INEQUALITY AND PROSPERITY IN THE INDUSTRIALIZED WORLD

Addressing a Growing Challenge

Citi GPS: Global Perspectives & Solutions

September 2017

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INEQUALITY AND PROSPERITY IN THE INDUSTRIALIZED WORLD

Addressing a Growing Challenge

Andrew Pitt
Global Head of Citi Research

With this report, I am very pleased to launch a new research program conducted jointly between Citi Research and our core research partner the Oxford Martin School: "The Citi Oxford Martin Program on Inequality & Prosperity". Our new research program builds upon our ongoing work with the Oxford Martin School on Technology & Employment which has received widespread international attention.[1] The focus of our research on inequality, and its consequent impact on economic growth and social cohesion, will primarily be within advanced economies, although we shall also analyze the trends and challenges across developing economies as well as placing some special focus on China and India.

Our plan for this research program is ambitious: not only do we aim to generate a consistent series of reports and related events over the coming years on a topic that is increasingly relevant to both the economic and the public policy debate, but we also aim to stimulate positive engagement between academia, the public sector and the private sector on how best to generate sustainable, inclusive global growth in line with Citi's mission to be an enabler of growth and progress. The combined results from this new program will be presented through Citi's Global Perspectives & Solutions thought leadership series, designed to help our readers navigate through the global economy's most demanding challenges and to anticipate future themes and trends in a fast-changing and interconnected world.

On average, income inequality within developing economies is very high, particularly in Africa, and higher than in the industrialized world, which creates its own major development challenges. But, in aggregate, global income inequality has declined from the late 1980s, and particularly rapidly from about 2008, as developing economies have, on average, closed some of the gap with industrialized countries. Previously, at least since the early 19th century, global inequality had increased. The driving factors behind this change have included the very real impact of globalization and technology on trade and employment, and also the transition of the formerly Communist bloc in Eastern Europe. In very simple terms, globalization has been a positive force in leveling inter-country inequality over the past 30 years. At the same time, the share of the world's population estimated to be below the World Bank's $1.90/day extreme poverty threshold has fallen drastically, from 35% in 1990 to 11% in 2013. Despite a major expansion in world population, the number of people in extreme poverty has fallen dramatically from 1.85 billion to under 800 million.

However, within-country inequality in the larger developing countries — the same economies that have enjoyed large income growth and narrowed the differences with rich countries, such as China, India, and Indonesia — has actually increased substantially in recent years. As a result, income inequality within countries now accounts for around a third of global inequality, when it was only one-fifth in 1988. The contribution of inter-country inequality has correspondingly shrunk.

[1] See, for example, "Technology At Work: The Future of Innovation and Employment", Citi Research, February 2015; "Technology At Work v2.0: The Future Is Not What It Used To Be", Citi Research, January 2016; and "Technology At Work v3.0: Automating e-Commerce from Click to Pick to Door", August 2017.

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Of critical focus to our research, income inequality has increased substantially within many OECD countries over recent decades after a long period of decline. The extent to which income inequality in advanced economies has grown is now widely known, though the relative importance of the range of driving forces producing these trends is less clear, as is their importance to economic growth. Rising inequality is not only a concern from a fairness perspective, in itself and in terms of its impacts on social outcomes such as health, crime, and family structures; it is also now increasingly being seen as a core issue for macroeconomic performance, implicated in the economic crisis and slow recovery from it, and as representing a major threat to long-term growth and prosperity.

A range of factors has been identified contributing to the rise in income inequality across OECD countries, including technological change, globalization, changes in labor market institutions, and weakening redistribution via taxes and transfers, as well as specific factors affecting the very top of the income distribution and the distribution of wealth and income arising from this. There remain substantial differences across studies as to the relative contribution of particular elements. What is more surprising, perhaps, is that the search for effective responses is still at an early stage, although recently international organizations such as the OECD and IMF have advanced some broad recommendations to tackle inequality while promoting growth.[2]

Against this background, our research program will focus on identifying the impacts of inequality on economic growth potential, social cohesion, and the political process. On the back of this, we shall collaboratively suggest a coherent set of responses that would address rising inequality in a manner that promotes inclusive growth.

The Executive Summary of this report summarizes our initial findings and conclusions. Three significant points are worth stressing here. First, it appears increasingly clear to us that if the drivers of inequality are not addressed, then inequality may become an increasing drag on economic growth due to a variety of factors which we assess throughout this report and which we shall investigate further in future research. The drag reflects wasted potential and a skills mismatch within labor forces and also that more unequal societies are less successful at investing productively for the long term. Indeed, we highlight that more unequal countries now seem to be growing less robustly than more equal ones, i.e., growth may be lower and more fragile at higher levels of economic inequality. From an investment perspective, an inequality-driven economic drag could take quite different paths in different countries leading to a consequent impact on longer-term relative asset prices and exchange rates. In other words, and put bluntly, it makes good economic sense to understand and address inequality.

Second, economic inequalities are everywhere, which makes addressing the underlying issues with simple policy responses very challenging. We show in this report that inequalities have grown not just between countries but between regions within countries, between generations, between industries, and between firms. In particular, demographic forces, most notably the aging population in the developed markets, are creating a new set of inter-generational inequality challenges that are likely to get worse. Globally, wealth inequality is significantly higher than income inequality. Putting an inter-generational lens on this sharpens the issue. The debate around inequality thus needs to be related to issues such as youth unemployment, social mobility, and pension funding.

[2] See “In It Together: Why Less Inequality Benefits All”, OECD, May 2017 and “Causes and Consequences of Income Inequality: A Global Perspective”, IMF, June 2015.

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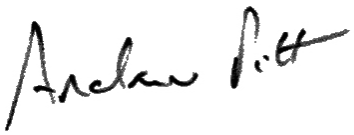
Third, inequality, as well as the impact of other exacerbating factors such as lower social care budgets and the reduced provision of other government-funded services, is now clearly a critical focus in the mainstream political process and in election campaigns in many countries. In aggregate, it appears that inequality is contributing markedly to declining social trust, the erosion of social cohesion, and the fragmentation of the political process. Inequality will likely be an increasing factor in election outcomes, with social media playing a growing role in shaping perceptions. A consensus urgently needs to be reached between government, the public sector, the private sector, and society at large about how to tackle the challenge of inequality in a way that promotes inclusive and necessary economic growth. At the moment, we risk political paralysis, or worse.

I am delighted that our research program with the Oxford Martin School will be led by Professor Brian Nolan, Director of the Employment, Equity and Growth Program at the Institute for New Economic Thinking (INET), Oxford Martin School, and Professor of Social Policy at the Department of Social Policy and Intervention, University of Oxford. Professor Nolan's main areas of research are income inequality, poverty, and the economics of social policy. His recent research has focused on trends in income inequality and their societal impacts, the distributional effects of the economic crisis, social inclusion in the EU, top incomes, deprivation and multiple disadvantage, and tax/welfare reform. He has been centrally involved in a range of collaborative cross-country research networks and projects and is the author and editor of multiple books on inequality, poverty, and social inclusion. He has also published extensively in leading academic journals and authored many policy-relevant reports for government departments, agencies and international organizations. The program will form a core element of research at the Institute for New Economic Thinking on employment, equity, and growth.

I would like to thank Professor Nolan for his extensive work and partnership in authoring this report and also to thank his colleagues, Matteo Richiardi and Luis Valenzuela, for their detailed contributions to this report. At Citi Research, I would particularly like to thank my colleagues Ebrahim Rahbari and Ben Nabarro for their tireless work in contributing to and editing this report.

I know that you will enjoy reading this report and also future reports which stem from our ambitious "Inequality & Prosperity" project. We would welcome your feedback and engagement.



Andrew Pitt
Global Head of Citi Research

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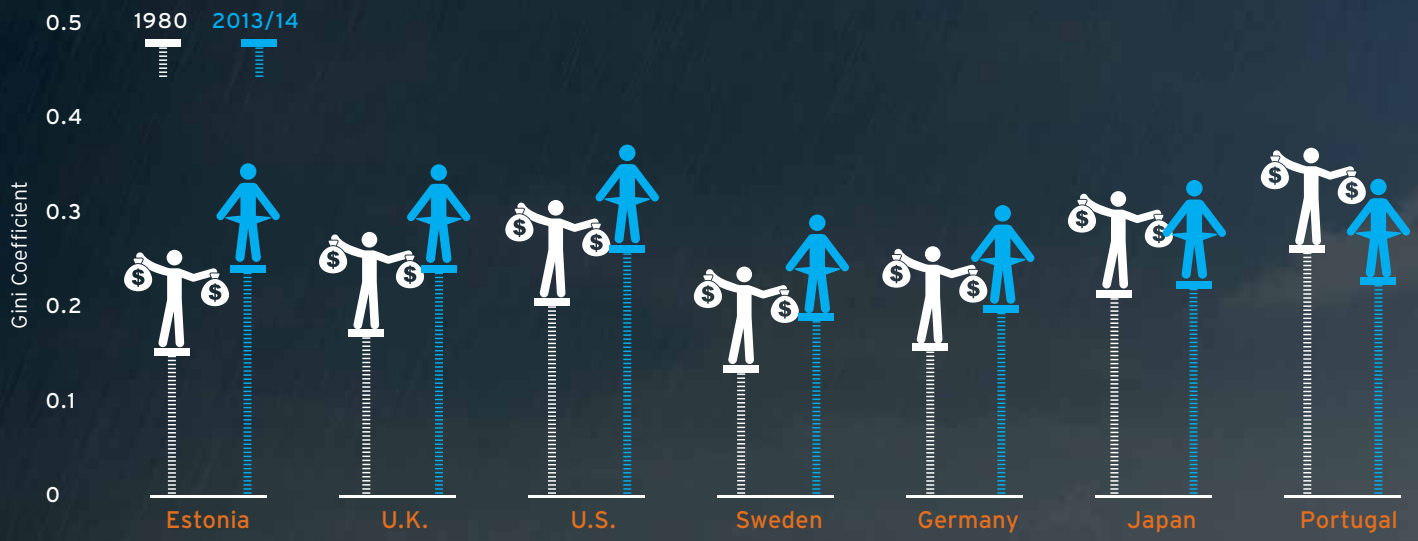
Why Inequality Matters

INCOME INEQUALITY ACROSS OECD COUNTRIES IS HIGH AND HAS RISEN SUBSTANTIALLY IN RECENT DECADES.

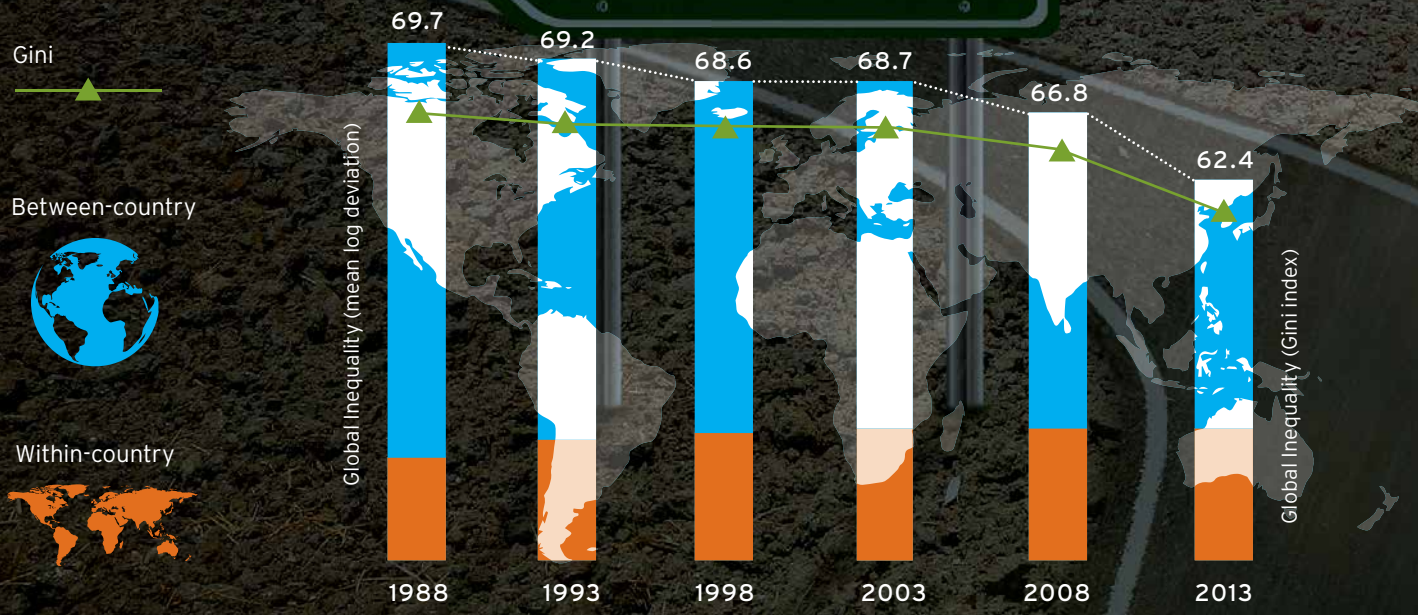
Source: Citi Research, LIS, Chartbook of Economic Inequality, GINI Project Database, OECD Income Distribution Database



Note: The Gini coefficient measures inequality and ranges from 0 (indicating no inequality) to 1 (indicating maximum inequality).

AT THE SAME TIME, GLOBAL INEQUALITY HAS DECREASED, LED BY FALLING INEQUALITY BETWEEN COUNTRIES BUT INEQUALITY WITHIN COUNTRIES HAS INCREASED.

Source: Shared Prosperity (2015): Taking on Inequality, World Bank, Lakner and Milanovic (2016), Milanovic (2016)



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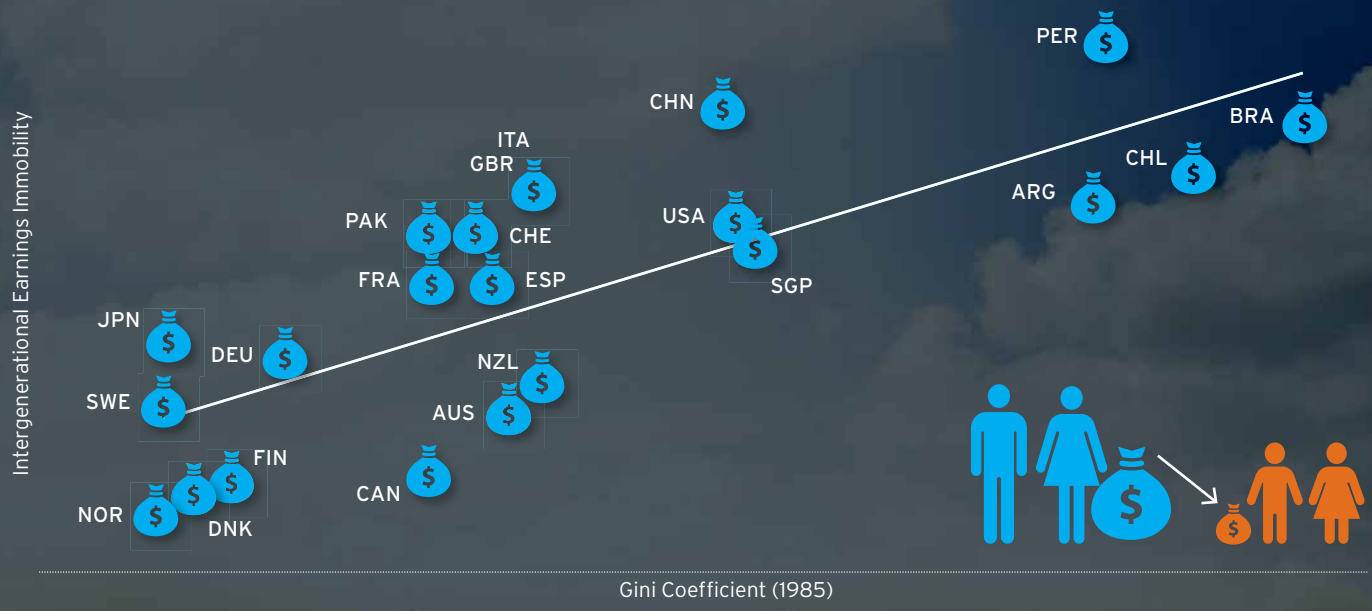
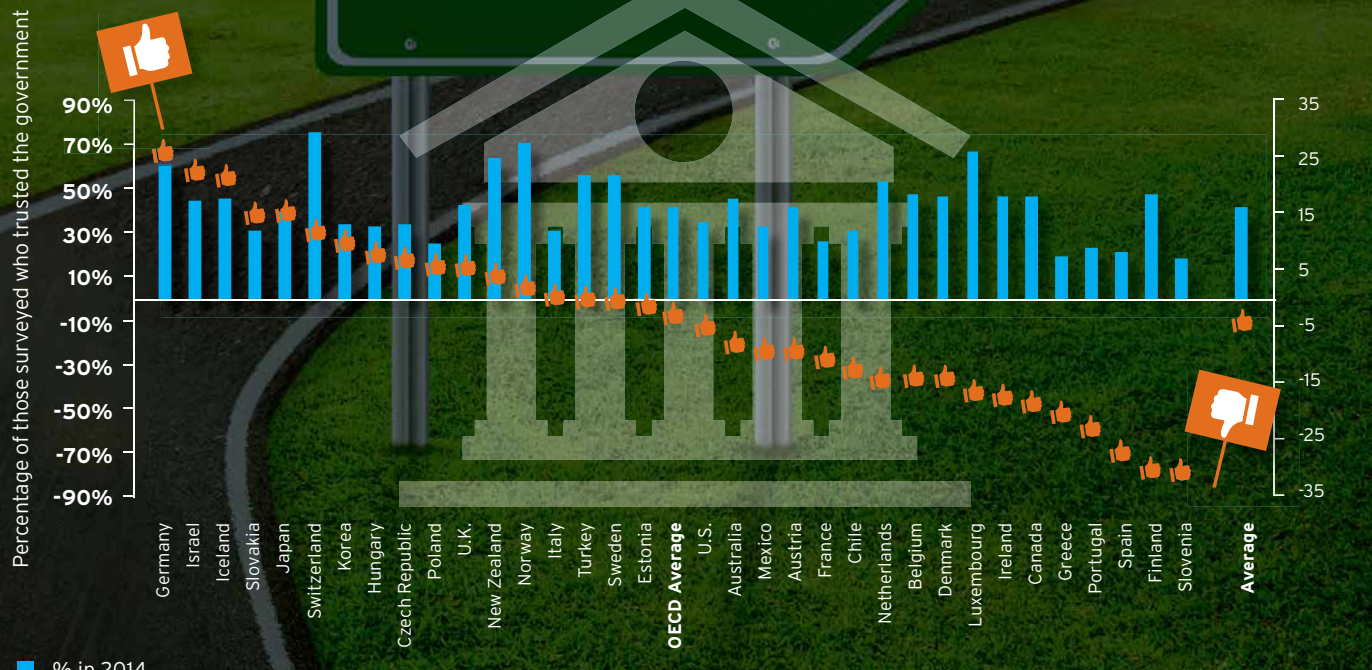
INEQUALITY MATTERS BECAUSE UNEQUAL COUNTRIES HAVE LESS EARNINGS MOBILITY MEANING THE LINK BETWEEN PARENTAL INCOME AND THEIR CHILDREN'S FUTURE EARNINGS INCOME IS HIGHER...

Source: Corak (2012, 2016)



INCREASED INEQUALITY CAN ALSO LEAD TO AN EROSION OF SOCIAL COHESION. AS INEQUALITY INCREASED FROM 2007 TO 2014, CONFIDENCE IN NATIONAL GOVERNMENTS DECLINED.

Source: OECD (2015) Government at a Glance



About the Oxford Martin School

The Oxford Martin School at the University of Oxford is a world-leading center of pioneering research that addresses global challenges.

The School invests in research that cuts across disciplines to tackle a wide range of issues including climate change, disease, cyber threats, and inequality. The School supports novel, high risk, and multidisciplinary projects that may not fit within conventional funding channels, but which could dramatically improve the wellbeing of this and future generations.

Established in 2005 through the generosity and vision of Dr. James Martin, the School provides academics with the time, space, and means to work collaboratively and to engage policymakers, business people, and the general public. To qualify for School support, the research must be of the highest academic caliber, tackle issues of a global scale, have a real impact beyond academia, and not be able to have been undertaken without the School's support. All research teams are based within the University of Oxford. In the School's first decade, more than 500 researchers have worked on 45 research programs.

For more information, please visit www.oxfordmartin.ox.ac.uk.

About the Oxford Martin Program on Inequality and Prosperity

The Oxford Martin Program on Inequality and Prosperity is a research program established in May 2017 with support from Citi. It will form a key core element of research in the Institute for New Economic Thinking at the Oxford Martin School on employment, equity, and growth. The program will focus on four central themes in order to respond to the various drivers of economic inequality and the ways inequality impacts on growth and prosperity — Inequality and Rewarding Work; Inequality; Wealth and Opportunity; Inequality, Taxation and Social Transfers; and Inequality and the Firm: Broadening Corporate Social Responsibility. The program will directly address current concerns about rising inequality and its impacts; yield important insights into the drivers of increasing inequality and its effects; and identify a coherent set of responses aimed at promoting inclusive growth and prosperity. While primarily focused on the currently rich countries, it will seek to incorporate key trends in, and implications for, those seeking to join them, most importantly China and India. The program is part of a wider research partnership between the Oxford Martin School and Citi, analyzing some of the most pressing global challenges of the 21st Century.

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Executive Summary

In 2013 the then President of the United States, Barack Obama, identified rising income inequality as *"the defining challenge of our times."* The Managing Director of the International Monetary Fund Christine Lagarde has stated that *"reducing excessive inequality is not just morally and politically correct, but it is good economics*." Secretary-General of the OECD Angel Gurría has emphasized that "*inequality can no longer be treated as an afterthought. We need to focus the debate on how the benefits of growth are distributed"* and the World Bank Group has for the first time set a target for reducing global income inequality.

Inequality and the distribution of income and wealth used to be a niche topic, perhaps even an afterthought. Inequality has long tended to be viewed as morally undesirable and perhaps socially problematic and the distribution of resources — and how fair and appropriate it is — has always been a subject of debate and a source of (often ideological) differences.

But when it comes to the workings of an economy, in most advanced economies inequality was, in the last few decades, usually seen as an inevitable by-product of the operation of a market economy or perhaps even an instrument to provide efficient incentives to generate economic growth.

The predominant narrative used to be that there was a trade-off between equality and aggregate prosperity

The predominant narrative was that there was a tangible trade-off between equality and aggregate prosperity.[3] The fate of the formerly Communist economies supposedly illustrated the severe cost of strong-arming the economy to a position of greater equality in terms of forgone prosperity.

The costs of inequality and the relatively passive attitude of many governments correspondingly tended to generate little concern or attention. There was either (sometimes blind) faith in the capacity of economies to adjust, which obviated the need for governments to intervene, or extensive government intervention was seen as disproportionately costly relative to the ailment it was meant to address – major interventions could even be self-defeating.[4]

The Seemingly Inexorable Rise in Economic Inequalities

Perspectives on the nature, implications, and significance of inequality have changed dramatically in recent years. Inequality is now a topic of general – perhaps critical – interest across the industrialized world, to citizens, policymakers, academics and business.

With a changing world, inequality is now a topic of general interest

This is in part because the world has changed. Economic inequalities have risen sharply across rich countries in recent decades, trends which are easier to spot as more and better data continue to become available. Importantly, the world also witnessed the biggest financial crisis and the deepest recession in many decades.

The new view also reflects an understanding that we tended to grossly underestimate the costs of economic inequality

But the 'new view' of inequality also reflects a better understanding of its broader costs. Increasingly, it appears that we have tended to grossly underestimate the corrosive effects of economic inequality. It has been linked to eroding social solidarity and trust. It has been closely linked to falling trust in political processes, and other core societal institutions. Most recently, it has had a central position in debates surrounding the growing support for populist political causes, especially following the recent U.S. presidential election, and the U.K.'s referendum on membership of the European Union.

[3] Okun, 1975 and Summers, 2015.
[4] Friedman, 1980; Friedman, 1962.

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Growing evidence suggests that unequal countries often grow 'less fast' than more equal ones

Indeed, there is growing evidence that suggests that the nature of the trade-off between equality and prosperity may have been fundamentally misunderstood. Unequal countries often grow 'less fast' than more equal countries and there is reason to believe that growth in unequal countries is also more fragile.

The drivers of inequality are increasingly complex and various. Even where inequalities have increased, outcomes have varied significantly in extent, timing, and type. Changing levels of economic inequality are the product of interactions between a range of different factors, each of which play differing roles, to differing extents, in different contexts. Crucially, this highlights that inequality is not beyond our control. Institutional or policy changes can fundamentally transform the effects broader factors have on income distribution. Reform is achievable, but requires a strong understanding of these interactions and the complex feedback processes different changes have.

This report aims to set out the key elements of the debate on economic inequality and its implications

These observations provide the point of departure for this report, which sets out the key elements of the debate on the critical topic of economic inequality and its implications. The main part of the report investigates the evolution of income and wealth inequality across countries and over time, including since the Global Financial Crisis (GFC). The second part of the report presents the various potential drivers of rising inequality in recent decades and the connections between them. The third part delves into a number of the potential major implications of rising inequality – its effects on growth, social cohesion and the political process. Inequality may hamper growth, and appears to erode social cohesion; the full effects of which are, as yet, unknown.

Why Inequality Matters

- **Economic inequalities have soared:** Income and wealth inequality have risen significantly across most advanced economies since the 1980s. Top income and wealth shares have driven much of the increase in inequalities. There is no sign of a reversal.
- **Inequalities are everywhere:** Inequalities have been rising between regions, between generations, between industries, and between firms.
- **Inequality is not exogenous:** While technological change is contributing to inequality, inequality was falling until the 1980s when tax rates began to become less progressive, labor unions were weakened and the financial sector was deregulated. Differences in inequality levels across countries are large.
- **Inequality has contributed to declining social trust, the erosion of social cohesion, and degradation of political processes:** Civic engagement and political participation have declined as economic inequalities have risen. Inequality is also linked to rising support of populism.
- **Inequality may undermine growth:** More unequal countries tend to grow 'less fast' than more equal ones. Global growth has declined in recent decades, while inequalities have risen.

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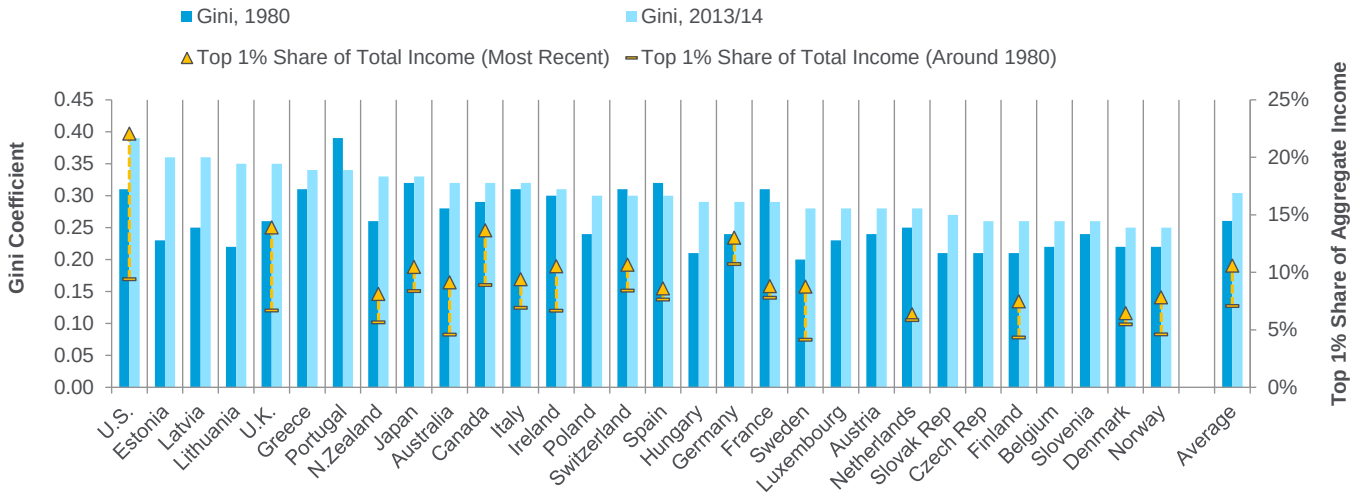
The Seemingly Inexorable Rise in Economic Inequalities in the OECD

Income inequality varies significantly across advanced economies

Income inequality varies significantly across the advanced economies. The U.S., U.K., Greece, Portugal, and the Baltic countries are among the most unequal, when measured by the summary Gini coefficient measure[5], while some former state socialist countries (Slovenia, Slovakia, Czech Republic) and Northern European countries (Iceland, Norway, Denmark) are among the most equal. Germany and France are middling, being a little less unequal than Japan (Figure 1). Generally speaking, poorer countries often have higher levels of income inequality than richer countries, though there are notable counterexamples.

Figure 1. Change in the Gini Coefficient and Gross Income Share of the Top 1% (1980-2013/14)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Top 1% income shares reflect shares in gross income, either for individuals or households. Country sample for (simple) average includes all countries shown for Gini coefficient. For top 1% share of income, the country samples included in (simple) average are Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, N. Zealand, Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, U.K., U.S. Most recent top 1% income data are 2014 (Australia, New Zealand, U.S., U.K.), 2013 (Sweden), 2012 (France, Korea, Netherlands, Singapore, Spain), 2011 (Germany, Norway), 2010 (Canada, Denmark, Japan, Switzerland), 2009 (Finland, Ireland, Italy).

Source: Citi Research; LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database, World Top Incomes Database

In most rich countries, income inequality has risen significantly since 1980

The key message from an in-depth examination of the comparative data is that incomes for higher earning people have tended to grow more rapidly than lower earners. This is true across the advanced economies. As a result, income inequality has indeed risen significantly since 1980 in most rich countries. The late 1970s/early 1980s appear to have constituted a turning point — from the late 1940s up until the late 1970s, income inequality either declined or remained at a relatively low level across many advanced economies. Since then, however, the Gini summary measure of inequality across the disposable income distribution rose markedly in three quarters of the countries we examine today.

[5] The Gini coefficient is a so called 'summary measure' of economic inequality as it measures income inequality across the entire income distribution. The Gini coefficient ranges from 0 (indicating no inequality) up to 1 (indicating maximum inequality). For rich countries, Gini coefficients generally lie between 0.20-0.40 (see Appendix for further details).

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This rise has been 'top-driven': the share of pre-tax income going to the very top (1%) of the distribution rose in almost all the rich countries for which data are available. As a result, on average, the share of aggregate income accrued by the top 1% has increased from 7.1% in 1980 to 10.2% in 2009. This pattern holds true across the advanced economies, with only Denmark out of the sample countries we examine experiencing a decline in the share of income accrued by sample group.[6] Overall, the rise in the income shares of the top 20% account for a substantial part of the overall rise in inequality across advanced economies.

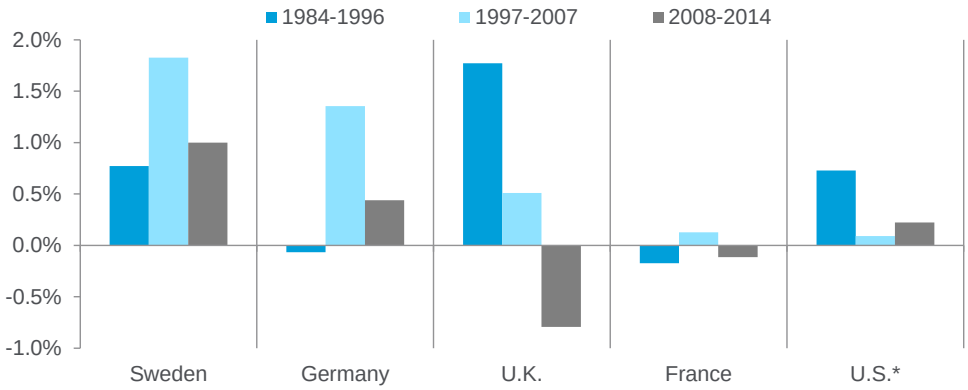
Inequality tended to rise more strongly when started from a low level

Across our sample, aggregate inequality tended to rise more strongly when it started from a relatively low level (such as in Sweden or in a number of 'transition' economies, i.e., those moving from centrally planned to market economies), while it was stable or declined in countries where inequality was high to begin with (e.g., in Spain and Portugal). The U.S. was a striking outlier — here aggregate inequality and top income shares grew markedly from an already initially high level. For example, the top 1% share of (pre-tax) income rose from 9% in 1980 to 22% in 2014. France, on the other hand, only saw that share increase over the same period from around 8% to 9%.

Recent increases in inequality have tended to be episodic; the timing, scale, and character of these increases varied significantly

However, even where inequality increased, the scale, timing, and character of these increases varied significantly. Inequality often rose (or fell) in discrete concentrated episodes rather than consistently over a lengthy period. In the U.K., for example, income inequality grew rapidly in the 1980s but stabilized in the 1990s. In the US, inequality also increased particularly rapidly in the 1980s and 1990s. In Sweden, in contrast, most of the increase was from 1993 onwards (Figure 2).

Figure 2. Average Annualized Rate of Change in the Gini Coefficient (1984-2014)



Note: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution), except in the U.S.
*In the U.S., this is calculated using gross household income, before taxes.

Source: Citi Research, Chartbook of Economic Inequality

Wealth is much more unequally distributed than income

Wealth is much more unequally distributed than income. The share of wealth held by the top 1% of wealth-holders is often as large as the share of income going to the top 10% of earners (Figure 3). The ranking of countries by wealth inequality is also not identical to that by income inequality. The U.K., at least by these measures, has an intermediate level of wealth inequality, despite relatively high income inequality. The Netherlands and Germany, on the other hand, have intermediate inequality in income but relatively high inequality in wealth. The U.S., however, is

[6] Country sample for (simple) average and these observations include: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, N. Zealand, Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, U.K., and U.S.

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again an outlier — the top 10% account for a staggering 75% of wealth in the U.S., against 50% in the OECD average.

The share of aggregate wealth held by the wealthiest in the U.S. is exceptional. In the U.K. and France, for example, the share of aggregate wealth help by the top 10% of wealth holders is roughly 45% versus in the U.S. where the top 1% of wealth holders hold 38.6% of all wealth. Increases here have also been dramatic. In the late 1980s, the top 1% held 16.9% of all wealth in the U.S.

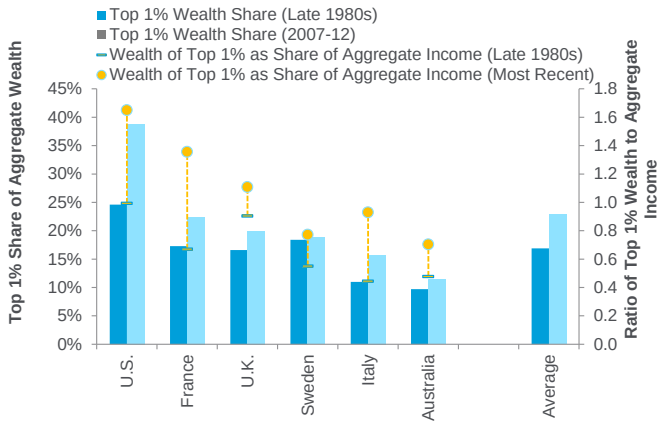
There has been also been a pronounced increase in wealth inequality since 1980 in the U.S., Australia, Finland, France, Italy, and the U.K., among others, while there was little change in the Netherlands or Sweden (Figure 4). Once more, there appears to have been a turning point in the late 1970s, with declining wealth inequality (measured as the share of the top 1%) in the post-war period up until that point across most economies.[7]

Wealth inequality has also increased since 1980 but was substantially higher in the early 20th century in many economies than it is today

However, it is worth noting that wealth inequality (in this measure) was substantially higher in the early 20th century in many economies than it is today; Alvaredo et al. (2017) estimated that the share of the top 1% in the U.K. may have been as high as 70% in the early years of the 20th century, and was still about 45% at mid-century, compared to around 20% currently.

The ratio of private wealth to annual income has also increased markedly from around 1980, having been relatively stable in the preceding post-war years. The combination of growing wealth inequality (or at least an absence of decline), combined with growing aggregate wealth, has seen the wealth of the top 1% grow very considerably in some cases in comparison to national income.

Figure 3. Wealth of the Top 1% of Wealth Holders (Late 1980s-Around 2012)



Notes: Wealth is household net worth. Latest year for top 1% wealth share are 2014 (France, U.S.), 2012 (Italy, U.K.), 2010 (Australia), 2007 (Sweden). Wealth of Top 1% as Share of Aggregate Income is from WWID. Late 1980s are 1990 (Australia), 1988 (France, Italy, Sweden, U.K., U.S.). Most recent is 2013 (U.S.), 2012 (Italy, U.K.), 2010 (Australia, France), 2007 (Sweden). Country sample for (simple) average includes Australia, Finland, France, Italy, Netherlands, Norway, Sweden, Switzerland, U.K and the U.S.

Source: Citi Research; World Wealth and Income Database, Chartbook of Economic Inequality

Figure 4. Trends in Top 1% Share in Net Wealth Since Late 1980s (Late 1980s-2014)

	Late 1980s	2007-12	2014
Australia	9.7	11.4	
Finland	16.1	22.7	
France	17.3	23.5	23.4
Italy	11.0	15.7	
Netherlands	20.0	19.7	
Norway	18.7	19.4	
Sweden	18.4	18.8	
Switzerland	33.6	38.4	
U.K.	16.6	19.9	
U.S.	24.6	39.0	38.6
Average	16.9	22.9	-

Notes: Wealth is household net worth. Reference year for 2007-2012 are 2012 (Italy, U.K.), 2010 (Australia, France, Netherlands, Norway, U.S.), 2009 (Finland), 2008 (Switzerland) and 2007 (Sweden). Country sample for (simple) average includes all countries shown.

