

ECONOTE

Societe Generale

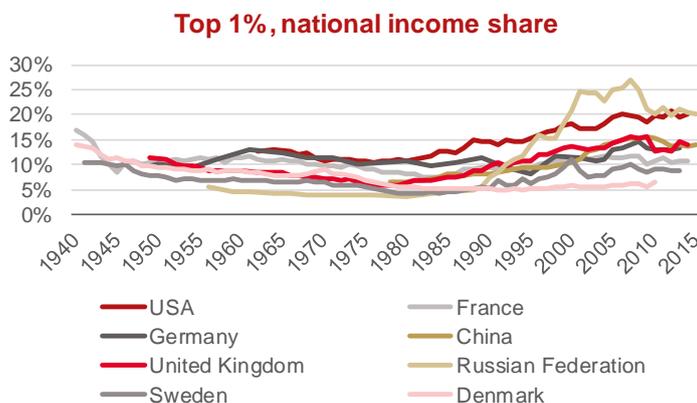
Economic and sectoral studies department

THE DYNAMICS OF INEQUALITY: IS THERE A GENERAL PATTERN?

— The world today is both more and less unequal than it was back in the 1970s. Inequality *between* countries has narrowed over the course of the last few decades, mainly due to the extraordinary growth of China, but inequality *within* countries, especially rich countries, which had declined between the 1930s and the 1970s, has risen substantially. A high level of inequality is problematic, as it can undercut social cohesion, lead to more instability, and, as research at the IMF and elsewhere has recently shown, undermine the sustainability of growth itself. Looking closely at inequality can provide us with an important key to understanding major political and economic events of the recent past.

— What does the theoretical literature say about the long-term dynamics of inequality? Simon Kuznets (1901-1985) hypothesized that inequality first increases when economies industrialize and then subsides once countries reach economic maturity. But his hypothesis, which had long dominated much of mainstream thinking in economics, gradually fell out of favour in the face of the rise in inequality in practically all advanced nations since the 1980s. Thomas Piketty challenged Kuznets's hypothesis with his assertion that worsening inequality is inherent to a capitalist economy. Then came Branko Milanovic with his concept of "Kuznets Waves": inequality rises, falls and then rises again, perhaps endlessly.

— What does the future hold for inequality? Within-country inequality will likely keep rising in the short- to medium-term, mainly due to globalisation, technological progress, and the rising share of capital in the total net product. However, the reality of different inequality trends across countries suggests that high inequality is not a fatality; policy choices – notably with regard to education, taxes, social transfers, employment and business regulations – can play a big role in counteracting the forces that propel increasing inequality.



Source: WID.world

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Although income and wealth inequality has been on the rise for nearly 40 years, the attention devoted to it has increased substantially in recent years. One reason is that the recent surge of populism (of various political colours) in Europe and the US has been attributed, among other factors, to increasing inequalities and the decline of a middle class, which has historically been a traditional social base of the political centre. In wealthy economies, stagnant median incomes have put a squeeze on middle-class households over the last few decades, while the top 1% (or even the top 0.1%) of households have seen sharp growth in their incomes and wealth. Kuznets's belief that inequality will eventually stabilise and subside on its own as countries reach economic maturity has long dominated much of mainstream economics thinking, as well as policy prescriptions. The long-held view has been that a free market economy would deliver both growth and equity, and not (as Karl Marx predicted) the concentration of income and wealth in ever-fewer hands.

Our aim in this paper is to describe in very broad brushstrokes the state of research regarding inequality. We start by defining some basic notions of inequality and take stock of empirical research in the distribution of income and wealth. Next, we present the main theories that have been put forward to explain long-term inequality dynamics within countries. Kuznets's hypothesis that development first increases inequality, then durably reduces it as countries reach economic maturity gradually fell out of favour in the face of the sustained rise in income and wealth inequality in practically all advanced nations since the 1980s. Piketty challenged the Kuznets Curve with his assertion that rising wealth concentration is the "norm" for a capitalist economy. Against this background, Milanovic posited what he calls "Kuznets Waves" – successive periods of rising, and then falling, inequality within a given country. Finally, we address the question of the future of inequality. Within-country inequality is likely to keep rising in the short- to medium-term, mainly as a result of globalisation, technological progress, and the rising share of capital in the total net product. However, there is nothing inevitable about worsening inequality; policy choices – notably with regard to education, taxes, social transfers, employment rules and business regulations – can play a big role in counteracting the forces that propel increasing inequality.

INEQUALITY: SOME BASIC NOTIONS AND FACTS

DIFFERENT CONCEPTS AND MEASURES OF INEQUALITY

Key concepts

Inequality is typically understood as referring to the difference in living standards between people or households at a moment in time. Thus, inequality is concerned with the relative position of different individuals (or households) within a distribution. There are three key measures of inequality: *income*¹, *consumption* (as people's living standards can be understood through what they consume – including food, clothing, housing, education, and health services) and *wealth* (or accumulated capital). Financial measures, however, fail to capture inequalities beyond material standards of living. Hence, the concept of *inequality of opportunity* (among others), which refers to circumstances that have an impact on living standards but over which individuals have no control, such as family socioeconomic status, gender, ethnic background, educational opportunities, or place of birth. Of course, all these concepts of inequality are related. Most often, inequality is based on household income and wealth, as this is the best documented data available.

Key measures

The most widely quoted index of inequality is the Gini coefficient (see Box 1), which compares each person's income with that of every other person in the population. It ranges from 0 (everybody has the same household income per capita) to 1 (the entire income of the group, a country for example, is appropriated by one household). Currently, the Gini coefficient for countries ranges from 0.25 (Norway) to 0.71 (Namibia). Another category of inequality measures is the General Entropy measures (derived from the notion of entropy in information theory), the best-known of which are the Theil indexes, which allow for a breakdown of inequality into the part that is due to inequality within areas (e.g. urban, rural) and the part that is due to differences between areas (e.g. the rural-urban income gap). There are also welfare-based measures of inequality, the most popular of which is the Atkinson's inequality measure (or Atkinson's index), which is based on an explicit formulation of social welfare that indicates the welfare loss arising from an unequal distribution of income².

¹ *Income is defined as the flow of revenues received over one year from self-employment, wages, dividends, interest, and government transfers such as pensions and unemployment benefits (minus taxes directly paid to the government). Income also includes the imputed value of owned housing.*

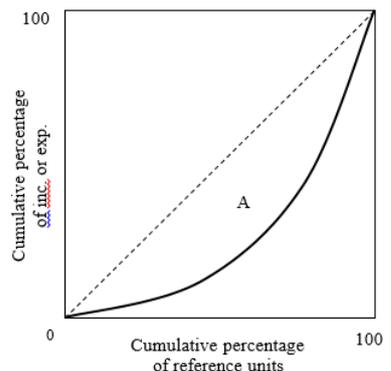
² *Unlike positive measures of inequality, such as the Gini coefficient, which seek to describe the existing pattern of income*

*distribution, these normative measures of inequality are based on value judgements, notably the degree of society aversion to inequality, which is a theoretical parameter defined by the researcher. See Atkinson, Anthony B. (1970), "On the Measurement of Inequality", *Journal of Economic Theory* 2: 244-63.*

BOX 1 - THE LORENZ CURVE AND THE GINI COEFFICIENT

The Lorenz curve, which was developed by American economist Max Lorenz in 1905, is a graphical representation of income inequality. On the horizontal axis is the cumulative number of income recipients ranked from the poorest to the richest individual or household. The vertical axis displays the cumulative percentage of total income. The Lorenz curve shows the proportion of income earned by any given percentage of the population. It is usually shown in relation to a 45-degree line that represents perfectly equal income distribution (so that the poorest 20% of the population earned 20% of the income, the poorest two-fifths 40% of the income and soon). Thus, the further away the Lorenz curve is from the 45-degree line, the more unequal the distribution of income.

