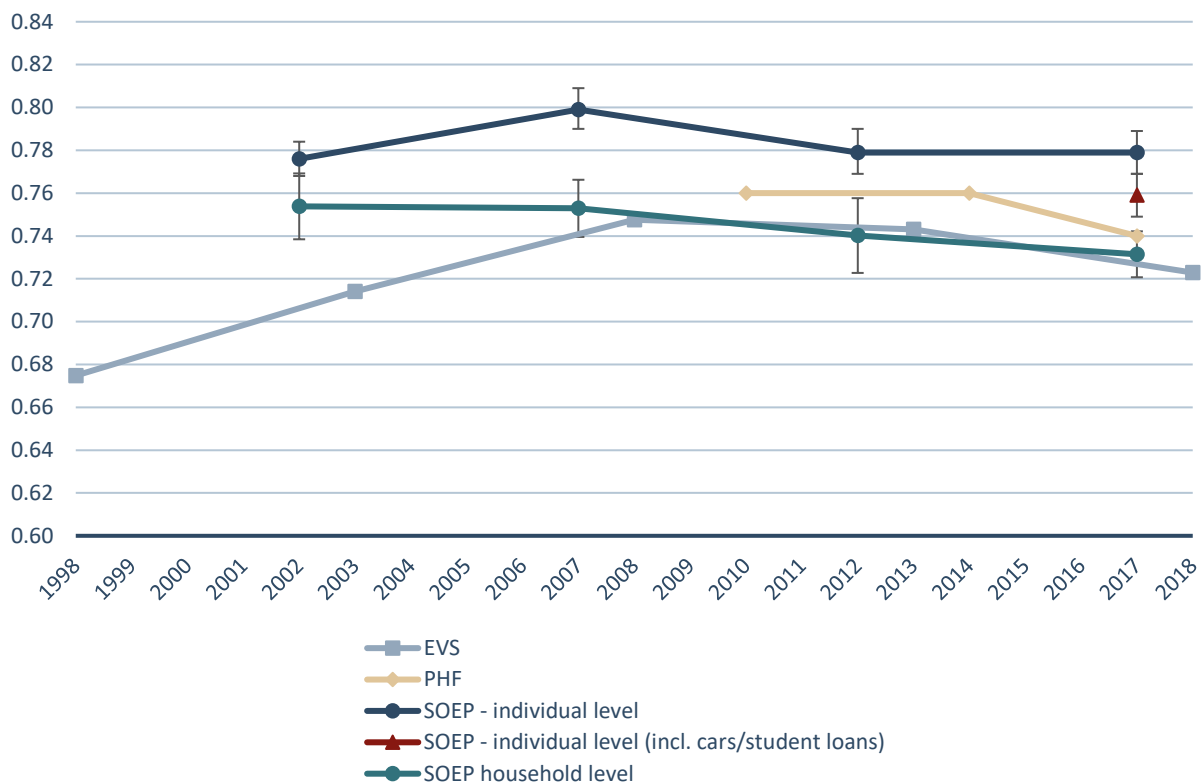
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<sup>8</sup> Research from the ECB (2021) also points into the direction that the easing of monetary policy through the ECB’s asset purchase programme (APP) is not associated with an increase in net wealth inequality. Increased house prices and lower debt burdens, which are relatively more important in the wealth portfolios of the middle and lower classes, are likely to have counteracted the inequality-increasing effect of increased financial asset prices, which are relatively more important in the net wealth portfolio of the upper wealth classes.

data. Examples are financial assets including, for example, private insurance assets, where only 40 per cent of the actual amounts are recorded in the micro data compared to national account data. And it is these asset classes, which are particularly owned by the middle class.

**Figure 3-4: Net wealth inequality in Germany**

Gini coefficient



Notes: In the SOEP, persons aged 17 years and older in private households are considered (excluding persons from the refugee samples M3 to M5), weighting factors include the first wave of the survey. In EVS and PHF, the net wealth distribution is determined at the household level. Inequality at the household level tends to be lower.

Source: Stockhausen/Calderón, 2020

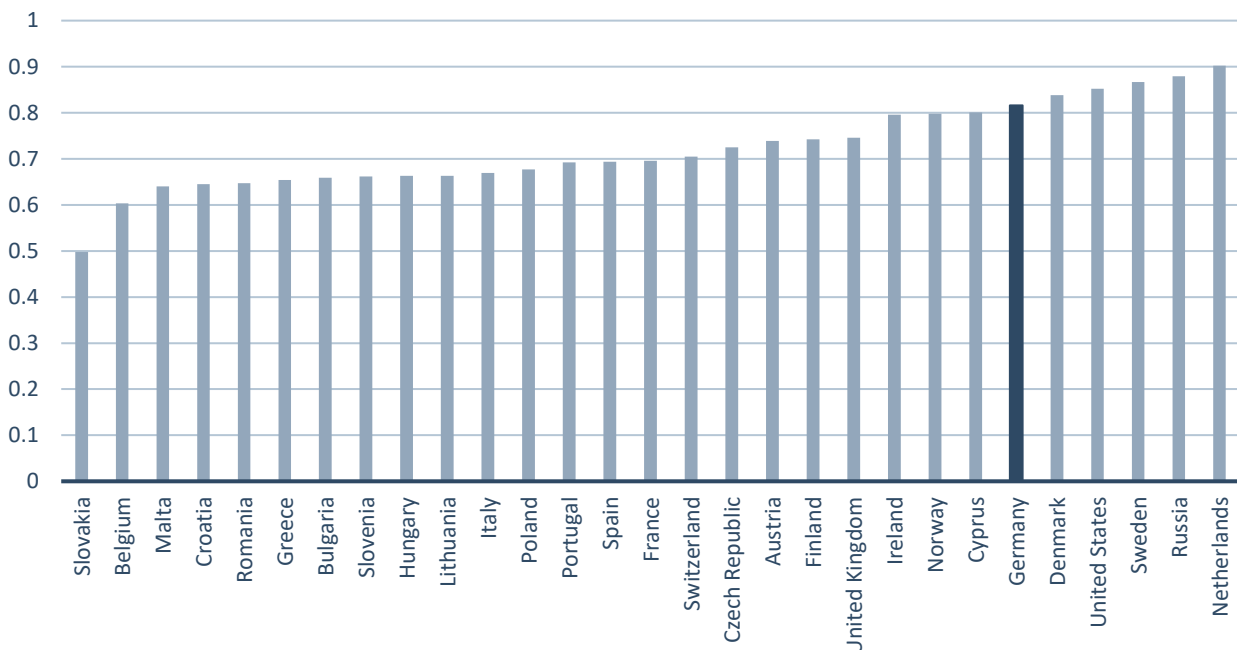
Albers et al. (2020) are the first to ensure that the wealth aggregates of individual components match between the micro and macro data, in addition to using information from rich lists to correct the distribution of wealth at the top. With wealth shares of less than 25 per cent, resulting top 1 per cent shares are substantially lower than previous adjusted top wealth shares. Using the share of total net wealth held by the top 1 per cent, they show that today's share of the top 1 per cent is much lower than in the early 20<sup>th</sup> century and at somewhat the same level as in the mid-1960s. And here, too, there has been no clear change in the share since the financial crisis.

However, even this very comprehensive approach does not consider the impact of statutory pension insurance. Although it is debatable whether this is a classic asset type, since the entitlements are not freely transferable and cannot be liquidated at any time, state pension schemes exert an influence on savings possibilities and diminishes incentives to save privately.

Thus, differences in the architecture of welfare states make international comparisons difficult, as in many cases apples are compared with oranges. Among other things, this also leads to Germany having comparatively high inequality in net wealth and low levels of median net wealth. Irrespective of whether the top of the wealth distribution is correctly covered or not. In this context, a paper by Bönke et al. (2019) shows that the Gini coefficient of net wealth decreases by about one third, if claims against the statutory pension insurance system are included as an asset. In general, pension wealth makes up to 61 per cent in Germany (compared to 48 per cent in the US) and the equalizing effect is larger in Germany than in the US. Furthermore, higher levels of net wealth inequality are rather typical for countries with generous welfare states, high living standards, and comparatively low-income inequality: Accordingly, net wealth inequality is also rather high in Scandinavian countries such as Sweden or Denmark with Gini coefficients of respectively 0,867 and 0,838 (s. Figure 3-5).