Source: World Wealth and Income Database, Chartbook of Economic Inequality

[7] See Figure 45.

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Regional inequality and intergenerational inequalities appear to have significant social and political implications

Overall, economic inequalities have risen on many dimensions. We investigate two additional dimensions of inequality here: regional inequality and growing intergenerational inequalities. Both appear to have significant social and political implications; for example, rural and elderly voters were significantly more likely to vote 'Leave' in the U.K.'s EU referendum and vote for Donald Trump in the U.S. presidential elections, respectively.

Divergences between cities, between cities and rural areas, and between regions are rising. Those born today in many advanced economies are expected to have a lower material standard of living than their parent

The available data (we consider evidence from the U.S., the U.K., and France) suggest that divergences between regions, between cities, and between cities and rural areas are rising. Meanwhile, intergenerational differences and dynamics are also changing: recent generations are no longer on track to be richer than their parents. Wealth is concentrated among the older generations, inserting a generational element into tensions about economic inequality.

Since 2008, developments in inequality show a mixed picture. On average, growth in income inequality has slowed, but it is unclear how long this will persist

The most recent evidence of developments in inequality provides a mixed picture. On average, income inequality across advanced economies appears to have remained roughly stable since 2008. That pattern is a stark contrast to the pre-crisis period that saw such a consistent rise in income inequalities across the advanced economies.

The GFC affected inequality differently across countries differently

But this pattern obscures major differences across countries. Even among the countries worst hit in the crisis by declines in gross domestic product (GDP) and average household income, some saw inequality rise (Greece, Spain) but others (Ireland and Portugal) did not. Recent developments in wealth inequality have similarly varied. Generally, growth of income inequalities appears to have slowed somewhat since the Great Financial Crisis (GFC). However, this has to be seen against the backdrop of falling income growth – for both the rich and the poor. Poverty and deprivation rose very significantly during the crisis, particularly in countries that were hit hard (e.g., Greece).

A more detailed examination suggests that income disparities in many parts of the distribution have continued to rise throughout the crisis. Across countries, the slowdown has often been primarily due to a hit to the very high incomes (top 10%), particularly in the early crisis- and post-crisis years. Elsewhere, income disparities have often continued to grow and, more generally, income inequality has not fallen substantially. This is in contrast to previous severe recessionary periods, in which income inequality often fell substantially.

Increasingly growth in the very highest incomes (top 1%) seems to be returning and converging on pre-crisis trends. If this is reflected more broadly, it seems unlikely that longer-term trends of growing aggregate inequality will cease. However, more data will be needed to make substantive conclusions here.

The Global Story

Today, the average person lives in a country that is less equal, but in a world that is, overall, more equal

The trends in inequality within the OECD must also be looked at in their global context. Today, the average person in the world lives in a country that is less equal, but in a world that, overall, is more equal. Global income inequality has declined from the late 1980s, and particularly rapidly from about 2008. Previously, at least since the early 19th century, global inequality had increased. This change, like other historical changes in global inequality, has been driven primarily by changes in income disparities between countries. Rapid income growth in the most populous economies (notably China and India) in recent decades explains much, if not all, recent global income convergence.

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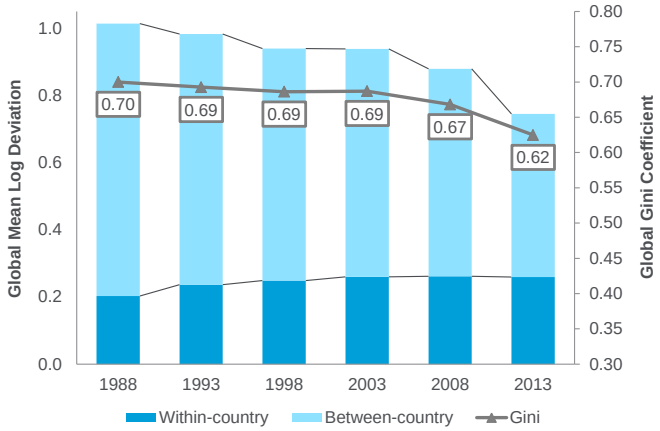
Recent years have seen growing within-country inequality in countries across all levels of economic development

Since poor countries tend to be more unequal than rich countries, one could surmise that the trend of rising inequality in rich countries was just a regression to the global mean; as developing countries increasingly integrate into the world economy, global inequality converges. However, that seems to be a misleading interpretation. Rather, recent years have seen growing within-country inequality across economies of all income levels, including and especially those whose rapid increase in average income have driven global inequality downwards.

Rising within-country inequality could boost global inequality over time

As a result, income inequality within countries has increased in absolute terms and now accounts for one-third of global inequality, while it was only one-fifth in 1988 (Figure 5). The contribution of between-country inequality has correspondingly shrunk. Rising within-country inequalities could over time boost global inequality, too, unless they are accompanied by continued fast income convergence between rich and poor countries.

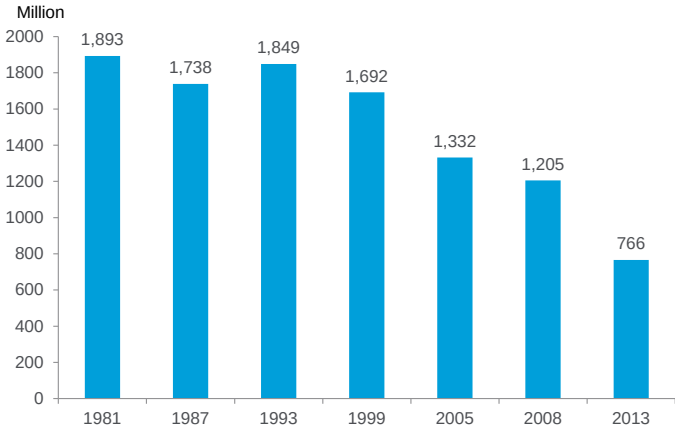
Figure 5. Global Income Inequality (1988-2013)



Note: Gini measures and mean log deviation may reflect inequality in gross income, net income or consumption (in some cases), depending on the country. 176 countries are included in the sample.

Source: Shared Prosperity: Taking on Inequality, World Bank (2016)

Figure 6. Number of Extreme Poor Globally (1981-2013, Millions)



Note: 176 economies are included in the sample. Extreme poverty refers to instances of people living on less than $1.90 PPP/day.

Source: Shared Prosperity 2016: Taking on Inequality, World Bank

Despite rising inequality, there has been a staggering success story surrounding extreme poverty

Within this, there is a staggering global success story surrounding poverty. The share of the world's population estimated to be below the World Bank's $1.90/day extreme poverty threshold has fallen drastically: from 35% in 1990 to 11% in 2013. Despite a major expansion in world population, the number of people in poverty has fallen dramatically from 1.85 billion to under 800 million (Figure 6).

The Complex Drivers of Inequality

The drivers of inequality are widespread and often highly complex

Changes in economic inequality reflect developments in the way the economy as a whole is operating. These developments are determined by complex interactions amongst a large set of underlying forces. These forces range from corporate and political decisions, to institutional features, to broader economic and technological trends, to demographic change.

There is no "iron law" dictating which forces are the most potent, nor an automatic link between specific forces and economic outcomes. No one factor consistently drives changes in the economy as a whole, nor does any single factor drive consistent changes in inequality. Different forces predominate in different contexts at different times, resulting in significant variation over time and across countries. There is a complex system of feedbacks between inequality, institutions, decisions,

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and subsequent changes in inequality. Some of the forces may be partly exogenous, but the overall outcomes — including for income and wealth inequality — are hardly so.

We introduce a number of the most salient drivers of inequality and the associated evidence. Roughly speaking, there are at least three levels at which drivers intervene: at the level of production, at the product and labor market level, or in ex-post redistribution.

Technological change and globalization are often the most widely discussed drivers of inequality. In many cases, they may have driven inequality upwards, but their ultimate effects are usually heavily mediated by other factors.

Technological change and globalization have been particularly prominent in discussions of rising economic inequalities and they primarily operate on the first two levels. Such changes have boosted the demand for highly-skilled labor and the rewards for 'superstars', while 'medium level' occupations have lost out (part of what is often referred to as labor market polarization).

Across the advanced economies, the number of people employed in these middle income occupations has fallen dramatically, while the total portion of income going to remunerating workers has also declined. Both trends are associated with growing inequality (as well as other trends such as declining mobility), and can be linked to new forms of technological innovation and on-going globalization.

Of the two, technological change has likely been the more significant driver of inequality overall in many contexts. Since 1995, capital employed in the information, communication & technology sector (ICT) per hour worked has increased fourfold across our sample of advanced economies (OECD, 2017).[8] This has had a substantial impact, but even here, it is difficult to disentangle the effects of globalization and technological change entirely.

Indeed, the effect of these cannot be entirely separated from government policies, either. For instance, technological innovation and foreign competition may have disrupted local economies, and depressed local incomes, but the lack of government assistance to adapt and redirect local resources is likely a key factor in the persistence and scope of the impact.

Public policies also play a crucial role; often there also mediate the impact of other economic trends in inequality

Technological change and globalization are therefore clearly not the whole story. Their ultimate impact is fundamentally determined by the institutional context in which these trends take place; public policies play a crucial role. The effects of globalization and technological innovation have fundamentally differed depending on things like education structure and broader labor market institutions. This highlights the need for the development of educational structures that are fit for purpose, and the development of up-to-date labor market policies — themes broached by prior Citi GPS reports such as Education: Back to Basics and Technology at Work v2.0.

Changes in labor and product markets have also had a significant impact in the past few decades. The bargaining power of many workers appears to have declined significantly. Union membership is down in most advanced economies and trade union density has fallen by more than half since 1975 according to the OECD. Additionally, hurdles for job mobility (including the need for local occupational licensing, employer-based health insurance, and non-compete agreements) have increased. These trends have implications beyond income inequality. In the U.S., for example, there is evidence that risk has increasingly been transferred from

[8] Our sample includes: Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Netherlands, Slovenia, Spain, Sweden, U.K. and U.S.

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employers to workers in the form of reduced health and pension benefits (Hacker, 2006).

Market concentration is also up, at least in the U.S., further raising the bargaining power of employers versus workers and also raising profits. Since the 1990s, the weighted average share of top 4 firm revenues rose from 26% to 32%.[9] Technology and globalization may have had an important secondary impact here, too.

Figure 7. Average Tax Rates Across the Income Distribution in France, the U.K., and the U.S (1970 and the Early-2000s): 1970

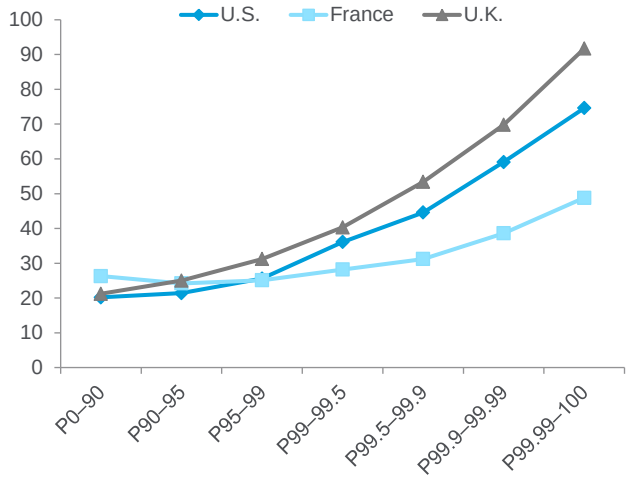
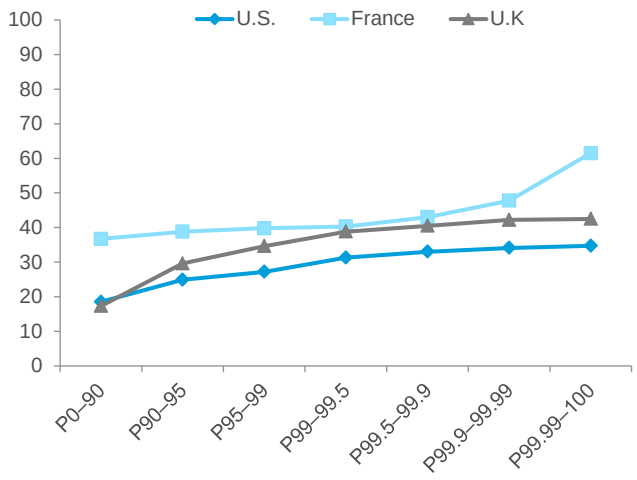


Figure 8. Average Tax Rates Across the Income Distribution in France, the U.K., and the U.S. (1970 and the Early-2000s): U.S.-2004, France-2005, U.K.-2000



Notes: Figures display tax rates across income groups. Tax rates in the United States include federal income taxes. Tax rates in France and the United Kingdom include individual income taxes, payroll taxes, and estate and wealth taxes but exclude corporate income taxes. U.S. statistics based on 2004 tax law imposed over the incomes distribution in 2000, adjusted for economic growth. French statistics are based on 2005 tax law, and the 1998 income distribution, adjusted for economic growth. U.K. statistics are based on 2000 tax law, and the 2000 income distribution.

Source: Piketty and Saez (2007)

The growing dominance of the financial sector can be seen as playing a role in rising economic inequalities

The rising 'financialization' of advanced economies, exemplified by the increased share of the financial sector as a percentage of GDP and corporate profits, has also likely played a role in rising economic inequalities. More indirectly, the ascendance of shareholder capitalism potentially increased focus on short-term corporate profits (to the detriment of wages and potentially near-term investments in physical and human capital). Macroeconomic policies and demographic factors likely played a complementary role here too.

Taxes and social expenditures are also key determinants and often these reduce income inequality

Income tax rates, particularly top income tax rates, have fallen sharply in advanced economies since the 1970s (Figure 7 and Figure 8). There is also a fairly clear negative correlation between the size of social expenditures and the Gini coefficient for income inequality (i.e. net, after tax and transfer). Associated reductions in these expenditures, as well as their increasing focus on benefits for the elderly among many advanced economies, has reduced their redistributive impact.

A growing body of research is beginning to clarify the contributions of different forces to the observed increases in economic inequalities, usually finding technology, globalization, and public policies to be significant, if not deterministic or exhaustive, factors.

[9] The Economist, 2015.

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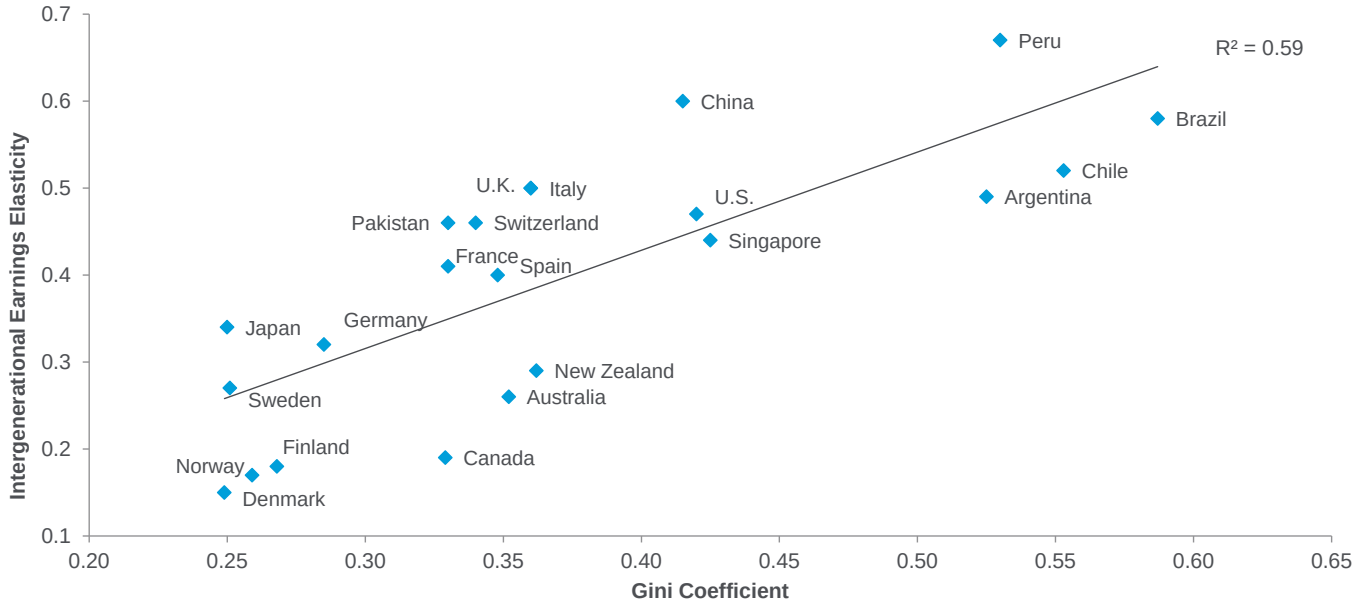
We expect that the pattern of varying trends in income and wealth inequalities will provide a fertile soil for further work in this area. Fundamental divergences in the effects that different factors have in different contexts highlight that inequality is not beyond the scope of policy to change. The most effective solutions to growing inequality are likely to be found by better understanding the interactions between policy, institutions, and the broader economy, making this a key area for further research.

The Corrosive Effects of Inequality

Inequality can impact systemically significant outcomes including economic growth, social mobility, social cohesion, political participation, and democracy

The evidence is growing about the various channels through which inequality can impact on a wide range of systematically significant outcomes, including economic growth, social mobility, social cohesion, political participation and democracy. But how damaging inequality ultimately becomes also depends on a range of mediating factors, including whether it is linked to a perceived lack of fairness and mobility. Importantly, the fact that recent increases in inequality have been associated with a slowdown in economic growth and the slowdown in the rise in *average* living standards probably exacerbates the broader, damaging effects of inequality. To the degree that this relationship is causal, this poses serious concerns for long-term stability, efficiency and well-being.

Figure 9. Income Inequality and Intergenerational Earnings Immobility



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Intergenerational earnings immobility is measured by the elasticity between parental earnings and the adult earnings of their children. Corak (2012) derives this using data on a cohort of children born during the early 1960s and measuring economic outcomes of the same individuals as adults in the 1990s.

Source: Corak (2012, 2016): Gini Coefficient Data extracted using http://arohatgi.info/WebPlotDigitizer/app/

Economic inequality could constitute an impediment to economic mobility and opportunity

A common concern relating to economic inequality is that it could constitute a growing impediment to economic mobility and opportunity (Figure 9). Social mobility is essential to vibrant societies and economies. Income inequalities may reflect inequality of opportunity, especially if inequalities are persistent and between individuals with similar characteristics.

However, growth in inequality can also generate new barriers, as well as reflecting them. If parents are able to transmit their social privilege to their children (though mechanisms such as private schooling), parental income inequality will be

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translated into substantially different life opportunities. This can lead to damaging feedback effects. Many factors affect the degree to which parents are able to lever their financial means to give their children a leg up. Public policies, especially around education, have an important role to play.

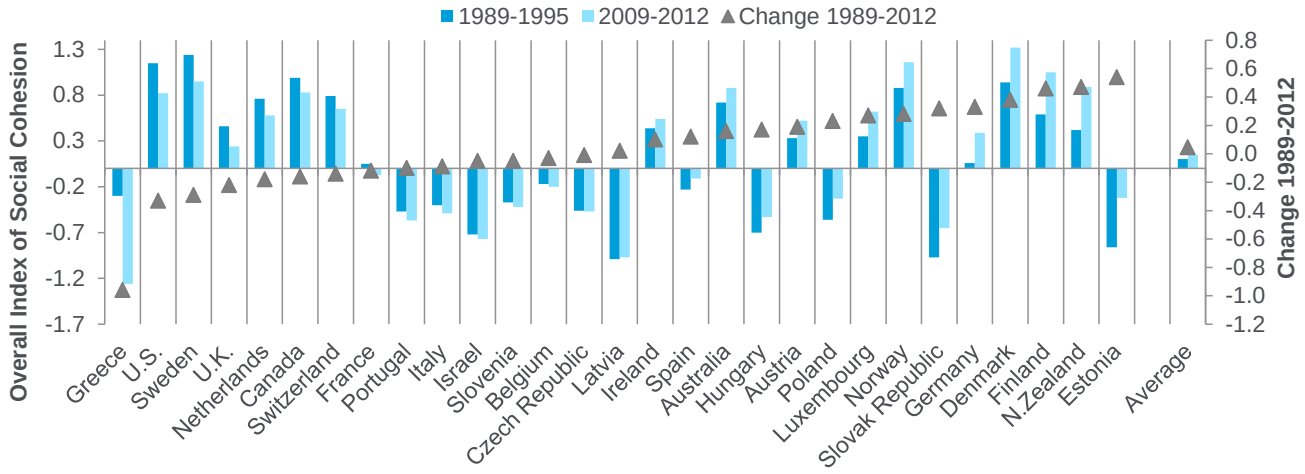
Signs of declining mobility are visible in the U.S., though it may take many years for the full implications of growing inequality to become clear

So far, evidence that parental inequality causes changes in mobility and opportunity is mixed, with signs of declining mobility in the U.S. and less evidence of change elsewhere. But since the sharp rise in income and wealth inequalities is relatively recent, it is possible, perhaps plausible, that such inequalities have not manifested themselves yet in terms of their implications on mobility. Given that falling social mobility reflects a deep socio-economic malaise, the links between these two factors deserve further exploration.

Falling social trust and cohesion is higher where inequality is deemed to be 'illegitimate'

Inequality, in many cases, is also linked to falling social trust and cohesion (Figure 10), particularly when inequality is deemed to be 'illegitimate.' Empirically, social trust tends to be associated with lower corruption and other aspects of better governance (both public and corporate). Its decline is linked to falling civic engagement, as well as many components of broader well-being — including public health.

Figure 10. Social Cohesion Over Time, EU/OECD Countries (1989-2012)



Notes: Dragolov et al. (2016) index of social cohesion has nine main elements: social networks; trust in people; acceptance of diversity; identification; confidence in police; perception of fairness; solidarity and helpfulness; respect for social rules; civic participation. In each panel, the index is measured over four years for each country. Country sample for (simple) average includes all countries shown.

Source: Citi Research; Dragolov et. al. (2016)

Changes in aggregate inequality and electoral participation have a statistically significant relationship

Declining trust in institutions across most advanced economies is also closely associated with inequality. This can generate toxic feedback processes, especially in representative politics. Falling trust is likely a factor in falling civic and political participation, particularly among less well-off people. Cross-nationally, we find a statistically significant relationship between recent changes in aggregate inequality starting around 1980 and electoral participation (Figure 11).[10] The result can often be to further bias political representation in favor of the well off, worsening initial problems associated with inequality and social trust.

[10] The relationship is significant to a 95% level across the following economies: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, N. Zealand, Norway, Spain, Sweden, Switzerland, U.K., U.S..

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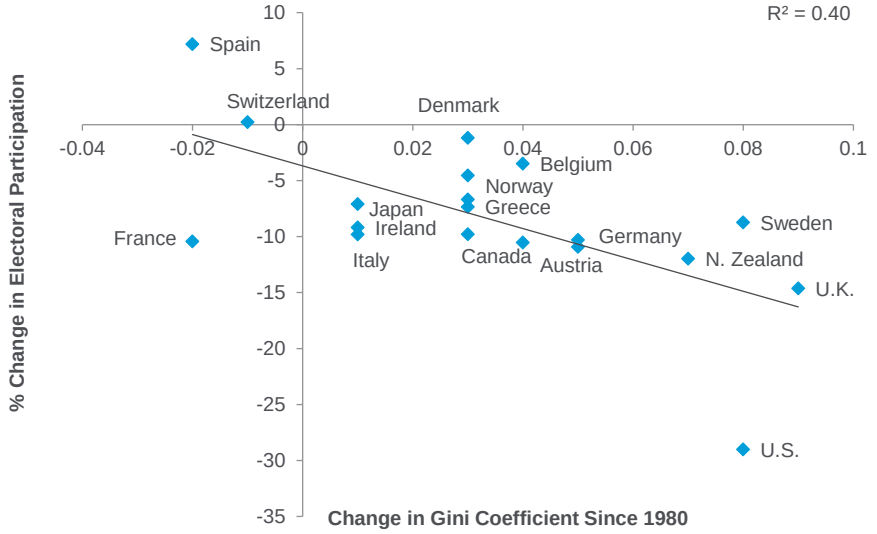
Figure 11. Trends in Voter Turnout and Change in Economic Inequality (1980-2014)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Change in Gini coefficient calculated between 1980 and 2013/14. Change in electoral participation calculated from between 1980 and 2010 (closest election to).

Source: Citi Research; OECD (http://dx.doi.org/10.1787/888932382121); LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database

Growing inequalities, falling social trust and perceptions of declining opportunity appear to have combined with cultural divisions to generate a potent force behind rising populism and polarization. Electoral support for populist parties has more than doubled in Europe since the 1960s (Inglehart and Norris, 2016) and there is evidence that inequality has had a role to play. Crucially, cultural and economic factors seem to have interacted in important ways with trends behind growing inequality, fostering growing populist support. More work will be needed to develop substantive conclusions in this area, though incidentally, it creates a much more challenging environment to take on issues surrounding inequality constructively. This adds a new dimension to an already steep challenge.

The long-held belief that there is a trade-off between inequality and prosperity is under attack; inequality seems to be more harmful than previously thought

It is therefore not surprising that the long-held belief that there is a fundamental trade-off between inequality and prosperity is under attack. This is in part because the mechanism underlying that belief — those all-powerful incentives that would propel societies to prosperity — have often failed, creating instability and leaving great potential untapped. It is also because inequality can be much more harmful than previously thought, corroding trust in political processes and institutions that are fundamental for societies and therefore also for economies to function.

We explore some of the evidence on these potential effects of inequality in this report, but intend to return to these in greater depth in the future.

Inequality is amenable to broad-based, well-designed, and forceful intervention within and across nations

A core message is that policy is not powerless. Inequality is rooted in a host of institutional features and choices and is amenable to broad-based, well-designed, and forceful intervention within and across nations. To be effective, this action will have to be focused not just on reinforcing redistribution, however important, but on changing the distribution of income from the market itself.

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The Rise in Income Inequality in OECD Countries

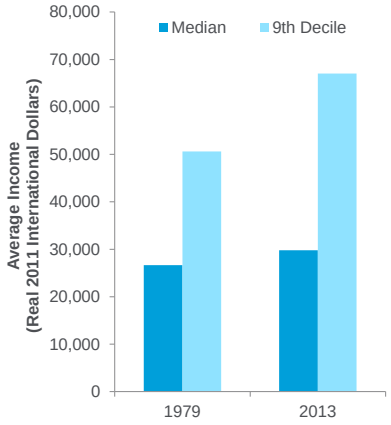
Income inequality has risen sharply across developed economies since 1980. While developed economies still tend to be less unequal than poor countries, the rise in inequality *is* sufficiently persistent and widespread to constitute a cross-national trend. However, this increase is far from uniform, either in scale, timing, or character. Within this broad trend, there are important national differences and nuances.

How High Is Income Inequality in OECD Countries?

The Gini coefficient is a summary measure of inequality

Income inequality across OECD countries is high and has risen substantially in recent decades. Incomes for better-off people have tended to grow more rapidly than the rest, generating growing disparities between low- and high-income people (Figure 12).

Figure 12. Disposable Median and 9th Decile Income, U.S. (1979-2013)



Notes: Chart reflects income in net equivalized household income (post tax and re-distribution).
Source: Citi Research, Roser, Nolan and Thewissen (2016); LIS (2016)

The most common summary metric for inequality is the Gini coefficient, which ranges from 0 (indicating no inequality) up to 1 (indicating maximum inequality. For rich countries, Gini coefficients generally lie between 0.20-0.40.

Primarily, we focus on inequality in net, equivalized household income (see Appendix). This considers income at the level of the household (rather than, say, the individual), in principle reflects all sources of income (labor income, capital income, taxes, and transfers) and takes household size into account.[11] This, therefore, often offers the most appropriate measure of real material means.

Figure 13 shows the Gini coefficient in net equivalized household income in 2014 (or the nearest year available) from the OECD's Income Distribution Database for each OECD country as well as several large non-OECD countries.

[11] The Appendix discusses different measures of income as well as how household size is taken into account

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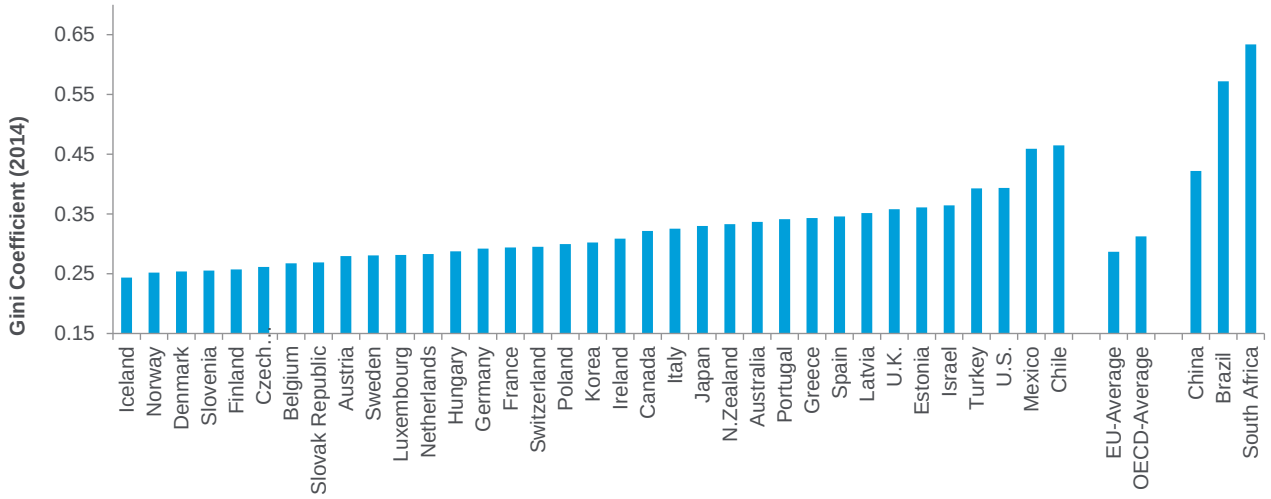
Figure 13. Levels of Income Inequality in OECD Countries, Gini Coefficient (2013/14)



Note: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).Country sample for (simple) averages includes all EU and OECD countries respectively.

Source: Citi Research, OECD Income Distribution Database

At one end of the OECD spectrum, the countries with the lowest levels of income inequality are a mix of Scandinavian countries (Denmark, Norway, and Finland) and formerly state socialist ones (the Czech Republic, the Slovak Republic, and Slovenia). Sweden is no longer included in that lowest inequality group, with which it would be traditionally associated, now having a similar level of inequality to countries such as Austria and the Netherlands. Germany and France are among those with slightly higher levels of inequality, with a Gini approaching 0.30.

Countries with rather higher 'Ginis' include Australia, Canada, and New Zealand, as well as Italy and Japan. Higher still are Spain, Portugal, and Greece. The U.K. and Baltic countries are among the highest at over 0.35. Finally, the U.S. has a markedly higher level of inequality than the other OECD countries included here, with a Gini coefficient just short of 0.40. This, however, is still less than the value for many middle-income developing nations, including China, Mexico, Brazil, and South Africa.[12] In general, income inequality tends to fall with GDP per capita (Figure 14). This holds, if to a much weaker degree, among the advanced economies too — though this trend is largely insignificant here.

[12] Of the countries for which data are available, South Africa has the highest measured Gini coefficient, at roughly 0.63. Since 2010, 112 countries have reported a Gini coefficient for income (according to World Bank Data). Of these reported figures, South Africa has the highest level of income inequality, followed by Haiti and Zambia (World Bank 2016).

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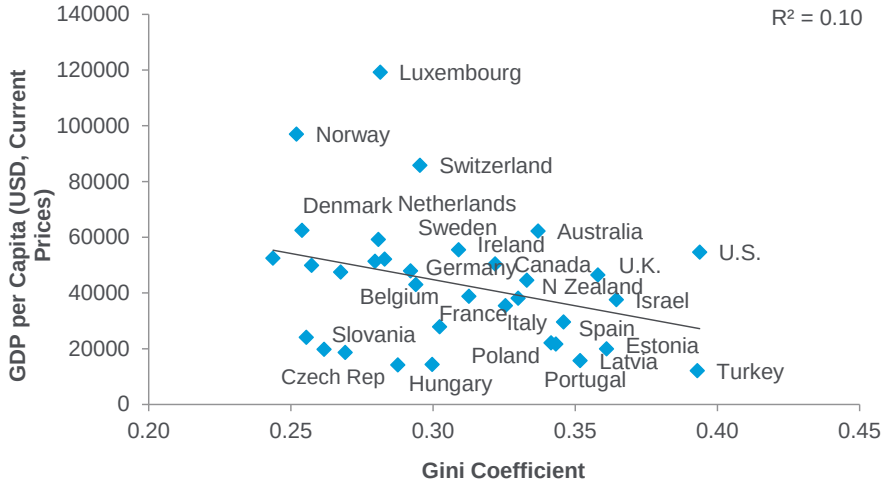
Figure 14. Cross-National Patterns in the Gini Coefficient and GDP Per Capita (2014)



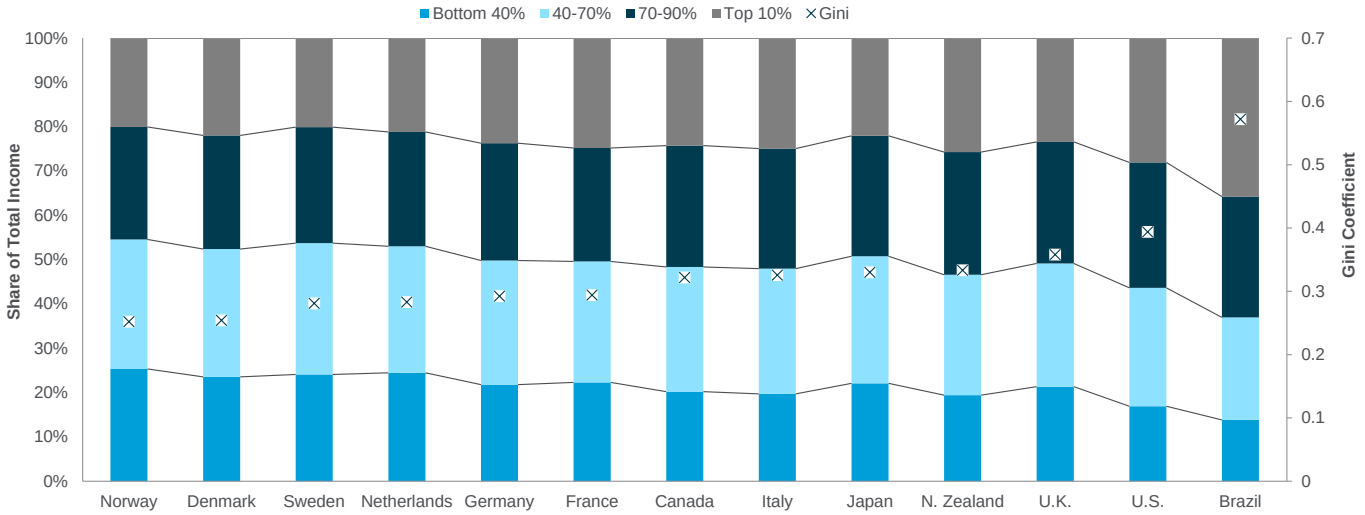
Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). GDP per capita measured at current prices.

Source: Citi Research, LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database; World Bank (2016)

The Gini coefficient doesn't tell us which part of the distribution is driving income inequalities – this differs by country

But the Gini coefficient does not tell us which part of the distribution is driving income inequalities. Figure 15 shows, for example, that the U.S. is distinctive in the relatively high share of total income going to the top 10% of the income distribution and the low share received by the bottom 40% — considerably lower than the U.K. for the example. Similarly, what one might consider the 'middle class' (between the 40th and 90th percentiles) has a larger share of income in Canada than France, while the share of aggregate income going to the lower incomes is higher in France. Both countries have similar Gini coefficients, but in either case inequality is being driven by growing income disparities among very different groups. These differences can often have important implications.

Figure 15. Shape of the Income Distribution, Selected Countries (Around 2013)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Data taken from 2014 (Norway, N. Zealand), 2013 (Brazil, Denmark and Italy), 2010 (Canada) and 2009 (Japan).

Source: Citi Research, OECD, Eurostat (2016); Luxembourg Income Study (2016), New Zealand Government (2014), Japan National Survey of Family Income and Expenditure (2011)

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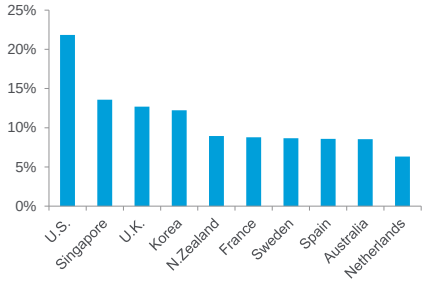
Figure 16. Top 1% Share of Aggregate Income, by Country (2012)



Note: Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy).