The Lorenz Curve and the Gini Coefficient



The Gini coefficient, developed by the Italian statistician Corrado Gini in 1912, measures the extent to which the distribution within an economy deviates from a perfectly equal distribution. The index is computed as the ratio of the area between the two curves (Lorenz curve and 45-degree line) to the area beneath the 45-degree line. A Gini coefficient of 0 expresses perfectly equal distribution. A Gini coefficient of 1 (or 100%) expresses perfectly unequal distribution, with all income going to one individual or household. The coefficient allows for a direct comparison of the income distribution of two populations, regardless of their sizes.

The Gini coefficient, however, is sometimes criticized for attaching too much weight to income transfers affecting the middle of the income distribution at the expense of income transfers affecting its lower or higher tails (that is, the very rich and very poor). Moreover, this coefficient only captures relative changes, which means that if, for example, the incomes of the rich and the poor increase at the same rate, then the Gini index remains the same, even though absolute inequality is increasing. This has led a number of authors to argue that the Gini index is a misleading indicator that obscures the true extent of inequality.

Ratios are also popular. They constitute the simplest measurement of inequality. The decile dispersion ratio, which presents the ratio of the average consumption or income of the top 10% (the “rich”) divided by the average consumption or income of the poorest decile (the “poor”), can be easily interpreted. It can also be calculated for other percentiles. For instance, expressing the average income of the richest 1% or 5% – the 99th or 95th percentile – as a multiple of that of the poorest 1% or 5% – the 1st or 5th percentile. Another example of decile dispersion ratios is the Palma ratio, which is the ratio of the richest 10% of the population’s share of gross national income divided by the poorest 40% of the population’s share. This ratio is based on economist Gabriel Palma’s empirical observation that inequality is

mainly about how much the rich (the top 10%) and poorest (the bottom 40%) get – or what are known as “the tails” of the distribution – because there tends to be relative stability in the share of national income that goes to the “middle” 50% of the population – defined as households in the 5th to the 9th deciles³.

These measures of inequality, which focus on the differences between those in the top and bottom income brackets, have become increasingly common in inequality research in recent decades, given the growing divide between the richest and poorest in society.

³ Palma found that the relative stability in the share of national income that goes to the middle 50% of the population is observed

not only in countries at different income levels, but also in any given country over time.

Evidence from recent international panel data

For a long time, research on income and wealth distribution was based on very limited empirical observations. It was only recently that a huge body of research into long-term patterns of inequality in the US, Europe and other developed economies became available thanks to major works by Klaus Deininger and Lyn Squire⁴, Thomas Piketty⁵, Anthony Atkinson, François Bourguignon⁶ and Branko Milanovic⁷. These researchers have made great strides in informing the debate around the evolution of wealth and income distribution by assembling large-scale datasets with internally consistent time-series of inequality spanning several decades for a large number of countries. An important milestone was reached in December 2017 when the *World Inequality Report (WIR) 2018* was published⁸.

These large-scale panel data show that the pattern of change in income distribution varies significantly depending on whether income inequality is assessed at the global level (that is, abstracting from national boundaries) or *within* national boundaries:

- *International inequality* – that is, the income gaps between rich and poor countries – *has declined* in recent decades, as poorer countries have caught up with richer ones,
- *but inequality within countries*, notably high-income ones, *has substantially increased*.

DECLINE IN GLOBAL INEQUALITY

Milanovic's three concepts of global inequality

Branko Milanovic distinguishes three concepts of global inequality (see Milanovic, (2007, 2016)⁹:

1. The first, which he calls "*concept 1*" or "*unweighted international inequality*", focuses on inequality between countries based on their level of average income (or GDP) per capita, as derived from national accounts statistics.
2. The second concept, which Milanovic calls "*concept 2*" or "*population-weighted international inequality*", also focuses on the differences in countries' average GDP per capita; unlike concept 1, however, it is weighted by the size of each country's population¹⁰.
3. As for the third concept, "*concept 3*" or "*global inequality*", it focuses on the individual or household (rather than the country), and is thus concerned with the distribution of income over the entire global population, ignoring national boundaries.

It is important to note that concept 3 is much harder to calculate than concept 2 and 1, as each person or household, regardless of its country, enters in the calculation with its actual level of income or consumption. Therefore, the main source of data for estimating concept 3 is household surveys (rather than the national account statistics), which are not available prior to the mid-1980s for many parts of the world¹¹, or are not available at all for many of the poorest countries, as they do not conduct household surveys. This means that any

⁴ Deininger and Squire (1996, 1998) assembled the first large-scale data set with enough observations (682 observations of Gini coefficients and quintile shares for 108 countries) to study the evolution of inequality within countries. See Deininger, Klaus, and Lyn Squire (1996), "A New Data Set Measuring Income Inequality", *World Bank Economic Review* 10(3): 565-91, and Deininger, Klaus, and Lyn Squire (1998), "New Ways of Looking at Old Issues: Inequality and Growth", *Journal of Development Economics* 57: 259-87.

⁵ See Piketty, Thomas (2001), *Les hauts revenus en France au XXe siècle. Inégalités et redistribution 1901-1998*, Paris, Grasset, 807 p. The French study was followed by similar long-term studies of top incomes in the UK, the United States, the rest of Europe and other developed countries and more recently in a number of emerging market economies. See Atkinson, Anthony B., and Thomas Piketty (ed.) (2007), *Top Incomes over the Twentieth Century: A Contrast between Continental European and English-Speaking Countries*, Oxford and New York: Oxford University Press; Atkinson, Anthony B., and Thomas Piketty (ed.) (2010), *Top Incomes: A Global Perspective*. Oxford and New York: Oxford University Press; Alvaredo, Facundo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez (2013), "The Top 1 Percent in International and Historical Perspective", *Journal of Economic Perspectives*, vol.27, n°3, Summer, pp. 3-20; Alvaredo, Facundo, Lucas Chancel, Thomas Piketty, Emmanuel Saez and Gabriel Zucman (2017), "Global Inequality Dynamics: New Findings from WID.World", NBER Working Paper 23119.

⁶ Bourguignon, François (2015), *The Globalisation of Inequality*, Princeton University Press, United States of America.

⁷ See Branko Milanovic (2016), *Global Inequality. A New Approach for the Age of Globalization*, Cambridge, Harvard University Press, 299 pages.

⁸ This report relies on the most extensive database to date on the historical evolution of income and wealth inequality, drawing on 175 million tax and statistical data from the WID.world (Wealth and Income Database) project. It is the result of the work of around 100 economists from around the world, including Thomas Piketty, Tony Atkinson, Facundo Alvaredo, Emmanuel Saez, Lucas Chancel and Gabriel Zucman. See <https://wir2018.wid.world/>.

⁹ See Branko Milanovic (2007), "The Three Concepts of Inequality Defined", A chapter in *Worlds Apart: Measuring International and Global Inequality*, from Princeton University Press; Branko Milanovic (2016), "All Three concepts of Global Inequality Show Continued Convergence", on Twitter, 25 October.

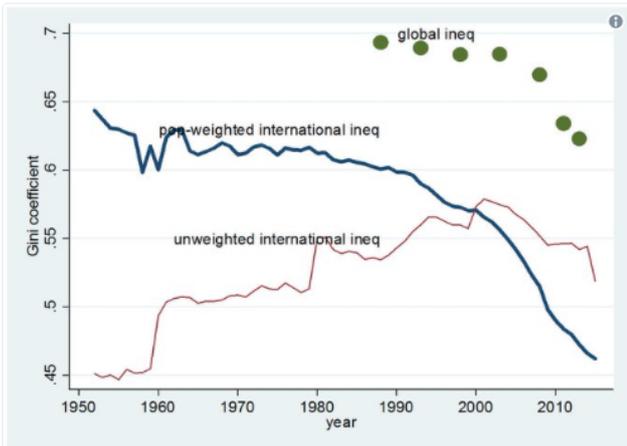
¹⁰ This means that if China, for example, becomes richer, this will have a greater impact on international inequality than if Eritrea, for example, were to see a proportional increase in wealth.