**Figure 3-5: Net wealth inequality by country**

Gini coefficient, 2019



Source: Credit Suisse Global Wealth Databook, 2019

### 3.3 Middle class

As an anchor of stability between rich and poor, the middle class is often seen as a gauge of societal and social cohesion. Especially in Germany the development of the middle class has always gained special accordance. (Media) Reports on an eroding middle class are, therefore, seen as worrying. However, even though the middle class is often cited in the political and public spheres, it is by no means a self-explanatory term, nor is there a binding definition for the "middle class." Rather, it can be described in terms of different dimensions, such as socio-cultural,

financial, or subjective and value-oriented characteristics.<sup>9</sup> Most economic studies focus on a purely income-related definition, whereas in social science, socio-demographic criteria such as education, employment or concepts on subjective orientations and values dominate. So called “milieus” combine vertical socio-economic status variables with common lifestyles and values as a second dimension. This allows to define rather homogenous social groups, with similar values, perceptions, and a common identity. However, lifestyle and value orientations change over time and, therefore, it is difficult to analyse the temporal development of such groups. Thus, to consistently analyse the size of the middle class over time, a simplifying structuring of the society is required. For this purpose, in the following we rely on a definition solely based on disposable incomes, since this variable represents a central social status characteristic in which many socio-cultural features such as education and employment status are reflected.

Income strata are usually defined in relation to the median income of the respective society. That is the income that the population divides exactly in half: One half has a higher income, the other half has a lower income. However, the boundaries between the lower income class, middle income class, and the rich cannot be unambiguously defined on the basis on income alone. With the help of a multidimensional approach, it is possible to establish meaningful income boundaries. To this end, first a socio-cultural middle class is defined and then it is examined which income ranges households with typical middle class educational qualifications and occupations predominantly occupy (Niehues et al., 2013). The distribution of the socio-cultural middle class yields an income-based definition that divides society not into the poor, the middle class, and the rich – but into five groups: The at-risk-of-poverty group (below 60 per cent of median income), the low-income or “lower” middle class (60 to 80 per cent of median income), the middle class in the narrow sense (80 to 150 per cent of median income), a high-income or “upper” middle class (150 to 250 per cent of median income), and the relative income rich (more than 250 per cent of median income). In addition to providing additional social differentiation, the use of five rather than three income groups also has the advantage that the broad definition of 60 to 250 per cent provides a kind of upper bound for the middle class and the narrow definition of 80 to 150 per cent provides a lower bound compared with other income thresholds often used in the literature.

Figure 3-6 illustrates the development of different income groups according to this income strata definition. The analysis is based on household net incomes after the deduction of taxes and social contributions plus state pensions and social transfer payments. In addition to labour income, capital and property incomes are also taken into account, as are imputed rents of owner-occupied housing. Furthermore, as common in distributional analyses, household income is equivalised to account for different household sizes and economies of scale within households. In Germany, 1991 is an obvious starting point for distributional analyses since the reunification constitutes a striking structural break. Only from this year on harmonized micro data are available for unified Germany. Since then, the development of the middle class can be divided into three phases: During the East German catch-up process, the share of the middle

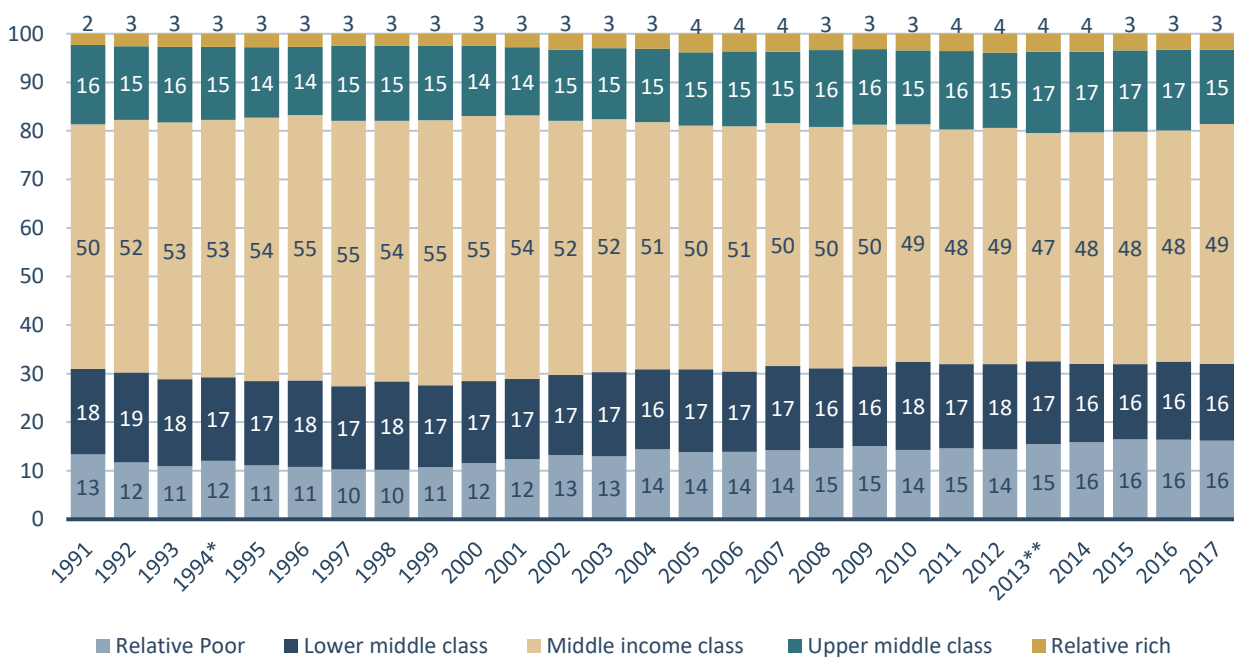
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<sup>9</sup> See Niehues et al. (2013) and Niehues (2017a) for a more detailed discussion about the definition of the German middle class.

class in the narrow sense initially increased from 50.4 to 54.7 per cent until its peak in 1997. By 2005, its share had fallen again to 50.1 per cent. At the same time, the share of those at-risk-of-poverty and of those with relatively high incomes has risen. The shrinking middle class is mirrored by a rise in inequality: The Gini coefficient of net income rose from 0.25 to 0.29 over the same period (see Section 3.1). However, the decline of the middle class is by no means a continuous process. For more than one decade now, the stratification has changed only marginally: The share of the population in the middle class in the narrow sense equals 49,4 in 2017 which is very close to the middle class share in 2005. Additionally, it should be noted that the discernible decline in the middle class between 2012 and 2013 is largely due to an additional migration sample whose respondents are predominantly located in the lower income range.<sup>10</sup> All in all, given the relative concept of the middle class definition, the development of the income groups is unsurprisingly very similar to the development of income inequality.

**Figure 3-6: The development of the middle class in Germany**

Share of population, in per cent



Notes: Income classes in relation the median of nominal equivalised net incomes of the respective year (median income in 2017: 1.946 Euro). \*Time series break due to integration of subsample D (migration 1984-1994) and change in income retrieval/recording; \*\*Time series break due to integration of subsample M1 (migration 1995-2011).

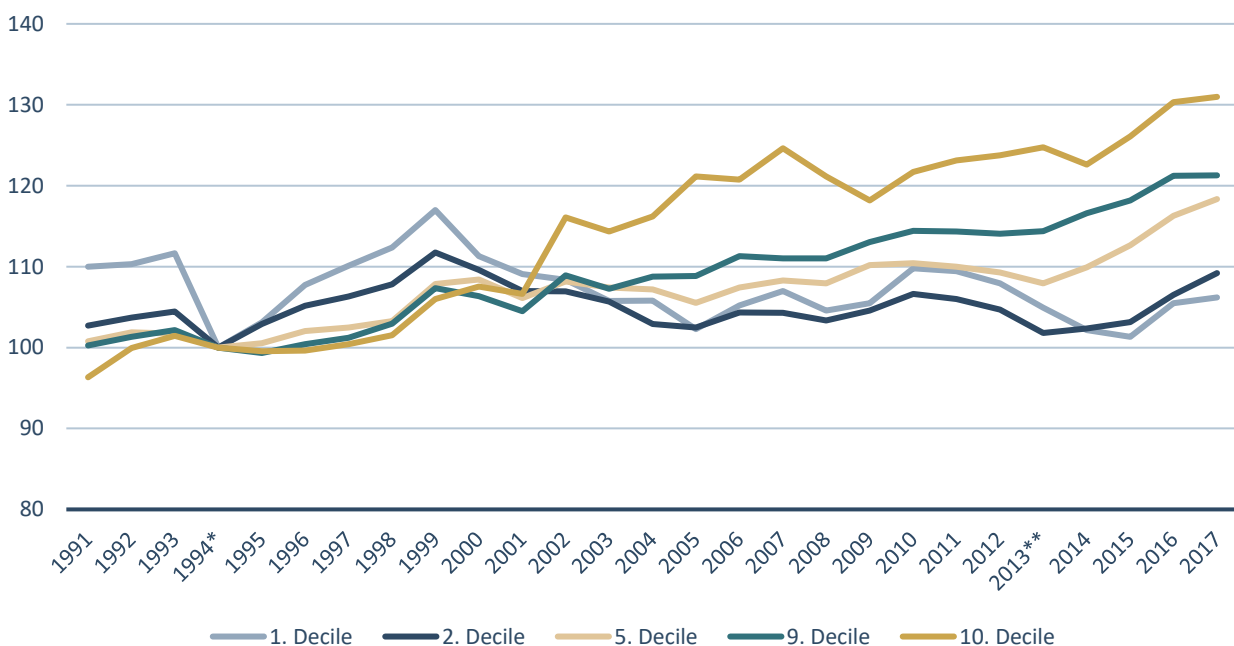
Source: SOEP v35

<sup>10</sup> See also Goebel et al. (2015, p. 582 f.). Additional migration samples are necessary to better reflect immigration, which is naturally underrepresented in long-time panel studies. However, the majority of respondents in this migration sample immigrated to Germany before 2005 – so while the level of inequality may have been underestimated before 2005, the timing of the structural effect on income stratification is questionable (see Niehues, 2017b, for a further explanation).