Source: Citi Research, World Wealth and Income Database

The very top of the distribution has been in particular focus lately, with growing emphasis on the share of total income going to the top 1% or even the top 0.1%. The top of the income distribution is distinctive in many respects. These incomes sometimes vary independently of wider trends in aggregate inequality.[13] Household surveys, which form the main basis for most summary measures of inequality, struggle to adequately capture the very top of the distribution; so information on this part of the distribution mostly comes from tax records and national account data (see the Appendix). Cross-national differences in tax systems mean this methodology can only be used to calculate inequality in gross incomes and generally does not capture capital gains; both are problematic, especially when estimating top incomes.

But based on the available data, the U.S. again stands out (Figure 16). In 2012, the top 1% accounted for a whopping 22% of aggregate net household income in the U.S., while the simple average of the countries in our sample[14] stood at 10% in 2009.

Some of the countries with high top 1% income shares also have high Ginis (e.g., the U.K.), while others, such as Germany or Canada, have high top 1% income shares but only middling Ginis. In part, these differences could reflect the different measures of income (the top 1% measure looks at gross income, before taxes and transfers, while the Gini values used here look at 'net' income after taxes and transfers).[15] However, the differences in the rankings are also informative, in that these differences reflect that economies have different degrees of inequality in different parts of their respective income distributions.

The rankings of countries across different measures of inequality are fairly consistent, though there are several notable differences

Figure 17 compares different measures of inequality (the Gini coefficient and the P90/P10 measure for net disposable income and the top 1% share for gross household income). The P90/P10 measure of income inequality quantifies the difference in income between the 90th and 10th percentile in the income distribution.

The rankings of countries across the measures are fairly consistent. For example, the U.S. and Denmark consistently rank top and bottom in terms of income inequality when measured either by the top 1% share, P90/P10 or by the Gini coefficient. There are some notable discrepancies, however, for example Korea, which appears much more unequal based on the top 1% and P90/10 measures than on the basis of Gini coefficients.

[13] Thewissen et al., 2015.

[14] Sample comprised of: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, N. Zealand, Norway, Singapore, Spain, Sweden, Switzerland, Taiwan Province, U.K., and U.S.

[15] For a discussion of different measures of inequality and a more detailed examination of the Gini coefficient, see the Appendix.

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Figure 17. Ranking of Advanced Economies by Gini, P90/P10, and Share of Aggregate Wealth Held by Top 1% (2009)

	Values			Rank			
	Top 1% Share	P90/P10	Gini	Top 1% Share	P90/P10	Gini	Score
U.S.	17.2%	5.9	0.38	1	1	1	3
U.K.	15.4%	4.3	0.34	2	5	2	9
Australia	8.4%	4.5	0.34	10	4	3	17
Japan	10.4%	5.0	0.34	7	2	4	13
N. Zealand	7.8%	4.2	0.32	12	7	5	24
Canada	13.3%	4.0	0.32	3	8	6	17
Italy	9.4%	4.2	0.32	8	6	7	21
Ireland	10.5%	3.7	0.31	6	9	8	23
France	8.2%	3.4	0.29	11	11	9	31
Germany	13.2%	3.5	0.29	4	10	10	24
Netherlands	6.4%	3.3	0.28	15	12	11	38
Sweden	8.4%	3.2	0.27	9	13	12	34
Finland	7.5%	3.2	0.26	13	14	13	40
Norway	7.1%	3.0	0.25	14	15	14	43
Denmark	5.4%	2.8	0.24	16	16	15	47
Korea	11.3%	4.7	0.30	5	3	16	24
Average	10.0%	3.9	0.30				

Notes: Gini coefficient and P90/P10 ratio reflect inequality in net equivalized household income (post-tax and redistribution). Old OECD definition of net income used (pre-2011 definition). Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy). Gini value for Australia is from 2008. Country sample for (simple) average includes all countries shown.

Source: Citi Research, World Wealth and Income Database (2016), OECD Stat (2016)

The Great Rise in Income Inequality Since 1980

The rise of income inequality since the 1980s has moved in fits and spurts

Since the early 1980s, income inequality has risen across most advanced economies. However, this has been far from a uniform phenomenon. There has been a great deal of variation across countries in the extent, character, and timing of such increases.

Figure 18 compares respective Gini coefficients for different countries from around (or sometimes after) 1980 with 2014 (or the nearest available year). In 24 of the 32 countries we consider, the Gini went up by at least 0.02 (and the average Gini went up by over 4 percentage points from 0.26 to 0.304).[16] However, in the other eight countries income inequality (according to this measure) was little different (for example in Ireland, Italy, and Switzerland) or in some cases had even declined (such as in France, Greece, and Portugal).

Furthermore, among those countries where inequality rose, the scale of that increase varied widely: for some it was relatively modest — for eight it was no more than 0.03 — whereas for others the Gini coefficient rose markedly. The most substantial increases were for the Baltic countries, Sweden, and the U.K., where the Gini went up by between 40% and 60%. Although the U.S. showed a marked increase, it was not the most substantial — but it was from an initial level that was already high.

[16]Sample includes: U.S., Estonia, Latvia, Lithuania, U.K., Greece, Portugal, Japan, New Zealand, Australia, Canada, Italy, Ireland, Poland, Spain, Switzerland, France, Germany, Hungary, Austria, Luxembourg, Netherlands, Sweden, Slovak Rep, Belgium, Czech Rep, Finland, Slovenia, Denmark, and Norway.

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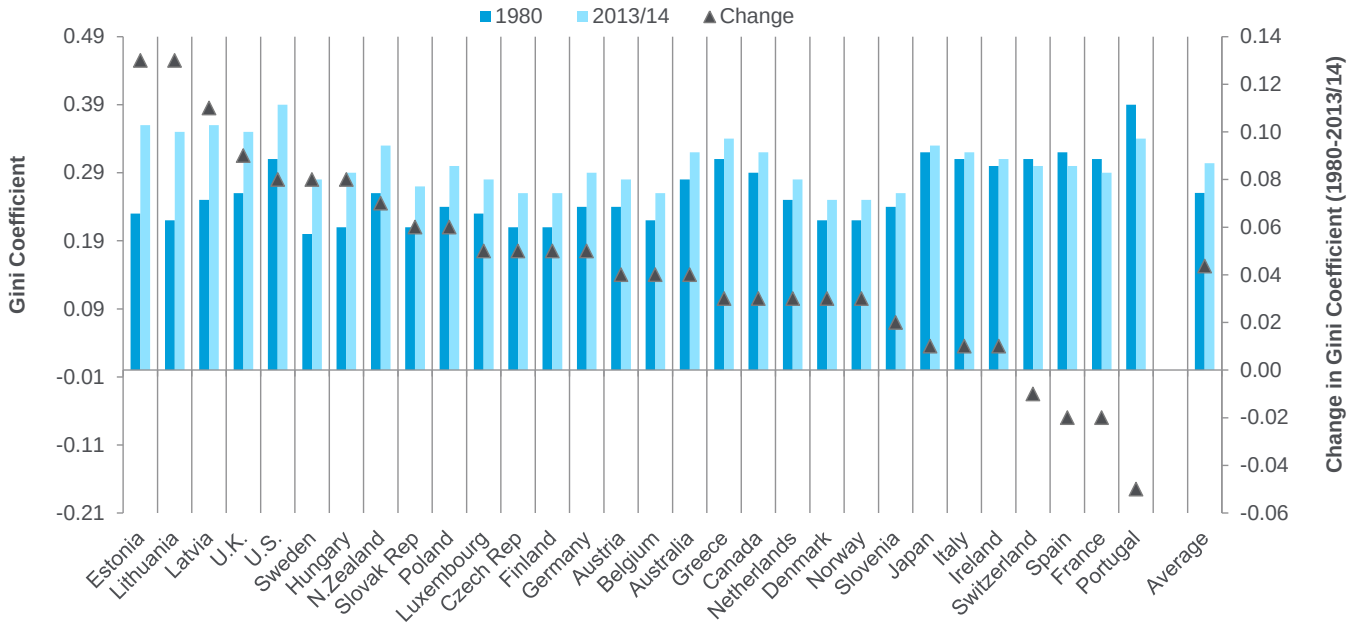
Figure 18. Gini Coefficient, OECD Countries (1980 and 2013/14)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Country sample for (simple) average includes all countries shown.
Source: Citi Research, LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database

The U.S. stands out as having a marked increase in inequality from an already high level – other countries with high starting levels say inequality saw smaller increases and vice versa

The combination of a marked increase in inequality from an already high level was unique to the U.S. Overall there was some tendency over this period for cross-national inequality to regress back towards the OECD mean.[17] That is, inequality rose less in countries where it was initially high (notably in the Mediterranean countries), while some countries which had relatively low levels at the outset (notably Sweden and some of the formerly state socialist countries) saw larger increases (Figure 19). Portugal had the highest Gini coefficient in our sample of OECD countries in 1980, but also saw the largest reduction among the countries in our sample here.

[17] This is also discussed by Tóth (2014) and Förster and Tóth (2015).

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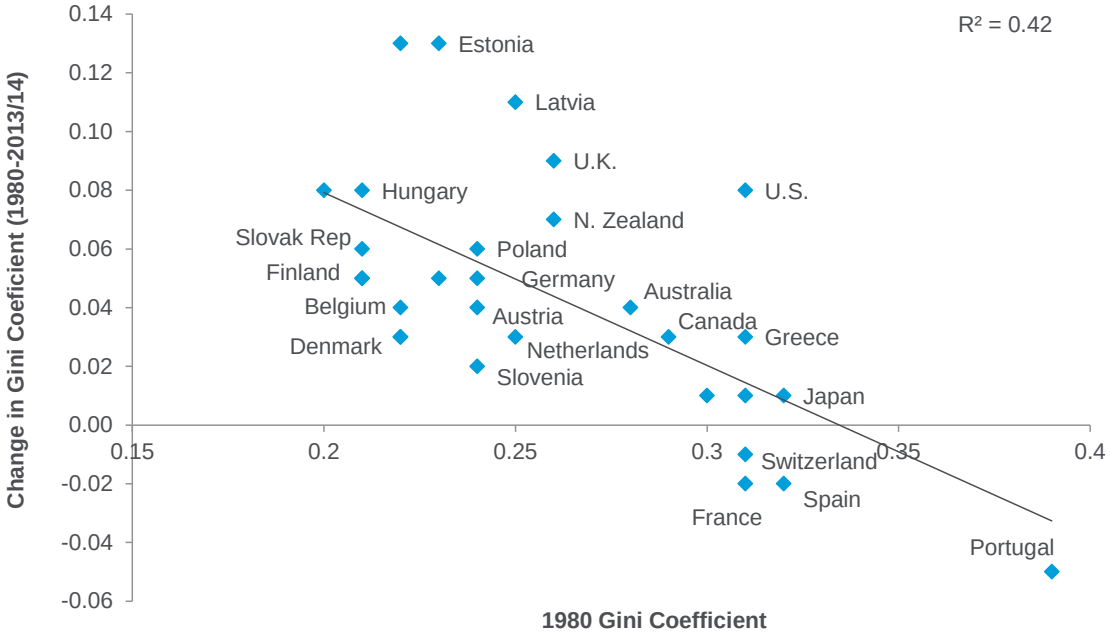
Figure 19. Gini Coefficient and Subsequent Change in Gini Coefficient (1980-2013/14)



Note: Gini coefficient reflects inequality in net equvalized household income (post0-tax and redistribution).
Source: Citi Research, LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database

Before 1980, countries conformed more or less to a 'traditional' picture of how levels inequality compare across 'standard' country clusters — this seems to have changed

Cross-national patterns in the rise of inequality also mean that the 'fit' between traditional economic country groups, and levels of inequality, has become less successful over time. The initial pattern of inequality around 1980 conformed, more or less, to the traditional picture of how levels of inequality compare across 'standard' country clusters.

- Relatively low levels of income inequality have long been seen as a defining feature of the **Nordic countries**; Sweden around 1980 had the lowest Gini coefficient, at 0.20, and Denmark's, Finland's, and Norway's were only marginally higher.
- **'Continental' countries** such as Belgium, France, Germany, the Netherlands, and Switzerland had varying levels of inequality, with Belgium close to the Nordic countries while France had a Gini of over 0.30.
- Australia, Canada, Ireland, New Zealand, the U.K., and the U.S., often categorized as **'liberal'** in terms of their socio-economic model, also displayed a range of Ginis, from 0.26 in the case of New Zealand and the U.K. up to 0.31 for the U.S.
- **'Southern/Mediterranean'** countries such as Italy, Portugal, Spain, and Greece had relatively high levels of inequality, of over 0.30.
- Countries that were then part of the **Soviet bloc** (and for which comparable data is available), namely the Baltic countries, Czechoslovakia, Hungary, and Poland all had low levels of inequality at this point. Elsewhere, these are referred to as 'former state socialist economies.'

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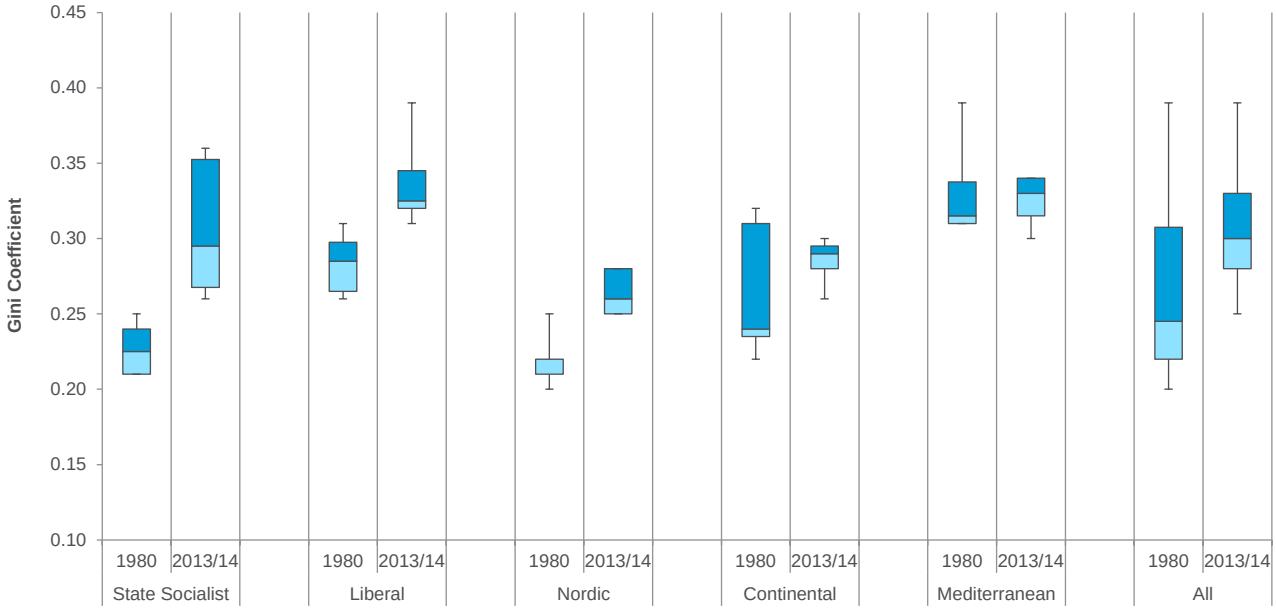
The variation in inequality within many of these groups increased post-1980

The extent of variation in inequality within many of these groupings went up, most notably in the case of the formerly state socialist countries; by 2007, this group included both countries with some of the lowest and highest levels of inequality in the OECD.[18] Conversely, inequality among both the 'continental' and 'liberal' economies converged, though in both cases this coincided with an average increase in inequality (see Figure 20).

Figure 20. Gini Coefficient Across 'Standard Country Clusters' (1980-2013/14)



Notes: Box and whisker plot reflects the range of inequality levels found in each country cluster at different points in time. The top of the upper whisker shows the maximum level of national inequality found within each group and the bottom of the lower whisker the minimum. The line separating the box denotes the median level of inequality.

Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Countries are categorized as follows: Former State Socialist: Czech Rep, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Rep, Slovenia. Liberal: Australia, Canada, Ireland, New Zealand, U.K., U.S. Nordic: Denmark, Finland. Netherlands, Norway, Sweden. Continental: Austria, Belgium, France, Germany, Luxembourg, Switzerland. Mediterranean: Greece, Italy, Portugal, Spain. All includes

Source: Citi Research, LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database

Inequality often rose in discrete concentrated 'episodes' vs. consistently over a lengthy period

Examining the evolution of inequality over time reveals several important additional nuances. Inequality often rose (or fell) in discrete concentrated "episodes" rather than consistently over a lengthy period. This was most striking in the transition countries but applies more generally.[19] Figure 21 shows that in the case of the U.K., for example, inequality grew rapidly in the 1980s but with little further increase from about 1995. In the U.S., inequality also increased particularly rapidly in the 1980s and early 1990s. In Sweden, in contrast, most of the increase was from 1993 onwards, during which there were some periods of decline. The increase in inequality seen in many of the transition countries was highly concentrated in the 1990s. In Germany, most of the recent increase in inequality was from the late 1990s through to the Great Financial Crisis. In France, a modest increase was seen in the mid-late 2000s but the Gini subsequently fell back. (The distinctive nature of the period following the Great Financial Crisis from 2008 will be discussed in more detail in later in the report).

[18] *Why* the transition to a market-based system had such differing consequences for inequality across the countries affected, only some of which are included here, is an important topic for study but beyond our scope (see Milanovic, 1998).

[19] Tóth (2014) discusses the episodic character of recent changes in income inequality in many economies in greater depth.

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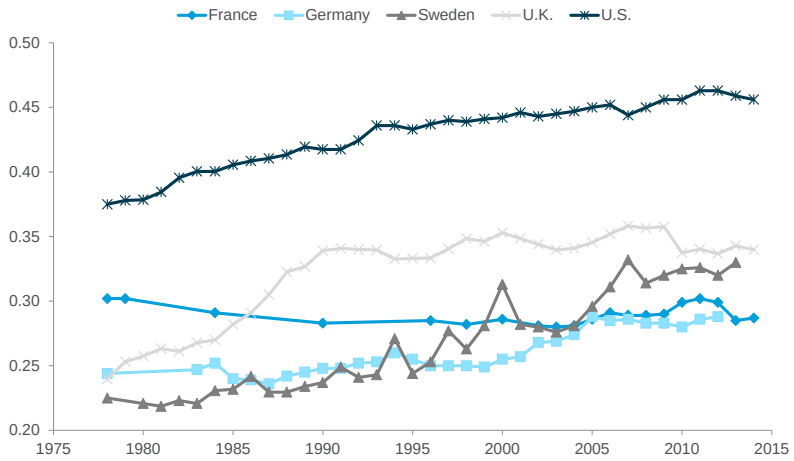
Figure 21. Trends in Gini Coefficient: France, Germany, Sweden, U.K., and U.S. (1978-2014)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution) for France, Germany, Sweden and the U.K. For the U.S., data relate to gross (pre-tax) household income.

Source: Citi Research; Chartbook of Economic Inequality

Across 18 countries in our sample, average income share for the top 1% rose from 7% in 1981 to 10% in 2009 and has increased further since

Once again, even though the Gini coefficient may be useful as a summary measure it may disguise significant differences across different parts of the distribution. In particular, pre-tax income data show a rise in the top 1% shares across all 18 countries in our sample. The average top income share in 1981 was 7%,[20] rising to 10% in 2009[21] and it is likely even higher today (World Wealth and Income Database, 2016).

The scale of that increase was very much more pronounced in some countries than in others. As highlighted by Atkinson and Piketty (2007), the English-speaking countries in Europe, North America, and Australasia saw the most substantial increase in top income shares over these decades. The Nordic and Southern European countries also experienced notable but mostly lower increases in top 1% shares, as did Japan and Korea. The continental European countries for which estimates are available (France, Germany, Netherlands, Switzerland) experienced relatively modest increases in top income shares over those years.

The U.S. is an outlier with top 1% share in 1980 at over 9% and rising to 22% by 2012

The United States is an outlier even among the English-speaking countries, leading the way both in terms of timing and magnitude of the increase in top income shares. Around 1980, the top 1% share in the U.S. was among the highest of the countries shown, at over 9%. But the share of top 1% incomes in countries such as Canada, France, Germany, Japan and Switzerland were fairly similar. By 2012, in contrast, the U.S. figure was 12 percentage points higher (Figure 22). This was more than double the next-highest increase over this period; in Canada, Sweden (from a very low base), and the U.K. It left the U.S. with an exceptionally large share of aggregate income going to the top 1% of earners, roughly 22%. The next-highest are around 13-14%.

[20] Sample includes Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Singapore, Spain, Switzerland, Sweden, Taiwan Province, U.K., and U.S.

[21] Among those economies for which data is available (U.S., U.K., France and Australia), the fiscal income share of the top 1% increased in all except France between 2009 and 2014.

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Countries such as Denmark, France and the Netherlands saw a much smaller rise in the top 1% income share

At the other end of the spectrum, countries such as Denmark, France and the Netherlands saw increases of less than 2 percentage points in the top 1% income share during this period. In some cases, such as Denmark, a low increase is combined with a low initial starting point. This meant that, by 2009, the top 1% share of aggregate income in Denmark was less than one third of the equivalent share in the U.S.

Figure 22. Top 1% Share of Aggregate Income

	1980	2009	2012
U.S.	9.4%	17.2%	21.8%
U.K.	6.7%	15.4%	12.7%
Singapore	10.6%	13.7%	13.6%
Canada	8.9%	13.3%	
Germany	10.7%	13.2%	
Korea	7.5%	11.3%	12.2%
Switzerland	8.4%	10.5%	
Ireland	6.7%	10.5%	
Japan	8.4%	10.4%	
Italy	6.9%	9.4%	
Spain	7.6%	9.3%	8.6%
Sweden	4.1%	8.4%	8.7%
Australia	4.6%	8.4%	8.5%
France	7.8%	8.2%	8.8%
N. Zealand	5.7%	7.8%	8.9%
Finland	4.3%	7.5%	
Norway	4.6%	7.1%	
Netherlands	5.9%	6.4%	6.3%
Denmark	5.5%	5.4%	
Average	7.1%	10.2%	11.0%

Notes: Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy). 1980 data for the U.K., Switzerland and the Netherlands is from 1981.

Source: World Wealth and Income Database

A 'fanning-out' of income distribution is seen across many countries leading to significant reductions in the share of income going to middle-lower income earners

Broader trends in income distribution have played an important role alongside these changes. The widely-employed narrative that higher incomes are pulling sharply away from the middle while low incomes lag behind certainly applies to the U.S. Such a 'fanning-out' across the distribution is also seen for Sweden in the second half of the 1990s, though not before or after that, and for the U.K. but only up to the mid-1990s. In all three cases this has driven aggregate inequality upwards.

This has also resulted in significant reductions in the income share going to middle-lower income earners (defined here as the bottom 40% of the income distribution). Over this period, in the U.S., the income shares for middle-income earners declined by roughly 3 percentage points. Additionally, the income share of the higher-middle income earners in these economies have also not risen (Luxembourg Income Survey, 2016). Conversely, the income share for the top 20% of earners during this period increased markedly. In the U.S. and U.K., for example, the income share enjoyed by this group has increased by 5-6 percentage points since 1979 (see Figure 23).

The precise manner in which inequality has increased differs by country

Such patterns are far from uniform. In Canada, middle-lower incomes kept pace with the median overall, meaning lower earners actually increased their share of aggregate income. In Germany, the incorporation of the former German Democratic Republic in 1990 initially produced a sharp (and mechanical) fall in the ratio of the income of the 10th percentile to the median. This was reversed by the early 2000s before a much more modest recent decline, while the 90th percentile grew somewhat more rapidly than the median throughout the period.

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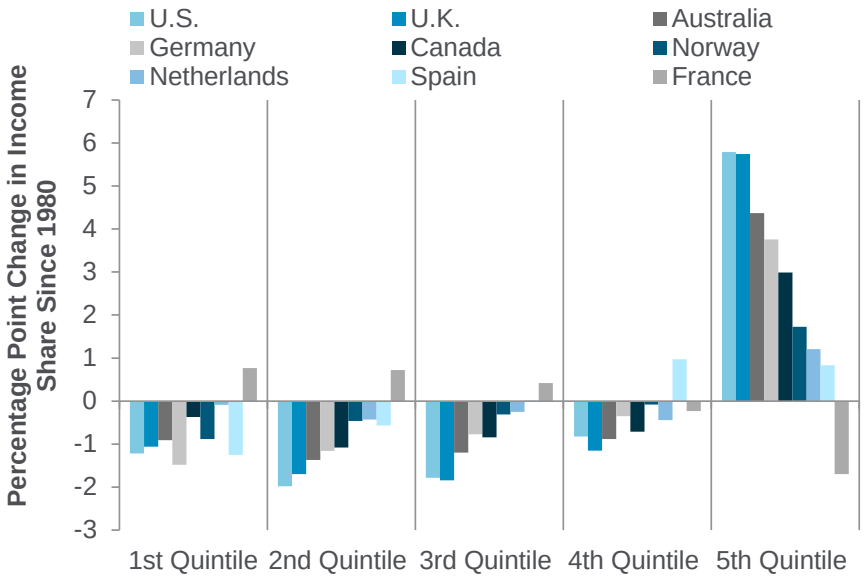
The top 20% of earners appear to have enjoyed a near monopoly on growing income shares across advanced economies

In general, the top 20% of earners appear to have enjoyed a near monopoly on growing income shares across many advanced economies. Among those countries for which data is available, only France saw the share of income accrued by the top 20% of earners fall. In many cases, this growth is even more concentrated than Figure 23 suggests. In the U.S. and U.K., for example, 95% and 93% of the increase in income share among the top quintile was accrued by the top 10% of earners (LIS, 2016), not across the whole quintile. In many economies, aggregate inequality and the income share of the top 10% have moved in tandem. In the United Kingdom, Sweden, and Germany, for example, increases in aggregate inequality closely coincided with increased income shares of the top 10% of earners, in the 1980s, late 1990s and early 2000s, respectively. Changes here appear to have played an important role in driving aggregate inequality.

Figure 23. Trends in Income Shares, by Income Quintile (1980-Latest)



Notes: Quintile Income shares reflect inequality in net equivalized household income (post-tax and redistribution). Years Covered: 1978-2013 (France); 1979-2013 (Norway, U.K., U.S.); 1980-2013 (Spain); 1981-2013 (Germany); 1981-2010 (Australia, Canada); 1983-2013 (Netherlands).

Source: Citi Research; Luxembourg Income Study (2016)

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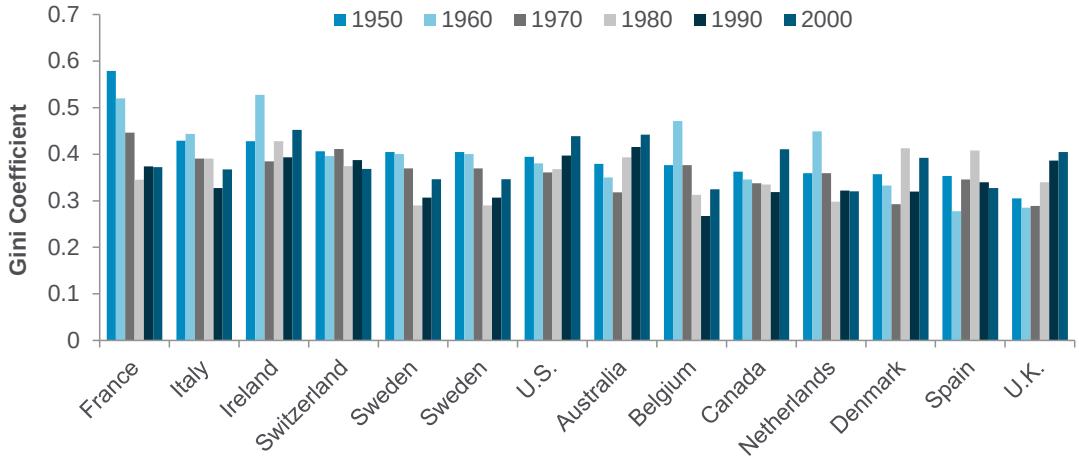
Was it Always Thus?

The late 1970s appear to represent an inflection point — long-term trends of falling inequality ceased

Recent trends in income inequality need to be seen in the context of what went on before. Comparable household income surveys do not go back much before the late 1970s/early 1980s (see Appendix). However, national accounts and tax data for countries such as France, Sweden, the U.K. and the U.S. suggest that from the late 1940s up until the late 1970s, income inequality either declined or remained at a relatively low level. The late 1970s appear to represent something of a watershed, marking a subsequent levelling-off (if not always reversal) of a longer-term downward trend in inequality (Figure 24).

Figure 24. Long-term Developments in Income Inequality (1950-2000)



Note: Gini coefficient reflects inequality in gross household income (before-tax).
Source: Citi Research; Moatsos, Michalis, Jan Luiten van Zanden, Joerg Baten, et al. (2014)

Trends in top income shares corroborate this long-term picture. As Figure 25 and Figure 26 show, most countries in both English-speaking and continental European countries experienced a sharp drop in top income shares over the first half of the 20th century. Low levels of income inequality were then sustained through the early post-war decades.

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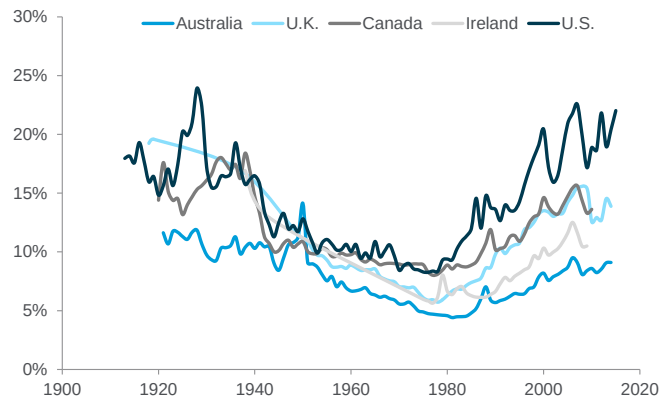
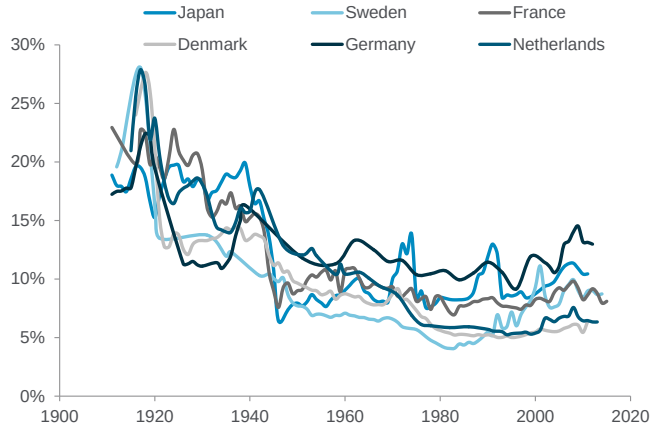
Figure 25. Trends in Income Shares of Top 1% (1910-2012): 'English-Speaking' Economies



Note: Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy).

Source: Roser and Ortiz-Ospina (2017); World Wealth and Income Database

Figure 26. Trends in Income Shares of Top 1% (1910-2012): 'Continental' Economies

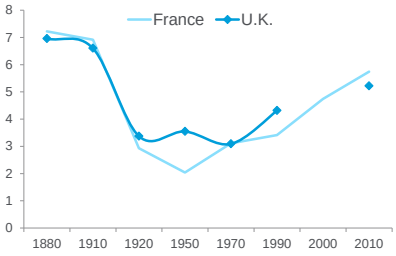


Note: Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy).

Source: Roser and Ortiz-Ospina (2017); World Wealth and Income Database

Sharp reductions were often concentrated around episodes such as the World Wars or the Great Depression. At the turn of the century, the income of the top 1% mostly came from capital rather than labor. Consequently, studies which decompose income into these sources have shown that the fall in their share is primarily a capital income phenomenon, reflecting wealth destruction associated with social upheaval in the early part of the century (Figure 27).[22] Wartime wage controls also appear to have played a role, preventing the concentration of labor income.

Figure 27. Aggregate Wealth to Income Ratio: France and the U.K. (1880-2010)



Note: The data refer to household net worth, assets after debt has been subtracted. Income values are for gross aggregate national income.

Source: Citi Research; Piketty (2014)

Top income shares tended to remain stable or declined further during the immediate post-war decades. These trends probably reflected the long-term impacts of earlier 'shocks', though policies such as tighter financial regulation and more progressive taxation reinforced those impacts.[23] By mid-century, cross-national dispersion in top income shares was also relatively small; by 1958, the income share of the top 1% was between 6% and 12% in all the countries examined here (it is between 5% and 19% today).

Starting in 1970, this trend ceased. Top income shares have not declined further. Rather, these shares stagnated in most continental economies, while they increased substantially in many Anglo-Saxon ones. As a result, Figure 26 also shows that top income shares in continental economies remain substantially lower than they were in the early parts of the last century. Meanwhile, among many English-speaking economies, this share has recently returned to levels last seen in the interwar years.

[22] Atkinson et al. (2011).

[23] The dynamic effects of higher marginal tax rates on wealth accumulation combined with previous shocks to capital are seen by Roine et al (2009), for example, as potentially explaining much of the observed equalization after the Second World War.

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Geographical Dimensions of Inequality: The Case of France, the U.K., and the U.S.

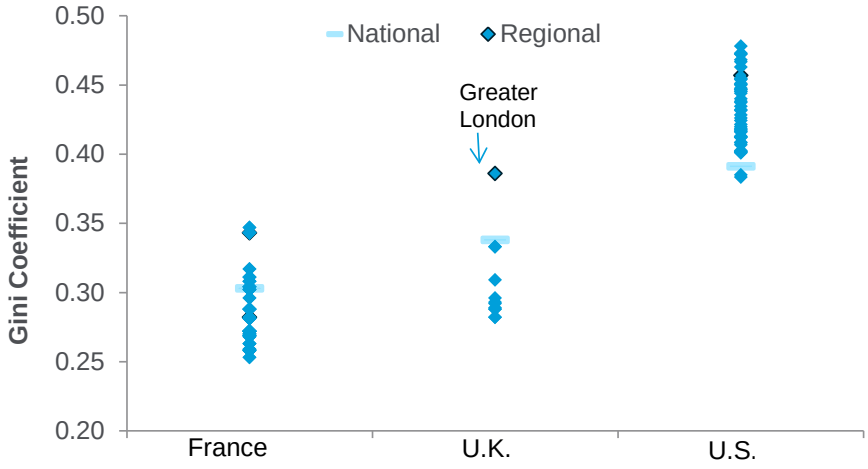
Inequality varies between different regions and local economies

Geographic disparities have been a specific, and growing, concern of late. Here we focus specifically at the U.S., the U.K. and France. We consider regional disparities in two dimensions. Firstly, we consider how inequality currently varies between different regions and local economies. Second, we examine whether income disparities between regions have increased. Large-scale regional disparities (between and within regions, between urban and rural communities or between and within cities) can be the cause of significant economic, financial, political, and social disruption.[24] The economies of the U.S., the U.K. and France share several common features. Notably, inequality in all three tends to be higher in urban centers. However, the size of this difference varies substantially. Additionally, income disparities across regions seem to have increased in the U.S. and U.K. in recent years, but not in France.

In the U.S., UK, and France, inequality varies significantly across regions

Figure 28 compares the Gini coefficient for net household income across regions and compared to the national figure (marked by the light blue rectangle) for the U.S., U.K. and France for the latest year of available data. A few observations are notable. First, in all three economies, inequality varies significantly across regions within a country. Second, the U.S. once again stands out with each U.S. region more unequal than most regions in France or the U.K.

Figure 28. Dispersion of Inequality Across Regions, Gini Coefficient (Latest Year Available)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Latest year available for France and the U.K. is 2013 and for the U.S. it is 2014.

Source: Citi Research; OECD Regional Statistics

[24] Economists have also long studied the *benefits* of agglomeration, for example, see Fujita and Thisse (2002), Melo, Graham and Noland (2008), World Bank (2009), and Storper (2014).

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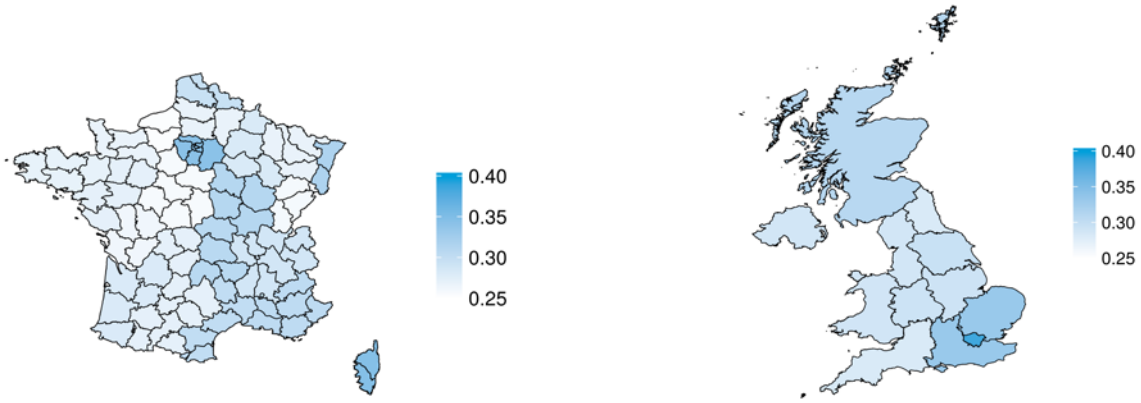
There are also notable differences in regional patterning of inequality across a country

Inequality is usually higher around major cities

Additionally, there are notable differences in the regional patterning of inequality around the national level. In the U.S., regional inequality is relatively evenly clustered around the national average, with no significant outliers. Regions with relatively high inequality are more concentrated in France and the U.K., mainly around Paris and London, respectively (Figure 29). These stand out more and regional levels of inequality are slightly more skewed around the national level as a result. The extent to which inequality in the greater London area diverges and exceeds regional inequality in the rest of the U.K. is exceptional.