¹¹ For example, the first available Chinese household surveys date back to 1982.

calculation of global inequality (i.e. the gap between rich and poor people worldwide, regardless of where they live) is substantially underestimated.

The income gap between countries has narrowed...

The graph below shows the trend in the Gini index of inequality after the Second World War, according to the three concepts of global inequality as calculated by Milanovic.



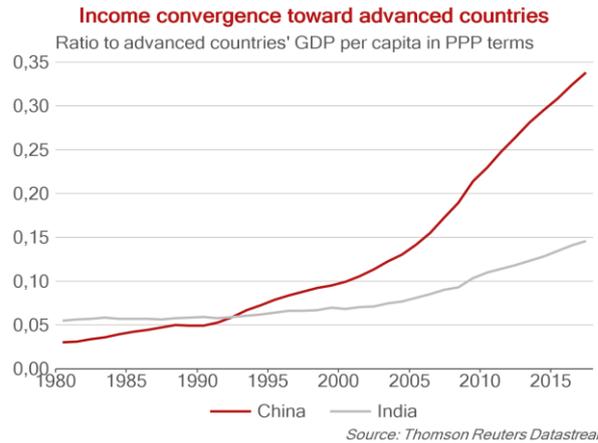
Branko Milanovic
@BrankoMilan

All three concepts of global inequality show a continued convergence (update to 2013/2015)

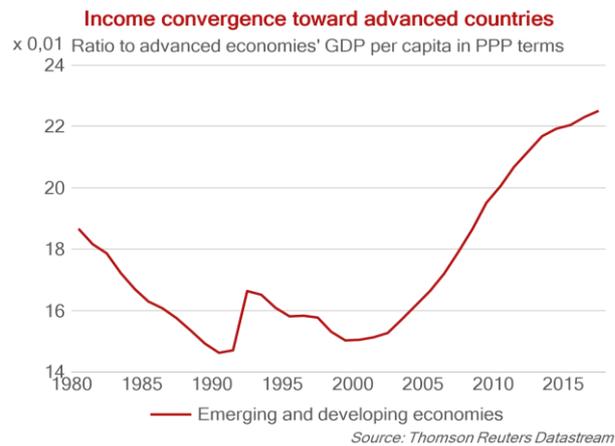
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[Voir les autres Tweets de Branko Milanovic](#)

According to concept 1 (unweighted international inequality), average incomes across countries became more divergent over the 1980-2000 period, meaning that advanced countries grew, on average, faster than developing countries. However, measured by concept 2 (population-weighted international inequality), inequality has been shifting gradually towards convergence between developed and developing countries since the early 1980s, a downward trend which has accelerated since the early 1990s. The difference in trends between concept 1 and concept 2 until the turn of the century is mainly due to the high economic growth of China and India, the two most populous countries in the world (respectively, 22% and 16% of the world's population), which have greater weight in the calculation of concept 2 (given their larger populations) than any other country.



During 1980-2017, average purchasing-power-adjusted per capita income in China surged from less than 4% of the average per capita income in advanced countries in 1980 to 34%; in India, it rose from 7% to 15%. Initially underpinned by China, and then India, the trend towards income convergence has, since the early 2000s, extended to the rest of Asia (approximately 50% of the world population).



China's and India's impressive growth led to large-scale poverty reduction and major improvements in living standards in these two countries, which almost entirely explains the process of income convergence between developing and developed countries that has been under way in the last few decades (see Milanovic, 2010, 2013, 2016¹², and Bourguignon, 2015¹³). The downward swing in global income inequality propelled by the "catch up" growth of relatively poor and very populous countries in Asia in recent decades followed a dramatic increase in inequality during the 19th and most of the 20th centuries that reflected the economic take-off of developed countries compared with the rest of the world.

...but remains at a very high level

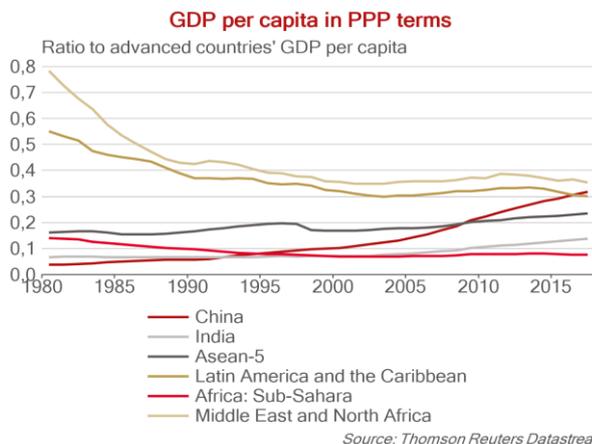
As remarkable as it is, the global income convergence that has taken place in the recent past still leaves the

¹² Milanovic, Branko (2010), *The Haves and the Have Nots: A Brief and Idiosyncratic History of Global Inequality*, Basic Books, New York; Milanovic, Branko (2013), *Global Income Inequality in*

Numbers: in History and Now", *Global Policy Volume 4, Issue 2, May*. Milanovic, Branko (2016), *op.cit.*

¹³ *Op.cit.*

average citizen in developing countries, even in fast-growing Asian countries, with less than one fourth of the average citizen's income in advanced countries. With a global Gini coefficient above 60, as calculated by Milanovic (see concept 3 in figure 1 above), the gap between rich and poor people worldwide remains vast.



This very high level of global inequality – i.e. global Gini coefficient – reflects two main phenomena¹⁴:

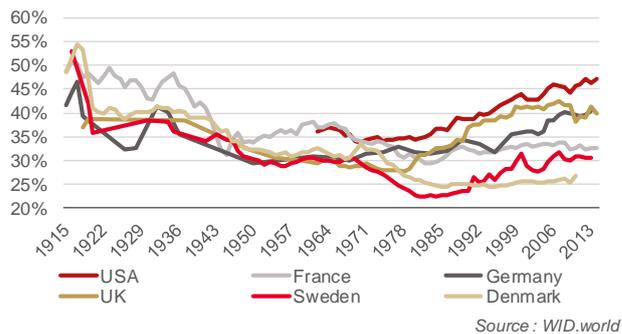
- 1) The first is that *the process of global convergence has been largely limited to Asia*. Excluding Asia, the income gap between developed and developing countries has either increased or hardly changed over the past decades¹⁵.
- 2) The second phenomenon is a *marked rise in inequality within many countries, especially high-income ones*.

INCREASE IN INEQUALITY WITHIN COUNTRIES, ESPECIALLY HIGH-INCOME ONES

While individual countries display different levels of inequality, the rise in inequality – which occurred after a decline in the period from the interwar years until the 1970s – has been evident in virtually all developed countries, with income and wealth increasingly concentrated at the very top. In the advanced world, the sharpest rises in inequality are found in the US and the UK, although more egalitarian societies like Australia and Sweden have also exhibited notable increases in inequality in recent past.

¹⁴ Milanovic, B. and J. Roemer (2016), "Interaction of Global and National Income Inequalities", *Journal of Globalisation and Development*, 7(1), 109-115; Branko Milanovic (2016), "The Greatest Reshuffle of Individual Incomes since the Industrial Revolution", *Vox*, CEPR's policy Portal, July 1. Breaking-down global inequality into its between- and within-country components, Lakner and Milanovic (2016) reckons that differences in per capita income between countries accounted for 65% of global inequality in 2013. See Lakner, C. and B. Milanovic (2016), "Global Income

Top 10%, national income share



In the United States – the most unequal of the rich countries – wealth and income inequality has soared over the last forty years and is now approaching the levels that prevailed prior to the Great Depression. America's high inequality primarily reflects the emergence of "supersalaries", with the lion's share of income gains going to people at the very top of US income distribution.