Besides the development of the size of the middle class, changes of middle incomes are often in the focus of the discussion. In the context of the aforementioned “elephant curve” (see section 2.1), it is often discussed that the minimum of the growth-incidence-curve represents merely stagnating incomes in developed countries middle classes. In particular, Germany is often in the focus of the discussion. Therefore, Figure 3-7 represents the development of disposable income in five exemplary income groups. For the bottom 20 per cent of households (1st and 2nd decile), the middle-income group (5th decile) and the top 20 per cent (9th and 10th deciles). Annual changes are indexed to the 1994 income year. The choice of the base year reduces the effect of the time-series break by the additional samples D1 and D2, which is particularly pronounced for the lowest decile.<sup>11</sup> Consequently, across all income groups considered, there is an increase in real disposable household incomes. However, the extent of the raise varies considerably across income groups. While disposable household incomes in the 1st decile increased by 6 per cent in real terms, they rose by around 9 per cent in the 2nd decile. In the 9th and 10th deciles, average disposable household income rose by 21 and 31 per cent respectively.

**Figure 3-7: Change of disposable household income by income deciles**

Index: 1994 = 100; equalized using the new OECD scale; decile means



Notes: \*Time series break due to the integration of sub-sample D (migration 1984-1994) and change in income question/recording; \*\*Time series break due to the integration of sub-sample M1 (migration 1995-2011).

Sources: SOEP v35; own calculations

The comparatively low growth in the lowest income groups results in particular from a negative development between 1999 and 2005, a period which was characterized by a sharp increase in

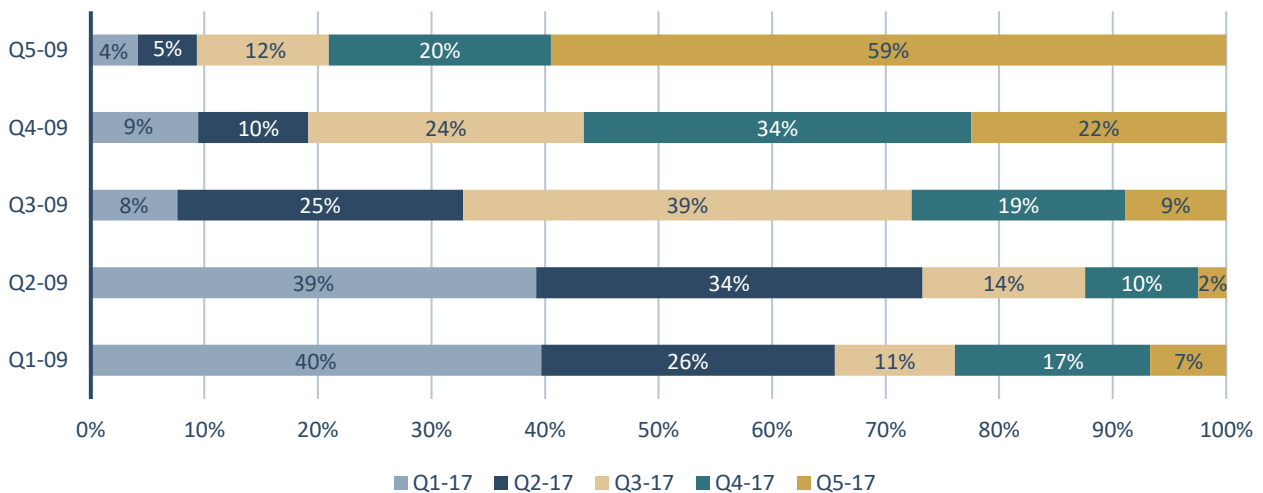
<sup>11</sup> See Stockhausen/Caldéron (2020) for a further discussion.

unemployment and comparatively low economic growth. If we focus on the more recent development of incomes since 2010, it becomes clear, that middle-income groups experienced the largest increases in incomes (7,2 per cent increase in real incomes between 2010 and 2017). With respect to low-income groups, the illustration reveals a marked decline since 2010. While the remarkable decrease between 2012 and 2013 is, again, related to the inclusion of the additional migration sample (Niehues, 2017b), the overall development also roots in some structural changes of the society which are discussed in the following chapter.

It is, however, important to note that the graphical representation of income development in Figure 3-7 follows an anonymous approach, meaning, that people in the first decile in one year are not the same people who are in the first decile in another year. In fact, the longitudinal design of the SOEP allows to also investigate how the composition of income groups has changed over time. To this end, only those respondents of the SOEP are considered, which take part in the survey in all years between 2009 and 2017. Figure 3-8 suggests that around 60 per cent of the people who have been initially in the lowest quintile have left the group of the lowest 20 per cent after eight years. Persistence is slightly higher in the upper quintile with a share of about 60 per cent who do still belong to the highest quintile group after eight years. Changes between income deciles can also be regarded as an indicator of income mobility.

### Figure 3-8: Income mobility across quintiles

Equivalent household disposable incomes (modified OECD scale); Germany, 2009-2017



Notes: Q1-09: Fifth (quintile) with the lowest incomes in 2009, Q1-17: Fifth (quintile) with the lowest incomes in 2017.

Reading example: 40 per cent of the people who have been initially in the lowest income quintile in 2009 (Q1-09) have remained in the lowest income quintile after eight years (Q1-17). Likewise, 26 per cent of the people who have been initially in the lowest quintile group in 2009 (Q1-09) have moved to the second income quintile in 2017 (Q2-17). 7 per cent of the people who belonged to the lowest quintile in 2009 (Q1-09) have been able to move to the highest income quintile in 2017 (Q5-17).

Sources: Stockhausen/Calderon, 2020, Figure 5.1 (on basis of SOEP v35)



### 3.4 Determinants of inequality

Income and wealth inequalities are caused by many factors and originate from different sources. Thus, the effect of each factor on the macro and micro level is difficult to identify and many factors depend on each other. On the one hand, macroeconomic developments like business cycles, technological progress, but also political power relations determine the functional distribution between labour and capital. On the other hand, individual decisions, and institutional circumstances, among others, influence the distribution of personal income, whereby a distinction must be made between market, gross, and disposable income. For example, the amount of labour earnings depends on individual decisions on the labour market, which in most cases can be determined by the individual. These include decisions on occupational choice or working hours. However, institutional factors also play a role, which the individual can only partially control or cannot significantly influence at all. For example, the availability of public childcare determines how much working time (single) parents can offer at the labour market. Also questions about the design of the welfare system and the extent of redistribution from high-income to low-income earners are part of the equation. Other factors that cannot be affected individually include the family into which one was born as a child, one's talents and how the family was able to foster these talents. All these factors – and the list is not exhaustive – have an impact on market outcomes and ultimately on disposable incomes.

First, we want to investigate the claim that a growing share of national income is going to capital, less to labour, and that market income inequality has risen as a result. Figure 3-9 shows that the labour income share, namely the share of compensation of employees in national income, varied between 70 and 72 per cent between 1991 and 2003, before it decreased to just under 64 per cent at the beginning of the financial and economic crisis in 2008. Due to the collapse of the capital markets and correspondingly lower capital incomes, the labour income share rose again in the following years to around 68 per cent and remained at this level until 2016. Since 2016, it has risen to around 72 per cent according to the latest, revised data from national accounts and is back at its 1990 level.