Figure 29. Gini Coefficients Across Regions, U.K. and France (2013)



Note: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).
Source: Citi Research; OECD Regional Statistics

Turning to change over time, Figure 30 shows how the Gini (for before-tax income) for U.S. states has evolved since the late 1970s. The largest increases in inequality are seen in the North East, California and Oklahoma, while the "rust belt" and nearby areas also show significant widening in inequality.

Figure 30. Percentage Change in Gini Coefficient of Income Across U.S. States (1977-2016)

Note: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).
Source: Citi Research; IPUMS-CPS

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Inequality has grown more rapidly in urban contexts

Inequality in all three countries has generally grown more rapidly in urban areas. Figure 31 and Figure 32 show the evolution of inequality among households living in urban and rural areas.[25] In the U.S. inequality went up significantly among both rural and urban populations, but more rapidly among the latter; in France it fell for both groups, albeit with a recent increase for the urban population. Regardless of the net trend in inequality, income inequality has grown more rapidly in urban contexts than rural.

Figure 31. Evolution of Gini for Disposable Income in Urban and Rural Areas, U.S. (1980-2014)

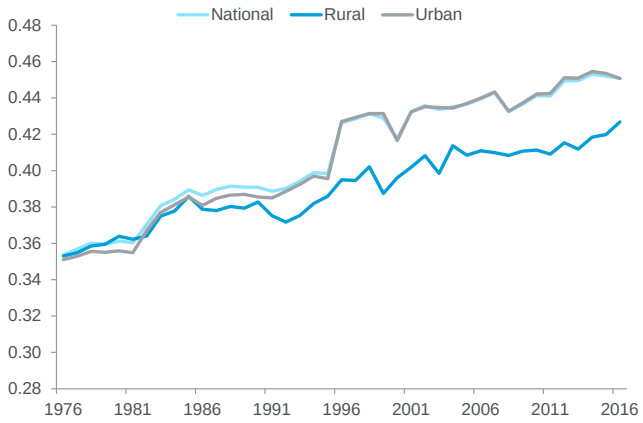
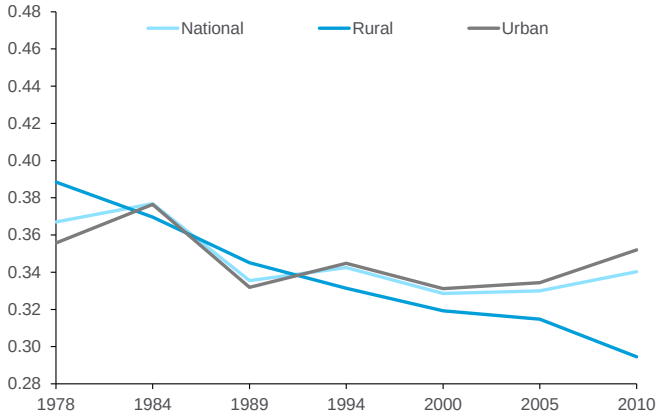


Figure 32. Evolution of Gini for Disposable Income in Urban and Rural Areas, France (1980-2010)



Note: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).

Source: Citi Research; IPUMS-CPS; LIS

Inequality also varies across cities

The extent to which inequality varies *across* cities, however, is substantial, too. The coefficient of variation (how much each city's Gini coefficient deviates from the average) of the Gini index for income inequality (based on disposable household income) for the 70 largest cities in the U.S. was 0.076 in 2014 (the only year available), much higher than the corresponding figure for the 15 major cities in France, which was 0.033 in 2011. This suggests inequality varies much more across U.S. cities, compared to France where urban levels of inequality are more consistent.

In the U.K.'s case, a growing North-South divide with respect to levels of inequality is evident in recent years. Figure 33 shows the growing divergence of inequality of disposable household income between regions of Great Britain[26] between 1974 and 2014. It highlights that, amid a generalized increase in inequality across regions, London (and to a minor extent the South East) departed from the rest of the country. Interestingly, the Great Recession also reduced inequality in London considerably- and to a greater degree than elsewhere in the U.K.

[25] For the U.K., the OECD data we use state only 3% living in 'predominantly rural' areas, compared with 31% in France and 38% in the U.S. OECD (2016b) defines a region to be 'predominantly rural' if the population share in rural areas within the region is above 50% and there is no city or town with more than 200,000 inhabitants, or more than 25% of the regional population. The other categories are 'predominantly urban' (less than 15% of the regional population live in rural areas), and "intermediate."

[26] Northern Ireland is not included due to data availability.

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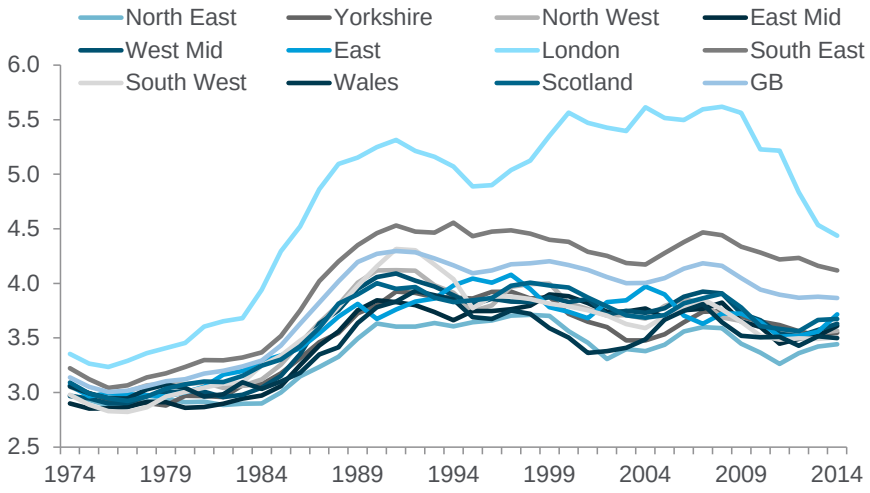
Figure 33. P90/P10 ratio of Disposable Income Across Regions in Great Britain (1974-2014)



Notes: The data refer to net equivalized, household income, post-tax and redistribution. Housing costs have not been deducted here. Years refer to calendar years 1974- 1992 and to financial years from 1994 onwards. Figures are five-year rolling averages until 1995 and three-year rolling averages 1996-2015.

Source: Citi Research; Cribb et al. (2017)

Similar divergences are observable in regional employment and output growth. Growth in both in London and the South East has outstripped that in the rest of the U.K. economy. These divergences were particularly acute in the 1980s (Gardiner et al., 2013). Household wealth and general asset holding has also become more concentrated in Southern England (Dorling et al., 2007).

Growth in national inequality in the U.S. seems to be heavily driven by concentrated income growth in a relatively small number of regions

This highlights the importance of growing regional income disparities. In the United States, growth in national inequality (rather than regional) seems to have been heavily driven by concentrated income growth in a relatively small number of areas, including Silicon Valley and New York (Galbraith, 2012). This focuses attention on developments in inequality across regions, as well as within them as shown in Figure 34. Here, inequality between regions is measured by the coefficient of variation for average income. This shows gaps in average income between regions declining modestly in France since the mid-1990s, whereas they increased for the U.K. and by even more in the U.S.

Figure 34. Coefficient of Variation of Average Income Across Regions

Country	1995	2013
France	0.08	0.07
U.K.	0.13	0.14
U.S.	0.13	0.16

Note: This dispersion reflects differences in GDP per capita by region.

Source: Citi Research; OECD Regional Statistics

The evolution of spatial inequality (i.e., the unequal amounts of resources based on location) is profoundly connected with the structural/sectoral transformations affecting these countries. Deindustrialization of the Rust Belt in the U.S. and in the North of England (among other regions), together with the expansion of services in cities in the U.S. and in the South of England, particularly London, have underpinned subsequent diverging economic fortunes. In the U.K., around 60% of the economic imbalance between North and South emerging in the 1972-2010 period can be accounted for by these changes.[27] The extent of this spatial dispersion over recent decades has been particularly pronounced in the U.K. The U.S. has seen some spatial dispersion in economic activity across states, but of a lower magnitude, whereas France has seen quite homogeneous growth across

[27] Regional competitiveness is determined by factors such as the skill level of a region's workforce, local market size effects, knowledge spillovers, comparative advantages in access to capital, and the effects of regional policies. Gardiner et al. (2013).

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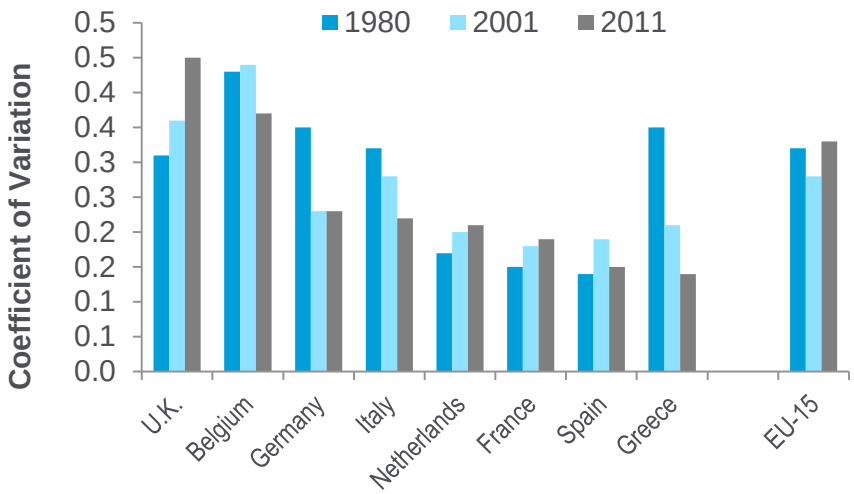
regions (see Figure 35). More geographically homogenous growth in France could be linked to more proactive industrial policies here.[28]

Figure 35. Spatial Imbalance in Selected EU Countries (1980-2011)



Note: Spatial imbalance measured here using the coefficient of variation in regional GDP per capita (PPS). This is measured over NUTS2 Regions in each country.

Source: Citi Research; Martin et. al. (2015); Cambridge Econometrics; European Regional Database

Cities often have higher numbers of 'white collar' workers

The centrality of the service sector, and London, to this U.K. picture also highlights the importance of new rural-urban income disparities. In the U.S., Brinkman (2015) documents how the contraction in manufacturing employment and sustained increase in service employment between 1980 and 2010 was associated with a shift in employment to cities, where high-skilled workers are concentrated. This has been associated with growing gaps between mean urban and rural incomes. As Figure 31 and Figure 32 show, recent patterns in rural urban income disparities have varied significantly. While both the U.S. and France started with a relatively small urban-rural income gap in the 1980s, this gap has widened considerably in the U.S. while reversing marginally in France (with rural incomes being higher than urban ones).

As the skill premium increase an urban wage premium develops and as more skilled people are found in cities

These changes have also been driven by changes to the skill premium enjoyed by, in particular, graduates and white collar workers. Cities tend to attract high-skill workers who benefit from better learning and job matching opportunities.[29] The ensuing self-selection process contributes to an urban wage premium (e.g. Yankow, 2006); as the skill premium increases, so do subsequent rural-urban income disparities, even though the skill premium is also affected by a range of other factors.

[28] A new model of regional development was developed in France from the 1980s, in response to the increased global competition faced by French firms. The state focused on spurring the knowledge-based economy and competitiveness of national companies by creating conditions facilitating high-tech growth and agglomeration across different regions, including devolution of functions from central government to local ones (Ancien, 2005).

[29] The larger the cities, the stronger these benefits and the more skills they attract as noted in Bacolod et. al. (2009); Brueckner et al. (1999); Eaton, J. & Eckstein, Z. (1997); Eeckhout et. al. (2014); Glaeser, E. & Resseger, M. (2010); Glaeser (1999); and Zenou (2009).

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Intergenerational Dimensions of Inequality

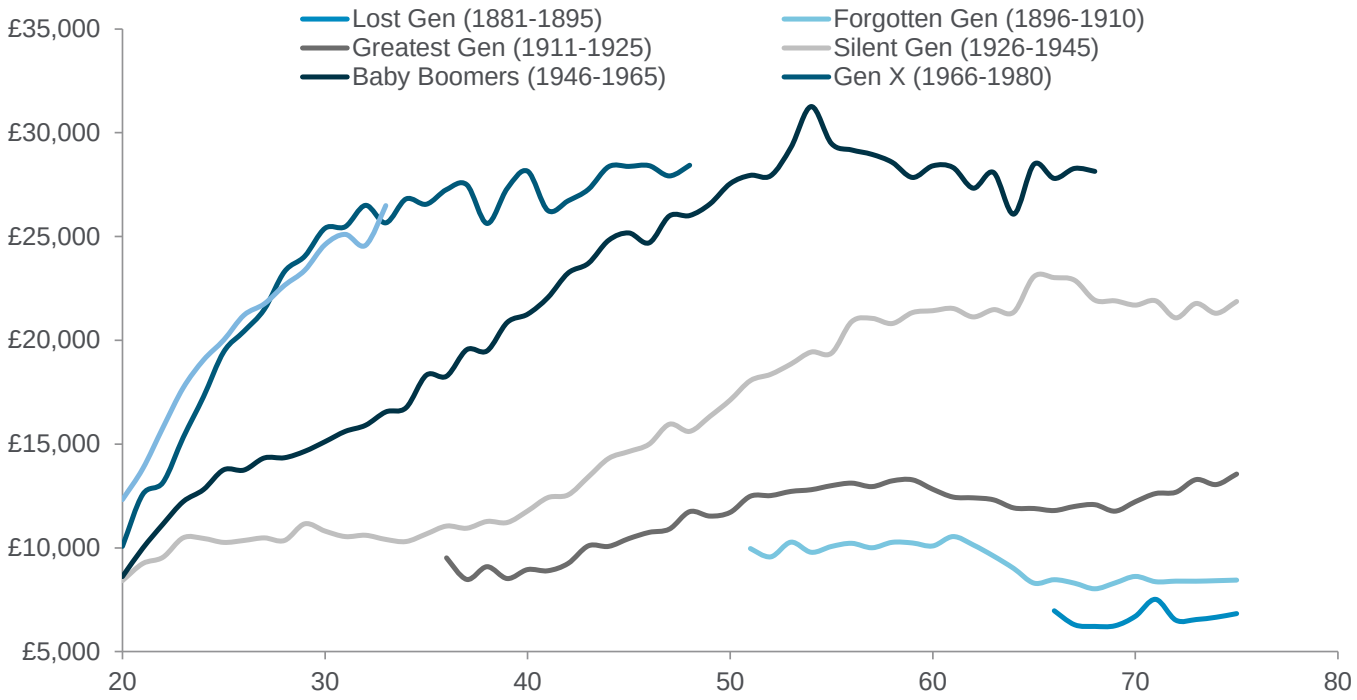
Average income of each generation has historically been higher in real terms than what their predecessors saw at the same age

Intergenerational inequalities may also be a concern. Data for the U.K., analyzed by the Resolution Foundation and illustrated in Figure 36, show that for most of the 20th century the average income of each generation was higher in real terms than their predecessors saw at the same age. This reflects the growth in GDP per capita and household incomes over time.

This pattern seems to be reversing for the recent 'millennial' generation

However, this pattern no longer appears to hold for the younger generations. For 'millennials' (the cohort born between 1980 and 2000), average income (after housing costs) so far has been about the same as the previous generation had at the same age — indeed, for those in their late 20s it is slightly lower. Even the incomes of that previous generation, 'Generation X', show less generational progress on the incomes of their baby boomer predecessors at the same age. The expectation that incomes and living standards will rise both over the course of one's life and between generations is deeply engrained, but young people today are not experiencing the same improvements as their parents and grandparents.

Figure 36. Average Household Income for Each Generation by Age



Notes: The data cover Great Britain, 1961-2014-15. Real equivalized incomes in 2014-15 prices using a CPI variant that excludes all housing costs. Figures for each generation are derived from a weighted average of estimates by single year of age for each single-year birth cohort within that generation; generations are included if at least five birth years are present in the data.

Source: Corlett (2017); IFS and DWP Data

Comparing incomes of individuals to those of their parents in the U.S. found mobility to have fallen for children born in the 1980s

Such concerns are even more pronounced in a U.S. context, as seen in the attention paid to the widely-reported findings of a study by Chetty et al. (2014). The findings are based on a very different calculation to the British figures cited above: rather than simply comparing average income for different age cohorts/generations, it is able to actually compare the incomes of individuals with those of their own parents, drawing on very large numbers of tax records. They find that rates of absolute mobility, in the sense of an increase in real income, have fallen from approximately 90% for children born in 1940 to 50% for children born in the 1980s.

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The precise figures can be debated: Winship (2017) for example argues that around two-thirds of those born in the 1980s may have seen some increase, but still finds the current generation doing so much less well than previous ones.

Disappointed expectations may feed into responses to rising inequality and stagnating incomes in the political sphere

This type of intergenerational cleavage and the disappointed expectations that go with it may feed into responses to rising inequality and stagnating average incomes, including in the political sphere. Strikingly, Chetty et al. also note that increasing GDP growth rates alone would not restore absolute mobility to the rates experienced in the past; instead, reviving the 'American Dream' of high rates of absolute mobility would require economic growth that is spread more broadly across the income distribution rather than concentrated at the top.

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Wealth Inequality

Concerns about rising income inequality have also focused greater attention on the distribution of wealth. The links between the two are at the forefront, for example, in Thomas Piketty's *Capital in the 21st Century*, which highlighted what he sees as a return of 'patrimonial capitalism' in which parental wealth is the key to life chances. The evidence about the distribution of wealth is more limited than for income, but has also been improving in recent years.

Wealth is defined as a stock of assets at a point in time vs. income which refers to a flow of resources over a stated period

Whereas income refers to a flow of resources over a stated period — for example a week, a month or a year — wealth refers to a stock of assets at a point in time. In trying to capture the wealth of individuals and households empirically, the most common concept employed is current net worth. This is made up of the current value of non-financial assets such as the household's main residence, other property, self-employment businesses, and durables, together with the value of financial assets such as bank deposits, bonds, and shares, net of liabilities such as home mortgages and other loans (see the Appendix for further discussion of measurement issues for household wealth).

Wealth distribution is more unequal than income across virtually all economies, and has become more unequal in recent years

When considering the available wealth data, three features are particularly notable. The first is that the distribution of wealth is much more unequal than the distribution of income across virtually all economies. The second is that wealth has become more important relative to income in many industrialized economies, and has grown more unequal in recent years in some. The third is that while wealth and income inequality are intimately linked, they are neither necessarily coincident nor do they necessarily covary, especially over the shorter term. Just as for income, the U.S. remains a major outlier in that its level of wealth inequality is much higher than levels in other rich countries.

Wealth Inequality versus Income Inequality

While wealth and income inequality are intimately linked, they do not necessarily covary. Patterns in wealth inequality often contrast with income inequality

The distribution of wealth among individuals and households is substantially more unequal than that of income. Figure 37 shows the wealth shares of the top 1%, 5%, and 10% of select countries.[30] The U.S. is, once more, an outlier, with over three-quarters of net wealth held by the top 10%. The share of total net wealth going to the top 10% is about 60% in Austria, Germany, and the Netherlands, about 50% (close to the cross-country average) in France, Norway, and Portugal, about 45% in Belgium, Finland, Italy, Spain, and the U.K., and about 40% in Greece. Country rankings by the top 1% share are generally similar to that for the top 10% share. The top 1% of U.S. wealth holders has close to 40% of total wealth, whereas elsewhere that figure is more commonly between 15-25%.

[30] Wealth data here refers to the share of household net worth, i.e., financial and real assets (including housing) minus debt.

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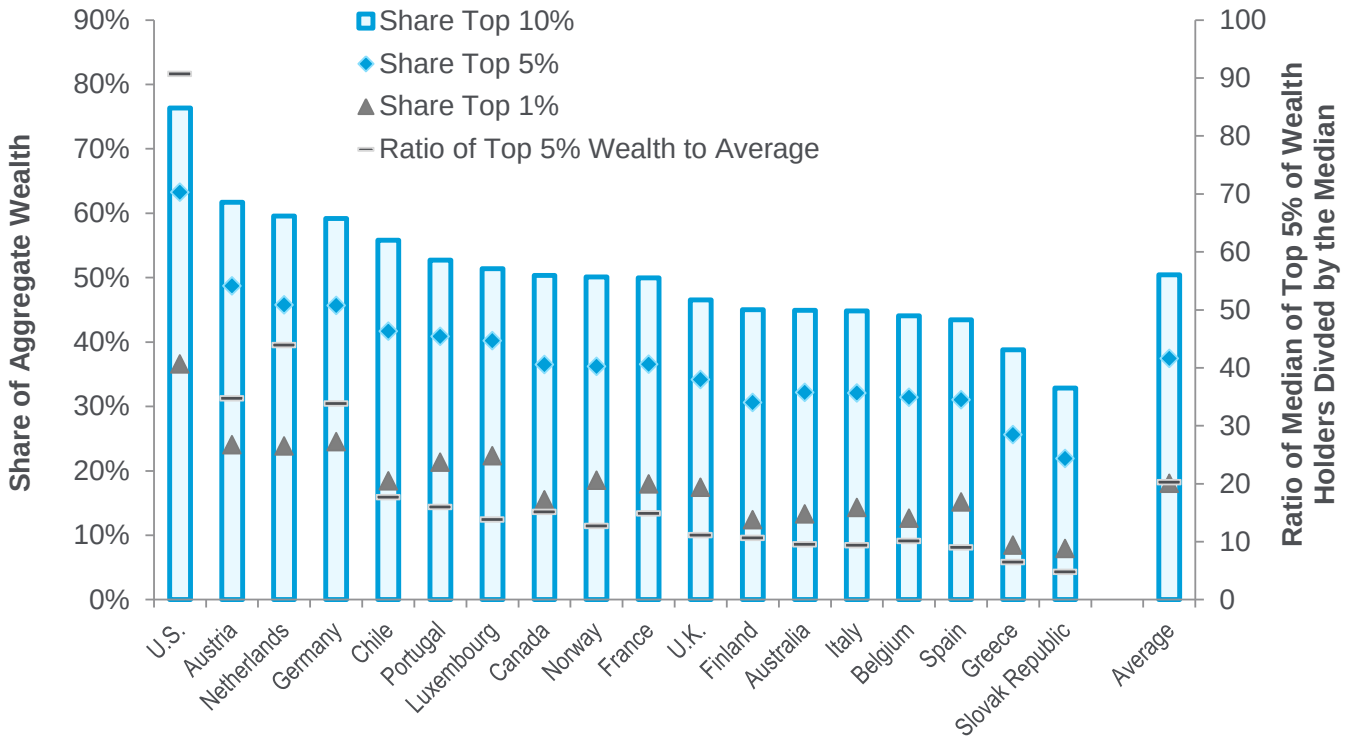
Figure 37. Top 10%, 5% and 1% Shares in Total Wealth (Around 2010)



Notes: The data refer to household net worth, assets after debt has been subtracted. Country sample for (simple) average includes all countries shown.
Source: Citi Research, OECD Wealth Distribution Database[31]

The share of wealth going to the top 10% wealth holders is higher than the share of gross income going to the top 10%

Figure 38 shows the share of total wealth estimated to be held by the top 10% of wealth holders, compared with the share of total gross income going to the top 10% ranked in terms of income, for a year around 2010 from the OECD Wealth Distribution Database. The top 10% wealth shares are in all cases substantially higher than the share of gross income going to the top 10%. A striking illustration of the greater degree of wealth inequality, noted by Murtin and Mira d'Ercole (2015), is that the wealth share of the top 1% is often similar to the income share of the top 10%.

[31] Data sources: Household Finance and Consumption Survey (HFCS); Survey of Financial Security (SFS); Survey of Household Finances (SHF); Income Statistics for Households (OECD, 2017).

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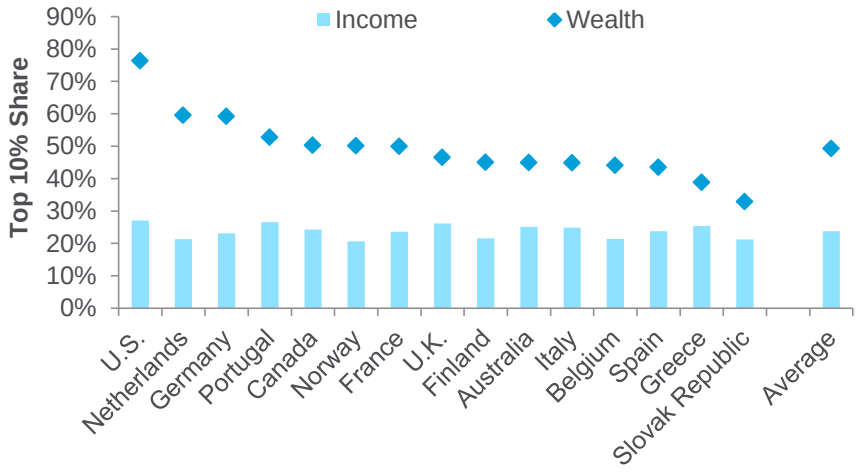
Figure 38. Top 10% Shares in Total Wealth Versus Income (Around 2010)



Notes: The data refer to household net worth, assets after debt has been subtracted. Top 10% income shares reflect shares of net equivalized household income. Country sample for (simple) average includes all countries shown. Reference years, for wealth data, are 2010 (Belgium, France, Finland, Greece, Germany, Netherlands, Norway, Portugal, Slovak Republic, Spain), 2012 (Australia, Canada, Norway). Reference years, for income data, are the same with the exception of Norway (2013), U.K. (2013) and Australia (2010).

Source: OECD Wealth Distribution Database, LIS (2016), Eurostat (2016)

The range for top wealth shares is also considerably wider. Meanwhile, the gap between wealth and income inequality (measured this way) also varies a good deal across countries.

The ranking of countries by wealth inequality isn't the same as by income inequality, but the U.S. does top both lists

The ranking of countries by wealth inequality is by no means identical to their more familiar ranking in terms of income inequality. The U.S. does have the highest degree of inequality (among the countries shown) in terms of both, and the Slovak Republic has the lowest by both metrics. However, the U.K., at least by these measures, has relatively high income inequality but an intermediate level of wealth inequality. The Netherlands, on the other hand, has intermediate inequality in income but relatively high inequality in wealth.

Such conclusions depend of course on the reliability and comparability of the underlying data. The same applies to comparisons of estimates of the Gini coefficient for wealth. The Gini inequality measure for wealth for eight countries is shown in Figure 39, calculated from household survey microdata in the Luxembourg Wealth Study by Cowell et al. (2016). The measure is shown both for the value of total household assets and for household net worth, i.e., after debt has been subtracted (see Appendix, the concept employed in Figure 39, among others). Wealth inequality is higher for measures of net rather than gross worth, with the gap being larger in countries such as the U.K. and the U.S. which have higher debt levels than, for example, France or Germany. The estimated Gini's for net worth span a wide range from 0.58-0.85, with Spain at the bottom and the U.S. at the top of the wealth inequality ranking.

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Figure 39. Gini Coefficient for Wealth and (Gross) Income (Around 2010)

Gini Coefficient for:	Gross Assets	Net Worth	Gross Income
Australia	0.73	0.76	0.43
France	0.65	0.68	0.38
Germany	0.73	0.76	0.43
Italy	0.60	0.61	0.40
Luxembourg	0.61	0.66	0.42
Spain	0.54	0.58	0.41
U.K.	0.57	0.63	0.44
U.S.	0.78	0.85	0.55

Source: Cowell et al. (2016), LWS Data

The Gini coefficients for wealth are much higher than those for income, they also vary to a greater degree

Figure 39 also shows that the Gini coefficients for wealth are much higher, and cover a wider range, than the corresponding measures for income inequality, even when the latter are calculated for pre- rather than post-tax income and no adjustment is made for differences in household size (producing higher Ginis for income than show earlier in the report). The U.S. again has the highest level of inequality in both wealth and income of the countries shown, but the ranking of other countries differs for overall wealth versus income inequality, as was seen with the top shares measures. For instance, Australia and Germany have similar levels of gross income inequality to the U.K.[32] but higher wealth inequality, while Spain has higher income inequality than France but lower wealth inequality.

Wealth Levels and Composition across OECD Countries

The level and make-up of household wealth varies across countries

As well as differences in the way wealth is distributed, there is considerable variation across countries in the level and make-up of household net worth. As Figure 40 shows, the highest levels of mean wealth (in purchasing power terms) are seen in Luxembourg and the U.S., followed by Canada, Australia, the U.K., and Spain; countries such as Finland, Greece, the Netherlands, and Norway have rather lower levels. Mean wealth levels are thus less than perfectly aligned with a countries' average incomes, with Spain for example having higher mean wealth than Germany, the Netherlands, and Norway, all countries with considerably higher average incomes. This partly reflects the variation across countries in the extent of owner-occupied versus rented housing and the value of the housing stock. But that is not the whole story; the surveys involved may also have been more successful in capturing household wealth — particularly at the top — in some countries than in others.

A useful way of summarizing how wealth varies relative to income — employed to striking effect in Thomas Piketty's recent research — is to express it as a multiple of national income. The stock of net wealth then ranges from three to nine times income in the countries covered in Figure 40. This ratio in the OECD Wealth Distribution Database is much higher in Spain, Luxembourg, Italy, Portugal and the U.K. than in Finland, Germany and Norway. Similarly, Cowell et al. (2016) derive net wealth to income ratios ranging from 4.5 in Germany to about 6 in Australia, France, the U.K., and the U.S. and up to 8-9 for Italy, Luxembourg and Spain. In Figure 40, we have used wealth to income ratios taken from the World Wealth and Income Database. This also shows a relatively high preponderance of private wealth in Spain and Italy, with lower levels in Canada (as well as Germany).

[32] It is worth noting that while gross income inequality levels may be similar, the U.K. has higher levels of net income inequality than either Germany or Australia.

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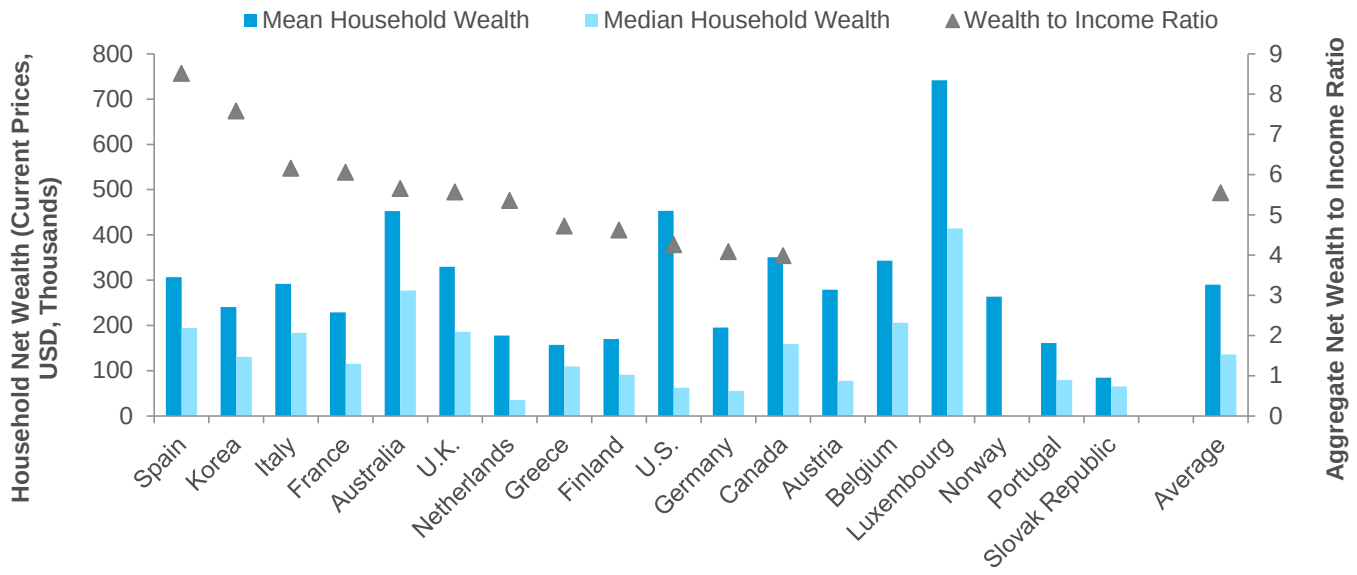
Figure 40. Mean and Median Wealth per Household (Around 2010)

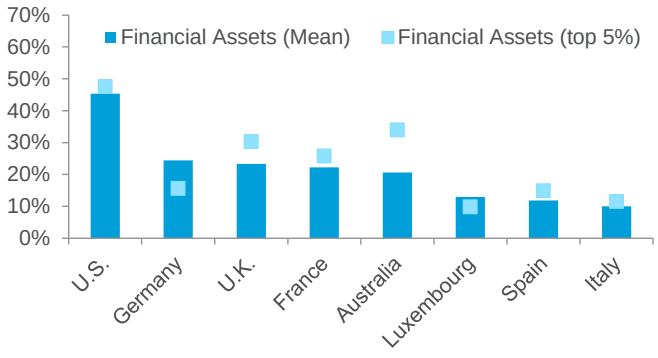


Notes: The data refer to household net worth, assets after debt has been subtracted. Country sample for (simple) average includes all countries shown.
Source: Citi Research, OECD Wealth Distribution Database, World Wealth and Income Database

In the composition of wealth, the value of real assets and housing tends to be much higher than for financial assets across most countries

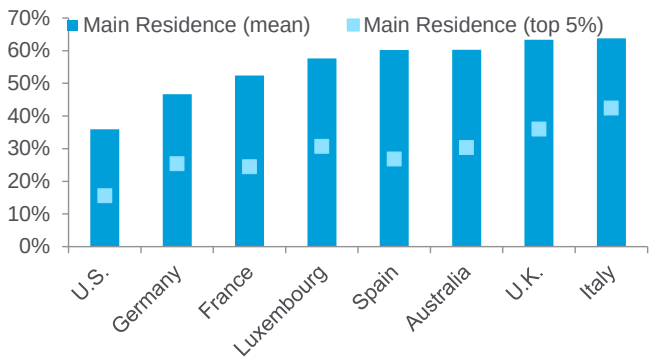
In addition to the level, the composition of household wealth varies across countries, as illustrated in Figure 41 and Figure 42 for seven countries drawing on data from the Luxembourg Wealth Study (LWS). The value of real assets and housing wealth in particular, tends to be much higher than for financial assets across most countries. Financial assets (stocks and shares, deposits etc.) account for 10-25% of total assets in most countries, even though the figure for the U.S. is much higher. Owner-occupied housing accounts for between about 50-65% of total assets in most of the countries shown, but correspondingly less in the U.S. It is also worth noting that debt ranges from 5-15% of the value of total assets, with the largest incidence in the U.S., Australia, and the United Kingdom.

Figure 41. Proportion of Wealth in Financial Assets Among the Top 5% of Wealth Holders, and Across the Economy as a Whole (Around 2010)



Note: The data refer to household net worth, assets after debt has been subtracted.
Source: Citi Research; Cowell et al. (2016); LWS Data

Figure 42. Proportion of Wealth in Main Residence Among the Top 5% of Wealth Holders, and Across the Economy as a Whole (Around 2010)



Note: The data refer to household net worth, assets after debt has been subtracted
Source: Citi Research; Cowell et al. (2016); LWS Data

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For the richest population, self-employed businesses and real estate other than one's one residence are a bigger part of the mix vs. the rest of the population

How distinctive is the composition of net worth for the wealthiest? These data are unlikely to adequately represent the richest households in the population, given the difficulties in capturing this segment in surveys, but it is still worth comparing the wealthiest in these samples to the rest of the population. Figure 41 also shows that the share of financial assets in total assets is often not much higher than in the rest of the population (though Australia is an exception). The value of the main residence does account for a considerably lower share towards the top. Other real assets, including self-employed businesses and real estate other than one's own residence, are more important. Debt towards the top is also much lower on average relative to the value of total assets than for the overall population, although the average debt levels are still higher in absolute terms.

The Rise in Wealth Inequality in OECD Countries

Wealth inequality varies significantly by country

In many countries, wealth has grown more unequal even though, as with income, the scale and timing of these increases vary significantly across countries. Private wealth has generally grown more important in comparison to the rest of the economy, increasing in value relative to GDP. This has increased the economic prominence of existing and growing wealth inequality. The extent to which changes in wealth inequality over time and across countries can be measured on a consistent basis from comparative wealth surveys remains limited. For this purpose, a variety of national sources must be relied on. These usually focus (when measuring inequality) on the share of wealth going to the top, and often use different estimation approaches. Here we draw first on such estimates brought together in two other databases, the World Wealth and Income Database and the Chartbook of Economic Inequality.