Top 1% in the USA, national income share



Top 1% in the USA, national wealth share



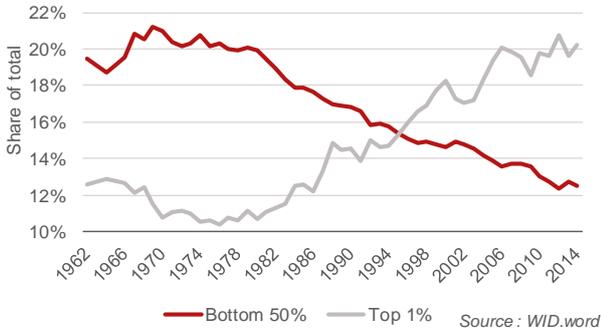
Back in 1928, up to 24% of all income received by Americans went to the richest 1%. Starting from 1929, and up until the mid-1970s, the share of the top 1% in the

Distribution: From the Fall of the Berlin Wall to the Great Recession, *World Bank Economic Review* 30(2): 203-232.

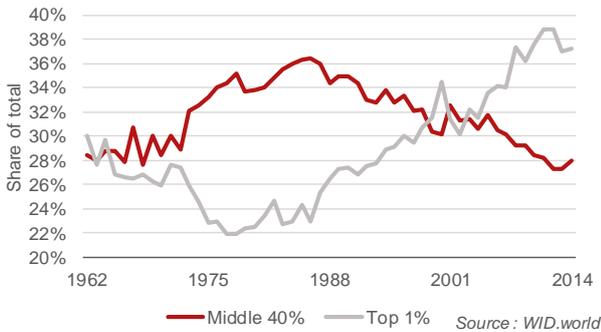
¹⁵ For example, average per capita income in Latin American and the Caribbean countries fell from the equivalent of 55% of per capita income in advanced countries in 1980 to 30% in 2017. In Sub-Saharan Africa, average per capita income dropped from 14% of per capita income in advanced countries in 1980 to less than 8% in 2017.

United States fell substantially, first quickly, and then more slowly. Since the early 1980s, the share of national income held by the wealthiest 1% of Americans has nearly doubled to stand at 22% in 2015. Meanwhile, the 1970-2014 period saw a collapse in the share of national income going to the poorest half of the population, from 21% in 1970 to 12.5% in 2015.

Income inequality, USA, 1962-2014

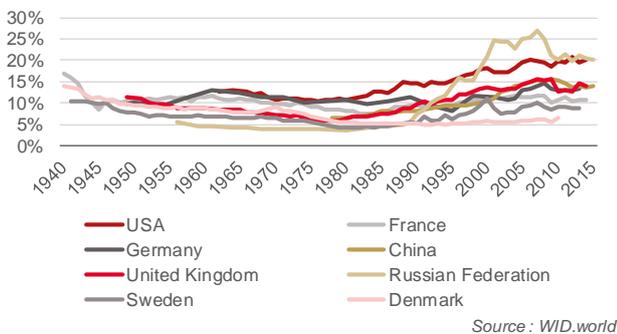


Wealth inequality, USA, 1962-2014



But the surge in the ultra-high-net-worth individuals (UHNWI) is not a development confined to the US. Over the past forty years, the numbers of UHNWI have rocketed around the globe. Many countries, including Russia, China and even the more egalitarian France, Germany and Sweden have seen a marked rise in the share of national income taken by the top 1% in the last few decades.

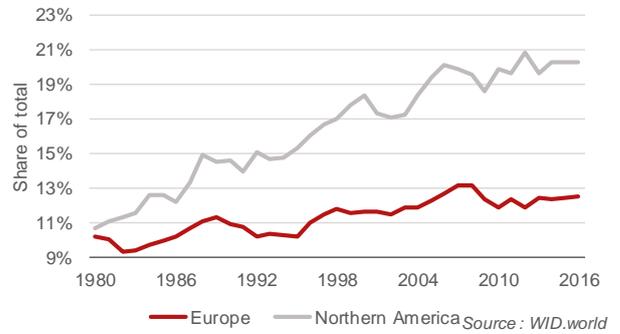
Top 1%, national income share



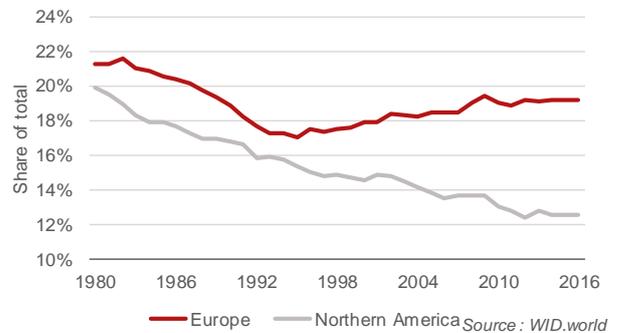
However, as noted in the *World Inequality Report (WIR) 2018*, the United States and Western Europe have been on very different income inequality paths. In 1980, these two regions had similar levels of inequality: the share of

national income held by the wealthiest 1% of individuals stood at around 10% in both regions, while the poorest 50% of households received 24% of all income in Western Europe and 21% in the US. But since the 1970s, these income shares have changed only moderately across Western Europe, contrary to the US.

Top 1%, national income share

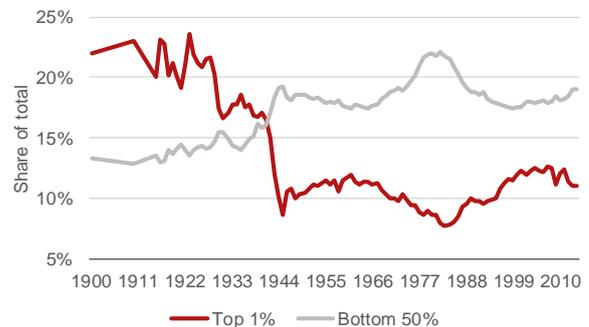


Bottom 50%, national income share



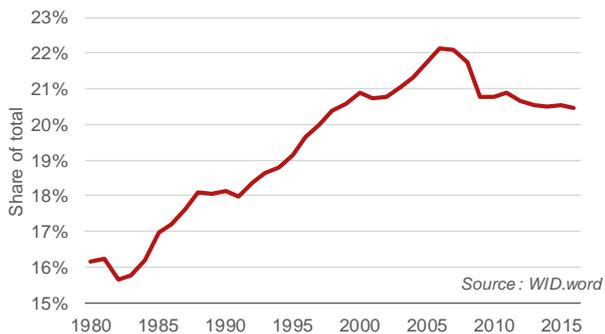
In France, for example, the share of national income going to the richest 1% rose from less than 8% in the early 1980s to 11% in 2014, while that going to the poorest 50% declined only a little over that period, from 23.8% to 22.5%. Income inequality in Europe, including France, is much lower today than it was at the beginning of the 20th century.

Income inequality, France, 1900-2014



Which parts of the global distribution registered the largest gains over the past four decades? The *World Inequality Report (WIR) 2018* shows that it was the wealthiest 1% in the world, which captured twice as much income growth as the poorest 50%.

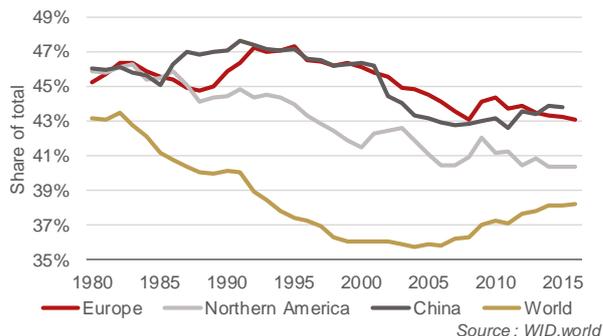
Top 1% in the world, national income share



In contrast, the North American and European middle and working classes saw virtually no income growth over the past four decades, which brings us back to the

“elephant chart” produced and popularized by the economist Branko Milanovic (see Box 2)¹⁶.