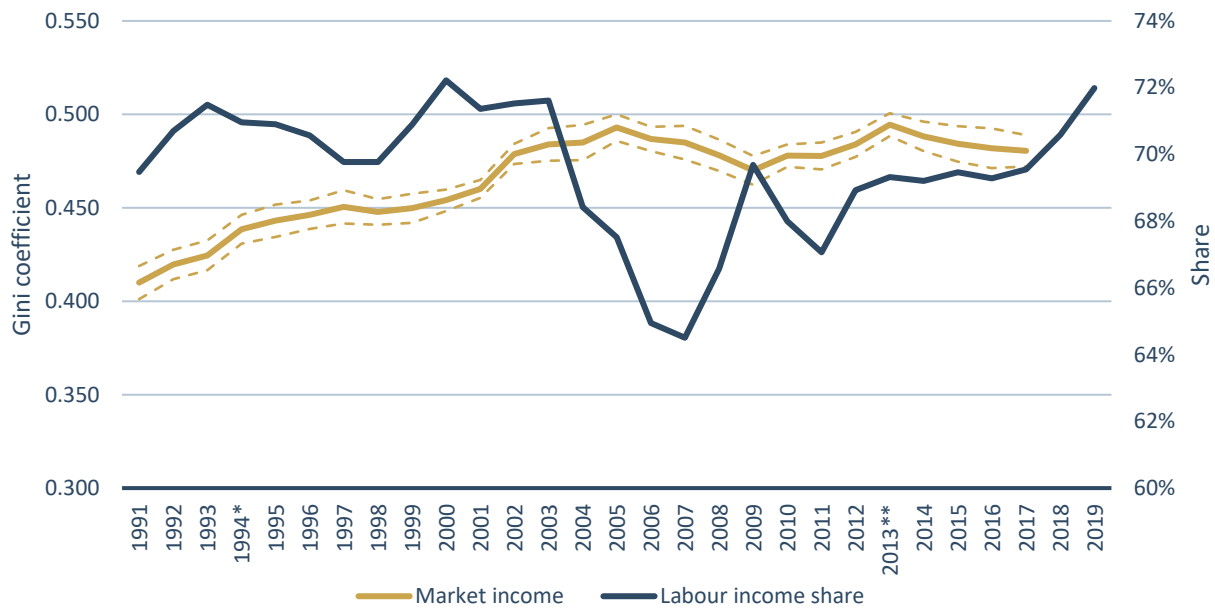
In comparison, the distribution of market incomes has developed in a notably different way. While the labour income share remained largely stable in the 1990s and varied around a level of about 70 per cent, inequality in market incomes increased significantly during the same period. Then in 2003 the labour income share started to decline sharply until the beginning of the financial crisis in 2007. Market income inequality just started to decrease in 2005 and continued to do so until 2009, when the labour income share was already on the rise again. The financial crisis in 2007/2008 marked a turning point in the evolution of the labour income share. As capital income was particularly affected by the crisis, the share of labour income initially rose sharply between 2007 and 2009, but also corrected downward again between 2009 and 2011, without, however, falling back to its lowest level in 2007 (around 64.5 percent). An increase from 2011 to 2012 was followed by a prolonged sideways movement until 2016, before the labour income share most recently increased to around 72 percent in 2019, a level similar to that in the 1990s. In contrast, market income inequality did also respond to the financial crisis by showing an increasing trend between 2009 and 2013 but has decreased since then. Overall,



the data does not support the hypothesis that market income inequality decreases whenever the labour income share is increasing.

**Figure 3-9: Evolution of labour income share and market income inequality in Germany**

Gini coefficient of equivalent household market incomes (new OECD scale)



Notes on SOEP data regarding market incomes: \*Time series break due to the integration of sub-sample D (migration 1984-1994) and change in income question/recording; \*\*Time series break due to the integration of sub-sample M1 (migration 1995-2011).

Sources: Stockhausen/Calderón, 2020; VGR des Bundes, Fachserie 18, Reihe 1, 2, 3, Vierteljahr 2020

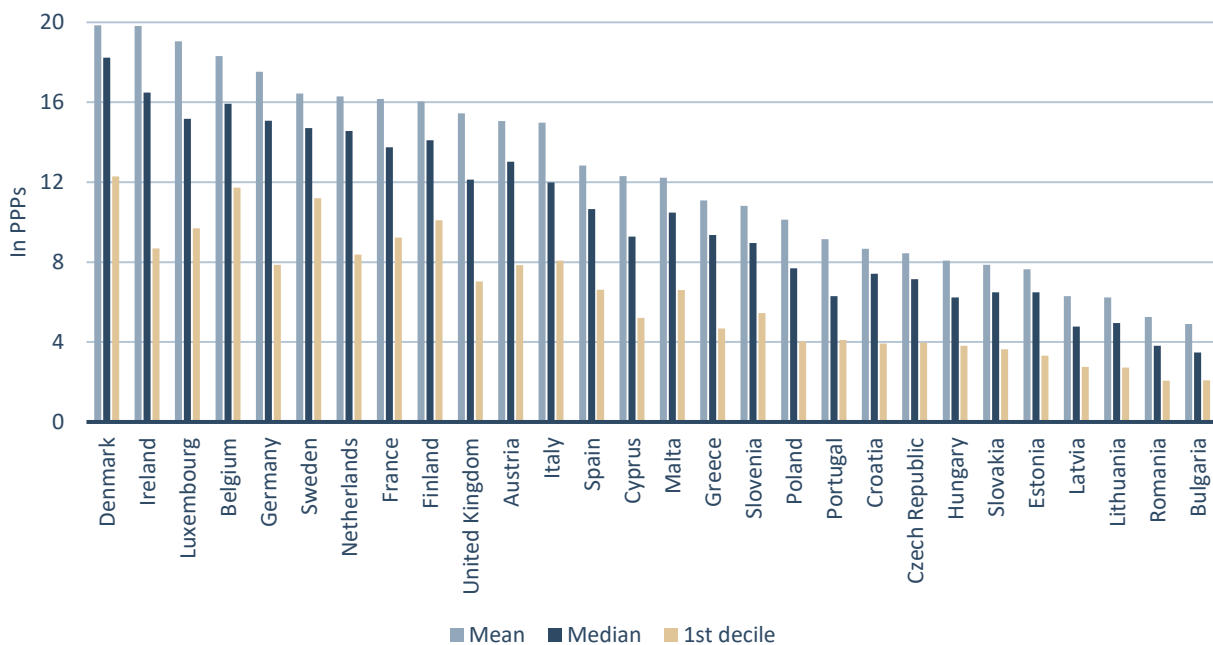
The level and development of market income inequality is also often associated with the size of the low-wage sector in Germany and thus with the distribution of gross hourly wages. In EU-wide comparison, the low-wage sector in Germany is relatively large. Although its size has declined slightly in recent years, still around one in five employees work in the low-wage sector (Fedorets et al., 2020). However, since low-wage incidence is measured in relation to national earnings, it is also noteworthy that the general wage level in Germany is relatively high compared to other EU countries (Figure 3-10). Germany ranks 5th out of the 28 EU member states regarding the level of mean hourly earnings adjusted for purchasing power. While mean hourly earnings amounted to €17,52 in Germany in 2014, it was €19,85 in Denmark (highest value), €16,44 in Sweden, €15,44 in the United Kingdom or €4,90 in Bulgaria (lowest value). Similar patterns hold for median hourly earnings at lower levels. Looking at the threshold to the lowest earnings decile, however, Germany performs somewhat worse, ranking only 10th out of 28.

Besides, the German unemployment rate is comparatively low. In fact, in no EU member state the youth unemployment rate is lower than in Germany. The observation that the unemployment rate of low-educated is also comparatively low, hints at a plausible trade-off between the unemployment rate of low-skilled workers and hourly wages, implying that some of those who

receive low hourly earnings in Germany are rather unemployed in other countries. Unlike the contrasts with national accounts data, the comparison of changes in market income inequality and gross hourly wages over time reveals slightly more similar trends but there are still differences. Inequality in gross hourly wages increased from the end of the 1990s until 2005/2006 (Figure 3-11). Since then, it first decreased merely in the lower half of the distribution and from 2013 onwards among the whole distribution (Fedorets et al., 2020). From 2015 onwards, the downward trend is even stronger, which is likely to be due to the introduction of the statutory minimum gross wage of €8,50 per hour. Although inequality in gross wages has, thus, declined recently, inequality in market incomes as well as in disposable incomes has remained relatively stable.