Share of the top 1% in the U.S has increased more than 50% from the late 1980s to 2010

Figure 43 shows the available estimates covering the period from the late 1980s up to the latest available year around 2008-12. These show a pronounced increase in wealth inequality since 1980 in the U.S., with the top 1% share increasing by more than 50%, from 25% to 39%. A substantial increase in this share is also seen for Australia, Finland, France, Italy, Norway, and the U.K. Notably, however, this is not uniform; the share of wealth held by the top 1% of asset owners has not increased substantially in Sweden and actually fell in the Netherlands. This is in contrast to the data on incomes where we observed an increase in the top 1% share across all countries in our sample

Figure 43. Trends in Top 1% Share in Net Wealth Since Late 1980s (Late 1980s-2014)

	Late 1980s	2007-12	2014
Australia	9.7	11.4	
Finland	16.1	22.7	
France	17.3	23.5	23.4
Italy	11.0	15.7	
Netherlands	20.0	19.7	
Norway	18.7	19.4	
Sweden	18.4	18.8	
Switzerland	33.6	38.4	
U.K.	16.6	19.9	
U.S.	24.6	39.0	38.6
Average	16.9	22.9	-

Notes: The data refer to household net worth, assets after debt has been subtracted. Country sample for (simple) average includes all countries shown. Reference year for 2007-2012 are: 2012 (U.K. and Italy), 2010 (Australia, France, Netherlands, Norway, U.S.), 2008 (Switzerland) and 2007 (Sweden).

Source: World Wealth and Income Database, Chartbook of Economic Inequality

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Top wealth shares is not fully aligned with what happens to income inequality

This evolution of top wealth shares does not fully align with what happened to income inequality over that period. For example, France and Switzerland had little increase in income inequality but a marked increase in top wealth shares, whereas Sweden in contrast saw a sharp rise in income inequality but little increase in top wealth shares.

The U.S. is, once again, the exemplar of major increases in both types of economic inequalities. Even here, however, wealth and income inequality have not closely moved together over the shorter term. Wealth and income inequality have evolved quite differently in the U.S. during recent times (Wolff, 2014). As Figure 44 shows, overall wealth inequality rose steeply between 1983 and 1989, but then stabilized before the crisis, with the top 1% share going down but the top quintile share rising.

Income inequality (in the same survey) behaved rather differently, with the income share of the top 1% of earners continuing to increase from 1987 to 2007 when wealth inequality was stable, and falling at the onset of the crisis while wealth inequality (measured by the wealth share of the top 1%) rose.

Figure 44. Trends in U.S. Wealth and Income Inequality (1983-2012)

	1983	1989	2007	2010	2012
Wealth:					
Gini	0.80	0.83	0.83	0.87	0.87
Top 1% share	33.8	37.4	34.6	35.1	36.7
Top 20% share	81.3	83.5	85.0	88.6	88.9
Income:					
Gini	0.48	0.52	0.57	0.55	0.57
Top 1% share	12.8	16.6	21.3	17.2	19.8
Top 20% share	51.9	55.6	61.4	59.1	61.8

Notes: The data refer to household net worth, assets after debt has been subtracted. For Income, the data refer to gross household income, before taxes. These figures are based on the Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board.

Source: Wolff (2014)

It is, again, important to put these trends in longer-term perspective, as Figure 45 brings out. For the U.K., the long-term series estimated by Alvaredo et al. (2017) shows the share of the top 1% is estimated to have been as high as 70% in the early years of the 20th century, and was still about 45% at mid-century, before falling to 15-16% in the early 1980's. As shown earlier for income inequality, the late 1970s/early 1980s seem to have constituted something of a turning point. The graph shows that top wealth shares in France, the Netherlands, Norway, Sweden, and the U.S. were declining for much of the 20th century, but plateaued or began rising starting in the late 1970s/early 1980s.

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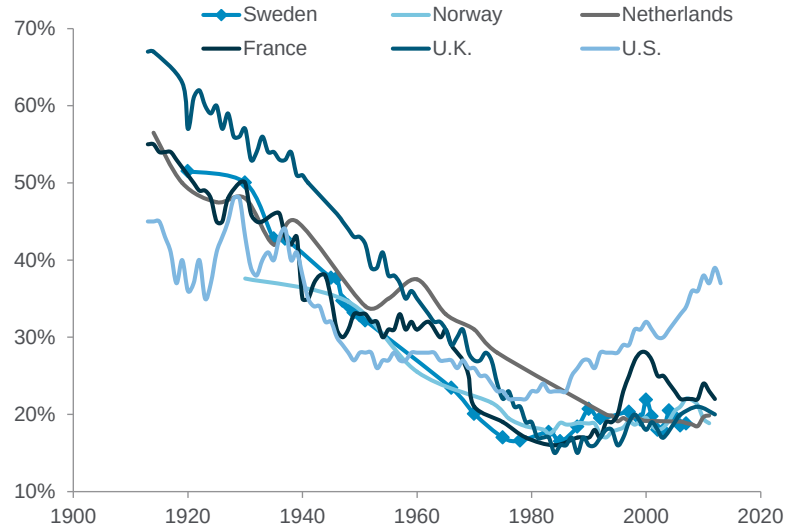
Figure 45. Long Term Developments in the Share of Aggregate Wealth Held by the Top 1% (1914-2011)



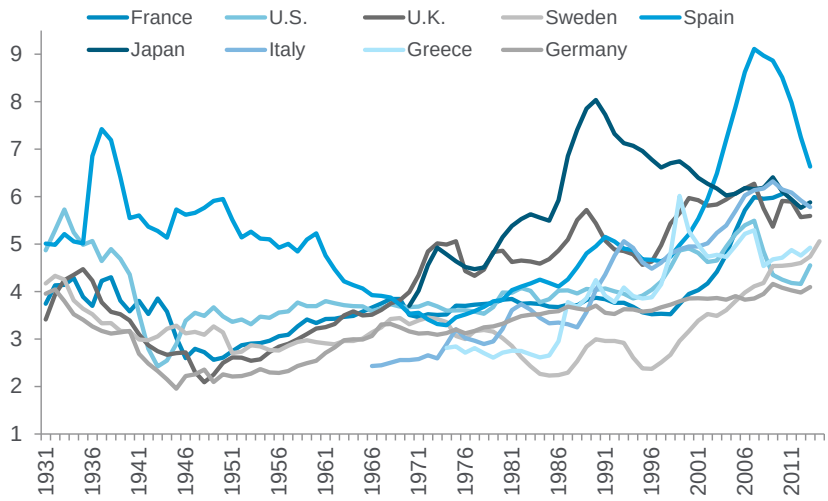
Notes: The data refer to household net worth, assets after debt has been subtracted.

Source: Citi Research; World Wealth and Income Database, Chartbook of Economic Inequality

In addition to being more unequal, wealth has also become more important vs. income in many economies

It is also important to note that wealth has not only becoming more unequal, but also more important in many economies relative to income. In those countries for which data is available, the ratio of private wealth to annual income grew on average by 1.327 points between 1990 and 2007, increasing from 4.49, on average, to 5.72[33] (see Figure 46). This increase followed a period in the post-war years where the ratio of wealth to national income was relatively stable.

Figure 46. Ratio of Aggregate National Wealth to Annual Income (1931-2014)



Notes: The data refer to household net worth, assets after debt has been subtracted. Income reflects gross aggregate national income.

Source: Citi Research; World Wealth and Income Database

[33] Sample includes: Australia, Canada, China, Czech Republic, Denmark, France, Germany, Greece, Italy, Japan, Korea, Netherlands, Spain, Sweden, U.K., and U.S.

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Rising wealth could reinforce rising income inequality in the medium to longer term

Given the unequal distribution of wealth and in turn, the unequal distribution of the income derived from it, the fact that wealth is increasing in importance and becoming more concentrated towards the top is likely to reinforce rising income inequality in the medium to longer term.

Age and Wealth Inequality

Both wealth and income are strongly pattered by age

Both wealth and income are strongly patterned by age. The profile of wealth by age in rich countries generally follows a hump-shaped pattern, with mean wealth accumulating with age up through age 65 or so and then being run down, captured many years ago in the life-cycle model. Earnings also generally increase with age and experience up to a certain point (which varies across occupations), as does household income which then falls away post-retirement.

Changing demographics is one factor affecting inequality

These structured differences across age groups form an important component of overall inequality, so changes in the demographic composition of the population are among the forces affecting inequality to be discussed in later sections. Here though we discuss a striking age-related feature of recent trends in some rich countries which relates to age cohorts — a cohort comprising those born around the same time. Among the concerns about inequality is the sense that more recent cohorts are faring poorly compared with their predecessors, in terms of wealth and income. This is particularly prominent as a concern in the U.K. and the U.S., reflecting trends that merit examination.

Consistent data on household wealth from the Survey of Consumer Finances going back to 1983 show that there have been notable shifts in the relative wealth holdings of age groups in the U.S. since then, as brought out in Wolff (2014). Figure 47 shows that the mean wealth of those under 35 years of age fell from 21% of the overall mean in 1983 to 17% in 2007, just before the financial crisis. At that point the mean wealth of this age group was only slightly higher in real terms than it had been 20 years earlier. The mean net worth of the 35-44 year old group fell even more sharply, from 71% to 58% of the overall mean, over that period. These changes in the relative net worth position of different age groups were to a large extent due to differences in portfolio composition and relative asset price movements.

The financial crisis affected the wealth of different age cohorts differently

Following the onset of the crisis the relative wealth of the under 35 and 35-44 age groups plummeted to 11% and 42% respectively. Younger households were more likely to have purchased their homes near the peak of the housing cycle and to be heavily indebted, and their housing equity was thus severely affected by the steep decline in house prices; home ownership rates also fell particularly sharply for the youngest age group. There was some recovery from 2010 to 2013 in the average real net worth of the youngest age group, with a slight recovery in relative terms, but its homeownership rate continued to fall. In contrast, the mean wealth of the 35-44 age group bounced back to make up the ground lost during the crisis.

Similar household wealth data for Great Britain cover only a much shorter period, allowing for a comparison of wealth levels in 2006-2008 with 2012-2014. Analysis by the Resolution Foundation comparing 5-year age cohorts, illustrated in Figure 48, shows that cohorts born up to the early 1950s enjoyed a wealth premium over the cohort that went before them. However, those born later than that had failed to accumulate as much wealth by 2012-2014 as those born five years before them had at the same age i.e., in 2006-2008. This gap widens as one focuses on more recent generations, and is extremely pronounced for those born in the late 1980s. The fall in home ownership rates of younger cohorts are key for this group, and there is little sign of this turning around.

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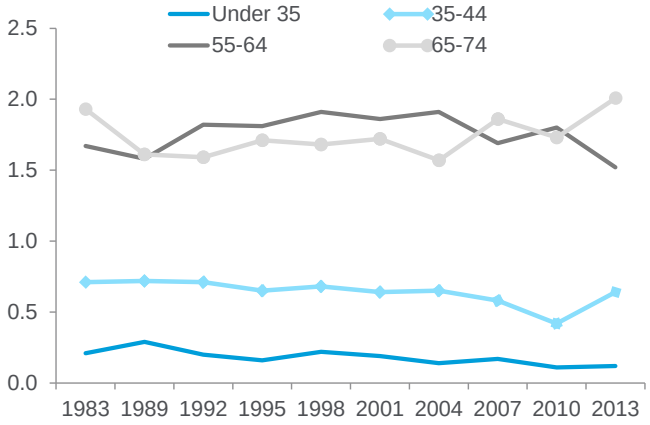
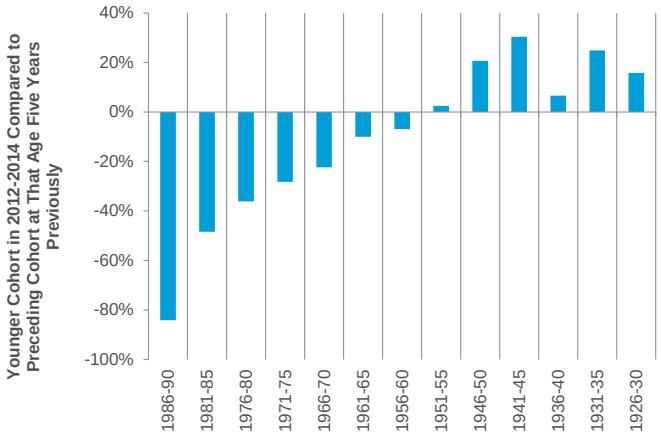
Figure 47. Mean Net Worth of Age Group Relative to Overall Mean, U.S.



Note: The data here refers to household net worth, assets after bets has been subtracted
Source: Wolf (2014)

Figure 48. Median Family Total Net Worth Per Adult in 2012-2014 as a Proportion of the Preceding Cohort's Wealth at the Same Age



Note: The data refer to household net worth, assets after debt has been subtracted.
Source: D'Arcy and Gardiner (2017)

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The Great Decline in Global Inequality

This report is principally focused on the industrialized countries of the OECD, but the trends in inequality there must be seen in the broader context of how income inequality and poverty have evolved at global level. Global income inequality largely exceeds that within countries; the current global Gini index is usually estimated to be between 0.61 and 0.65, even though it is subject to a considerable degree of uncertainty.[34]

Inequality in rich countries has increased against a backdrop of dramatically reducing poverty elsewhere

A 'grand narrative' that is often heard of late is that while globalization and technological change have been driving inequality in the rich countries ever upwards, these need to be set against their benefits in dramatically reducing poverty elsewhere.

Growth in inequality within many developed countries has indeed coincided with a reduction in global poverty and inequality. These trends have been driven by income growth in the larger BRIC economies (India and China especially), which have lifted substantial numbers out of poverty, while simultaneously narrowing previous differences in GDP per capita between countries. However, inequality within particularly the BRIC economies has also increased, alongside increases in inequality among many developed economies. These combined effects do much to explain how the 'average person in the world' can live in a country with higher inequality than 25 years ago, while at the same time global inequality has been falling.

Global Inequality Has Declined

Global income inequality has been declining since the 1980s

On the basis of the World Bank data (Figure 50), global income inequality as captured by the global Gini coefficient is estimated to have been declining since the late 1980s. The rate at which global income inequality has fallen seems to have picked up in recent decades, with modest reductions in the 1990s followed by faster reductions in the early 2000s and particularly rapid reductions from about 2008. This is also the pattern with another widely-used summary inequality measure, the mean log deviation, which is measured on the left-hand scale in Figure 50.[35]

These trends over recent decades are in striking contrast to what happened to global inequality over the previous centuries. Estimates from the early 19th century onwards, brought together in Bourguignon (2015), show that global inequality rose sharply from 1900 until the 1980s.[36]

[34] Hellebrandt and Mauro (2015) discuss the challenges of estimating a global Gini coefficient in greater depth. Measuring inequality on a global scale is more difficult, and the resulting data more uncertain. This should be borne in mind when looking at this chapter, and global inequality estimates more generally.

[35] The mean log deviation shows the percentage difference between the expected incomes of a randomly selected household and mean income. This is a summary measure of income dispersion.

[36] This observation is based on combining estimates of trends in GDP per capita with the very limited information available on the distribution of income within countries for this period. It is, as a result, subject to a considerable degree of uncertainty.

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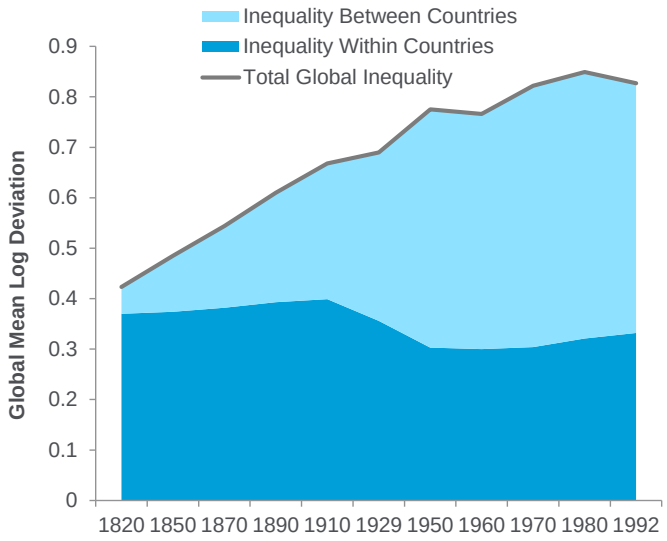
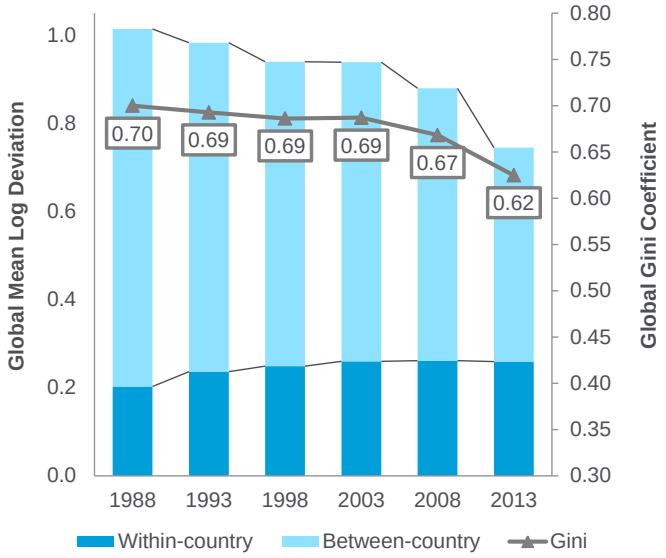
Figure 49. Global Income Inequality (1820-1992)



Notes: The figures are based on combining estimates of trends in GDP per capita with the very limited information available on the distribution of income.
Source: Bourguignon and Morrisson (2002)

Figure 50. Global Income Inequality (1988-2013)



Note: Gini measures and mean log deviation may reflect inequality in grow income, net income, or consumption (in some cases), depending on the country. 176 countries are included in the sample.
Source: Shared Prosperity (2016): Taking on Inequality, World Bank

Falling inequality between countries, has played a leading role in recent reductions in global inequality

Unlike the Gini coefficient, the mean log deviation measure has the advantage that can be readily decomposed into the contribution of inequality within countries versus between countries. The latter — falling inequality between countries — has played the leading role in recent reductions in global inequality. Average incomes in many of the most populous poor countries (notably China and India) have been rising sharply, leading to a start in the reduction of the gap to the richer economies.

Past growth in global inequality has also been primarily driven by congruent changes in income disparities between countries. Often, this has meant that changes in global inequality have contradicted developments in inequality within countries. During the post-war years, for example, many countries saw moderate reductions in national inequality but global inequality increased as income inequality between countries grew dramatically.

Within-country inequality has increased at the same time global inequality has seen reductions

Similarly, recent reductions in global inequality have coincided with increases in within-country inequality at all levels of economic development. National Gini coefficients, on average, have grown by more than two percentage points over this period, while global inequality declined.[37]

[37] Bourguignon (2017).

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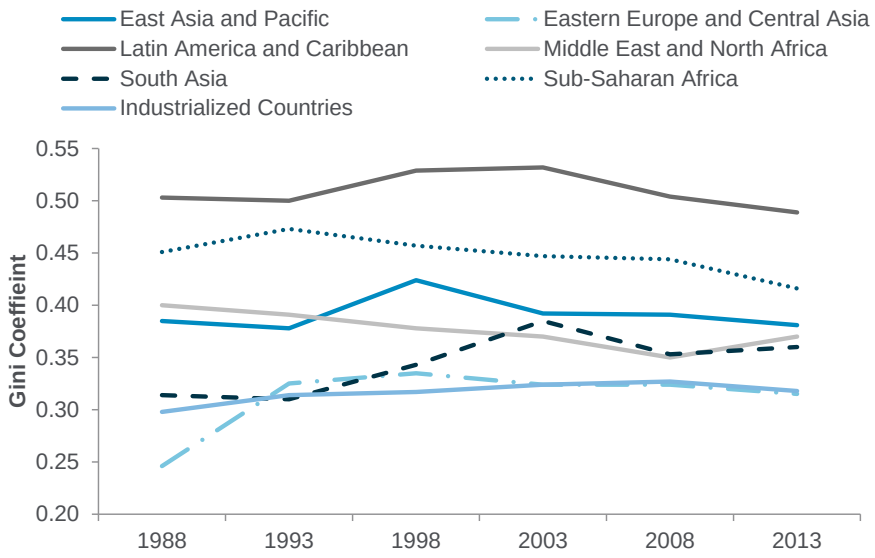
The increase in inequality across countries has not been uniform

This is not to say that the increase in inequality across countries has been uniform. Indeed, the World Bank emphasizes that inequality has been falling in many countries in recent decades, and there are important policy lessons to be learned from them.[38] However, focusing on the most populous countries, China saw its Gini coefficient rise from a relatively low level (for a poor country) in 1990 (estimated to be about 0.33) to 0.43 by 2000, though it leveled off from there. India saw a much less dramatic but still substantial increase, from about 0.31 in 1995 up to over 0.35 by 2011. Indonesia, the country with the next-largest population after the U.S., saw its Gini fluctuate more but overall appears to have had a similar increase to China from 1990 to 2010.

Figure 51. Average Within-Country Inequality (by Gini Coefficient) by Region (1988-2013)



Notes: Gini measures reflect inequality in gross income, net income or consumption (in some cases). 176 countries, in total, are included in the sample used to derive these figures. This chart shows a simple average of within-country Gini index for each respective global region. For full list of countries included in each group, see Shared Prosperity 2016: Taking on Inequality, World Bank, Chapter 2, annex 2B.

Source: Shared Prosperity 2016: Taking on Inequality, World Bank

Inequality between countries has fallen as a percent of global income inequalities while the contribution of within-country inequality has increased

Some have argued that such increases in within-country inequality have been so significant that they increasingly cancel out improvements to global inequality resulting from cross-national income convergence. This, likely, is an exaggeration.[39] However, the developments over time have driven significant changes in the balance between within- and between-country inequalities reflected in global figures, as Figure 51 shows. Inequality between countries now accounts for about two-thirds of global income inequality, compared with four-fifths in the late 1980s. The contribution of inequality within countries to global inequality has been increasing correspondingly, from one-fifth in 1988 to one-third in 2013. This means that within-country inequality for the 'average person in the world' is a good deal wider now than it was 25 years ago, even as global inequality has come down.

[38] For example, Tsounta and Osueke (2014) recently found that human capital investment has been central to declining inequality in Latin America. This trend is discussed at greater length later in the report.

[39] Segal and Anand (2014) reach this conclusion themselves on the basis of revisions to survey estimates of aggregate inequality, adjusting for measurement error associated with the underestimation of top incomes.

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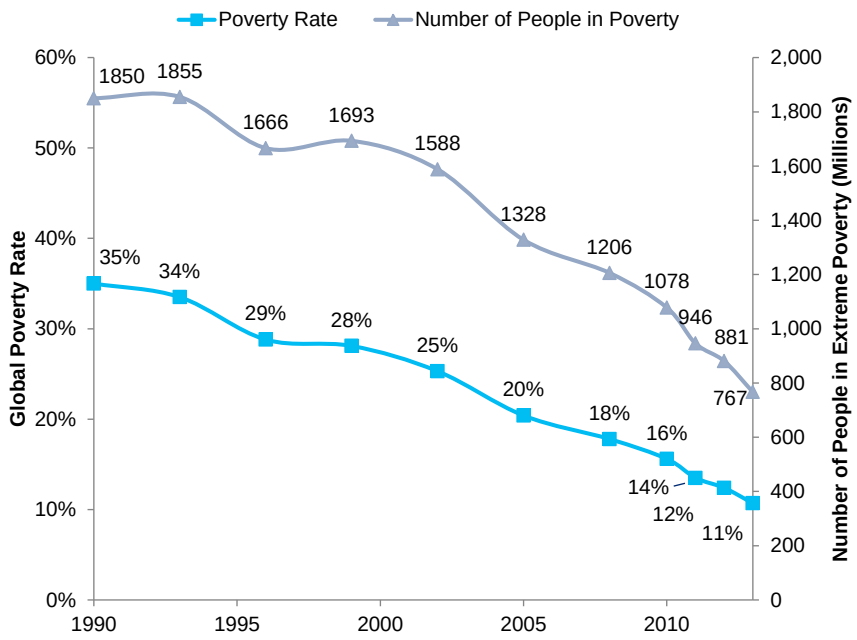
Average income inequality within countries has increased markedly over the period in South Asia (which includes India, Pakistan and Bangladesh), where it was relatively low at the start of the period.[40] In East Asia and the Pacific it rose sharply in the 1990s but fell back subsequently. Inequality also rose very sharply in Eastern Europe and Central Asia after the fall of the Berlin Wall, before stabilizing from the late 1990s. However, in Latin America average inequality has been falling from a particularly high initial level since around 2000, and has also been falling in Sub-Saharan Africa. For the industrialized countries on which this report concentrates, average inequality on this basis is estimated to have risen fairly steadily from 1988 up to the onset of the financial and economic crisis in 2008; for this region, and for others except South Asia and the Middle East and North Africa, the recession then saw inequality stabilize or decline.

The Fall in Global Poverty

The number of people in extreme poverty globally has fallen dramatically

The implications of these trends have been quite dramatic for measures of global poverty. Figure 52 shows that the share of the world's population estimated to be below the World Bank's $1.90 PPP/day extreme poverty threshold has fallen from around 40% to 20% between 1990 and 2013. That implies that the number of very poor people (according to this definition) globally has fallen from 1.85 billion to under 800 million.

Figure 52. Global Poverty Rate and Number of Extreme Poor (1990-2013)



Note: 176 countries, in total, are included in the sample used to derive these figures. Extreme poverty refers to instances of people living on less than $1.90 PPP/day.

Source: Shared Prosperity 2016: Taking on Inequality, World Bank

And the number of people in extreme poverty has decreased despite rising population

This is the basis for the frequently-quoted summary that over a billion people have been lifted out of extreme poverty — all the more remarkable when the world's population grew by almost 1.9 billion during this period.

[40] This is a crude average (countries are weighted equally, not by their population).

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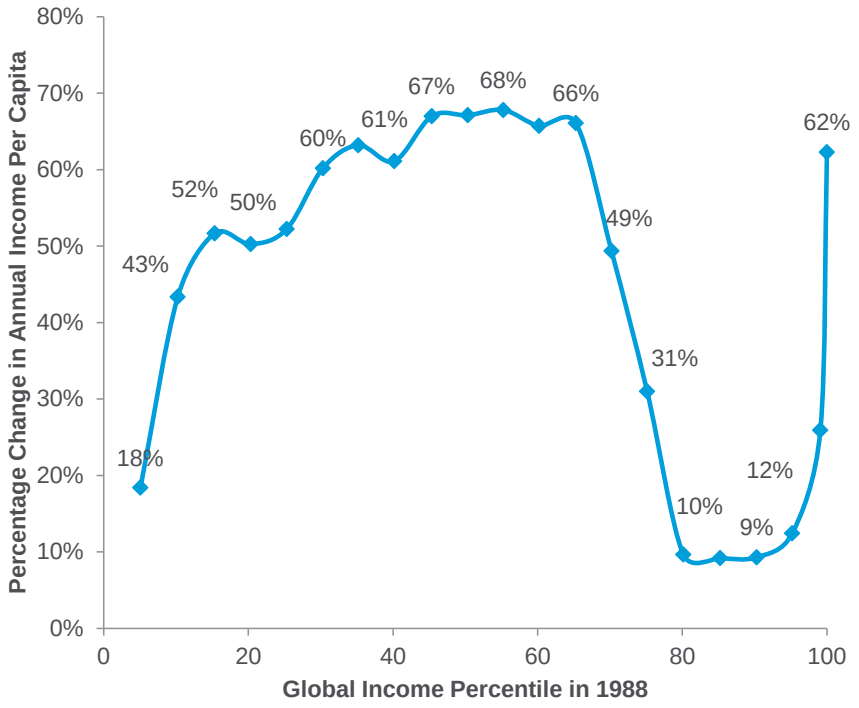
Progress was made throughout this period since 1990, except during the Asian Financial Crisis, and after the Great Financial Crisis. Meanwhile, the regional profile of poverty also changed markedly. Around 1990, about half the world's extreme poor were living in East Asia and the Pacific, dominated by China, while about 15% were in Sub-Saharan Africa; by 2013 Sub-Saharan Africa accounted for half and the East Asia and Pacific region for less than one-tenth of those below the World Bank threshold. South Asia, while seeing marked reductions in poverty rates, still accounts for one-third of the global poor.

Pulling the Picture Together, a 'Mammoth' Task?

The 'mammoth' chart shows that global income growth has been lowest among middle and lower-middle class earners

The trend of rising inequality within rich countries and fast income growth in poor countries trends are combined and illustrated in the so called 'elephant graph' developed by Milanovic and Laker (2015). This plots income growth between 1988 and 2008 by the percentile of the global income distribution. The graph manifests two key trends. The first is that global income growth, outside the bottom 10% of global earners, has been lowest among middle and lower-middle class earners in developed economies. The second is that income growth among middle income economies — while higher than that of the middle and working classes in developed economies — also increases with initial income. Lastly, among developed economies, income growth is focused among the very highest incomes (Figure 53).

Figure 53. Income Growth by Initial Income Decile (1988-2008)



Source: Lakner and Milanovic (2015); data extracted using extracted using http://arohatgi.info/WebPlotDigitizer/app

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Incomes have grown more rapidly among those that were initially higher earning

This graph does not actually reflect an elephant, but a mammoth — the sloped back is significant! But regardless, the graph helps to illustrate how within-country inequality — across many economies — has increased, while global inequality has fallen. Among developing economies, incomes have grown more rapidly among those, in this bracket, that were initially higher earning; hence inequality within these economies has increased. However, the fact that income growth among almost all of this cohort has exceeded income growth among middle and lower income people in the developed world explains how this has still driven aggregate global inequality downward; prompting convergence in average incomes between countries (as shown in Figure 53). Lastly, on the trunk, the concentration of income growth among the highest global earners illustrates one reason why inequality among developed countries has also increased. The trend shown on this part of the curve closely mirrors that illustrated by Figure 23. Both show that, amongst the advanced economies overall, incomes have increased more rapidly for those initially on high incomes.

Continuing reduction in global poverty depends on growth in Sub-Saharan Africa and the degree to which within-country inequality can be alleviated

Whether recent reductions in global poverty and inequality are sustained in future decades centers on two questions. The first is the degree to which rapid growth in East and South Asia can be replicated in Sub-Saharan Africa. Absolute poverty is increasingly concentrated in this region, while the population is also expected to more than double over the next 35 years. Sustaining improvements to global poverty, and inequality, will center on whether this region can achieve sustained economic growth. The maintenance of current, moderate, rates of growth will result in ongoing, slower, reductions to both inequality and poverty. The second question is the degree to which within-country inequality can be alleviated, especially among the larger developed and middle income economies.

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Trends in Inequality since the Financial Crisis

Following the GFC, there has been no clear and consistent trend in aggregate income inequality

We now return to our primary focus of developed countries. This chapter will focus on recent developments in wealth and income inequality since the Great Financial Crisis (GFC). Across the OECD, there has been no clear and consistent trend in aggregate income inequality following the financial crisis, in stark contrast to the preceding period.

But in several economies, the share of wealth going to the top 1% has continued to increase

But behind this relatively hopeful finding, more sobering developments hide. Generally, income growth for the lowest and highest earners has both fallen, generating offsetting effects for aggregate inequality. Trends in wealth inequality have varied across countries and have often differed from developments in income inequality, but the share of wealth going to the top 1% has continued to increase in several economies.

How Did Income Inequality Develop Since The Great Financial Crisis and the Subsequent Recession?

In-depth studies of the impact of recessions on income inequality (for example Jenkins et al., 2012) highlight the complex channels through which incomes from different sources (notably earnings, self-employment income, and social protection transfers) are affected. The impact on overall inequality depends on the impact on corporate profits, how much unemployment rises and how earnings for those still in employment adjust. Crucially, it also depends on the response of the tax and transfer systems; automatic 'stabilizers' and discretionary policy choices play a critical role in the face of increasing demands on the social protection system. The nature of the macroeconomic 'shock' and how different countries are affected is also important — the impact of the financial crisis on GDP and employment varied significantly across OECD countries.

Figure 54. Income Inequality During the Crisis (2007-2014)

Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution). Country sample for (simple) average includes all countries shown. Latest available data: 2014 (Australia, Finland, Hungary, Israel, Korea, Mexico, the Netherlands, the U.S.) and 2012 (Japan, N. Zealand). For the rest, the data is from 2013.

Source: OECD Income Distribution Database

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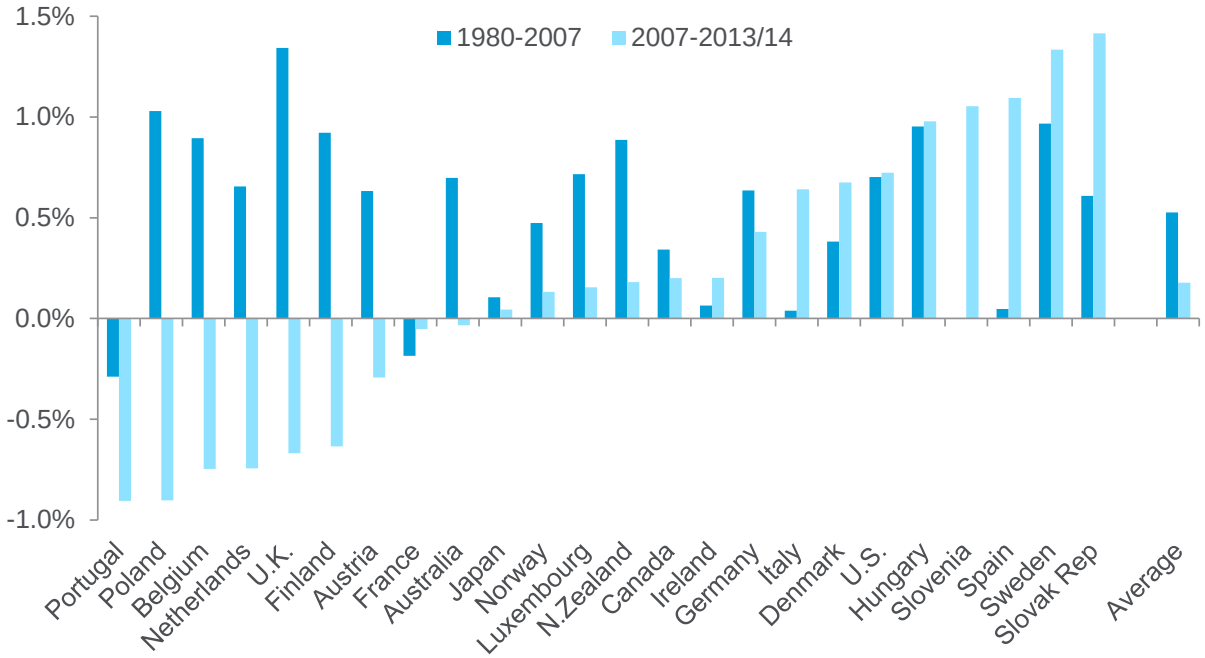
The change in inequality post the GFC differs by country despite being roughly unchanged across the OECD since the GFC

Notably, Figure 54 shows that since 2007, income inequality measured by the Gini coefficient for equivalized net income went down or was stable as often as it increased across the countries we consider — in sharp contrast to the period since 1980. Even among the countries worst hit by the crisis in terms of GDP per capita, some saw inequality rise (Greece, Spain) but others (for example Ireland and Portugal) did not. Both the U.S. and the U.K. were among the countries with the highest levels of inequality by 2014, but this mostly reflected their positions at the onset of the crisis rather than what followed. In the U.S., inequality rose between 2007 and 2014, while it declined in the U.K. On average, income inequality across the OECD has remained roughly unchanged since the Great Financial Crisis.

Comparing the average annual growth rate in the Gini coefficient from before and after the crisis (seen in Figure 55), brings out the contrast with the preceding two and a half decades. For many countries, average annual growth in the Gini coefficient was substantially lower. A considerable number of countries which had registered a substantial increase up to 2007 saw inequality stabilize or decline, or at least rise at a more modest rate, from then to 2014. However, aggregate inequality growth remained high in Hungary, Sweden, and the United States, and inequality also grew rapidly in the Slovak Republic and Slovenia where it had previously been relatively stable.

It is also worth examining the post-2007 period to see whether the immediate impact of the Crisis up to about 2010 looks very different to the trajectory of inequality more recently, and if previous underlying trends have reasserted themselves. For certain countries these sub-periods do look somewhat different. For the U.S., for example, the Gini coefficient was fairly stable for the initial recession years but then rose from 2010 to 2014. The same is true for Hungary and New Zealand. For others, such as Italy and Spain, inequality rose more rapidly in the early crisis years than subsequently.

Figure 55. Growth Rate Gini Coefficient Before (1980-2007) and Following (2007-2014) the Great Financial Crisis



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).Country sample for (simple) average includes all countries shown. Latest available data: 2014 (Australia, Finland, Hungary, Israel, Korea, Mexico, Netherlands, U.S.) and 2012 (Japan, N. Zealand) and 2013 for the remainder.

Source: Citi Research, LIS, Chartbook of Economic Inequality, Gini Project Database, OECD Income Distribution Database

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More generally, though, there is little difference in the average of the Gini coefficients across these countries in 2007, 2010, and 2013. The contrast between these sub-periods is not so much that inequality has been rising in more countries since 2010, but that there are fewer countries in which it has been falling.

In some of the countries where inequality has been rising, the household survey data suggests this primarily reflects higher incomes pulling away from the middle — as in the U.S., for example — but in others, such as Greece, Hungary and Spain, lower incomes are failing to keep up with the middle.

As discussed earlier, the P90/P10 ratio and the Gini coefficient tell somewhat different stories about the evolution of inequality since the financial crisis. On average, across the economies examined here, the P90/P10 ratio has continued to grow during the crisis, even as growth in the Gini coefficient has slowed, though this trend is far from uniform.