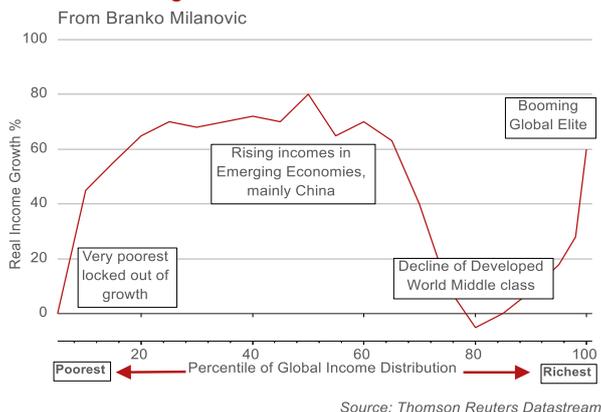
Middle 40%, national income share



BOX 2 – THE “ELEPHANT CHART”

Milanovic produced a graph – quickly dubbed “the elephant chart” because the shape of its curve resembles an elephant with a raised trunk – that shows the growth of real disposable income recorded between 1988 and 2008 by households around the world, ranked by percentile of global income distribution.

Global growth incidence curve 1988-2008



Milanovic’s chart reveals that these two decades (1988-2008), marked by the accelerating pace of globalisation and technological innovations, saw a redistribution of income on the global scale, which resulted in winners and losers.

Clearly evident in the chart is the rise of a “global middle class” – the households lying around the median of global distribution, at the highest point on the chart – which saw its purchasing power rise by 60 to 80% between 1988 and 2008. This reflects, to a large extent, the burgeoning of the middle classes in emerging market economies, primarily China. Equally evident are the gains of the top 1% of global households – the tip of the elephant’s trunk – which saw their real income surge by more than 60% in twenty years.

But the elephant curve also shows that even though some have gained, others have not seen their prospects improve at all. The big losers in these global income sweepstakes have been the poorest 10% in the world, the majority of whom live in Africa, and the households that lie between the 75th and 85th percentiles of distribution (at the base of the elephant’s trunk), whose income stagnated or fell between 1988 and 2008. This “decile of dissatisfaction”, as Milanovic calls it, is made up of 90% households in the lower middle classes of OECD countries.

¹⁶ Also see IMF (2017), “World Economic Outlook, Gaining Momentum?”, April. The IMF finds that since the early 1990s, workers in the majority of advanced economies have received a

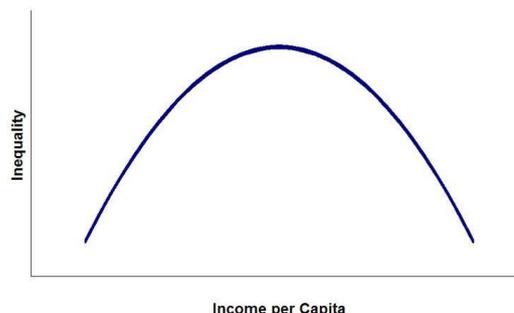
declining share of national income while a growing share of productivity gains has been captured by the owners of capital.

WHAT DOES THE THEORETICAL LITERATURE SAY ABOUT THE DYNAMICS OF INEQUALITY?

KUZNETS' HYPOTHESIS

Income inequality first rises and then falls as economic development proceeds

In his 1954 Presidential Address to the American Economic Association, Simon Kuznets suggested the existence of a general relationship between income inequality and per capita income (Kuznets, 1955)¹⁷. He hypothesized a typical pattern of change for income distribution. In his view, inequality initially rises when economies “take off” and industrialize, eventually levels off over time, then begins to decline as countries reach advanced stages of economic development. To quote him: “*One might thus assume a long swing in the inequality characterizing the secular income structure: widening in the early phases of economic growth when the transition from the pre-industrial to the industrial civilization was most rapid; becoming stabilized for a while; and then narrowing in the later phases.*” (Kuznets, 1955). According to Kuznets’ hypothesis, the relationship between income levels and inequality follows a trajectory in the shape of an inverted U (see the figure below), which is known as the Kuznets’ curve.



The empirical backing for this hypothesis came from Kuznets’ investigation of a time-series of inequality data for England, two states in Germany and the United States (Kuznets, 1955)¹⁸. In the 1950s, these were basically the only countries for which a sufficiently long-time series was available. By that time, the US and the UK were in the midst of the most significant decline in income inequality ever registered in history, after a period of highly unequal industrialization. They were also enjoying substantial income growth. Given the very limited range of empirical observations on which his argument was based, Kuznets issued a word of caution about the scope of his findings. In his concluding statements, he noted (Kuznets, 1955, p.26), “*The paper is perhaps 5 per cent empirical information and 95 per cent speculation, some of it possibly tainted by wishful thinking.*”

BOX 3 – THE RATIONALE OF THE KUZNETS CURVE

Kuznets recognised that there were powerful economic forces that tended to fuel inequality in a market economy. But he argued that, even in the absence of redistributive economic policies, a range of powerful economic forces would operate to offset the trend towards increased inequality. His explanation for the theorized inverted U-shaped relationship between inequality and per capita income can be summarized as follows:

He assumed that in agrarian societies, before the advent of industrialization, inequality was relatively low as the very low average income level left little room for high levels of inequality¹⁹.

As the nation develops and undergoes industrialization, he argued, two groups of forces will combine to drive income inequality higher: first, “the concentration of savings in the upper-income bracket”; second, the shift away from agriculture into nascent industry. As people move from slow-growing, low-productivity (and low-inequality) traditional sectors of the economy, to faster-growing, higher-productivity (and medium-inequality) industrial sectors, the centre of the economy shifts from rural to urban areas. In the process, average incomes rise, but so does income inequality, as a rising percentage of workers earns higher industrial wages. Moreover, an increasing proportion of income-yielding assets is concentrated in the hands of the wealthier groups.

Inequality will increase until a tipping point is reached where the nation achieves a certain level of average income, coupled with a high level of income inequality. Beyond that point, the predominance of industrial

¹⁷ Kuznets, Simon (1955), “Economic Growth and Income Inequality”, *American Economic Review* 45 (March): 1–28.

¹⁸ In his 1963 study, Kuznets provided further evidence of his inverted U-shaped relationship between income levels and inequality in cross-section data of a mixture of developed and developing countries. He found that income inequalities were higher in developing countries compared to those in developed countries (in his sample, the share of upper income groups in the wealthy developed countries was significantly lower than their counterparts

in the developing countries). See Kuznets, Simon (1963), “Quantitative Aspects of the Economic Growth of Nations: VIII. Distribution of Income by Size”, *Economic Development and Cultural Change* 11, no. 2, Part 2 (January): 1-80.

¹⁹ New international panel data showed that pre-industrial societies were often characterized by significantly higher inequality than modern societies. See notably Milanovic, B., Lindert, P., and Williamson, J. (2007), “Measuring Ancient Inequality”, *World Bank Policy Research Paper*, No. 4412.

employment will improve income distribution, as most workers earn similar industrial wages. Hence, the decline in inequality.

This natural decline in inequalities is, according to Kuznets, set to be reinforced by two other mechanisms: the first is that as a country “moves to higher economic levels”, there will be an “increasing pressure of legal and political decision on upper-income shares” (Kuznets, 1955:9), which will counteract the cumulative effect of the concentration of savings (thanks to the introduction of measures such as, for example, an inheritance tax limiting the accumulation of property). The second mechanism is that, as urbanization deepens and education expands, the political power of the lower-income groups within the urban population will increase, allowing them to get “protective and supportive legislation” (Kuznets, 1955:17). Thus, better and broader access to education as well as higher political demand for redistribution leading to public and social policies (direct taxes and government benefits) will drive inequality lower.