**Figure 3-10: Hourly earnings adjusted for purchasing power in an EU comparison**

Industry, construction, and services (excluding public administration), 2014



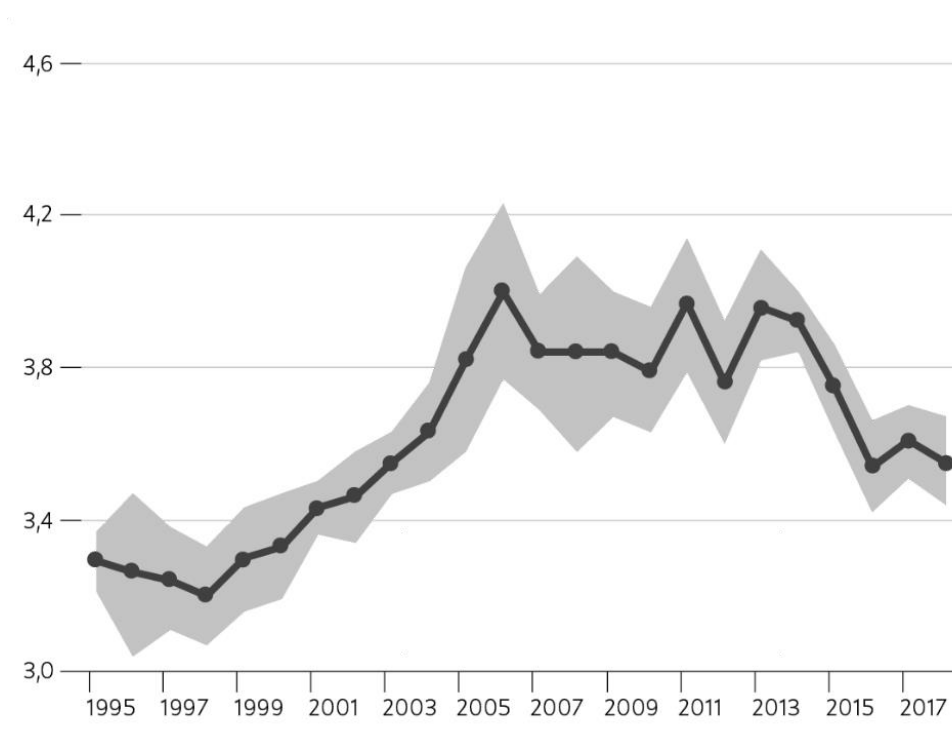
Source: Eurostat (Lohn- und Gehaltsstrukturerhebung)

The introduction of the minimum wage in Germany in 2015 did obviously not lead to an unambiguously lower level of market income inequality and the positive trend in gross hourly wage inequality, which has already started before its introduction, did not automatically or fully translate into lower market income inequality. This is likely due to an adjustment of working hours as Grabka/Schröder (2018) can show. Monthly wages in the lowest decile hardly increased at all after the introduction of the minimum wage because working hours among low-wage earners fell. Thus, while the minimum wage has contributed to a significant increase in hourly wages in some areas and occupations, especially in several parts of Eastern Germany and in low-wage sectors, it has had little overall impact on the distribution of market and disposable incomes.

Moreover, Schröder/Kestermann (2020) point out that an increase in the minimum wage would not necessarily lead to a reduction in the at-risk-of-poverty rate because the net income of a single person working full-time at the present minimum wage level is already very close to the at-risk-of-poverty threshold. Indeed, in most European countries full-time workers that receive a wage as high as the national minimum wage already exceed their national at-risk-of-poverty thresholds. Moreover, they highlight the importance of low working hours for falling below the at-risk-of-poverty threshold.

**Figure 3-11: Inequality of agreed gross hourly wage in main job**

Percentile ratios (P90/P10)



Note: Gray areas show 95%-confidence intervals.

Source: Fedorets et al., 2020

Furthermore, another factor influencing the trends in market and disposable income inequality is the increasing number of single households in Germany, which tends to raise inequality in disposable incomes, as advantages through economies of scale within households cannot be exploited (Peichl et al., 2011). This development is not only related to a society that relies more on individualism, but also to an aging society. A third factor that drives inequality and counteracted decreasing inequality trends in recent years is the migration from Eastern Europe to Germany since 2010 as well as the influx of refugees from 2015 onwards. This is reflected, among other things, by the fact that at-risk-of-poverty rates are higher for persons with a migration background and that poverty risks have increased significantly among this group in recent years. Meanwhile, the share of low-income earners without migration background has been constant or has even declined in some age groups (Grabka/Goebel, 2020). In this regard, counterfactual analyses on behalf of the 6th poverty and wealth report of the Federal Government show, that

the observed employment gains since 2005 on its own would have resulted in lower inequality levels (Kleimann et al., 2020, p. 275 ff.). It further reveals that the development of inequality in Germany from 2005 onwards was mainly determined by changes in the composition of socio-economic characteristics of the society.

### 3.5 COVID-19 and income inequality

In view of the Corona pandemic, which has already left deep marks on the economy and society, the question of distributional effects is once again at the centre of attention. With respect to the worldwide development, analyses project that the pandemic will likely increase inequality and poverty since job losses could disproportionately affect the income and labour participation of low-skill workers (see section 2.2). However, the impact of the pandemic also depends on the measures taken by the government to absorb negative effects of the crisis. To avoid an economic and social collapse, the German government decided on the first extensive aid packages at the end of March 2020. In addition to simplified access to basic social assistance benefits or the strengthening of short-time working allowances (*Kurzarbeitergeld*), extensive unconditional financial aid (*Überbrückungshilfen*), loans and concessionary credits were made available to ailing companies. With respect to the beginning of the COVID-19 pandemic, this prevented a rapid rise in unemployment and a wave of corporate insolvencies.

Although the distributional effects of the COVID-19 pandemic are of huge interest for the public debate, it is yet difficult to determine its effects on basis of available data. To gain insight into what impact the pandemic had on the economic situation of people in Germany, the German Economic Institute (IW) commissioned an online survey in August 2020 in which 1,202 people were asked about their changes in income as a result of the pandemic and about how they had been affected by short-time work (IW survey). In a second step, individuals from the IW survey were matched to statistical twins in the SOEP using Mahalanobis distance matching. The information from the matched IW survey observations is then used to simulate crisis-induced income and status changes in the SOEP population with the help of a microsimulation analysis. Governmental measures to combat the negative consequences of the lockdown are modelled insofar they had been enacted by the end of November 2020. Resulting taxes and transfers are calculated using the IW's Tax and Transfer Microsimulation Model (STATS).<sup>12</sup>

The vehemence of the COVID-19 pandemic becomes obvious when first considering its impact on market incomes, meaning incomes before taxes, transfers, and statutory pensions.<sup>13</sup> On average, monthly market incomes per capita have fallen by six per cent compared with 2019 – the comparative incomes without the effects of the crisis (Figure 3-12). Individuals in the bottom half of the income distribution suffered the greatest losses in relative terms. In the lowest income decile, per capita market incomes fell by an average of 12 per cent. The middle-income decile was also hit hard, losing an average of 9 per cent of its market income due to unemployment, short-time work or a lack of profit income from self-employment or from capital income. People from the upper part of the income distribution also suffered losses. In absolute terms,

<sup>12</sup> See Beznoska (2016) for a detailed description of the IW Microsimulation Modell STATS.

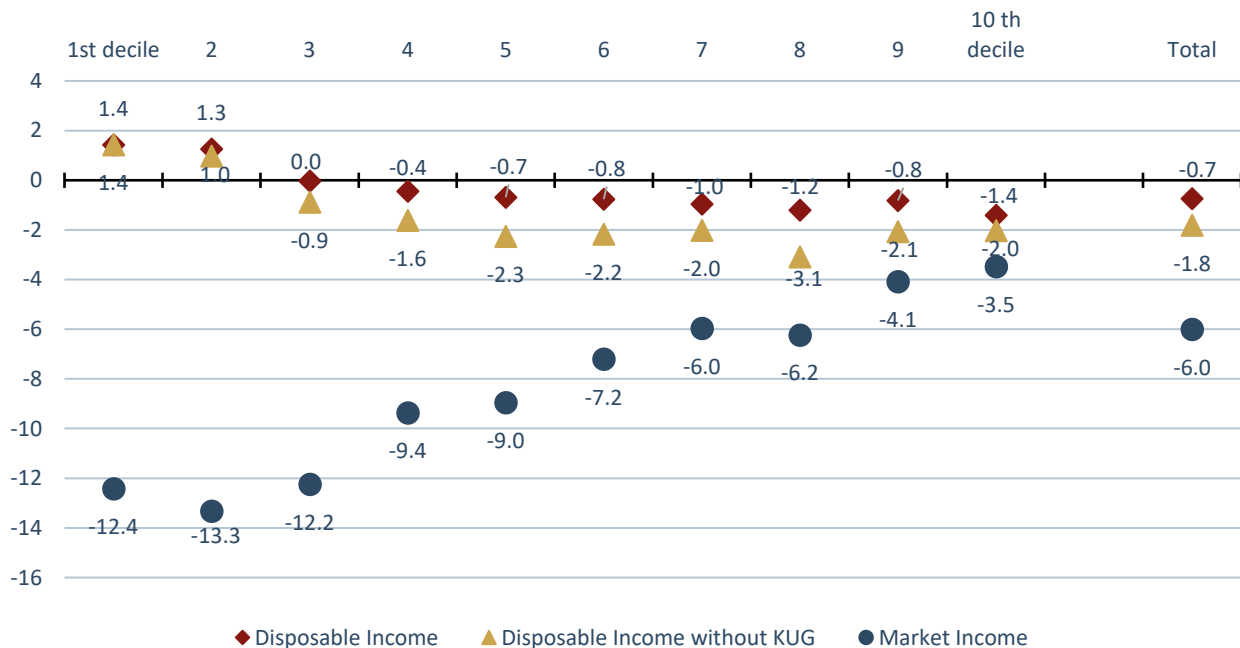
<sup>13</sup> The following results merely base on the detailed simulation analysis in Beznoska et al. (2020).

these losses were higher than in the lower half, but as a proportion of total income they were smaller in the top decile (around 4 per cent) than in the other income groups. The overall picture, thus, shows that the crisis affected all segments of the population, but to different degrees.