The P90/P10 measure of income inequality quantifies the difference in income between the 90th and 10th percentile in the income distribution; comparing this to the Gini coefficient is not simple.[41] Several factors are likely to come into play here, but changes in top incomes probably played an important role. In Portugal, Poland and the Netherlands, the net income share of the top 10% of all earners fell by more than a percentage point between 2007 and 2014 (Eurostat, 2016). Largely, this is unlikely to be reflected in the P90/P10 measure, but can have a substantial equivalizing effect on the aggregate Gini measure. A reduction in high incomes may therefore potentially explain the disparities between the two measures.

Data on the top 1% incomes again help to round out the picture. Between 2007 and 2012, for example, Spain saw a 2.6 percentage point reduction in the share of gross income accrued by the top 1% — an equivalizing change that would likely not have been reflected in the P90/P10 measure. In the years immediately following the crisis, the predominant pattern was for the top 1% share of aggregate income to fall (Figure 56). By 2010, the share of aggregate income of the top 1% had fallen by as much as 2-3 percentage points in Canada, Japan, Spain, and the U.K., and by slightly more in the U.S. More modest declines were seen in other countries such as Australia, France, Germany, the Netherlands, Norway, and Sweden, and the top 1% share fell in 15 out of 17 countries considered. Only in Denmark and Korea did the top 1% income share rise in between 2007 and 2010.

Figure 56. Share of Top 1% in Total Gross Income (2007-2012)

		Australia	Canada	Denmark	Finland	France	Germany	Ireland	Italy	Japan	Korea	Netherlands	New Zealand	Norway	Spain	Switzerland	Sweden	U.K.	U.S.
1% Share of Pre-Tax Income	2007		15.6	6.1	8.3	9.3	14	11.6	9.9	11.3	11.3	7.6	7.8	8.5	11.2	10.9	10	15.4	22.6
	2010	8.5	13.6	6.4	7.5	8.4	13.1	10.5	9.7	10.4	11.8	6.4	7.4	7.7	8.7	10.6	9	12.6	18.9
	2012	8.4				8.7					12.2	6.3	8.8		8.6		8.7	12.7	21.8
	2014	9.1											8.1				8.7	13.8	20.4

Notes: The data refer to gross, pre-tax, household income. Denmark, 2010 refers to data from 2009. Ireland, 2010, refers to data from 2009. Sweden, 2014, refers to data from 2013.

Source: World Wealth and Income Database

[41] Burkhauser et al., 2007.

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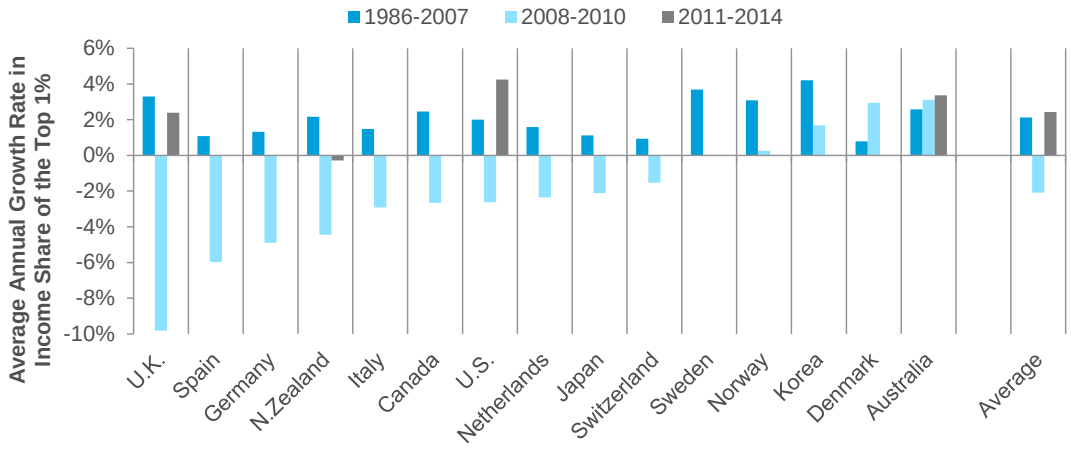
Indeed, in our sample (with the exception of Denmark) growth in the top 1% income share, on an annualized basis, was slower during the post-crisis period than in the decades before in all of the advanced economies for which data are available. The change was most extensive in the U.K., Spain and Germany (Figure 57).

Figure 57. Annual Average Percentage Change in Income Share of the Top 1% of Earners (1986-2014)



Notes: Top 1% income shares reflect shares in gross income, either individual or household (depending on the economy).
Source: Citi Research, World Wealth and Income Database

Will inequality start to rise again? Top income shares have started to rise again and growth rates of the top 1% income share are similar to pre-crisis trends in many countries

How reassuring is the picture that the rise in income inequality may have slowed? Not all that much, in our view. First, the data do not show that inequalities have clearly fallen across our sample in the post-crisis period. Second, it appears that, following the immediate post crisis period, top income shares have started to rise again. Indeed, in many countries, including the U.S. (but also Australia and the U.K.), the more recent (2011-14) growth rates of the top 1% income share are similar to the pre-crisis trend.

Post-GFC Trends in Wealth Inequality

Changes in wealth inequality differed by country post-GFC

As far as wealth is concerned, the financial crisis had an immediate and in some cases dramatic effect on the value of different assets — including housing and various financial securities. It might therefore have been expected that the Great Recession would have a major impact on the distribution of wealth and wealth inequality. Data through the recession are only available for some countries, but suggests that recent developments in wealth inequality varied considerably, as Figure 58 shows. Initial declines in top wealth shares by 2010 were seen for Australia, Italy, and Norway. But top 1% wealth shares increased in France and the Netherlands, while for the U.K. there appears to have been little change. By 2012 the top 1% had fallen back in France and recovered in Italy, and so was little different to 2007.

Recent data on wealth inequality is scarce

Data on wealth inequality since the Great Financial Crisis are sparse. Given the very large rises in many asset prices in recent years and the large concentration of ownership of many assets, one would suspect that wealth inequality has probably continued to rise strongly in recent years. In the U.S., estimates from the World Wealth and Income Database (based primarily on tax data) suggest that the top 1% share actually went up from around 33-34% before the crisis to around 37% in 2014. Alternative estimates from Wolff (2014) based on the Survey of Consumer Finances (SCF) show an increase in that share from 34.6% in 2007 to 36.7% in 2013. But for the majority of countries — with the U.S. being the major exception —

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the average increase in wealth inequality since the Great Financial Crisis has been much slower than during the pre-crisis period.

Figure 58. Share of Top 1% in Total Wealth (2007-2012)

		Australia	Finland	France	Italy	Netherlands	Norway	Switzerland	Sweden	U.K.	U.S.
1% Share of Wealth	2007	16	21.6	22.4	15.2	18.9	22.1	40.2	18.8	20.1	34
	2010	11.4	22.7	23.5	14.4	19.7	19.4			20.3	37.6
	2012			22.4	15.7					19.9	38.9
	2014			23.4							37.2

Notes: The data refer to household net worth, assets after debt has been subtracted.

Source: World Wealth and Income Database, Chartbook of Economic Inequality

Income and wealth inequality do not necessarily move together over relatively short periods

Comparing periods up to and since the financial crisis also illustrates that income and wealth inequality do not necessarily closely co-vary over relatively short periods. Taking the U.S., Figure 59 presents estimates of top wealth and income shares, and the Gini inequality measure for both, based on the Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board. This shows that overall wealth inequality rose steeply between 1983 and 1989, but was then stable to before the crisis. Income inequality (in the same survey) behaved rather differently, with the income share of the top 1% of earners continuing to increase from 1987 to 2007 when wealth inequality was stable.

Figure 59. Trends in United States Wealth and Income Inequality (1983-2012)

	2007	2010	2012
Wealth:			
Gini	0.83	0.87	0.87
Top 1% share	34.6	35.1	36.7
Top 20% share	85.0	88.6	88.9
Income:			
Gini	0.57	0.55	0.57
Top 1% share	21.3	17.2	19.8
Top 20% share	61.4	59.1	61.8

Notes: The data refer to household net worth, assets after debt has been subtracted. For Income, the data refer to Market household income, before taxes and transfers. These figures are based on the Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board.

Source: Wolff (2014)

From 2007 to 2010, while income inequality fell, the wealth share of the top 1% and the top quintile rose. Beyond that point the top 1% shares in both income and wealth rose to 2012. This again shows that while income and wealth inequality are intimately linked, they may move in different directions over the short or even medium term, particularly in the face of a severe shock with asymmetric implications for asset prices.

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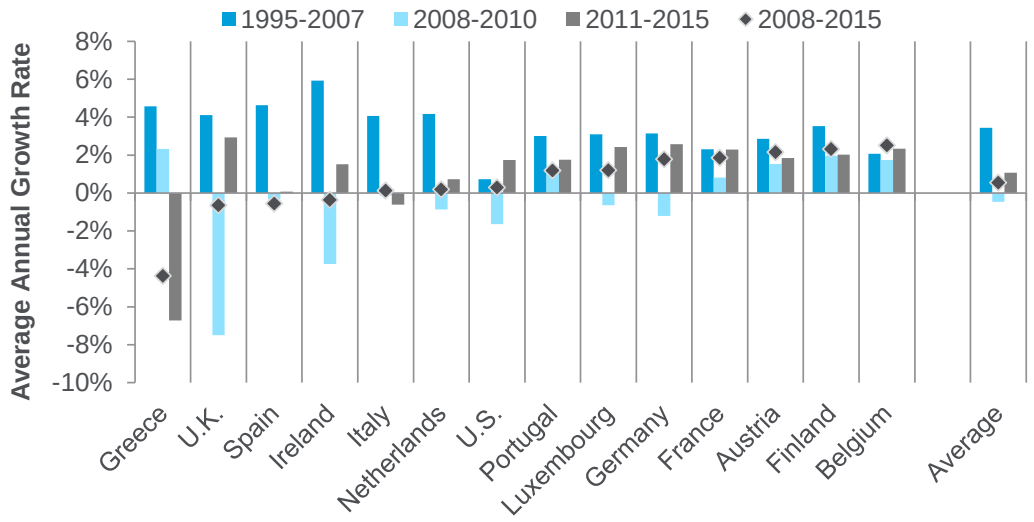
How Did the Crisis and Recession Affect Median Incomes and Deprivation?

Since the GLC, median net real disposable household income growth has fallen

Even though income inequality may not have continued its decades-long rise during the period since the Great Financial Crisis, this has happened against the backdrop of a decline in average income growth and rising deprivation. Using data from the EU-SILC monitoring instrument, median net real disposable household income growth has fallen since the Crisis. Only in six countries, out of the sample of 35 for which data are available, did median household disposable income grow faster since 2008 than in the six years before the crisis. Comparing median income growth in the 1995-2007 and 2008-2015 period, only one economy of the 14 surveyed in Figure 60, grew faster in the post-crisis years than in the decade before. In eight countries, net disposable median income was lower in 2013 than in 2008; this was still true in 2015 for Greece, the U.S., Spain, and Ireland.

Figure 60. Average Annual Rates of Median Real Disposable Household Income Growth (1995-2015)



Notes: European data is disposable. equalised income. US data is disposable income. Finland data starts in 1996, rather than 1995.
Source: Citi Research Calculations; Eurostat (2016), U.S. Bureau of the Census

The results would have been much worse, were it not for public policies and income support, alongside other transfers. In the United States, for example, median market household income[42] fell by 5% between 2008 and 2012 while net (after-tax and transfer) median income grew by 2.1%.

[42] Market income is income before any cash transfers have taken place. This, therefore, refers to the sum of employment income and capital income.

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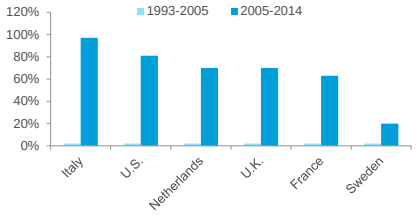
Figure 61. Proportion of Households in Groups with Stagnating or Falling Market Incomes (1993-2014)

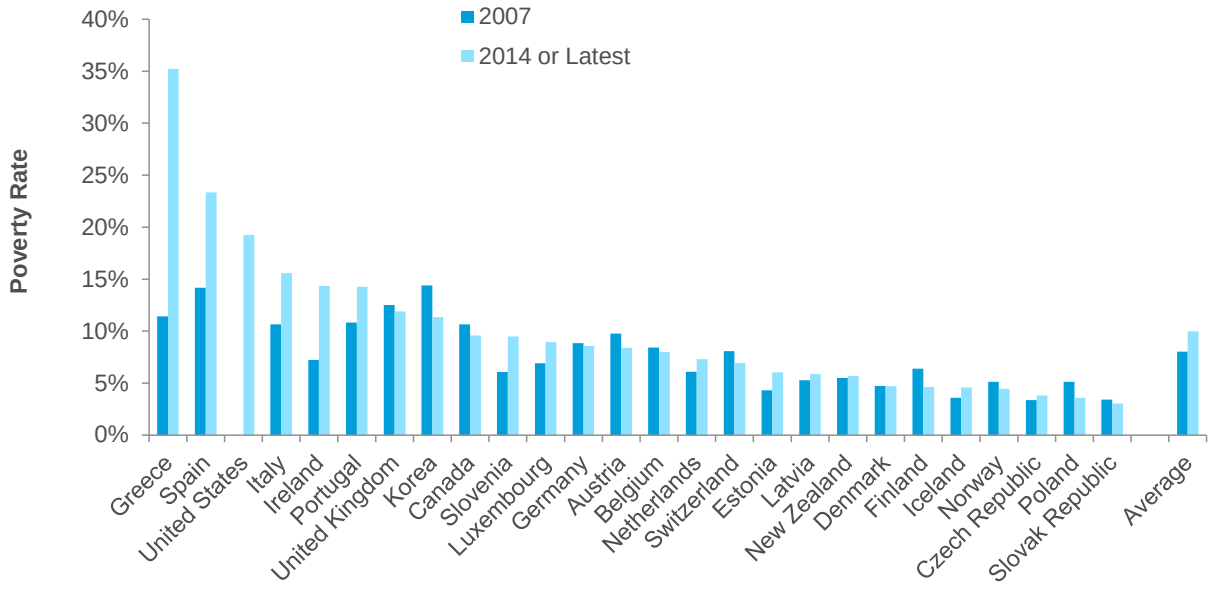


Note: the data here refer to household market income before taxes and transfers. Stagnation refers to the incidence of those cases where real income have not grown over the respective period.
Source: McKinsey (2016): Poorer than Their Parents? Flat or Falling Incomes in Advanced Economies

Many post-crisis statistics are rather sobering. According to McKinsey estimates, less than 2% of U.K. households had flat or falling market incomes between 1993 and 2005, but in between 2005 and 2014 the figure was 81%. The figures are similar in the Netherlands and France, while in Italy, the proportion of households with stagnant or falling market incomes increased to a staggering 97% between 2005 and 2014 (Figure 61).

Income trends following the crisis have also had important implications for poverty, deprivation, and social exclusion. Here, changes in the post crisis era have also varied widely. While a variety of indicators could be used to capture such effects, here we focus on the proportion falling below income poverty thresholds[43] that are "anchored" in a pre-Crisis year and then indexed to changes in consumer prices. These are arguably more relevant than thresholds linked to average or median income — widely used to capture relative income poverty — in circumstances where average/median incomes are themselves falling. Figure 62 shows that poverty measured this way soared in the hardest-hit countries, notably Greece, Ireland, Italy, Spain, and Portugal; even among this group, the situation in Greece is extreme.

Figure 62. Income Poverty During the Crisis (2007-2014)



Notes: Poverty rate based on pre-crisis disposable median income, anchored at 2007 levels. Here, the relative definition of poverty is used, referring to the incidence of people on incomes less than 60% of (in this case) the 2007 median income level.

Source: OECD Income Distribution Database

[43] The poverty threshold is 60% of median disposable income in each country in the base year (2007) indexed subsequently to consumer prices (OECD, 2016). Those earning less than this are classed as being 'in poverty.' Income definitions here exclude lump-sum payments which are frequent in the retirement schemes of some countries.

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The ultimate level of material deprivation reflected in these figures has been compounded by the prolonged and widespread nature of the depression, which has resulted in a dramatic expansion in 'persistent poverty.' Persistent poverty is often measured as the number suffering relative poverty in the current year and 2 out of the 3 preceding years.[44] Across Europe the rate of persistent poverty increased by 25% between 2008 and 2015, significantly outstripping growth in the aggregate poverty rate (Eurostat, 2016).

Persistent poverty usually results in greater levels of material deprivation. Households that suffer declines in income can typically prop themselves up for short periods by relying on their savings, family support, and by postponing maintenance and replacement of durables (Brewer and O'Dea, 2012). However, as time goes on, those bases of support erode and are eventually exhausted, which exacerbates the impact of income declines on material deprivation.

[44] This definition is taken from the U.K. Office for National Statistics (2016). This definition is also used by the European Commission in monitoring poverty and social exclusion across the EU.

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What Drives Income Inequality?

Having set out the recent patterns and trends in income and wealth inequality in the industrialized countries in recent decades, our focus now shifts to what may have been driving income inequality upwards. The debate surrounding the causes of inequality is far from settled. Here we provide an overview of the various 'drivers' highlighted in research and commentary, and an initial assessment of the evidence on their potential contribution to recent increases in inequality.

Market Forces versus Politics

There is a long list of factors that could potentially contribute to rising income inequality

The research literature has identified a fairly long list of factors that could potentially contribute to rising income inequality (see for instance Atkinson, 2015; Förster and Tóth, 2015). These include technological change, the globalization of trade, financial liberalization (both domestic and international), financial deepening, changes in market structure and competition, labor relations, other institutions and regulations, redistribution and tax-transfer policies, and demographic factors.

One way to delineate between these factors could be to distinguish between those economic or technological forces which (one might think) can only be controlled and shaped by government action to a limited extent, and those that are autonomously and directly determined by political processes. In the debate on inequality, two common narratives have emerged on this basis.

"Economics First" sees rising inequality as essentially driven by decentralized market forces

The first, which one might label "Economics First", sees rising inequality as essentially driven by decentralized market forces. According to this view, natural and technological changes (including demographics, innovation, and perhaps aspects of globalization) are the major drivers of inequality. Importantly, these are seen as mostly beyond the control of policymakers or at least very difficult (or costly) to address politically. According to this view, addressing the structural drivers of inequality directly would prove extremely disruptive, politically and economically, while compensatory and mitigating re-distributive policies are also deemed to be excessively costly, ineffective, or undesirable.

"Politics First' see the increase as mainly the outcome of deliberate, discretionary policies

The main alternative view, which we might label "Politics First", holds that the increase in inequality is mainly the outcome of deliberate, discretionary policies. These could include economic liberalization, privatization, deregulation (in both the capital and the labor market), free trade, and reductions in transfer payments, redistribution, and government spending more generally.[45]

Both narratives capture part of the story but the reality is more complex

Both of these stylized views may capture part of the story. But the reality is more complex. Developments in inequality are the result of both decentralized forces as well as government policies, with different forces having different strength in different countries at different times. There is no 'iron law' dictating which forces are the most potent, nor an automatic link between specific forces and distributional outcomes. Moreover, there is a complex system of feedbacks between these and political institutions and policies.

[45] For an account of the rise of the rise of neoliberal politics in the Western world, see: Jones, D. S. (2012).

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The extent and the nature of regulation surrounding these decentralized forces, and the public policy response to them, remains a key source of variation regarding their implications for inequality. Technological change, for example, is shaped by the institutional and regulatory context in which it is taking place, incentivizing some forms of investment compared to others. This view highlights the crucial importance of politics but frames it to take into account demographic, economic, and technological constraints, too.

We now discuss the main mechanisms explaining why these drivers potentially have an impact on inequality. We also describe the main developments in each driver and discuss how they relate to the changes in inequality in selected countries.

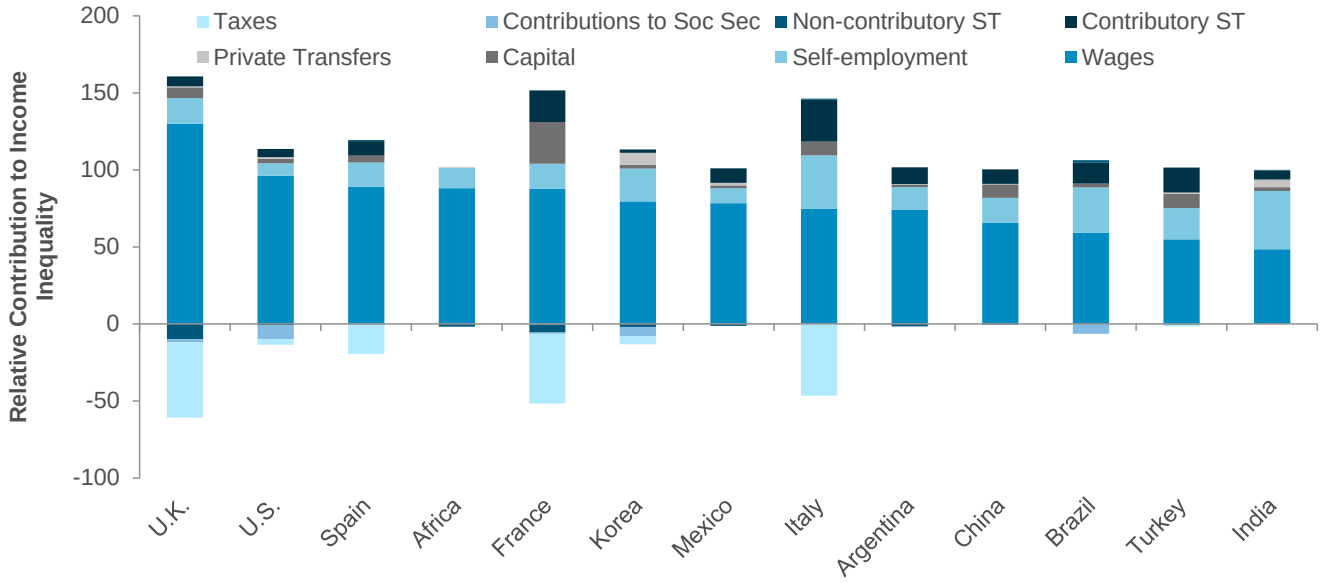
The Components of Income and their Relevance for Inequality

To better understand the drivers of income inequality, it is instructive to distinguish between different components of income: labor income, capital income, private and social transfers, social contributions, and taxes. The contribution of each source of income to total income inequality depends on: (1) how large the source of income is (labor income tends to be the largest source of income); (2) how equally or unequally distributed the income is (capital income tends to be more unequally distributed than labor income, for instance); and (3) how correlated the income source is with total income.

Labor income contributes the most to total inequality across OECD countries with taxes playing a more equalizing role in European countries

Overall, labor income (wages plus self-employment) contributes the most to total inequality as measured by the Gini coefficients across OECD countries — between 50% in Turkey and more than 100% in the United Kingdom, with taxes playing a major equalizing role in European countries (Figure 63).

Figure 63. Factor Decomposition of Income Inequality by Income Source



Notes: The figure shows the contribution of each factor to the Gini coefficient (the sum of all factors adds up to 1, or 100%). Data refers to years between 2011 and 2014, depending on the country. 2014 (Argentina, Brazil, Mexico, South Africa); 2013 (France, Italy, U.K.); 2012 (Rep. of Korea, U.S.); 2011 (India, Turkey, Spain); 2010 (China).
Source: Rain and Furer (2016)

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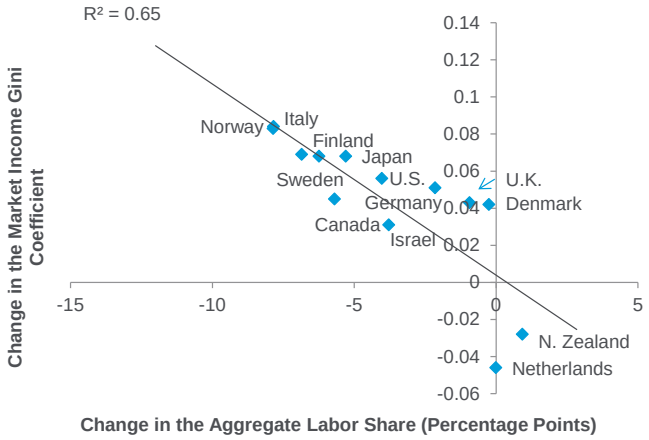
There is a high correlation between the decline in labor share in aggregate income and the increase in overall market income inequality

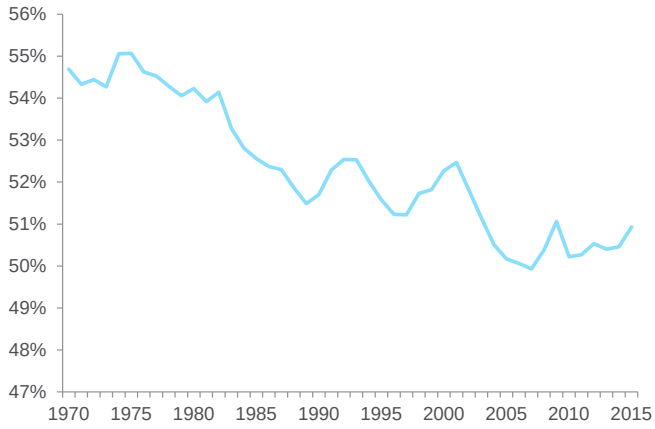
The large contribution of labor income to aggregate inequality is symptomatic of its size, rather than its distribution. In fact, labor income is generally more equally distributed than other sources of income (as for instance capital income[46]). For this reason, a reduction in the labor share — the fraction of aggregate income that goes into remunerating labor — generally increases overall inequality. Indeed, there is a high correlation between the decline in the labor share in aggregate income between 1990 and 2010 and the increase in overall market income inequality (Figure 64).

Figure 64. Changes in the Labor Share and in Income Inequality in OECD Countries (1990- 2010)



Notes: The labor share is computed using a 3-year moving averages centered around start and end dates, with the exception of Canada (end date = 2008) and Israel (start date = 1995). The Gini coefficient is based on pre-tax and transfer income of the population aged 18 to 65 years.
Source: Rani and Furrer (2016); ILO (2016)

Figure 65. Labor Share of Aggregate Income, Advanced Economies (1970-2015)



Note: This is labor share among the advanced economies.[47]
Source: Citi Research

Reductions in the labor share, increases in labor income inequality, and increases in capital income inequality have all contributed meaningfully to the overall increase in income inequality across developed economies over the last few decades.

Labor share of aggregate income has been failing consistently since the 1980s

The labor share, one of the 'macro-economic constants' identified by Kaldor (1957), has decreased globally by more than 5 percentage points since the 1980s (Karabarbounis and Neiman, 2013). Among the advanced economies, on which this report focuses, labor share of aggregate income has been falling consistently since the 1980s, reaching a low point before the financial crisis and failing to recover since (Figure 65). The median decline in the labor share between 1991 and 2014 was roughly 3 percentage points among the advanced economies (IMF, 2017), with 19 out of 28 advanced economies experiencing a decline (Figure 66).

[46] Wolf (2014) notes that capital income tends to be highly concentrated at the top of the income distribution.
[47] This includes: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, San Marino., Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan Province, U.K., and U.S.

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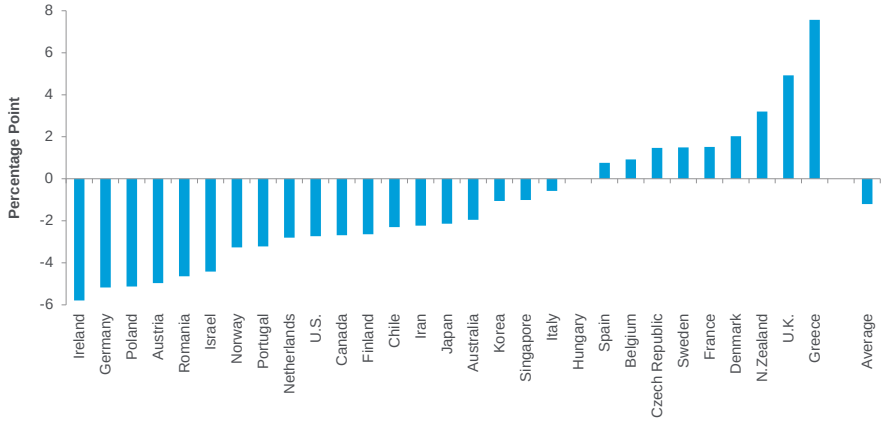
Figure 66. Percentage Point Change in Labor Share (1991-2014)

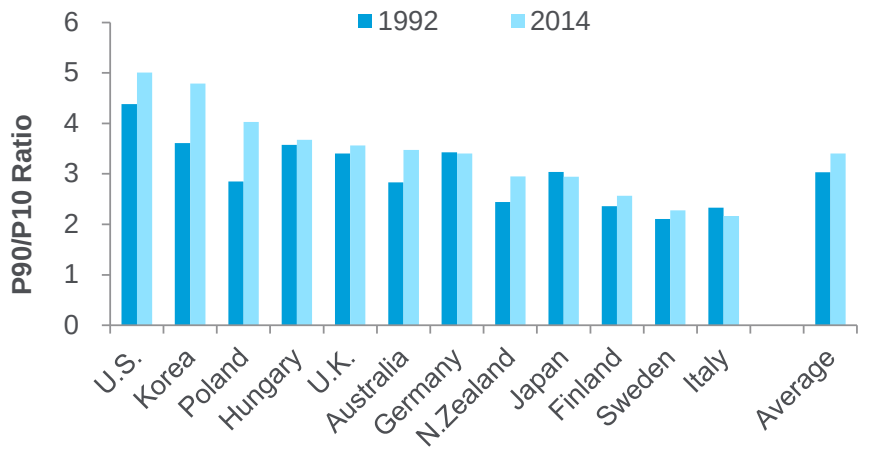


Source: IMF (2017): World Economic Report (April)

Earnings inequality has also dramatically increased in many countries

Earnings inequality has also increased dramatically in many countries. Workers at the 90th percentile of the earnings distribution, i.e. the highest earners, earn today 15 times more than workers at the 10th percentile in the U.S., and 10 times more in the U.K. In 1980, the P90/P10 ratio was slightly above 10 in the U.S., and slightly above 8 in the U.K., meaning that during the period 1980-2014 gross earnings inequality has gone up by over 40% in the U.S. and by almost 30% in the U.K. Across the OECD, gross earnings inequality, as measured by the ratio of gross wages of the 90th and 10th percentile, has increased in most economies, with Germany, Japan, and Italy being the notable exceptions (Figure 67).

Figure 67. Gross Earnings P90/P10 Ratio (1992 and 2014)



Notes: P90/P10 ratio reflects disparities in individual gross earnings. This is the total income earned prior to any tax deductions. Country sample for (simple) average includes all countries shown.

Source: Citi Research; OECD (2016)

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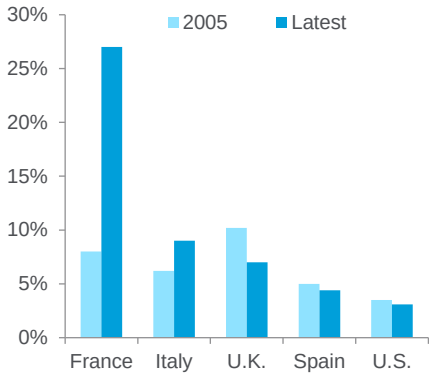
The contribution of capital income to aggregate income inequality varies significantly. Currently, across the economies we look at here, capital income appears to contribute most to income inequality, on a relative basis, in France. This is also where the relative contribution of capital income to aggregate income inequality has grown most in the last decade. However, the relative contribution of capital income to aggregate inequality has declined in other economies that have suffered significant increases in aggregate inequality, such as the United States.

Figure 68. Capital Income Contribution to Aggregate Inequality (2005-2014)



Note: The figure shows the fraction of overall Gini points attributable to capital income inequality.
Source: Citi Research

This changing aggregate contribution reflects two trends: The first being changes in aggregate capital income (as compared to other forms of income), the second being changes in the distribution of capital. The first still drives aggregate income inequality upwards as, in general, capital income is more unequally distributed than wage income. Analysis by the OECD (2011) of selected countries over a longer period shows that, on average across these, the contribution of income from capital to inequality increased from about 8% in the mid-1980s to 12% in the mid-2000s. The main factor which drove up its contribution in countries such as Sweden, Germany, Belgium and France was that capital income went increasingly to richer households, even where its total share did not increase. A study by the U.S. Congressional Budget Office (2011) of the period from 1979 to 2007 found that about one-fifth of the pronounced increase in inequality in the distribution of market income in the U.S. was attributable to a shift from more widely spread to more concentrated income sources, namely from labor to capital and business income. The dominant driver, though, was that each of these income sources became more concentrated.

In assessing the role of income from capital, it is also worth recalling that household surveys will not adequately capture the top of the distribution, where wealth and thus income from capital is highly concentrated. The data from tax sources described earlier allow the importance of capital income at the top to be seen for a sub-set of the countries for which top income share estimates are available. For these eight countries (Australia, Canada, France, Japan, Italy, Netherlands, Spain, and the United States), Morelli et al. (2015) show that before the Crisis earnings (broadly defined) constituted the majority of total income even for the top 1%.

Income from capital accounted for as much as two-fifths of the income of the top 1% in some of these countries; its share was fairly stable from 1980 in most, though declining in the Netherlands and U.S. At the very top, for the highest 0.01%, capital income is generally more important than earned income, although that is not the case in the United States, where changes in the remuneration of managers have caused the capital share to decline up to the beginning of the Millennium, before bouncing back to about half of total income. As also brought out earlier, whether capital gains are included can also make a considerable difference to the impact of income from capital on inequality trends, as U.S. studies in particular have brought out.

We now turn to the potential drivers of recent increases in inequality. The next sections will summarize the main arguments linking these factors to income inequality, while the final section will give a preliminary and tentative view on how these different arguments and drivers interact. Six sets of potential drivers will be discussed here: Technological change; globalization; population aging; redistribution and social expenditures; market concentration and power, and corporate governance and finance.

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Technological Change

Recent changes have prompted many to consider whether technological progress is driving aggregate inequality

The nature of technological change in recent decades, and in particular the rapid rise of new information and communication technologies (ICT) has prompted many to consider whether contemporary technological progress has a particularly heterogeneous effect on worker productivity, driving aggregate inequality. The effects of technology on income inequality are complex, heavily mediated, and almost never determined by the technology alone. However, it does seem that recent innovation has played a role in declining aggregate labor shares and probably in greater earnings polarization, too.

Recent signs point to technological change favoring skilled workers in particular

Most narratives about technology-driven increases in income and wealth inequality posit that such technological change is skill-biased. Historically, this has not universally been the case. For example, the Fordist revolution quickly replaced the demand for craft skills with standardized, routine jobs at the assembly line, a notable example (in this regard) of unskill-biased technological change. However, more recently, there are some signs that technological change has favored skilled workers in particular.

There are competing theories that explain why we observe skill-biased technological change (SBTC). A first theory suggests that skilled labor is more complementary to capital in general (Griliches, 1969). Capital-skill complementarity implies that as capital becomes cheaper due to technological improvements, capital deepening pushes up the relative demand for skilled labor, and hence the skill premium. Another theory (Nelson and Phelps, 1996) posits that skilled labor is better able than unskilled labor to learn and adapt to changes (hence, it becomes relatively more productive). The phase of rapid technological transitions of the past three decades then favors skilled labor. Both arguments seem to apply in particular to modern information and communication technologies (ICT), as skilled workers can better master ICT than unskilled ones, and skilled tasks tend to be more ICT intensive.

There is evidence that technological change may push up income inequalities in some context, but this Is not definitive or consistent

There are various bits of evidence that support the idea that technological change has been pushing up income inequalities. For example, information technology (IT) investment has indeed increased sharply, which would (according to the theory above) boost the productivity and wages of skilled workers. Expenditures in ICT as a share of U.S. private non-residential fixed investment rose from 6% in 1960 to 40% in 2000 (Violante, 2008), an increase witnessed across many other advanced economies. This has coincided with a large increase in the use of ICT capital services per hour worked across the OECD (Figure 69).