In sum, high income inequality, argued Kuznets, should be viewed as the inevitable but temporary side-effect of a country’s development process; inequality is set to fall as the country reaches economic maturity not only because of determinist economic forces but also because of other factors such as mass education and a change in the political regime towards a more redistributive system.

One of the most influential statements on inequality and development

Notwithstanding Kuznets’ note of caution, his speculative hypothesis captured the imagination of economists. Scores of empirical studies were carried out with gradual improvements in country coverage and econometric technique, to test his inverted U-hypothesis. Due to the non-availability of income distribution data for individual countries as they grow over time from an underdeveloped stage, none of this research tested Kuznets’ hypothesis directly, that is, that income inequality would increase and then decrease *within* countries as the economy develops. Like Kuznets, other researchers had to conduct inter-country empirical studies, with a mixture of developed and developing countries, based on cross-sectional data.

The cross-sectional data were generally consistent with Kuznets’ hypothesis: poor and wealthy countries tended to have lower levels of inequality than middle-income countries, but the data did not allow Kuznets’ hypothesis, which is a proposition about the trend of inequality *within* countries, to be readily tested on an empirical level. It was only recently that large data sets (both across

countries and over time for individual countries) became available²⁰. The sharp rise in inequality in practically all advanced nations since the early 1980s, after a decline from the 1930s to the 1970s, has posed a direct challenge to the Kuznets curve.

PIKETTY’S HYPOTHESIS

Worsening inequality is the norm for a capitalist economy

Unlike Simon Kuznets, Thomas Piketty, author of the best-seller *Capital in the Twenty-First Century* (2013)²¹, believes that there is no natural tendency for inequality to decline when a country reaches economic maturity. Rather, argues Piketty, increasing inequality is the natural state of a capitalist economy. The central variable in his *Capital in the Twenty-First Century* is capital, which Kuznets did not consider. Here, “capital” means “wealth” in all its various forms: stocks, real estate, land, equipment, gold, intellectual property, etc. Capital, of course, has a significant impact on overall household income, but also on income inequality, as it is more unequally distributed than labour income.

BOX 4 – PIKETTY’S CHALLENGE TO THE KUZNETS CURVE

For Piketty, the Kuznets curve is the exception not the rule. The fall in inequality during the 1913-1948 period that the Kuznets curve documents, he argues, had little to do with countries reaching economic maturity. Rather, this was the result of massive destruction of capital caused by exceptional circumstances, namely, World War I, along with the Great Depression (1929-1932) that it spawned, and then World War II.

Piketty’s challenge to Kuznets’ hypothesis is based on a huge body of research into long-term patterns of income and wealth inequality in the US, Europe and other developed economies that he has conducted with

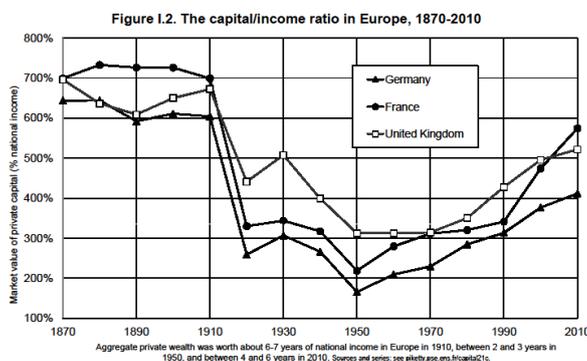
²⁰ Deininger and Squire (1996, 1998) assembled the first large-scale data set with enough observations (682 observations of Gini coefficients and quintile shares for 108 countries) to study the evolution of inequality within countries. See Deininger, Klaus, and Lyn Squire (1996), “A New Data Set Measuring Income Inequality”, *World Bank Economic Review* 10(3): 565-91, and Deininger, Klaus, and Lyn Squire (1998), “New Ways of Looking at Old Issues: Inequality and Growth”, *Journal of Development Economics* 57: 259-87.

²¹ Piketty, Thomas (2013), *Le Capital au XXI^e siècle*, Le Seuil, coll. « Les Livres du nouveau monde », 5 September, 976 pages.

several other leading scholars²². And in fact, the long-term trends in inequality based on Piketty's data – both longer and broader than the highly scarce data used by Kuznets – show the opposite of Kuznets' bell curve: inequality in advanced economies has followed a U-shape pattern rather than the inverted U-shape pattern predicted by Kuznets.



Piketty's research shows that capitalism started out highly unequal, with private wealth dwarfing national income. On the eve of WWI, Europe had accumulated capital worth six or seven times national income and wealth concentration was extremely high, with about 90% of national wealth going to the top 10% of families and about 60% going to the richest 1%.



Source. Piketty, Thomas (2013), *Le Capital au XXIe siècle*.

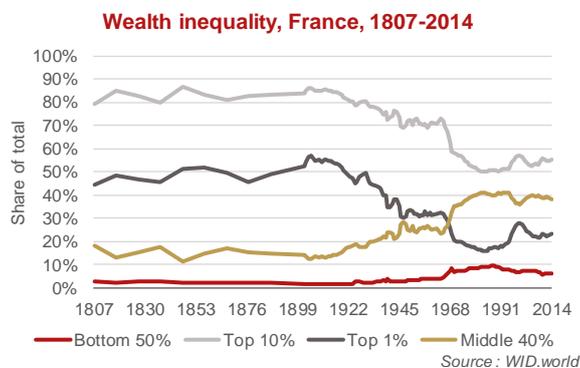
According to Piketty, it was only the chaos of the two world wars and the destruction they caused, especially for families with large fortunes, that disrupted this normal pattern. A combination of the destruction of physical capital, high rates of inflation that eroded the assets of creditors and high taxes to finance war expenses led to a dramatic decline in private wealth²³. The bloodshed and vast destruction, in turn, set the stage for a unique set of political conditions, which ushered in a period of welfare state expansion, in particular the rise of progressive taxation, the expansion of social security benefits, active labor market policies, and the institutionalization of collective bargaining with unions.

Capital accumulation resumed after World War II. But as the post-war years saw exceptionally high growth rates related to reconstruction, the ratio of capital to income remained moderate, at around 200-300%, in the 1950s and the 1960s. The unusual period of 1945-1975, when inequality declined, was, according to Piketty, the product of the previous loss of capital, combined with the golden age of economic growth of that era. Since the mid-1970s, however, the slowing rate of economic growth has caused the ratio of capital to income to climb again, reaching 500-600% in the 2000s and the 2010s.

²² Piketty, in conjunction with other scholars, including Anthony Atkinson, Emmanuel Saez, Gilles Postel-Vinay, Jean-Laurent Rosenthal, Facundo Alvaredo and Gabriel Zucman, has used fiscal data for measuring incomes rather than household surveys used by analysts in recent times. The advantages of using tax data are that they are available for much longer periods than household survey data and that they capture the income that accrues to individuals at the top of the income scale, which tends to be overlooked entirely in survey data.

²³ In a recent book, Walter Scheidel thoroughly documents the view that only violent shocks, such as wars, revolutions, collapsed states and other forms of wealth destruction have, throughout history, proved powerful enough to flatten large income and wealth inequalities. He shows how the two world wars in the past century became a uniquely powerful catalyst for the flattening of disparities and for equalizing reforms (highly progressive taxation, creation of the welfare state). See Scheidel, Walter (2017), "The Great Leveler. Violence and the History of Inequality from the Stone Age to the Twenty-first Century, Princeton University Press, 528 pages.

Since the 1980s, Piketty's research shows, the ratio of wealth to income in low-growth countries has risen to high levels, albeit below the extreme levels seen prior to WWI. In Europe about 60-70% of national wealth is now held by the wealthiest 10% (55% in France) and about 20-30% by the richest 1% (23% in France); the bottom 50% still owns almost nothing (less than 5% national wealth; 6% in France), but the middle 40% now owns 20-30% of national wealth (38% in France), which bears testimony to the rise of a patrimonial middle class in that region.