Considering disposable incomes reveals the compensatory effect of social security systems, which were strengthened during the crisis by additional temporary assistance payments such as the child bonus. As a result, the relative losses in the middle and at the bottom of the income distribution were reduced. Simplified access to basic social assistance benefits, the increase in the tax allowance for single parents, raising statutory pensions and the expansion of housing benefits and the child supplement – which were implemented independently of the Corona crisis in 2020 – even result in a slight nominal increase in disposable household incomes for the 1st and 2nd income deciles. It should be noted, however, that this result is based on the assumption that 100 per cent of social benefits are claimed.

### Figure 3-12: Changes in household income through COVID-19 pandemic

Deciles of equivalent household net incomes in 2019, changes compared to 2019 in per cent



Notes: KUG = Kurzarbeitergeld (short-time allowance).

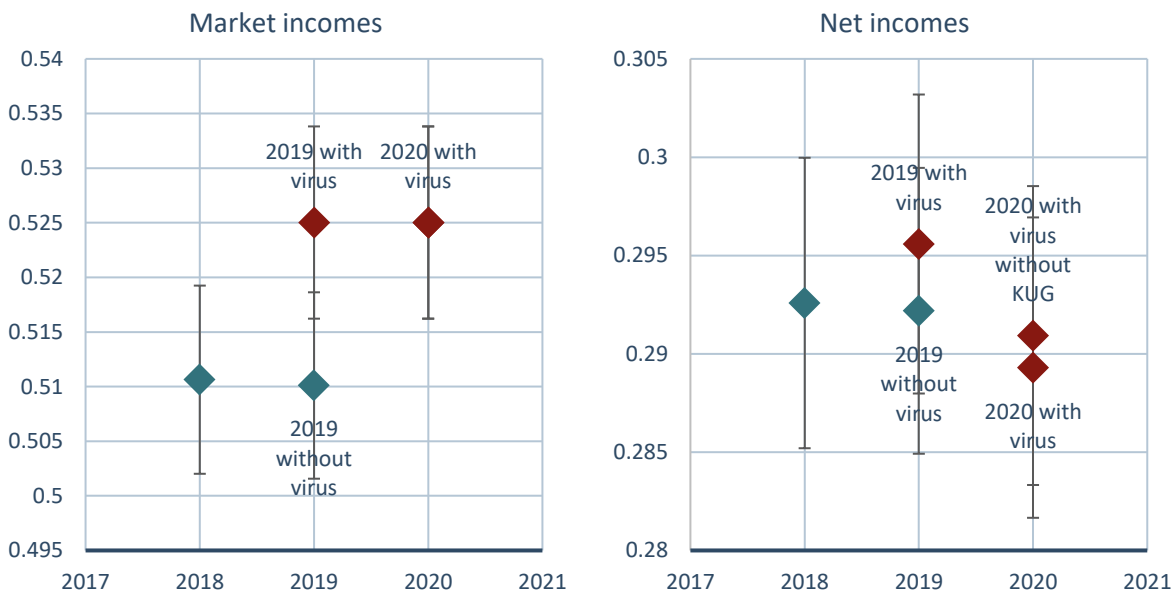
Source: Beznoska et al., 2020 (on basis SOEP v35 and IW-Survey)

Also, middle incomes benefited from welfare redistribution and assistance measures, in particular from short-time working benefits. While market incomes in the 5th decile are reduced by an average of 9 per cent, the loss in disposable income is much smaller, averaging 0.7 per cent. Without the short-time allowance, the loss would have been around 2 per cent. Looking at the upper income groups, we see that while high earners experienced relatively the smallest losses in market incomes during the crisis, they experienced the largest percentage losses in disposable incomes, as aid measures have a lower relative impact in upper income deciles.

Figure 3-13 illustrates the simulated impact of the COVID-19 pandemic on income inequality as measured by the Gini coefficient. When first considering income before governmental intervention the results reveal that the Gini coefficient of market incomes increased from 0.510 in 2019 to 0.525 in the Corona year 2020. However, only considering market incomes would ignore the equalizing effect of the welfare state, whose primary goal is to protect against different life risks. In fact, the described income changes do not imply an increase in inequality in disposable incomes. Similarly, to the times of the financial crisis, there is even a weak decline in the Gini coefficient from 0.293 in 2018 to 0.289 in 2020. Thus, disposable household incomes are not only fundamentally more equally distributed than market incomes, but the simulation analysis also suggests that the distribution of disposable incomes – at least in a short-term perspective – is also not expected to become more unequal through the impact of the COVID-19 pandemic. These general effects on inequality also hold if other inequality measures are used.

**Figure 3-13: Changes in net and market income inequality through COVID-19 pandemic**

Gini coefficient of equivalent household incomes (modified OECD scale)



Notes: KUG = Kurzarbeitergeld (short-time allowance); whiskers represent 95 per cent confidence intervals (bootstrap procedure,  $n=100$ ); the addition with/without virus indicates whether Corona-related income changes were modelled or not.

Source: Beznoska et al., 2020 (on basis SOEP v35 and IW-Survey)

Obviously, the simulation results must be interpreted with the necessary methodological caution and only represent the impact of the pandemic as they were captured by the IW survey in August 2020. However, the results represent an initial estimate of the general distributional consequences of the Corona pandemic, and they show the effectiveness of the German social system and importance of the prompt reaction by the government. The robustness of the results

is corroborated by a simulation analysis by Bruckmeier et al. (2020), who, using a different methodological approach, also conclude that an increase in disposable income inequality is not to be expected in the crisis year 2020.<sup>14</sup> The long-term effects of COVID-19 will especially depend on the extent to which employment can be further maintained and the previous growth path may be reached.

## 4 The inequality-growth-nexus

Discussions about the development of inequality often implicitly assume that lower inequality levels are generally preferable. While this is plausible in a *ceteris paribus* perspective, theories also suggest that smaller differences in income may imply working disincentives because associated income gains are expected to be small. In this context, the optimal level of inequality becomes a crucial point of the discussion which is conventionally analysed in the context of the inequality-growth nexus. In fact, the relationship between inequality and growth regained renewed interest when the IMF and the OECD closely in time published two studies on this topic in the year 2014. The analyses both came to the result that increasing inequality is accompanied by lower economic growth and beyond, that raising redistribution will have no negative effects on growth (Cingano, 2014; Ostry et al., 2014, later published as Berg et al., 2018).

In particular, the graphical representation of the main results of the OECD study, illustrated in Figure 4-1, gained a lot of media attention. For Germany, the results imply that economic growth between 1990 and 2010 could have been larger by 6 percentage points if there had been no increase in inequality. The results are particularly attention-getting because they question the widely assumed equity-efficiency trade-off.<sup>15</sup> Theoretically, there are likewise reasons to expect positive effects from inequality on growth as well as a negative relationship. The positive relationship bases most notably on the idea that income differences build the ground for incentives and innovations. A negative effect can be expected, when people with low incomes have no access to the education system and, thus, preventing them from realizing their optimal development of educational opportunities.

A growth-inhibiting effect can also arise if the level of inequality is so high that it is accompanied by social unrest and political instability. The theoretical channels between inequality and growth suggest that the impact depends centrally on country-specific characteristics. For example, a negative effect is more likely in poor countries with comparatively low living standards, where many people are denied access to the education system. Similarly, inequality-related, and

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<sup>14</sup> Early simulation studies by Brunori et al. (2020) for Italy or BMSGPK (2020) for Austria find similar patterns regarding the distributional effects of the Corona pandemic.