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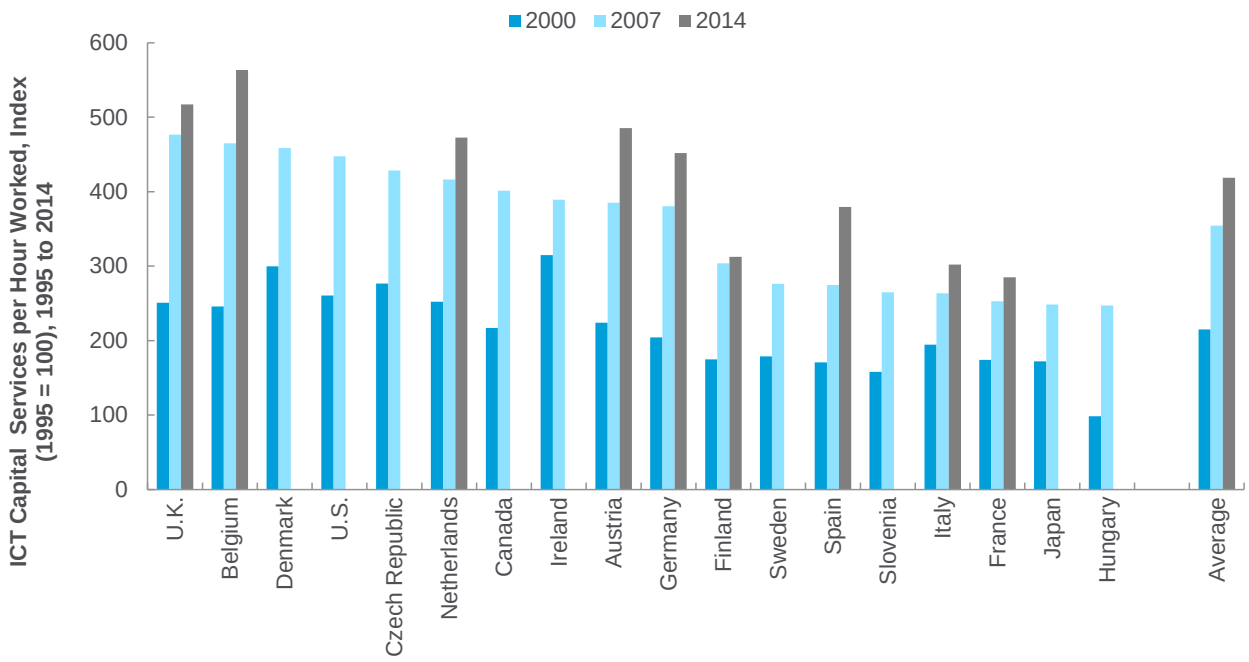
Figure 69. Intensity of ICT Capital Employed (1995-2014)



Notes: ICT capital intensity per hours worked refer to the CAPIT_QPH variable in the EU KLEMS database. Data for Canada are taken from the World KLEMS database. Data series were extended using growth of the numerator and denominator of the ICT intensity ratio using the various releases of the EU KLEMS database (2009, 2013, and 2016). The 2009 EU KLEMS release covers the largest number of countries, covering the period from 1995 to 2007. Additional data was taken from later releases of EU KLEMS for the following countries: Austria, Belgium, Finland, France, Germany, Italy, the Netherlands, Spain, and the U.K. Values for Denmark have been adjusted to account for abnormally large increases in ICT intensity within the mining industry. Country sample for (simple) average includes all countries shown.

Source: Citi Research; ILO (2016), KLEMS Databse

Exposure to technological change and falling labor shares are closely related. This potentially links technology and growing inequality

There also appears to be a strong correlation — across countries and across sectors — between exposure to technological changes and falling labor shares, pushing inequality upwards (Figure 70). Sectors with high levels of ICT investment have seen greater reductions in the labor share. The decline in labor share in manufacturing, for example, is roughly three times greater than that in financial services (globally) while labor shares in accommodation services and agriculture have increased. There is also a strong correlation between the recent reductions in labor share and the degree of 'automatability' (here, measured using Routine Task Intensity[48]) in each sector in 1990. Additionally, on an aggregate level, economies that were deemed to have a high degree of automatability had roughly four times the reduction in labor share than in those economies that had a lower susceptibility.

[48] This Routine Task Intensity measure is based on Autor and Dorn (2013). This is ultimately calculated from five task measures, taken from the 'Dictionary of Occupational Titles.' These are combined to produce three further variables:

- **A manual task measure**: This measures an occupation's demand for 'eye-hand-foot coordination'
- **A routine task measure**: This measures an occupation's demand for routine cognitive tasks, and 'finger dexterity', measuring an occupation's use of routine motor skills.
- **An abstract task measure**: This measures managerial and interactive tasks. This is combined with a score on the GED in Mathematics.

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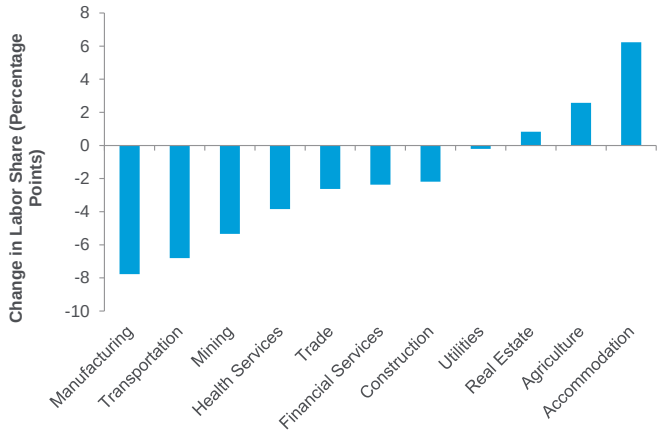
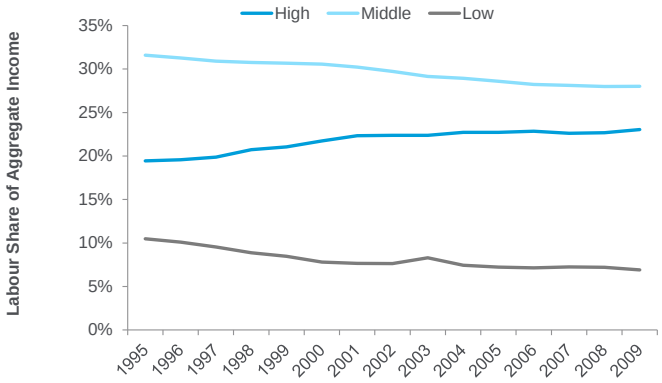
Figure 70. Change in Global Labor Share by Sector, Advanced Economies (1998-2014)



Notes: Change in labor share across the following economies: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, San Marino., Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan Province, U.K., U.S. Change in labor share measured as percentage point change over the period.

Source: IMF (2017): World Economic Outlook

Figure 71. Labor Income Share in Advanced Economies, by Skill Level (1995-2009)



Notes: Change in labor share across the following economies: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, San Marino., Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan Province, U.K., U.S. Change in labor share measured as percentage point change over the period.

Source: IMF (2017): World Economic Outlook

Reductions in labor share tend to be most severe among middle and low income earners. This seems to drive the aggregate trend: economies with severe reductions here suffer reductions in labor share in aggregate

Additionally, reductions in the labor share, among the advanced economies, have been concentrated among lower- and middle-skilled workers (in many cases where manufacturing employment was also particularly high) (Figure 71).[49] Aggregate reductions in labor share have generally been most extensive in those economies where reductions in middle-income shares have been most severe. This was also correlated with initial aggregate exposure to routinization (IMF, 2017).

Technological change could also be blamed for a 'hallowing out' of the middle of the skill distribution — reducing the number of middle income jobs

There is also increasing evidence that technological change has led to a 'hollowing out' of the middle of the skill distribution, as the growth of low- and high-skilled jobs has significantly outpaced the growth in medium-skill employment (Figure 72).[50]

[49] This is measured differently by the IMF (2017), using level of formal educational attainment.

[50] Autor and Dorn (2013), Goos et al. (2010)

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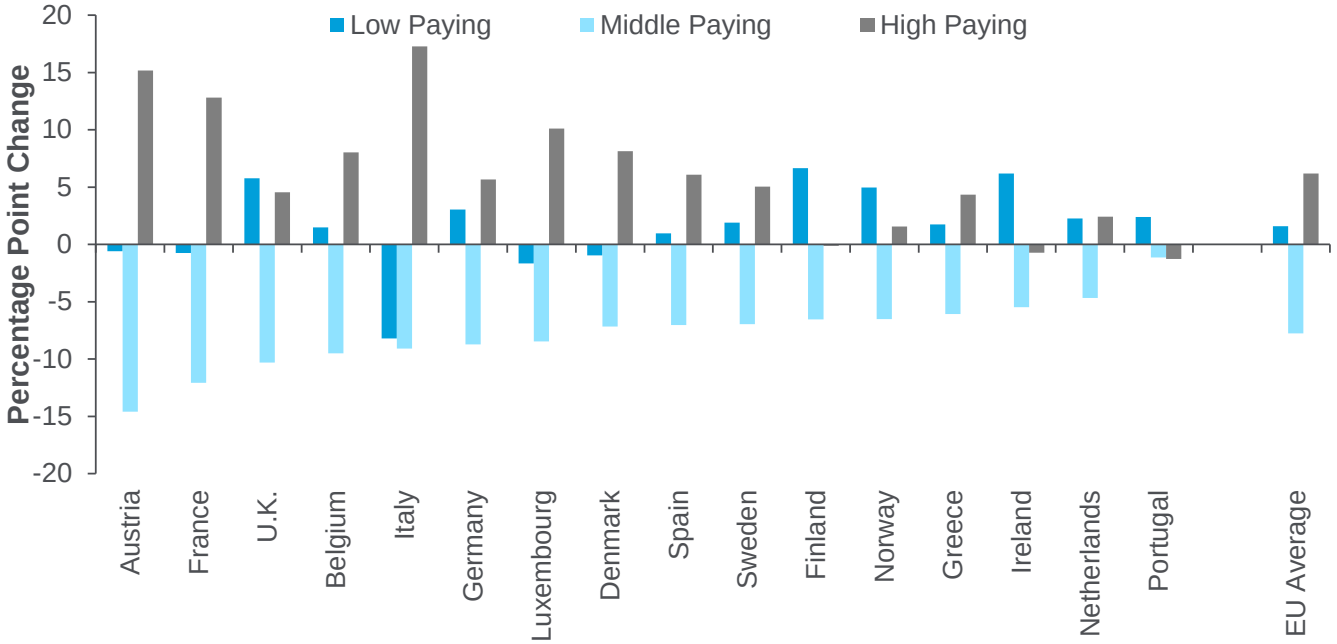
Figure 72. Change in Employment Share in Occupational Skill Bracket (1993-2006)



Notes: Occupations categorised according to ISCO designations. In each country occupations are ranked high skill to low skill according to the mean 1993 European occupational wage. High-paying occupations: Corporate managers; Physical, mathematical, and engineering professionals; Life science and health professionals; Other professionals; Managers of small enterprises; Physical, mathematical, and engineering associate professionals; Other associate professionals; Life science and health associate professionals Middling occupations: Stationary plant and related operator; Metal, machinery, and related trade work; Drivers and mobile plant operators; Office clerks; Precision, handicraft, craft printing, and related trade workers; Extraction and building trades workers; Customer service clerks; Machine operators and assemblers; Other craft and related trade workers. Low-paying occupations: Laborers in mining, construction, manufacturing, and transport; Personal and protective service workers; Models, salespersons, and demonstrators; Sales and service elementary occupations.

Source: Citi Research; Goos et al. (2010)

But these trends are not definitive. While middle income occupations disappeared, middle income jobs have not uniformly disappeared with them. More factors seem to mediate these trends

New technologies do not seem to have a consistent impact on income differences between those at different education levels

However, it is worth noting that these trends are not definitive. Middle-income jobs have, in some cases, developed outside traditional middle skilled sectors.[51] Further, there are few common patterns in wage differentials between those of different skill levels, despite the relatively uniform adoption of many new technologies. Looking at the 'tertiary wage premium' (the relative wage boost enjoyed by those with a tertiary education compared to those without), for example, there has been no universal or persistent trend across countries (Figure 73). In the past two to three decades, the skill premium has increased in the U.S. but decreased in the U.K, two countries with high and rising level of inequality.[5253] The skill premium has also increased in Germany and Canada, but it has decreased in France.[54]

[51] Holmes and Mayhew, 2015.
[52] McAdam and Willman, 2015.
[53] Abel et al., 2016.
[54] Glitz and Wissmann, 2016; Bowlus and Robinson, 2011; Verdugo, 2014.

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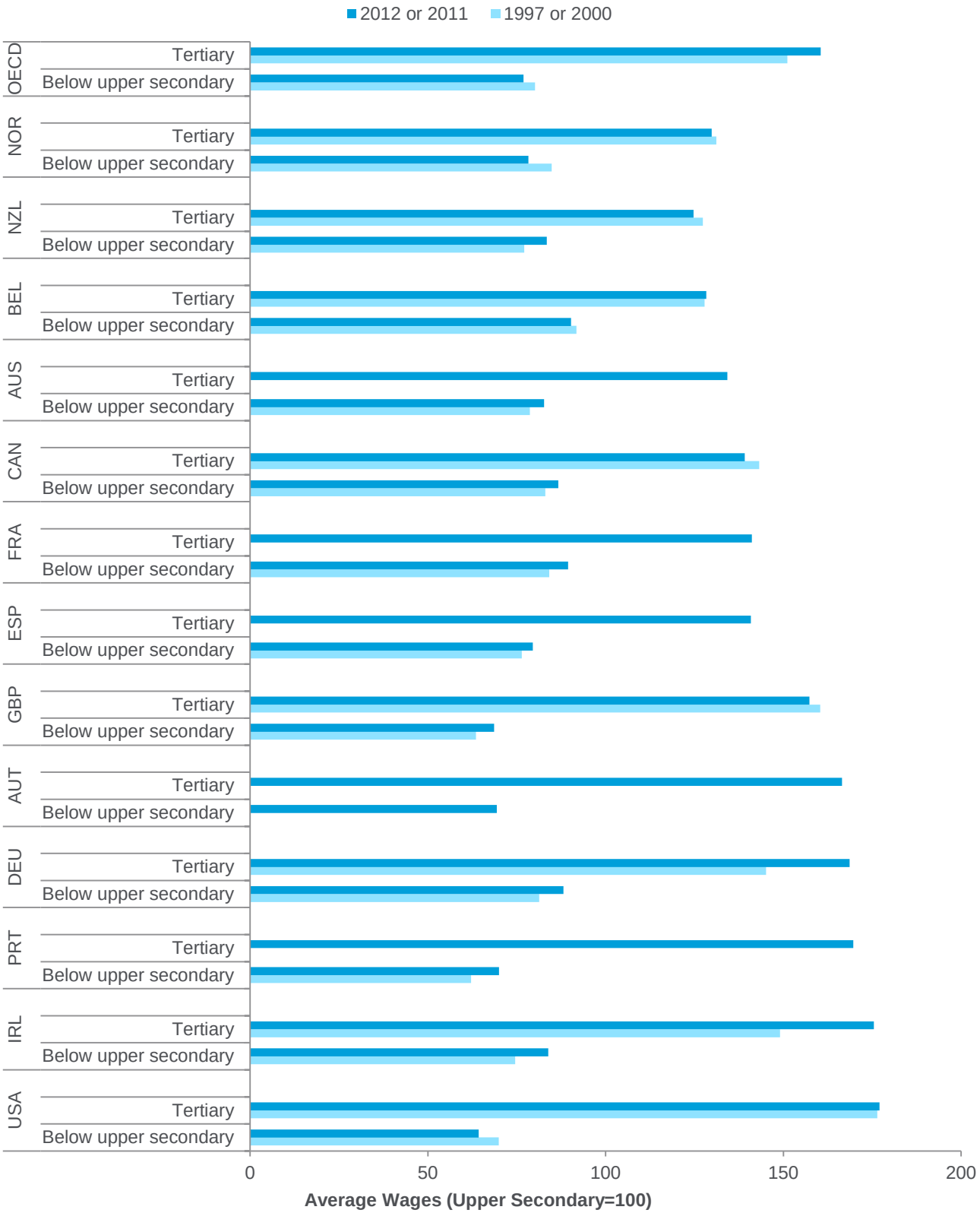
Figure 73. The Skill Premium: Relative Earnings From Employment by Level of Educational Attainment for 25-64 Year-Olds



Notes: Upper secondary education = 100. 2011: Ireland, Norway, Portugal, Spain; otherwise 2012. 2000: Belgium, Canada, Germany (tertiary only), Hungary (tertiary only), Ireland (tertiary only), New Zealand (tertiary only), Norway (tertiary only), Switzerland (tertiary only), United Kingdom (tertiary only), United States (tertiary only); otherwise 1997.
Source: OECD (2016a)

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Many other factors mediate the impact of technology on income inequality, including education levels

Of course, many other factors affect relative tertiary wages beyond technological change. If skills-biased technological change pushes the skill premium up, the increased supply of skilled labor resulting from widespread advances in education, should in principle counteract the relative advantage of skilled workers and keep their relative wages down. The Nobel prize-winner Jan Tinbergen famously described these simultaneous changes in the demand and supply of skills as a "race between technology and education".[55] There is some evidence of a cross-national correlation between the proportion of the population with a tertiary education and relative tertiary wages, even though recent changes in the supply of skilled workers across countries do not seem to be closely linked to changes in skill premia across these countries.

Box 1: Growing Skills Premium and Rural-Urban Income Disparities

The wage premium for skills can have important implications for disparities between rural and urban incomes. Cities tend to attract high-skill workers who benefit from better learning and job matching opportunities (Glaeser, 1999; Zenou, 2009). The larger the cities, the stronger these benefits and the more skills they attract (e.g., Bacolod et. al., 2009; Brueckner et al. 1999; Eaton and Eckstein, 1997; Eeckhout et al., 2014; Glaeser and Resseger, 2010). This self-selection process by which high-ability individuals choose to work in cities contributes to an urban wage premium (e.g., Yankow, 2006), and as the skill premium increases, so does the subsequent rural-urban income disparity.

Hence, for the U.S., Baum-Snow and Pavan (2013) find that the skill premium between "college or above" and "non-college" educated workers has (1) increased over time and (2) has widened faster in larger cities. High-skilled workers shifting into larger cities have therefore led to faster wage growth for urban workers, all else staying the same, contributing to an urban-rural wage premium (D'Costa and Overman, 2014). ICT technologies may have had a more specific role here as these technologies has made it easier for individuals to work remotely from physical production processes — increasing the ease with which high-skilled individuals can concentrate in cities.

Expansion of education may actually have propelled skill-biased technological change and inequality in some cases

In fact, the expansion of the educated workforce might itself have propelled skill-biased technological change in some contexts, as noted by Acemoglu (1998). Some recent trends in corporate organization seem to provide support to this narrative. For example, in the U.K., the maintenance of a high graduate wage premium, despite increases in the number of graduates, has been attributed to innovations such as flatter business structures designed to make better use of graduate talent.[56]

Educational attainment doesn't give a good indication of relative graduate wages

Moreover, social norms, the system of industrial relations, and labor laws also affect the wage distribution. These three factors (supply, demand, and institutional constraints) play a different role in different countries, meaning that simply looking at education levels does not offer a good indication of relative graduate wages. On average across OECD countries, workers with a university degree earn 50% more than workers with a high school diploma, while workers without a high school diploma earn more than 20% less. However, the university premium is as high as +150% in Brazil, and as low as +25% in New Zealand. While countries with an abundance of skilled workers often has a lower than average skill premium, this is not a given — especially among developed economies, where this relationship is heavily mediated by other factors.[57] As a result, there is a weak relationship between tertiary wages, and the proportion of the workforce that has completed tertiary education (see Figure 74).

[55] Tinbergen, 1974.
[56] Blundell et al., 2016.
[57] Social norms, the system of industrial relations, and labor laws affect the 'graduate premium' in important ways. (Green and Henseke, 2016).

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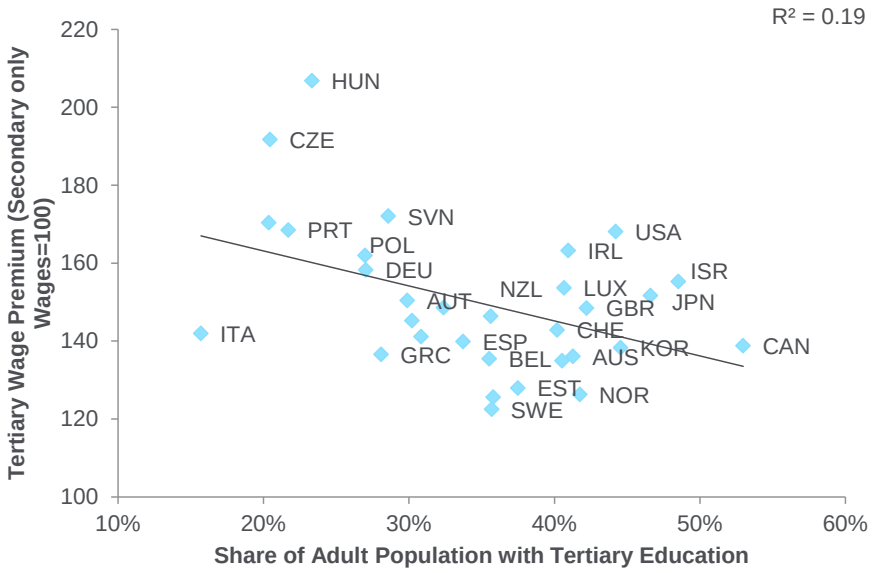
Figure 74. Tertiary Wage Premium by % of Adult Population with Tertiary Qualifications



Notes: Country selection subject to economic development and data availability. Tertiary wage premium is the percentage difference between the wages of those with a secondary education only, compared to those with a tertiary education. Adult population is defined as those between the ages of 25 and 64.
Source: OECD Education at a Glance

Trade Globalization

Globalization is particularly difficult, conceptually, to unpick from other factors driving inequality. Globalization has itself been driven by technological developments while, in many economies, technological innovation is also often facilitated by globalization. Following Förster and Tóth (2015), one should distinguish between (1) trade integration, (2) financial integration, (3) offshoring and foreign direct investments (FDIs), and (4) technology transfers, but we focus here on trade and offshoring only.

Consensus opinion is that globalization of trade and capital flows has a net positive effect on aggregate welfare

The long-held consensus opinion among academics and policymakers — supported by most models of international trade — is that globalization of trade and capital flows has a net positive effect on aggregate welfare (including GDP). Expanded opportunities for trade mean that it becomes easier to produce where production costs are lower, and then deliver the goods and services to the final consumers worldwide. Producers can be either local firms, or foreign firms that relocate part of their production capability (offshoring) or invest in new production capability (FDI). In any case, the net implication is an improvement in aggregate economic welfare.

But it has also been suspected to increase inequality especially through labor competition

Those same models, however, often suggest trade has a distributional impact. Globalization, it has been argued, may (adversely) affect the bargaining power of workers, while easier technology transfers across borders may raise the productivity of some workers compared to others. Most commonly, however, trade is suspected to increase inequality through labor competition. A standard prediction of trade theory is that, as a consequence of competition from cheap labor abroad, relative wages for unskilled workers in developed markets fall while relative wages for skilled workers and returns to capital increase. Additionally, because the fall in wages for unskilled workers is bigger than the trade-induced fall in the price of consumer goods, real wages of those workers also fall.

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The effective global labor supply has seen a huge increase in recent decades. In the 1980s, China opened up to international trade, followed by the former Soviet Bloc and India at the turn of the 1990s. "[T]he opening up of these giants to international trade was equivalent to the entrance of around a billion workers, for the most part unskilled, into international competition, with the simultaneous effect of creating a relative scarcity of other factors of production, particularly capital, skilled labor, and raw materials."[58]

Empirically, deducing the precise impact of this on inequality is tricky. One of the main challenges is to disentangle the contribution of globalization from that of skill-biased technological change. Most studies have suggested a limited role of globalization in explaining rising income inequality, with the general consensus being it has had less of an impact on aggregate inequality than technology. For instance, Borjas et al. (1997) concluded that trade accounted only for 20 percent of the rise in the U.S. college wage premium between 1980 and 1995, while Feenstra and Hanson (1999) concluded that at most a quarter of the rise in the relative wage of non-production workers during the 1980s (1979–1990) was due to offshoring and around 30% was due to technology. This view is also corroborated by more recent studies i.e., IMF (2017) and OECD (2017).

However, these studies still suggest that globalization had a significant impact on inequality, especially at the bottom of the income distribution. In addition, globalization can have more extensive and concentrated impacts in specific contexts. In a recent widely cited paper on the impact of trade with China, Autor et al. (2016) found:

> *"Adjustment in local labor markets is remarkably slow, with wages and labor-force participation rates remaining depressed and unemployment rates remaining elevated for at least a full decade after the China trade shock commences. Exposed workers experience greater job churning and reduced lifetime income. At the national level, employment has fallen in the U.S. industries more exposed to import competition, as expected, but offsetting employment gains in other industries have yet to materialize."*

The pace and concentration of globalization seems to matter for inequality

What seems to matter for inequality, via such long-term adverse circumstances, is the pace and concentration of change, rather than its aggregate size. Change which is too fast disrupts local economies and the communities they supported. The key lesson here is that the effects on local communities were larger and longer-lasting than expected. The capacity of local communities to adapt was smaller and slower than expected. There is also evidence that this capacity is falling. In the US, for instance, there are signs that labor mobility across regions and sectors is falling[59] (more on this below).

[58] Bourguignon, 2015.

[59] The inter-state migration rate in the United States has been on a downward trend for the past 25 years, falling from around 3% in 1990 to about 1.4% in 2010.The fraction of the U.S. population experiencing an employer change went down from about 13% in 1990 to about 8.5% in 2010, with most of the decline taking place in the 2000s. Similarly, the fraction of the U.S. population experiencing a change in industry or occupation has also gone down, from almost 8% in 1990 to just above 4% in 2010 (Molloy et al., 2014).

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Public policies can help local workers and communities deal with change

Crucially, public policies to help local workers and communities proved to be highly deficient in many contexts. This, however, is not uniformly the case. Some countries, such as Denmark, are relatively successful in both supporting affected workers and helping them transition them into new jobs. In 2006, the Wall Street Journal reported on the closure of a meat packing factory as a result of intense foreign competition. Within 10 months almost 90% of the 500 workers were employed, making varied career moves, often with no loss of income. Alden (2017) notes that Denmark spends 2% of GDP annually on active labor market policies that help train and transition unemployment workers. This is twenty times the level of spending (relative to GDP) in the U.S.

Despite adverse effects on local economies, trade seems to play only a minor role in manufacturing decline and inequality

However, the large and long-lasting adverse effects on local economies detected by Autor and co-authors are still consistent with the general assertion that trade plays only a minor role in the shrinking size of U.S. manufacturing, and subsequently on inequality. Overall, they find that the China shock is responsible for the loss of 985,000 jobs in manufacturing between 1999 and 2011. As Paul Krugman put it, "[t]hat's less than a fifth of the absolute loss of manufacturing jobs over that period, and a quite small share of the long-term manufacturing decline."[60]

Demographic Change

The arrival of the baby boom generation boosted the size of the labor force and decreased dependency rates

If globalization hugely expanded the size of the foreign labor force available to firms, the arrival of the baby boom generation on the labor market also boosted the size of the domestic labor force. Between 1960 and 2010 the total dependency ratio (the ratio of non-working age to working age population) in advanced economies decreased by 10 percentage points, from 58% to 48%, with a spectacular decline from 67% to 49% in the United States; there, the size of the working age population increased by an average of 1.2% per year. The enlargement of the domestic workforce, together with easier access to the global workforce, favored the owners of the factors of production complementary to labor, namely managerial skills and capital.

Increased female labor force participation rates also boosted the workforce and contributed to greater economic equality

Rapid growth in the number of women in the labor force has also boosted the workforce. Female participation (LFP) rates have increased by more than 10 percentage points on average in OECD countries, and more than 20 percentage points in Europe, since the early 1980s, although they have stagnated in the U.S. over the last 15 years.[61]

Increasing female LFP mechanically reduces income inequality among individuals (it replaces zero market income with positive income). Across households, it also tends to reduce income inequality, as increased female employment is mainly concentrated in low-income households, and often provides a cushion against or is a response to male unemployment.[62] However, when female participation becomes generalized, it can have an inequality-enhancing effect, as women in high-income households also tend to have high earnings potential.[63] The net effect, however, tends to still be substantially inequality-abating.

[60] Krugman, 2016.
[61] Jakobs, 2015.
[62] Gonzalez and Surotseva, 2016; Hoynes et al., 2012.
[63] This is a result of assortative mating.

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Redistribution, Social Expenditure, and Inequality

Taxes and transfers have a significant redistributive impact in advanced economies

Globalization, technological change, and demography are often discussed as if they were exogenous, unstoppable global forces independent of government. This is highly misleading, since the context in which each of these forces operates is framed by national institutions and policies. A key component of this 'framing regime' is the tax and social expenditure system. Taxes and transfers, generally, have a significant redistributive impact in advanced economies, though their specific character does vary. Joumard et al. (2012) identify four different models of the tax and transfer system:

- The **"Nordic model":** This includes all the Nordic countries (plus Belgium) and is characterized by large and mostly universal cash transfers, a high level of spending on in-kind services, such as childcare and universal healthcare, and a tax mix which promotes redistribution.
- The **"Continental European model":** This includes Germany, France, and Austria and is characterized by large cash transfers — in particular old-age pensions — and a relatively small role for the personal income tax.
- The **"Anglo-Saxon model":** This is characterized by small, often targeted, cash transfers, and a tax mix which promotes income redistribution. Joumard and co-authors further divide the Anglo-Saxon countries into two sub-groups:
  - Those with transfers highly targeted towards low-income groups (e.g. New Zealand).
  - Those countries characterized by little progressivity of cash transfers which are largely spent on old-age pensions (e.g. Japan and the United States).

Taxes and transfers can decrease inequality by roughly 5 Gini points across OECD countries

On average, taxes and transfers decrease inequality, as measured by the Gini index, from 47 to 31 Gini points across OECD countries. Such an impact is highly significant — a change of roughly 5 Gini points, in one year, is usually only observed during cases of major and severe social unrest, such as a revolution.

The state tends to play more of an equalizing role the more severe market income inequality becomes. This is true over time and across countries. As Figure 75 shows, countries which have higher income inequality ex-ante (based on forecasts rather than actual results), tend to have more redistribution. The implication is that the relationship between market (before taxes and transfers) and net inequality (after taxes and transfers) is somewhat curtailed.

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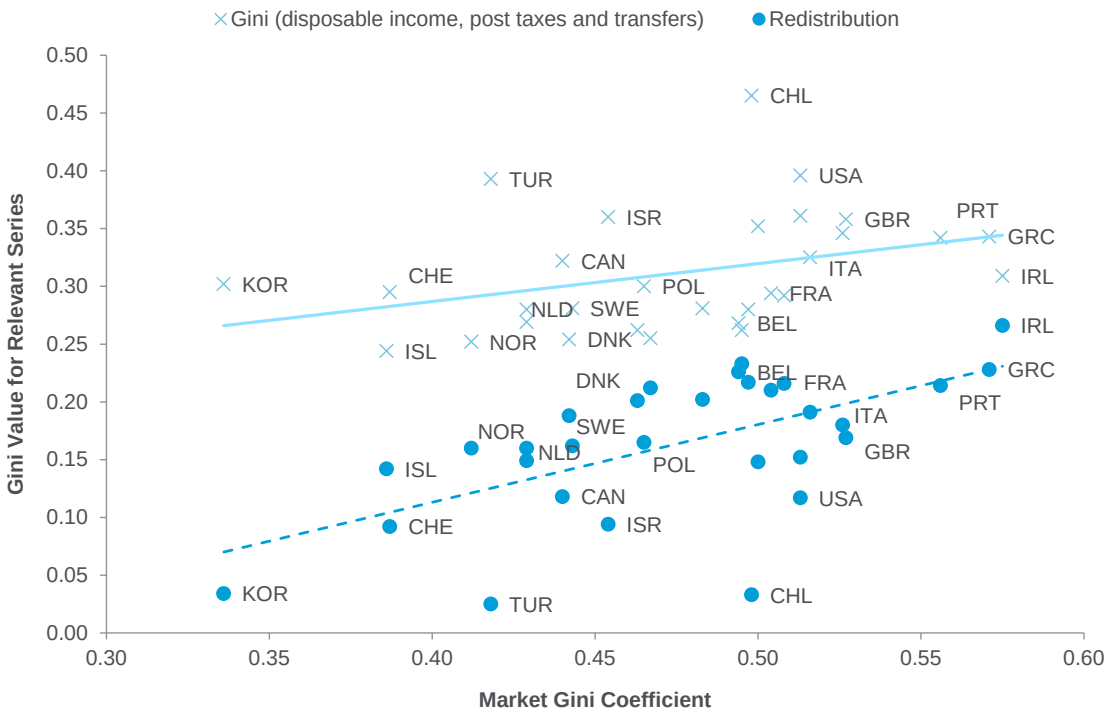
Figure 75. Net Inequality and Re-Distribution (2014)



Notes: Market Gini coefficient refers to income before taxes and transfers, disposable to income after taxes and transfers. Redistribution is the difference between these two figures.

Source: Citi Research, Authors' elaboration of OECD data

The tax and transfer system managed to protect household income from the underlying increase in market inequality from the mid-1980s to the late 2000s

Additionally, focusing on a selection of OECD countries (the European countries plus the United States and Japan), Hein (2013) shows that on average market income inequality increased between the mid-1980s and the late 2000s by 5 Gini points, while disposable income inequality increased only by 1.4 Gini points. This means that the dramatic increase in disposable income inequality noted in previous chapters (changes in net inequality) is significantly less than recent increases in 'market,' inequality (that in the absence of taxes and transfers); the functioning of the tax and transfer system managed to substantially protect household income from the underlying increase in market inequality.

The redistributive impact of taxes and transfers depends on their size, mix, and nature

The redistributive impact of taxes and transfers depends on the size, mix, and the progressivity of each component. Some countries with a relatively small tax and welfare system (e.g., Ireland) achieve the same redistributive impact as countries characterized by much greater taxes and transfers (e.g., Germany). This is because Ireland relies more on income taxes and on means-tested cash transfers. The first are more progressive than other forms of taxation, collecting disproportionately from the better off, while the second are more effective at focusing resources into the hands of the neediest.

An increase in social transfers can lower disposable income inequality

Of the four categories of tax and social transfer identified by Joumard and their co-authors, each has quite distinct redistributive characteristics. Focusing first on social transfers: On average in OECD countries, an increase of one percentage point in spending is associated with a reduction of more than 0.6 Gini points in disposable income inequality (Figure 76). This is an important factor in cross-national differences in disposable income inequality. Social expenditures (excluding

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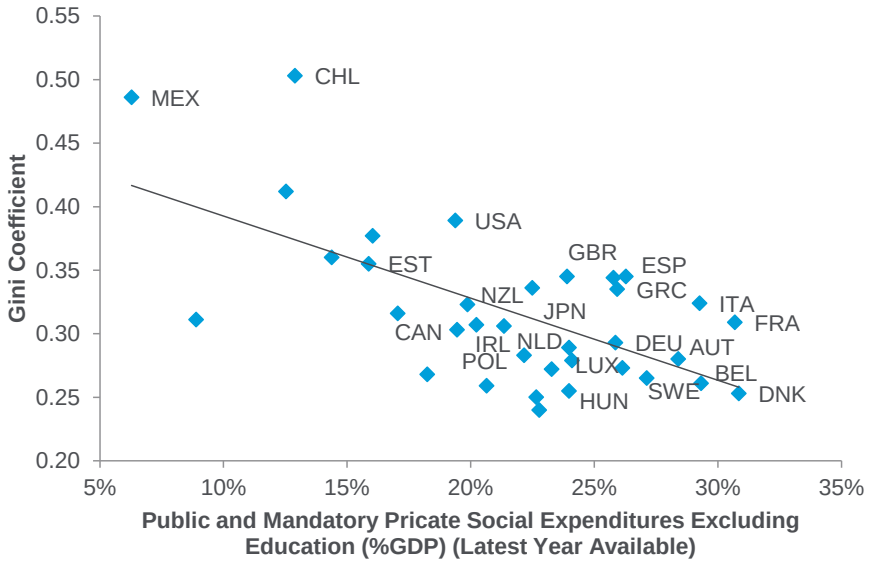
education) account for more than 30% of GDP in France, but only 20% of GDP in the United States.

Figure 76. Social Expenditures (Public and Mandatory Private) and Gini Coefficient of Disposable Income, OECD Countries (Around 2013)



Notes: Gini coefficient reflects inequality in net equivalized household income (post-tax and redistribution).Year varies by country: 2013 (Austria, Belgium, Czech Republic, Estonia, Iceland, Ireland, Italy, Latvia, Portugal, Slovak Republic, Slovenia, Spain); 2011 (Canada, Chile, Denmark, Finland, France, Germany, Greece, Israel, Korea, N. Zealand, Norway, Poland, Sweden, Switzerland, Turkey, U.S.); 2009 (Hungary, Japan, Netherlands, U.K.); 2005 (Mexico). Social expenditures include any spending by public (and private) institutions on benefits to households and individuals providing support during circumstances which adversely affect their welfare.

Source: Citi Research; OECD

The extent that social support reduces inequality varies significantly

However, the precise extent to which social support focuses towards low-income households, and reduces inequality, varies significantly. This depends on the prevailing mix of insurance-type (contribution-based) and assistance-type benefits within national social protection systems. Actuarially fair contribution-based measures, where the benefits provided are equal, in present value, to the contributions collected, have by definition no inter-personal (or cross-sectional) redistributive function. They still perform a fundamental inter-temporal (or longitudinal) redistributive function, allowing individuals to smooth out income streams over the life cycle and mitigate social risks.

Benefits such as pensions are less re-distributive vs. benefits such as universal healthcare

Assistance-type measures, on the other hand, involve only a limited inter-temporal redistribution (as individuals pay taxes to fund the social assistance schemes when they do not need them), while they have an explicit cross-sectional redistributive nature. As a result, benefits such as pensions are typically less re-distributive, as commonly implemented, compared to, for example, universal healthcare; the latter having a more explicit inter-personal re-distributive component. This is shown on Figure 77. Among the developed economies, contributory social transfer policies generally augment individual income inequality, while non-contributory policies generally alleviate it.