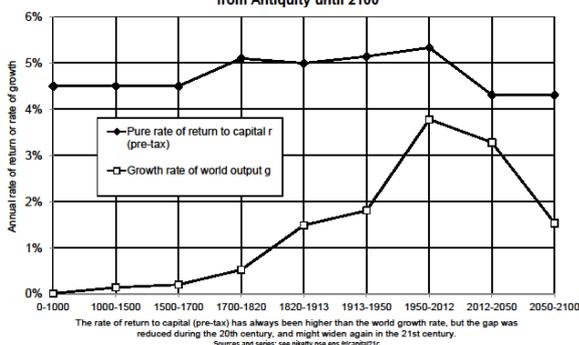


In sum, Piketty argues that the fall in inequality over much of the 20th century should be viewed as a historical anomaly caused by exceptional events (i.e. two destructive wars and the consequent need for high taxation), and that it had nothing to do with the normal functioning of a market economy. Although Piketty believes that the fruits of economic maturity, such as improved health conditions and the diffusion of knowledge and skills through education, do promote greater equality, they are, in his opinion, offset by a more fundamental force that propels increasing inequality, namely, that wealth normally grows faster than economic output.

The main message of *Capital in the Twenty-First Century* is that modern economies are not just approaching levels of inequality not seen since before World War I; they are also slowly recreating the “patrimonial capitalism” of the 18th and 19th centuries. Why? It's all about the rate of return on capital (r), versus the rate of economic growth (g). When the rate of return on capital is higher than the rate of economic growth, Piketty argues, this tends to automatically drive inherited wealth inequalities higher. Historically, Piketty's research shows, r has almost always been greater than g ; hence, Piketty's assertion that rising wealth concentration is an inevitable outcome of free market capitalism.

when it began to rise towards 2%. It climbed to nearly 4% in the middle of last century, after which it started falling – slowly at first, then faster – for the first time since the fall of the Roman Empire. Thus, for most of human history, r has been greater than g – in antiquity, throughout the 19th century, and again since the 1970s. The exception to this pattern was the era of the two world wars and post-war years which saw a collapse in capital and, in post-war reconstruction, exceptionally high rates of economic growth. It is this shrinking gap between the rate of return on capital and the overall economic growth rate which explains, in Piketty's opinion, the fall in inequality in the second half of the 20th century.

Figure 10.9. Rate of return vs. growth rate at the world level, from Antiquity until 2100



Source: Piketty, Thomas (2013), *Le Capital au XXI^e siècle*.

Since antiquity, Piketty's research shows, the average rate of return on capital has stood at around 4% to 5%. The global economic growth rate, for its part, remained below 1% for centuries, until the Industrial Revolution,

Capital inequality has reverted to its long-term increasing trend

However, argues Piketty, this period of low return on capital compared to economic growth should be seen as an accident that interrupted the long-term trend of increasing inequality, a trend that resumed soon after the post-war recovery, and then accelerated until it was stunted by the global financial crisis of 2008. The gap between r and g returned to its “normal” level soon after the post-war recovery, causing capital inequality to revert to its long-term increasing trend.

Looking ahead, Piketty expects the rate of economic growth (g) to continue to decline, owing to diminishing growth in the working-age population and slow productivity, while the return on capital (r) should hover between 4 and 5%. As economic growth slows, says Piketty, the gap between r and g will widen, perhaps significantly. And since ownership of capital is more

unevenly distributed than labour income, the resulting rise in the ratio of capital to income (that is, the changing distribution of income in favour of capital) will directly increase inequality. Unless opposed by effective distributive economic policies²⁴, asserts Piketty, this accumulation of capital will eventually reach, or even surpass, the 600-700% observed in the wealth-based societies of the late 19th century (that is, the restoration of the “patrimonial capitalism”).

MILANOVIC’S HYPOTHESIS

Inequality moves in cycles

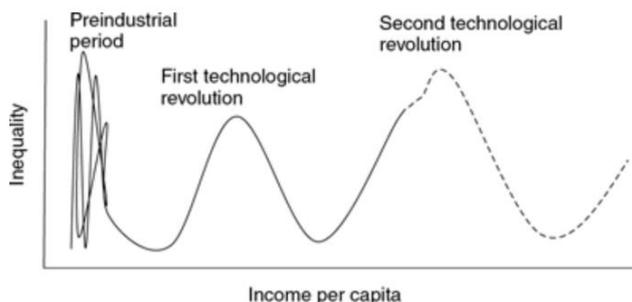
Branko Milanovic’s explanation of the dynamics of inequality differs from Piketty’s: instead of dismissing the

Kuznets curve, as Piketty does, he builds on the hypothesis. Across history, he says, inequality has moved in cycles, which he refers to as “Kuznets waves”. Kuznets saw just one wave, says Milanovic, with the transition from an agrarian to an industrial economy, but the modern era is now experiencing a second wave, with a huge transfer of labour from more homogeneous manufacturing industries to skill-heterogeneous services. Like Piketty, Milanovic draws on vast data sets assembled over years of research.

BOX 5 – MILANOVIC’S ATTEMPT TO RECONCILE KUZNETS’ AND PIKETTY’S RATIONALES

In *Global Inequality. A New Approach for the Age of Globalization* (2016)²⁵, Milanovic highlights a regular rise-and-fall pattern of inequality over centuries.

In the “pre-industrial” era, he says, cycles of inequality basically replicated the Malthusian cycles, because they took place in conditions of quasi-stationary mean income: changes in population almost entirely explained the rise and fall of inequality. Typically, wars or deadly epidemics dragged populations down, leading to higher mean income and higher wages because of labour scarcity. In pre-modern societies, he says, non-economic factors, such as conquests, wars, state collapse and epidemics, were practically the sole drivers of inequality cycles.



Source: Milanovic (2016), *Global Inequality. A New Approach for the Age of Globalization*.

Milanovic argues that in the modern era, from the beginning of the Industrial Revolution to today, cycles of rising and falling inequality have responded to three dominant economic forces: technology, openness and politics (which he calls “TOP”).

What he views as the first Kuznets wave in advanced countries lasted from the beginning of the Industrial Revolution to approximately the 1980s. The transition away from an agricultural-based economy towards an industry-based one drove inequality up until a peak occurred at the end of the 19th century or the beginning of the 20th century.

After that point, he notes, the decline in inequality that took place in wealthy nations – the downward portion of the first Kuznets wave – reflected the interplay of both “benign” (improved education and the creation of welfare states) and “malign” (wars and depressions) forces.

Importantly, while Piketty views this downswing in inequality as an accident, Milanovic sees it as the inevitable outcome of the high inequalities that predated World War I.

²⁴ Piketty recommends progressive income taxation and, above all, a progressive global tax on capital. However, he is not very optimistic that such a global tax could be practicable in an era when

capital is highly mobile and the most affluent social groups dominate the political system.

²⁵ Op.cit.

The 1980s ushered in the second Kuznets wave

For Milanovic, the rise in inequality in most developed countries since the 1980s should be viewed as the first part of the second Kuznets Wave. He points out that it has been driven by many of the same factors as the first Kuznets Wave, namely technological advances, globalisation, and policies. Like the Industrial Revolution of the early 19th century, the second technological revolution, which has been characterized by momentous changes in information and communication technologies (ICT), has been a major force of income divergence. This is mainly because the gains created by new technologies have disproportionately favoured high-skilled workers through increased productivity and strong demand for their services – a phenomenon called “skills-biased technological change”²⁶. In addition, by driving the cost of capital lower, new technologies have led firms to increasingly replace workers with machines, which has taken a heavy toll on middle-skilled workers to the extent that they are more liable to have routine jobs, which are highly exposed to automation.