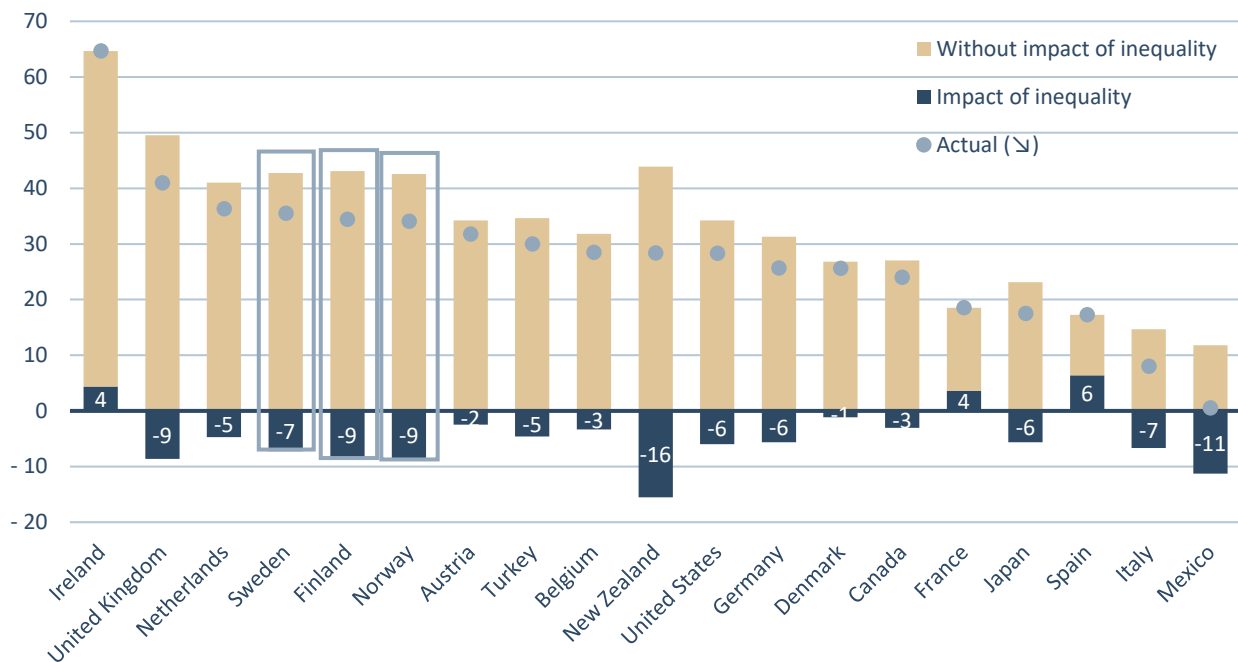
<sup>15</sup> This newly sparked facet of the distribution debate sometimes gave the impression that economists had only just begun to devote attention to the relationship between inequality and growth. Yet this very link was already the subject of a large number of empirical analyses in the 1990s. A meta-study by Neves et al. (2016) shows that the estimated coefficient for the effect of increasing inequality on economic growth ranges in a fairly wide range between -0.135 and 0.156 percentage points. The effects found follow a temporal cycle with rather negative coefficients in the 1990s, positive effects at the beginning of the new millennium and then again more negative effects starting in the 2010s.



growth-inhibiting social unrest and political instability should be more likely in countries where the level of inequality is already comparatively high.

**Figure 4-1: Impact of inequality changes on economic growth – OECD results**

GDP per capita growth in per cent



Notes: The results for the Scandinavian countries are highlighted to hint at the combination of low inequality levels and yet, comparatively large supposed negative impacts on economic growth.

Source: OECD Focus on Inequality and Growth, 2014

Against the background of these considerations, the results of the OECD study (as illustrated in Figure 4-1) are rather surprising. The findings of the study indicate that the negative effects on growth which go back to rising inequality were noticeably larger in Scandinavian countries such as Sweden, Finland, and Norway than in the USA, for example. From a theoretical viewpoint this is surprising in so far, as the United States belong to the group of OECD countries with a particularly high concentration of income. Whereas the Scandinavian countries, especially Norway, are characterized by comparatively low inequality levels. Beyond, Scandinavian countries regularly perform very well in analyses of educational mobility. One would, therefore, expect that increasing inequality in these countries is less harmful on growth because the educational and political unrest channels are less likely to be at work. However, since the OECD study only considers linear effects of inequality on growth, the initial level of inequality does not play any role within this analysis.

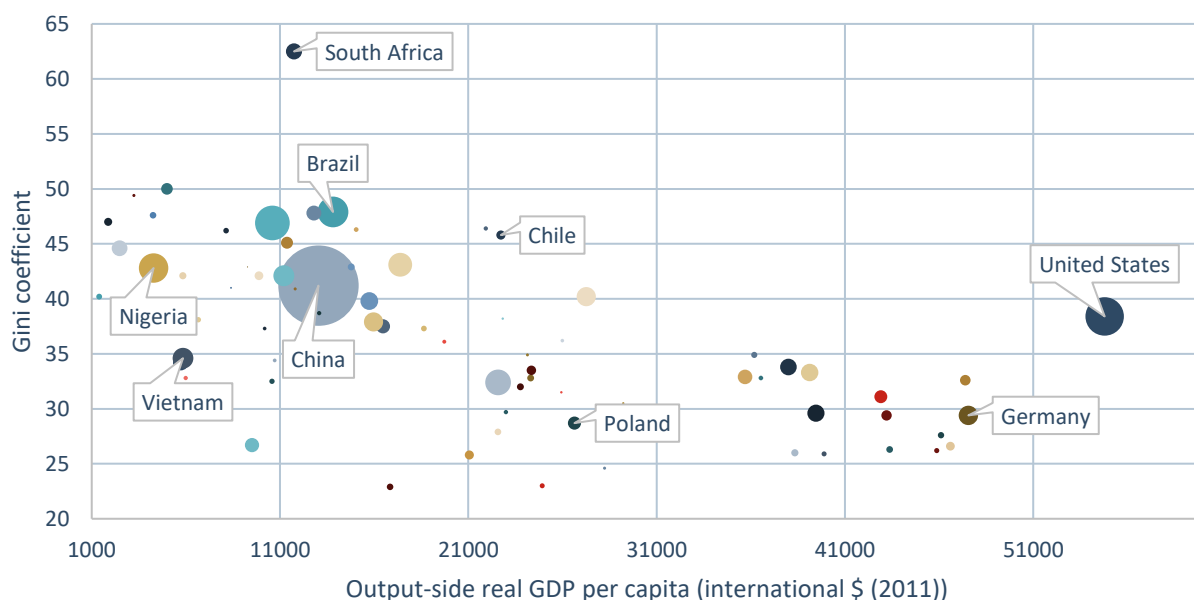
If non-linear relationships are also considered, it becomes apparent that the negative effect of increasing inequality on economic growth crucially depends on the initial level of inequality (Kolev/Niehuys, 2016). According to a global comparison of 113 countries, up to a value of the Gini coefficient of 0.35, a positive correlation between inequality and growth can be assumed.



If this threshold value of inequality is exceeded, rather negative consequences of increasing inequality on economic growth can be expected. The level of economic development of countries also plays a decisive role. In less developed economies – or more precisely, in countries whose GDP per capita does not exceed \$9,000 – the estimates show a negative effect of increasing inequality on economic growth.<sup>16</sup> As Figure 4-2 illustrates, in global comparison, Germany is characterized by a rather low level of income inequality and above-average living standards. Thus, Germany belongs to the group of countries where rather a positive correlation between inequality and growth can be expected.

**Figure 4-2: GDP per capita versus economic inequality**

2017, worldwide comparison



Notes: Countries with more than 60,000\$ GDP per capita are not shown (for graphical reasons).

Source: United Nations Population Division, 2019; PWT; SWIID

With respect to the impact of governmental redistribution on economic growth, which is also discussed in context of the inequality-growth-nexus debate, it is also likely that, *ceteris paribus*, potential negative incentive effects in response to governmental redistribution depend on the existing level of taxes and transfers. Consistent with this hypothesis, the IMF analysis finds that “when redistribution is already high (above the upper quartile), there is evidence that further redistribution is indeed harmful to growth” (Berg et al., 2018, 276). According to their analysis redistribution becomes growth-negative when the difference between pre- and post-government Gini coefficients amounts to at least 13 Gini points. In this regard, the result is in line with the widespread view that at least at some point there exists a trade-off between equity and efficiency. If, in contrast, one generally assumes that there is a negative or no effect from redis-

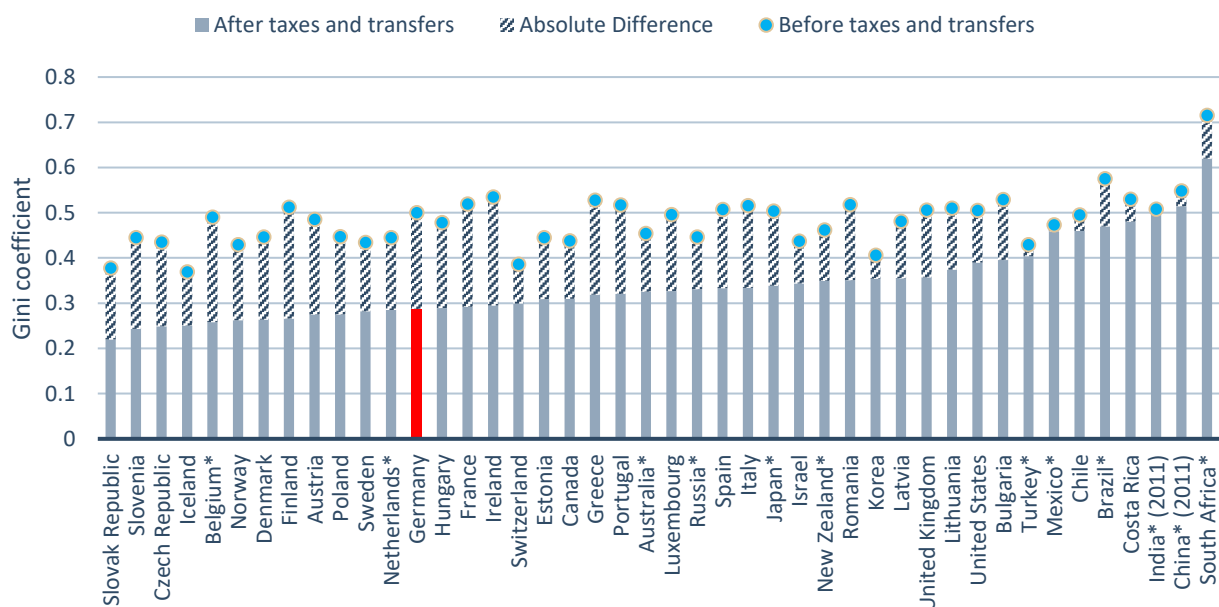
<sup>16</sup> According to Fuest et al. (2018) the threshold value is even below \$5000 in most estimations.

tribution on growth, besides a causally negative effect from inequality on growth, the government could endlessly increase taxes, thereby reducing inequality and enhancing economic growth.