Middle-skilled jobs are affected not only by automation but also by import competition and offshoring. Greater integration of economies has resulted in relocation of factories, displacing middle-skilled and lower-skilled workers. Milanovic shows how technological innovations and globalisation have worked together to squeeze the Western middle classes, which have, in recent decades, suffered large employment declines and sluggish or negative wage growth (see Box 2)²⁷. The decline in middle-skilled labour's income share has been reinforced by two factors, argues Milanovic: (1) economic policies, which have lowered high tax rates on high-skilled labour and mobile capital, most notably in the US and the UK²⁸, and (2) workers' declining political power, as the very rich tend to use their fortunes to exert control over the political sphere.

Ultimately some internal dynamics should oppose the current upswing in inequality

Milanovic expects inequality to ultimately peak and then decrease (downward portion of the second Kuznets wave) because of the endogenous evolution of many different factors that he has combined under the acronym of TOP – technology, globalisation, and policy. However, he does not expect the turning point to be within the

horizon of the next 4 to 5 years, and not even the next 10 years, especially in the United States. What will cause the turning point and begin to push inequality down? Like Piketty, Milanovic emphasizes the crucial role of governments.

In Milanovic's opinion, policies of choice should notably include higher inheritance taxes, much higher rates of income taxation, corporate tax policies that would encourage companies to distribute shares to workers, minimum-wage legislation, and greater attempts to equalise ownership of assets. But these policies, he stresses, would need to be combined with more equal access to good education. Pro-unskilled labour technological change (which will become profitable as skilled labour's wages increase) could also play a role, as could the dissipation of current rents. Milanovic also points out the role that malign forces, such as wars and revolutions, could play in bringing high inequality down.

INEQUALITY – WHAT'S NEXT?

THE CONTINUED FALL IN GLOBAL INEQUALITY IN QUESTION

After increasing for decades, global inequality began to decline in the early 2000s. This declining trend may not continue, however. China's stellar growth was the dominant force behind the process of global convergence between developed and developing countries. But as China becomes richer and its growth slows, its impact on the global distribution of income will be mixed: once its per capita income rises above the world average, its growth will start adding to, rather than curbing, inequality. Prospects for further reductions in global inequality will then depend on the rate of growth in other large developing economies, such as India and sub-Saharan Africa. It seems highly unlikely, however, that these countries will experience anything in the coming decades that compares to what China experienced in the last thirty years.

If catch-up growth in developing countries does not shrink the income gap between wealthy and poor countries faster than inequality increases within countries, then the worldwide income gap will rise again.

²⁶ On the relationship between wage polarisation and technology, see, for example, Autor, David, Lawrence F Katz and Melissa S Kearney (2006), “Measuring and Interpreting Trends in Economic Inequality: The Polarization of the U.S. Labour Market”, AEA Papers and Proceedings, and Acemoglu, Daron and David H Autor (2010), “Skills, Tasks and Technologies: Implications for Employment and Earnings”, Handbook of Labor Economics Volume 4, Orley Ashenfelter and David E Card (eds.), Amsterdam: Elsevier.

²⁷ Also see, for example, Dao, Mai, Mitali Das, Zsoka Koczan, and Weicheng Lian (2017), “The Hollowing Out of Middle-Skilled Labor

Share of Income”, IMFBlog, 14 April. IMF (2017), “Understanding the Downward Trend in Labor Income Shares”, World Economic Outlook, Chapter 3, April. Karabarbounis, Loukas and Brent Neiman (2013), “The Global Decline of the Labor Share”, NBER Working Paper No. 19136, June.

²⁸ Inspired by the economic theory of Arthur Laffer, Ronald Reagan and Margaret Thatcher adopted a similar strategy to reduce income tax rates. Reagan's tax policies reduced the top income-tax rate from 70% in 1980 to 28% in 1986. Thatcher, likewise, dropped the top rate of income tax, which fell from over 80% when she took office to 40%.

INEQUALITY WITHIN COUNTRIES SET TO RISE IN THE SHORT- TO MEDIUM-TERM

While the causes of rising inequality are still being debated, the trend of rising inequality within advanced countries is likely to continue, at least in the short- to medium-term. Further technological developments in artificial intelligence and robotization will continue to favour the well-educated over the less-skilled, causing a greater concentration of wealth and income and a rising share of capital in the total net product. This, combined with the impact of globalisation and weaker worker bargaining power will continue to gradually hollow out middle-class jobs. All of these forces are, of course, not independent of one another and tend to mutually reinforce each other.

Moreover, there is growing evidence, at least in the United States, that many employers exercise so-called monopsony power over the wages of their workers – that is, the power to set wages below competitive levels – owing to rising employer concentration and/or to search frictions, including imperfect information and other constraints to job mobility, such as sparse public transportation²⁹. Monopsony power may be one of the reasons behind North America's high levels of income inequality. And given the trend of corporate consolidation and the increased concentration levels in a number of US economic sectors, chances are that employers' monopsony power will rise, raising the probability of inequitable outcomes for workers and super-normal profit margins.

YET GROWING WITHIN-COUNTRY INEQUALITY IS NOT INEVITABLE

It is tempting to see the rising concentration of incomes and wealth as an unavoidable consequence of globalisation and technological progress (both favouring those with higher levels of education and skills). And yet, the reality of different inequality trends across countries suggests that high inequality is not a fatality. As more

traditionally egalitarian countries, such as Sweden and Denmark, show, national institutional and political frameworks play an important role in wealth and income distribution. In fact, all fields of government action contribute to shaping the inequality trend within a country: from public investments, to education policy, to health, tax and social protection policies, to labour market policies, to employment and corporate mergers rules, to anti-trust laws, to business and financial sector regulations³⁰.

Most of the policies required to address rising inequality are well known. Fiscal policy is a powerful instrument that can be used to lower inequality. More progressive taxation on income and wealth is an instrument of choice. Social benefits and transfers can help protect the most vulnerable. A good system of inheritance and estate taxation plays an important role in preventing excessive wealth concentration. More – and more efficient – spending on roads, rail networks, power grids, broad-based access to affordable and quality education (including skills upgrading and retraining, assistance with job search and job matching), more equal access to health, broadening access to financial services, effective enforcement of anti-discrimination laws, and better anti-trust laws are all key to closing the outcome gaps between advantaged and disadvantaged groups. Given the global nature of markets – goods, capital, and intellectual property rights – many policies require effective international cooperation. This is no easy feat, however.

Failure to achieve greater inclusiveness comes at a price: it impairs social and political cohesion, stokes social tensions, fuels already-resurgent populism and extremism, and can undermine stability, producing disruptions (such as gridlock, conflict, poor policy choices, or crises) that could ultimately threaten the very growth needed to help mitigate the effects of rising inequality³¹.

²⁹ Azar et al. (2017) analyzed over 8,000 local labor markets in the US and found that, on average, labor markets were highly concentrated, with concentration varying by occupation and city (larger cities being less concentrated). They calculated that going from a less concentrated labor market (the 25th percentile in the distribution) to a more concentrated one (the 75th percentile) was associated with a 17% decline in the wages employers were posting to the website. See Azar, José, Ioana Marinescu, Marshall I. Steinbaum (2017), "Labor Market Concentration", NBER Working Paper No. 24147, December. Webber (2015) also finds pervasive monopsony across the US labor market, with the effect that employers are able to set wages lower than a competitive level. See Douglas A. Webber (2015), "Firm Market Power and the Earning

Distribution", *Labour Economics* 35, 123-134. Monopsony is one increasingly recognized area of research in labor economics.

³⁰ See, for example, Atkinson, Anthony (2015), "Inequality: What Can Be Done?", Harvard University Press. p. 384. To reduce inequality, Atkinson recommends ambitious new policies in five key areas: technology, employment, social security, the sharing of capital, and taxation.

³¹ See, for example, Joseph Stiglitz (2013), *The Price of Inequality: How Today's Divided Society Endangers our Future*, W.W. Norton & Company, New York, London.

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