Taking the theoretical channels and empirical estimations together, the findings suggest that in countries with high levels of economic development and comparatively low levels of inequality, a positive correlation between inequality and growth can be expected. With a Gini coefficient of 0.29, the level of inequality in Germany is rather low by international standards, while the level of prosperity is well above the average. Like many other EU countries, these indicators place Germany in the group of countries in which a growth-inhibiting effect of rising inequality is rather unlikely.<sup>17</sup>

**Figure 4-3: Income inequality and redistribution**

Gini coefficient, 2017



Note. \*Inequality levels refer to a year different from 2017.

Source: OECD Income Distribution Database

Figure 4-3 contrasts inequality before and after governmental redistribution across OECD countries. If, first, Gini coefficients of market incomes are considered, the values suggest only small differences in the level of inequality between the US (0.505) and Germany (0.500). Market incomes describe incomes before redistribution by the state through taxes and transfers. It includes all earned income from self-employment and employment as well as capital and property income. However, without considering institutional differences between countries, inequalities

<sup>17</sup> At the same time, however, it must be emphasized that this is at best an observed empirical correlation and by no means a causal relationship between the two variables. Even when non-linear relationships are taken into account, many factors influencing inequality and growth remain unconsidered.

of market incomes can be hardly compared. To illustrate this: While many older Germans already receive a statutory pension, US workers generally work longer and earn a market income – even at ages when German workers have already retired. Thus, stronger statutory pension protection in old age tends to go hand in hand with greater inequality in market incomes. Researchers from the Luxembourg Income Study have, therefore, additionally computed the inequality of market incomes of the population under 60 (Gornick/Milanovic, 2015). With a Gini coefficient of 0.47, concerning this indicator the US shows noticeably higher inequality than Germany (0.41).

Even greater differences between Germany and the US can be seen when looking at the distribution of wages. According to OECD data from 2018, the wage ratio between the bottom 10 per cent and the top 10 per cent of all full-time employees is almost 5 in the US. In Germany, the top 10 per cent earn 3.3 times as much on average – a value in the middle-range of the OECD countries. For the welfare position of a household within the society, net incomes after taxes and including transfers are relevant. After state redistribution – namely plus social transfer payments and pension payments and minus income-related taxes and social contributions – the Gini coefficient in Germany is reduced to 0.29. In the US, inequality remains at a significantly higher level of 0.39 even when net income is considered. The absolute difference between inequality of market incomes and the inequality of net incomes is conventionally considered as an indicator of effective governmental redistribution. As illustrated by Figure 4-3, only a few countries achieve higher state redistribution than Germany. This is in line with the IMF study which also sorts Germany to those countries, where the level of redistribution is already high and further increases are expected to be harmful to growth (Berg et al., 2018, Figure 5)

## 5 Conclusion

The first and foremost aim of the Sustainable Development Goals of the UN is the eradication of extreme poverty and hunger by 2030. When considering the empirical development of poverty over the last decades, in fact, remarkable progress in the reduction of worldwide poverty has been made. Between 1981 and 2015 the share of the world population considered as extreme poor decreased from 42 to 10 per cent. Given the substantial growth of the world population this decrease implied that the number of people living in extreme poverty more than halved. Despite the continuing major challenge of completely eradicating global poverty by 2030, extreme poverty has been significantly reduced in recent decades and millions of people have been able to build modest prosperity. When people are asked about the perceived development of global poverty rates, though, the view is far more pessimistic. Half of the respondents from 28 countries believed in 2017 that extreme poverty has been rising, in Germany only 11 per cent of respondents correctly assumed a declining trend. The pessimistic view on global development is worrying because if positive trends are not noticed, drivers of these trends are likely to be misinterpreted.

Progress was also made regarding the development of global income inequality. It has decreased significantly over the past 200 years. Particularly large progress was made in the 20<sup>th</sup> century by advances in South-East Asia, especially due to trade-induced income increases in

populous China and India. Since the late 1980s, global income inequality measured by the Gini coefficient decreased from 0.68 in 1988 to 0.62 in 2013. While income gaps between countries got smaller, though, the contribution of within-country inequality to global inequality has increased.

Although global income inequality has decreased over the last decades, inequalities between advanced economies, emerging markets, and developing economies are still extensive. Increasing global trade and economic integration have been proven to be effective ways to reduce disparities between countries. However, globalization and free-market systems have often negative connotations. The successes of such processes and systems are misjudged, and the desire for protectionism and autarky increases. Trade constraints may though harm the catching-up process of emerging markets and developing economies and hinder productivity to grow, which is an important driver of poverty reduction.

Discussions about inequality often explicitly refer to Germany as an example of high (wealth) inequality, which is likewise characterized by a shrinking middle class and large low-wage sector. However, if we zoom in to the situation in Germany, the picture reveals to be far more positive as many popular inequality narratives suggest. The comparatively high concentration of wealth is not uncommon for well-established welfare states with generous redistribution schemes. In a worldwide comparison, Germany is similar to the group of Scandinavian countries which are also characterized by generous social security systems, low unemployment rates, comparatively low net income inequality and high levels of net wealth inequality. Beyond, although the majority of Germans in surveys regularly believe that income and wealth inequality is increasing, distributional indicators stabilized since more than a decade. In fact, given the overly positive development of employment in Germany since 2005, this finding may not be surprising. However, given that in an isolated view, changing household structures, ongoing demographic change and increasing migration numbers would have rather resulted in increasing inequality, stabilized distributional indicators may well be seen as positive development.

Yet, this does not change the fact that, similar with other advanced economies, today's income and wealth inequality levels in Germany are higher than throughout the 1990s. Therefore, although the comparatively high wealth concentration can be explained and income inequality is rather low in a global comparison, the natural question arises whether inequalities may be too large. In the context of the optimal level of inequality, the debates on the relationship between inequality and growth play a central role. Recent studies suggested that lower inequality levels would mechanically imply higher economic growth and that higher redistribution will not have any harmful effects. Further analysis suggests, however, that the relationship between inequality and economic growth is far more complex than can be depicted by cross-country comparative studies with few aggregate variables. Neither does higher inequality mechanically imply higher economic growth, nor can this necessarily be achieved by reducing inequality. Furthermore, considering non-linear effects reveals that negative effects on growth can particularly be expected in countries with high degrees of inequality and low economic development, whereas in prosperous countries with low levels of inequality rather a positive relationship can be expected. With a comparatively low level of inequality and high living standards Germany clearly

belongs to the latter group. In addition, Germany is characterised by an above-average level of governmental redistribution (even among advanced economies) so that cross-country inequality analyses suggest that further redistribution is expected to have harmful effects on growth.

Nevertheless, the observation, that a relatively high level of economic development tends to be associated with a lower level of inequality, suggests that both variables can be achieved simultaneously. However, it is not only the design of the social security system that plays a decisive role here, but also stable and credible institutions, an empowering education policy and a wise and forward-looking investment policy.

Finally, whether a country's level of inequality leads to social tensions and political instability also depends on how inequality is perceived within the country and which ideas of justice prevail in society. In Germany, for example, more than 80 per cent consider a society to be just if hard-working people earn more than others (Adriaans et al., 2019). Compared with other European countries, approval of the principle of meritocracy is particularly pronounced in Germany. Income differences are, thus, desirable, provided they are justified by different efforts. Advantages that stem solely from exogenous privileges or from family circumstances, on the other hand, are largely perceived as unfair. With respect to debates about inequality it would, therefore, be helpful if they would focus more explicitly on the reasons why inequalities emerged and whether they are for example justified by different effort or different leisure-work-preferences. In Hufe et al. (2020) this attempt at differentiation is made and Germany proves to be neither a particularly unequal nor an unfair country.

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