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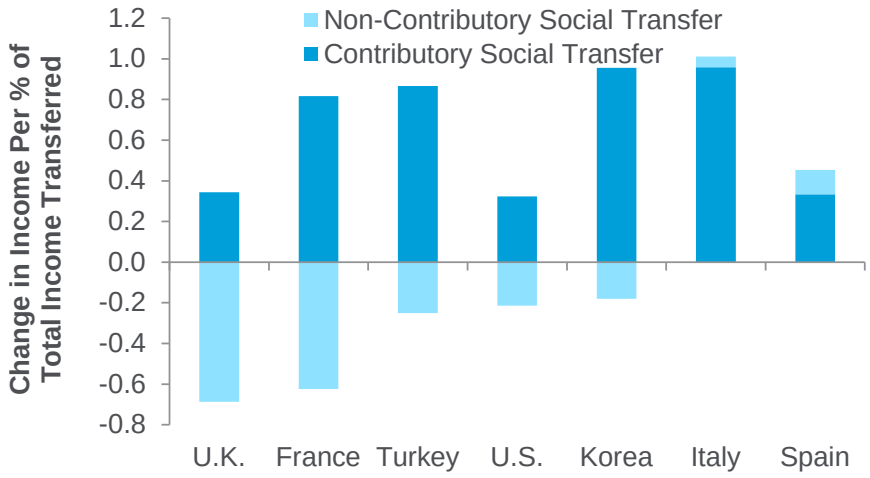
Figure 77. Impact of Transfers on Income Inequality per % of Total Income Social Transfers Constitute (Around 2014)



Notes: Values are derived by dividing the proportional contribution of both types of benefit by the proportion of total income each benefit respectively comprises.
Source: Citi Research, Rani and Furrer (2016)

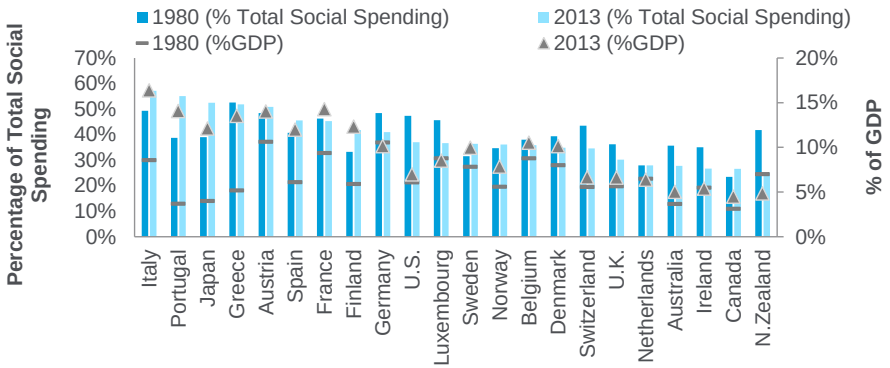
Although sometimes social expenditures and the changes in composition of social spending contribute to growing inequality

Benefits that transfer between the same individual across time tends not to reduce inequality significantly, while those that re-distribute between people tend to alleviate inequality

However, even here, some states social expenditures actually contribute, in net terms, to growing inequality. In both Italy and Spain, non-contributory social transfers still have a net positive effect on inequality. The degree of re-distribution here critically depends on the structure of social expenditures. The U.K., for example, has relatively large quantities of targeted, 'means tested' social transfers that significantly alleviate inequality. In contrast, the relatively inequitable distribution of such social transfers in Spain and Italy, especially in their focus on elderly benefits, means social expenditure here is less re-distributive.

Changes in the composition of social spending may have also driven income inequality higher. Cross nationally, it appears such spending has become more focused on less redistributive areas such as old age support (especially pensions), driven by population aging. Social expenditure on old age benefits, for example, has increased as a proportion of total social spending in many OECD economies since 1985 (Figure 78). Simultaneously other, more re-distributive, elements of social spending, such as unemployment benefits, have largely declined.

Figure 78. Percentage of Total Social Expenditure on Old Age Benefits, Including Pensions (1980-2013)



Notes: Social expenditures include any spending by public (and private) institutions on benefits to households and individuals providing support during circumstances which adversely affect their welfare.

Source: Citi Research; Rani and Furrer (2016), ILO (2016)

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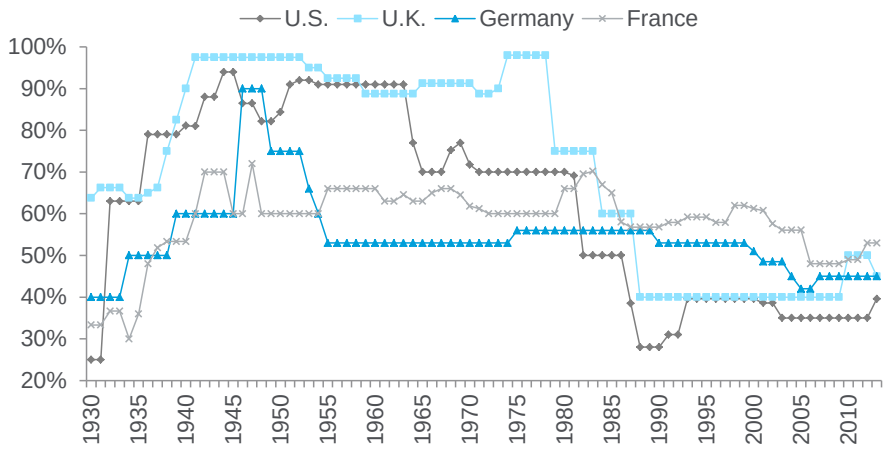
Tax systems play an important role as income taxes are typically more re-distributive

Additionally, the tax system also has an important, and often quite subtle, role to play. As noted above, income taxes are typically more re-distributive. This is because they are usually progressive, focusing on collecting more revenue from relatively wealthy people. However, in the last three decades some countries — most notably the U.S. — have seen a marked decline in the tax rates, especially at the very top. Data from Piketty (2014) suggests that the top rate of income tax increased extensively in the first half of the 20th century, reaching over 90% in both the U.S. and U.K. during the 1950s and 1960s, but since 1980 have fallen significantly (Figure 79). Top income tax rates have been more consistent in both Germany and France over this period.

Figure 79. Top Income Tax Rates, 1900-2013



Notes: The top tax rate for the U.S. and Germany reported here includes income tax supplements, but excludes other forms of social contribution. In France, the CSG tax is also included.

Source: Piketty (2014)

Tax structure seem to have become less progressive in many advanced economies in recent years

This seems to have marked a broader 'flattening out' of income tax rates, rendering tax systems less re-distributive. This is illustrated in Figure 80 and Figure 81, which compares these trends in the U.S., France, and the U.K.

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Figure 80. Average Tax Rates Across the Income Distribution in France, the U.K., and the U.S (1970 and the Early-2000s): 1970

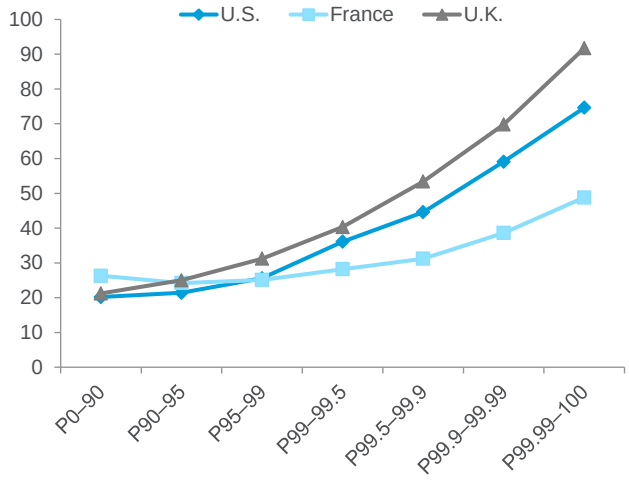
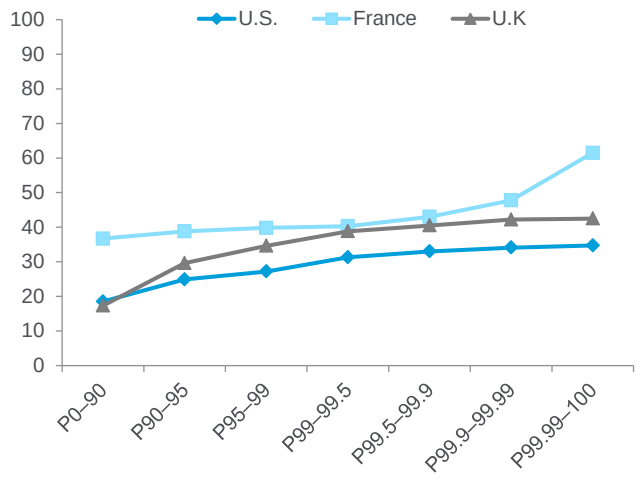


Figure 81. Average Tax Rates Across the Income Distribution in France, the U.K., and the U.S (1970 and the Early-2000s): U.S.-2004, France-2005, U.K.-2000



Notes: Figures display tax rates across income groups. Tax rates in the U.S. include federal income taxes. Tax rates in France and the U.K. include individual income taxes, payroll taxes, and estate and wealth taxes but exclude corporate income taxes. U.S. statistics based on 2004 tax law imposed over the incomes distribution in 2000, adjusted for economic growth. French statistics are based on 2005 tax law, and the 1998 income distribution, adjusted for economic growth. U.K. statistics are based on 2000 tax law, and the 2000 income distribution.

Source: Piketty and Saez (2007)

There is evidence that flattening out the tax schedule has contributed to the rise in income inequality

There is some evidence that the flattening out of the tax schedule, and more general changes in redistribution, have contributed to the rise in income inequality. The effects of a reduction in taxation among top incomes, especially, may be quite subtle. In addition to the reduction in ex-post redistribution, the reduction in top income tax rates raises the incentive to attaining such high incomes. This, in some cases, may be a positive incentive to work harder but can also incentivize greater rent extraction. In either case, aggregate income inequality increases.

Monopoly Power in Labor and Product Markets

The role of the government is of course not limited to taxes and benefits. In this section we deal with institutions and policies in a core arena for inequality, namely the labor and product markets. In labor markets, a range of factors have combined to push labor bargaining power, and labor share, down. Growing market concentration among corporates has played an important role here, while also reducing labor shares through trends in the product markets. Both trends have probably played important roles in growing income and wealth inequalities.

Monopsony Power and Rents in the Labor Market

In the real world, labor markets have substantial frictions

In perfectly competitive labor markets, bargaining power plays no role. In the real world, however, labor markets have substantial frictions, e.g. because it is costly for workers to change jobs and employers to find workers. Changes in these frictions can substantially affect equilibrium wages and income inequality, by changing the relative bargaining power of workers and firms.

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These frictions mean firms are able to lower their wages without losing workers. This increases inequality and lowers employment

Labor market frictions mean firms are able lower their wages without losing all their workers, given labor bargaining power is weak.[64] As a result, if firms have still to pay equal wages for equal jobs, they will maximize profits by reducing wages below the 'efficient' level, driving labor share down. This is the basic theory of labor market monopsony in the labor market. The capacity of firms to do this depends on a series of labor market characteristics (Figure 82).

Figure 82. Sources of Monopsony

Employer collusion	Employer collusion, which is formally prohibited under most antitrust laws, can take the form of agreements not to engage in labor poaching (bidding workers away from competitors), or coordination on wage offers and wage raises.
Employer use of non-compete agreements	Non-compete agreements formally bind workers from working for a competitor for some time after the end of an employment relationship, and also reduce their outside options, hence their bargaining power.
"Job lock" mechanisms, in particular employer provided health insurance schemes	Employer provided health insurance schemes and other similar "job lock" mechanisms impose losses on workers upon changing employer.
Regulatory barriers	Regulation reduces workers' mobility through various types of red-tape barriers, for instance professional licensing.
Market concentration	Market concentration implies a limited number of firms and reduces the options available to workers.
Other labor market frictions	Other labor market frictions involve search costs possibly arising from limited information, application costs, and barriers to workers' mobility due to housing costs or family constraints.

Source: CEA (2016)

A number of sources of monopsony power have gained relevance in the last decade

A recent study by the Council of Economic Advisors (CEA, 2016) provides ample evidence that in the U.S., a number of sources of monopsony power have gained relevance in the last decade evidenced by:

- increasing numbers of suits against employers for entering into no-poaching agreements in violation of antitrust laws;
- increasing shares of the U.S. labor force covered by non-compete agreements (currently, 18%); rising market concentration (more on this below);
- increasing prevalence of occupational licensing requirements (from 5% of the workforce in 1950 to 25% in 2008);
- declining unions (the share of workers represented by unions is down to 12%, from about 25% in 1980);
- declining geographic mobility; and
- declining worker reallocation.

[64] Similarly, such frictions could also allow workers to push wages up when their collective bargaining power is strong/ strengthening vis-à-vis firms. The essence of labor market frictions is not to benefit firms necessarily, but rather to make relative bargaining power more relevant and determinative.

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The decline in geographic and sectoral mobility in the U.S. is of particular interest

Of particular interest is the decline in geographic and sectoral mobility. These trends are at odds with the common perception that distance is shrinking, information flows are increasing, and labor mobility is improving, thanks to advances in transport and communications. The inter-state migration rate in the United States has been on a downward trend for the past 25 years, falling from around 3% in 1990 to about 1.4% in 2010; similar patterns are also observed for the inter-county and intra-county migration rates.[65] Mobility across employers and sectors also seems to be falling. The fraction of the U.S. population experiencing an employer change went down from about 13% in 1990 to about 8.5% in 2010, with most of the decline taking place in the 2000s. Similarly, the fraction of the U.S. population experiencing a change in industry or occupation has also gone down, from almost 8% in 1990 to just above 4% in 2010.[66]

Much of the evidence points to issues with labor supply, rather than labor demand. Namely, there are few good reasons to think that such reductions in worker mobility are driven by employers working harder to keep their employees, but more likely to obstacles to workers being able to move. Hence, this reflects a reduction in worker bargaining power. This has implications for inequality beyond falling labor shares. Falling mobility also helps to explain growing rates of inter-firm inequality (Song et al., 2016) and, ineffective adjustment to globalization (see above).

Box 2: Monopsony and Gender Pay Disparities

Due to family constraints, women are often less mobile than men. This reduces their bargaining power, hence their wages. It has been estimated that at least one-third of the gender pay gap in Germany might be wage discrimination by profit-maximizing monopsonistic employers (Hirsch et al., 2010).

Hiring costs also appear to be declining, reducing the bargaining power of workers, as they become cheaper from a firm perspective to replace.

Bargaining power continues to shift away from workers and towards firms

Additionally, the weakening of the system of labor relations, and subsequent related norms, has also contributed to shift bargaining power away from workers and towards firms. Unions are at the heart of labor's power to organize and bargain, but their membership has been declining across rich countries (Figure 83 and Figure 84). There are two components of this phenomenon. One is a general trend towards less unionization; the other is a change in the sectoral composition of the economy in favor of sectors that were less unionized in the first place (e.g. services as opposed to manufacturing).[67].

[65] Molloy et al., 2014.
[66] Ibid
[67] The coverage of unions greatly differs among sectors. For example, the combined public plus education sector has coverage of more than 30% in the U.S., and something close to 50% in the U.K., while the financial sector has virtually no coverage in the U.S., and little more than 10% in the U.K. (OECD, 2016).

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Figure 83. Change in Union Density (1980-2012)

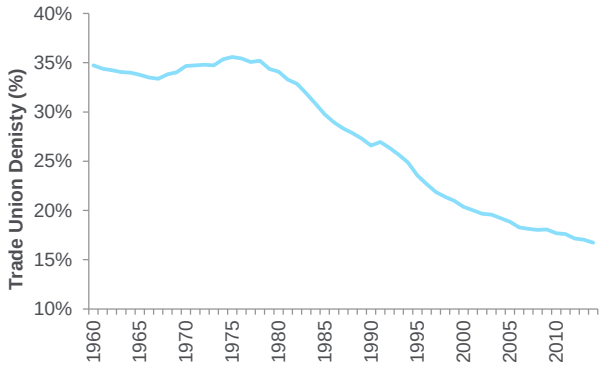
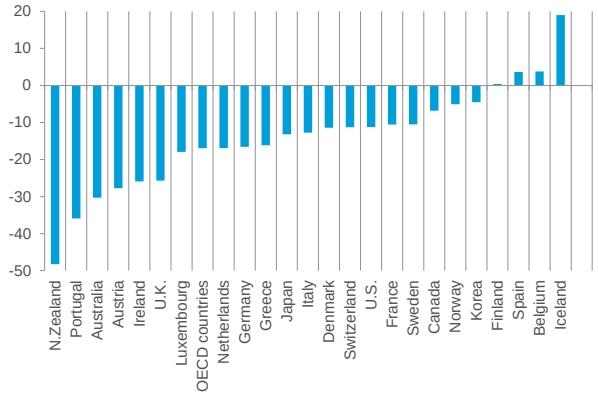


Figure 84. Union Density, OECD countries



Note: Union density denotes the percentage of wage and salary earners that are trade union members.
Source: Citi Research, OECD

Eroding unionization and worker mobility have significantly reduced labor bargaining power

When combined, eroding unionization and worker mobility have significantly reduced labor bargaining power. Complementary cross-national reductions in employment protection have also played a role. From the beginning of the 1990s, with the influential Jobs Study of the OECD (OECD, 1994), structural reforms aimed at increasing labor market flexibility became a recurrent phenomenon, especially in Europe. These have contributed, more broadly, to falling labor bargaining power by weakening the strategic protections workers previously enjoyed.

This decline in workers' bargaining power could explain most of the changes in labor income share

In principle, labor market flexibilization could reduce inequality by increasing employment opportunities, but this does not appear to have been the case.[68] Rather, this has allowed firms to put downward pressure on wages. Some, such as Kristal (2010), find that the decline in workers' bargaining power explains most of the changes in the labor income share.

Reforms aimed at increasing labor market flexibility has contributed to market risk shifting to workers, further compounding the effects of economic inequality

Additionally, the loss to workers has been in more than just wages. Reforms aimed at increasing labor market flexibility have generally contributed to what the American political scientist Jakob Hacker called "the great risk shift" (Hacker 2008), with market risks being increasingly transferred to workers. Measures such as active labor market policies and social security have been advocated in order to get the advantages of increased flexibility without the backslash of increased precariousness and insecurity,[69] following the Danish *flexicurity* model. However, the scope of such policies varies significantly across countries.

Monopoly Power and Economic 'Rents' in the Product Market

Market concentration may also have impacted income inequality

Market power, of course, also exists in product markets and may have impacted income inequality. In recent decades, market concentration at a global level has increased dramatically. Among publicly listed companies worldwide, 10% of firms capture a record 80% of all corporate profits.[70] Micro-evidence, mostly from the U.S., shows that this has been associated with a downward trend in business dynamism. For instance, the combined firm turnover rate (the sum of the entry and the exit rates) went down from around 25% in 1980 to about 17% in 2015.[71]

[68] Calderón and Chong, 2009.
[69] Berton et al., 2012.
[70] McKinsey, 2015.
[71] Gutiérrez and Philippon, 2016.

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Fewer companies are coming to dominate an increasing number of industries due to (among other things) technology, globalization, and regulation

Market concentration is not uniform across industries and countries. However, data for the United States, show a general increase in industry concentration since the late 1990s (the weighted-average share of the top four firms' revenues has risen from 26% to 32% of the total), while there here has been no increase in concentration in EU countries on average. There is huge heterogeneity between sectors within countries, with market concentration going from about zero for dentists, nail salons, and pubs in the U.S. to almost 100% for secondary market financing.[72] There are a number of forces that explain why fewer companies are coming to dominate an increasing number of industries. Three are particularly notable:

1. **Technology**, in particular the network effects of ICT;
2. **Globalization**, which allows companies to exploit economies of scale to an unprecedented level
3. The growth of **regulation**, which often benefits incumbents.

Feedback between these forces may further reinforce higher levels of concentration: larger firms may have the resources to harness the power of latest technologies. Additionally, recent technological innovations have often diffused through national economies slowly; meaning 'Frontier' firms (those positioned to adopt new innovations early) are often able to secure an intermediate monopoly on these technologies in their respective markets.[73] This further undermines competition and increases economic rents.[74]

Increased market concentration increases capacity to extract rents from clients and consumers

Increased market concentration increases corporate capacity to extract rents from clients and consumers. Large firms may also, through their lobbying and other efforts push for more liberal trade policies and weaker competition policies. Gutierrez and Philippon (2016) indeed argue that competition policies in the U.S. may have become less strict over the last two decades. There may be other, important, drivers in this too.

Profits have seen a major increase in recent decades

Global gross pre-tax corporate profits grew from 19.4% of world GDP in 1980 to 23.7% ($17.3 trillion) in 2013, while net income grew in the same period from 4.4% to 7.6% ($5.6 trillion) of global GDP (McKinsey, 2015). A recent paper from Barkai (2016) distinguishes between returns to capital and profits and finds that profits have seen a major increase in recent decades (see also Figure 88).[75] He claims that these stylized facts can be explained only by decreased competition in the product market. This might also help to explain why, in this case, labor saving technology has been associated with significant reductions in labor share- in contrast with other historical episodes.[76]

[72] The Economist, 2015.
[73] Andrews et al., 2015, OECD
[74] Economic rents are payments to factors of production in excess of what is necessary to keep them in the market (in excess of what they cost to produce). This reflects economic inefficiency in most cases.
[75] Rather than defining the capital share as the complement of the labor share (hence, including profits), Barkai estimates the capital share as the product of the required rate of return on capital and the value of the capital stock. He provides evidence that the decrease in the labor share is not accompanied by a contextual increase in the capital share, as the theories focusing on the effects of globalization and technological change would imply, and implying falling competition could be to blame.
[76] IMF, 2017.

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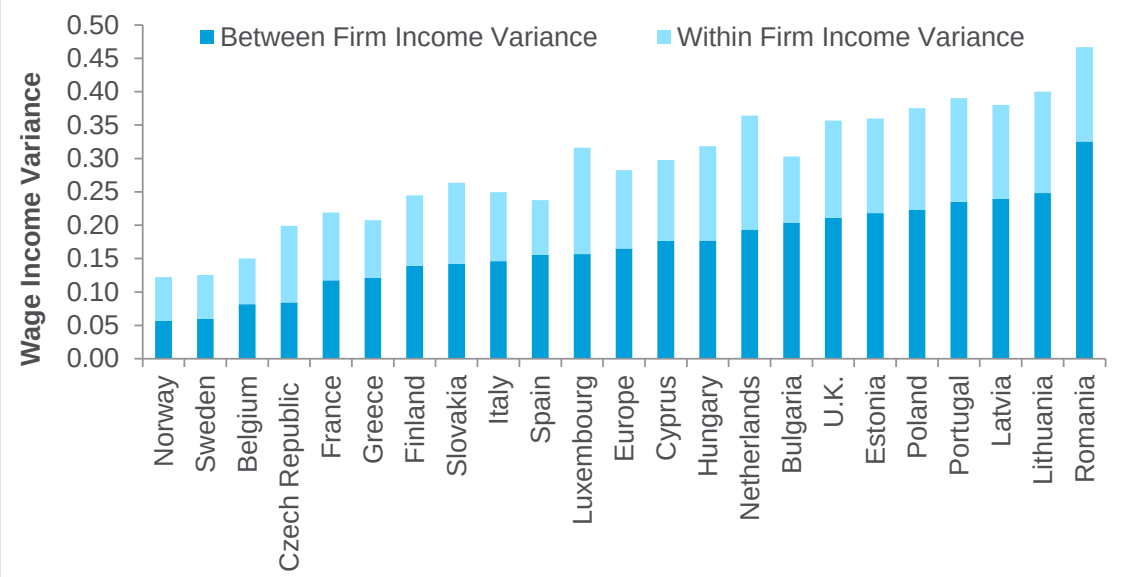
Developments in market power have probably contributed to the rise in income inequality in two ways. First, since income from profits is much more concentrated than labor income, the increase in the profit share boosts income inequality. In addition, declining competition can result in enormous heterogeneity in wages between firms in the same industry. There is evidence of massive and growing heterogeneity in productivity between firms, and some evidence of a link between this, falling product market competition, growing monopsony and growing income inequality- see box below.

Box 3: Inter-firm Inequality

Wage differentials between firms make up a large portion of aggregate inequality (Figure 85). Across 22 European countries, wage discrepancies between firms explain the majority of aggregate income dispersion (ILO, 2017).

Figure 85. Total Wage Dispersion Decomposed into Between and within Firm effects (2010)



Notes: The estimates show the decomposition of the total variance excluding the residual. Adding the "between" and "within" values for each country independently provides a rough measure of total variance.

Source: Citi Research; ILO (2017):; data extracted using extracted using http://arohatgi.info/WebPlotDigitizer/app

Income disparities between firms are increasingly important drivers of aggregate inequality. In many cases, recent changes in aggregate inequality appear to be the result of changing pay levels between firms, rather than within them. Song et al. (2015), for example, show that the vast majority of recent increases in aggregate income inequality in the U.S. have been manifest as greater income disparities between firms. In Brazil, Alvarez et al. (2016) found that pay disparities between firms account for two-thirds of all pay inequality, and have underpinned falling wage earnings inequality in the past decade (Figure 86).

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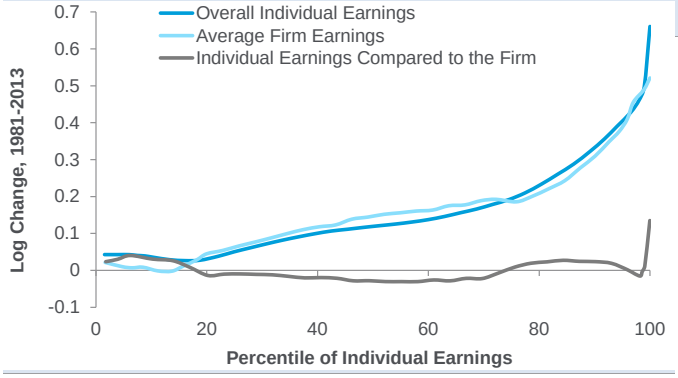
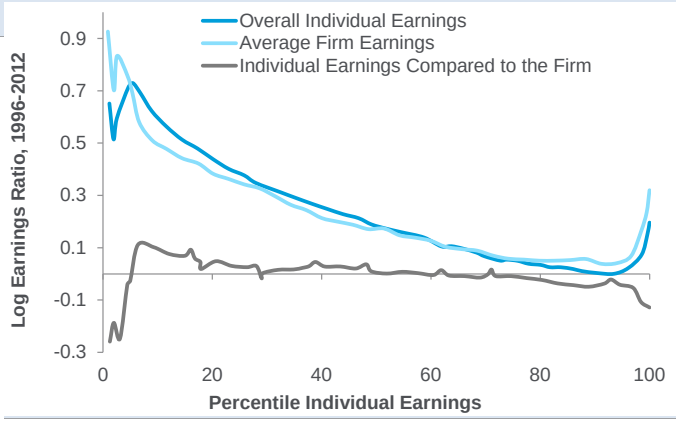
Figure 86. US Labor Earnings Growth of Individuals, Between and Within Firms(1981-2013)



Source: Song et al. (2015); data extracted using extracted using http://arohatgi.info/WebPlotDigitizer/app

Figure 87. Brazil Labor Earnings Growth of Individuals, Between and Within Firms(1996-2012)



Source: Alvarez et al. (2017); data extracted using extracted using http://arohatgi.info/WebPlotDigitizer/app

Growing income differences between firms reflect two trends. Firstly, they may reflect a 'widening firm premium.' Certain firms may be becoming more productive compared to others. They may also reflect changes in the relative composition of their respective workforces, an effect known as 'sorting' — the differences in wages primarily reflect the changing characteristics of the employees.

There is good evidence that sorting has contributed to growing income gaps between firms. In recent years especially, firms have become more operationally specific, leaning more on outsourced services and cutting non integral functions (Weil, 2014). This has resulted in greater firm skill level homogeneity in many contexts. As more skilled employees become more concentrated in certain firms, pay disparities between firms have increased.

However, these trends often work in tandem. Better firm productivity can attract better workers and vice versa. And it appears that recent changes in inter-firm inequality in some economies have been disproportionately driven by growing differences in firm productivity, independent of changes in the characteristics of different workers.

Several studies have examined these issues. For example, Song et al. (2015) and Card et al. tracks workers between employers over time, and examine how much individual wages change within firms, as employees change, as well as how much wages change for employees as they move across firms. This captures a 'worker' effect (owing to transferable characteristics of particular workers) and 'firm' effect (owing to differences in productivity of a given employee, across firms). These two studies find that (1) income differences across firms mainly reflect worker differences and (2) increases in income differences across firms are often accounted for by increasing inter-firm differences.[77]

Several other studies also indicate widening differences between firms. For instance, Furman and Orszag (2015) document that returns of the most profitable firms in the U.S. have increased much more than for other firms. The OECD (2015) also noted that productivity growth for globally leading firms has increasingly diverged from other firms, and has not slowed down over the last decade.

[77] Other studies have found similar effects including Torres et al. (2013) and Iranzo et al. (2008).

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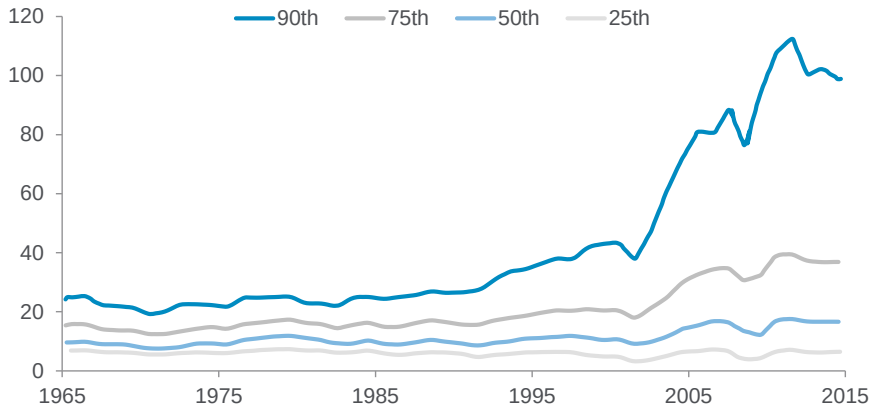
Figure 88. Return on Invested Capital Excluding Goodwill, U.S. Publically traded Nonfinancial Firms



Notes: Definition of 'return on invested capital,' and the data, from Koller et al (2015). Data is also taken from McKinsey analysis of Standard & Poor's data. Financial firms are excluded because of the practical complexities of computing returns on invested capital.

Source: Furman and Orszag (2015; data extracted using extracted using http://arohatgi.info/WebPlotDigitizer/app); Koller et al. (2015); McKinsey & Company

Corporate Governance

Top executives are seeing an increase in remuneration as well as a shift in compensation with less weight attributed to base wage and more related to share performance

The past few decades have witnessed profound changes in remuneration systems for top managers, especially in the financial sector. These changes have been more pronounced in the U.S., but are also present in a number of other developed countries. They involve (1) a general increase in the remuneration of top executives (it has risen in the U.S. from about 30 times the compensation of an average worker in 1978 to about 300 times today)[78] and (2) a compositional shift in compensation, with less weight attributed to the base wage and more relevance attached to a variable component mainly made up of short- and long-term incentive pay and stock options. In the last 10 years, long-term incentive pay accounted for more than 70% of CEO compensation in large U.S. companies.[79] This trend has had an impact on the composition of the top income share, bringing more weight to labor income as opposed to capital and business income, as discussed earlier. However, recent evidence shows that starting from around the year 2000 the growth of top incomes has also become a capital income phenomenon (Piketty et al., 2016).

This could reflect the trend towards increasing concentration of income at the top or a failure in corporate governance

The interpretation of this tidal change is still debated. Some authors (e.g., Kaplan and Rauh, 2013) believe that it is part of the more general trend towards increasing concentration of income at the very top, which they relate mainly to economic causes (technological change in particular, as discussed earlier). They provide evidence that executive compensation has also increased in private companies (and no less so than in publicly listed companies), where CEOs do not report to a potentially compliant board of directors. However, there is also some evidence that this reflects a failure of corporate governance. Focusing on 429 large-cap U.S. companies over the period 2006-2015, Marshall and Lee (2016) find that companies which paid CEOs below the median performed better than companies with higher-paid CEOs.

[78] Mishel, L. & Davis, A., June 2015.

[79] The weight of long-term incentives for CEO compensation in the U.S. is largely explained by the regulatory framework, as disclosure rules mandated by the U.S. Securities and Exchange Commission (SEC) focus on annual instead of long-term reporting (MSGI, 2016).

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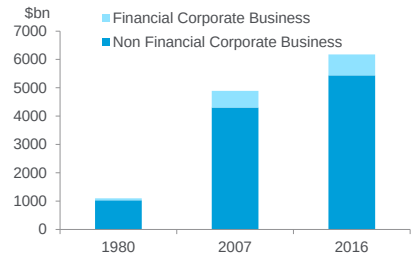
Finance and Inequality

Financial development seems to alleviate inequality, while 'financialization' (the growing dominance of finance) likely increases inequality

Finance has featured extensively in debate about rising inequalities, and not always in a positive light. Is finance good or bad for equality? The short answer is 'financial development' is good, but 'financialization' could be bad' Financial development refers to improvements in the size, efficiency, stability, and access to the financial system.

Figure 89. Total Corporate Business Wages for Financial and Non-Financial Sectors (U.S., 1980-2016)



Source: Bureau of Economic Analysis (2016), Haver Analytics

Financial development has improved since the 1980s, according to a variety of metrics, including domestic credit relative to GDP. This increased from about 90% of world GDP in 1980 to more than 170% today while the number of bank branches per adult increased by almost 40% in the last ten years according to the World Bank. Demirgüç-Kunt and Levine (2009) describe an overall positive role of finance in alleviating inequality and poverty, mostly as a result of greater financial access.[80]

Financialization, however can increase inequality. Financialization loosely refers to "the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein 2005).

A range of evidence suggests that financialization progressed significantly in recent decades. In many advanced economies the size of the financial sector as a share of GDP accelerated in the run-up to the crisis: in the ten years between 1995 and 2005 the financial sector grew by 12.1% in Germany, 9.4% in Italy, 29.3% in Japan, and 20.3% in the U.K. (OECD data). The financial sector also managed to seize a disproportionate share of all the profits: a record high of 40% in the U.S., at the onset of the crisis (it is around 30% now).

In addition, the increasing importance of the financial sector is cited as contributing to public policies that have allowed inequalities to widen, such as allowing competition policies to weaken, while paying insufficient attention to compensating the losers from globalization, deregulation and others forms of market disruption. Meanwhile, research has shown a greater focus on shareholder value may have increased the pressure for cost-cutting, including keeping wages low, while boosting profits.

Macroeconomic (and in particular Monetary) Policy and Inequality

Fiscal policy (i.e. austerity) contributed to rising inequality in a number of countries during and after the GFC

Above, we already discussed the importance of redistribution in affecting inequality and that changes in fiscal policy over time may have contributed to the rise in income and wealth inequality in recent decades. In addition, fiscal policy — notably austerity policies — contributed to rising inequality in a number of particularly hard-hit countries during and after the Great Financial Crisis. In countries, such as Greece, Ireland, Italy, Spain, or Portugal, fiscal policy sharply contracted despite rapidly rising unemployment — which in turn led to even more job losses, as aggregate demand took a major hit.

[80] The main mechanisms through which financial development affects inequality are: (1) On the extensive margin, by allowing individuals and firms previously excluded from the financial system to access it, hence expanding their economic opportunities; (2) On the intensive margin, by providing more financial services to those who have already access to the financial system, which are frequently high-income individuals and well-established firms; (3) indirectly, by influencing production and prices. While the first mechanism is inequality-reducing, the second one is inequality-enhancing, while the third is indeterminate (Demirgüç-Kunt and Levine, 2009).

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Monetary policy also had an effect on inequality, but they were often more subtle

The effects of monetary policy on inequality are more subtle. A high level of inflation may raise income inequality. This is because the relatively poorer parts of the population rely disproportionately on sources of income that are usually not fully indexed to inflation, including wages, pensions and social benefits. Similarly, the wealthy tend to own assets that are better-protected against inflation, such as stocks and real estate, while the middle class tends to have a larger share of assets in cash and bank deposits. However, inflation, and in particular, unanticipated inflation, can also lower (wealth) inequality, for instance, by redistributing wealth from (usually wealthier) savers to less well-off borrowers.

Central bank actions (i.e. extending low-interest policies) may contribute to rising inequalities

In recent years, central banks have often come under attack for contributing to rising inequalities. The main accusation is that the central banks extended low-interest policies and major financial system support have bailed out many rich investors and pushed up asset prices more broadly, while having only modest positive impact on the real economy. Central banks have routinely argued that such a view is misguided and that in the absence of their policies inequalities would have risen even more strongly, notably as unemployment — one of the individually and socially most damaging sources of inequality — would have remained high for even longer. The truth is probably somewhere in the middle.

There may also be a more subtle effect of monetary policy on inequality over recent decades, though. Following high inflation in the 1970s and 1980s, more and more central banks gradually turned towards policies that were aimed at bringing inflation down — most commonly, by adopting so-called ‘flexible inflation targeting’. Wages and wage developments were and are seen to be critical in the inflation process. The move towards inflation targeting and the focus on trying to lower inflation may therefore well have contributed to engender social norms that saw ‘wage moderation’ as critical. Even though the focus was on nominal wages, such norms may ultimately also have helped to suppress real wages as nominal wages were seen as a key driver of broader inflation.

The Interactions Between Different Drivers

Four mechanisms which can impact disposable income distribution include (1) changes in the manner in which products are produced, (2) change in market concentration an structure), (3) institutional changes around production, and (4) changes in government fiscal policies

The pathways leading to an increase or a decrease in inequality in modern market economies are complex. This explains the heterogeneity in outcomes across countries despite many countries sharing a number of common drivers of inequality. Roughly speaking, drivers of inequality impact on the disposable income distribution through at least one of the following four mechanisms — usually impacting at more than one level.[81] First, changes in the manner in which products are produced can drive changes in how productive different skills, and factors of production, are — potentially resulting in greater inequality. Second, drivers could result in changes in market concentration and structure. Third, drivers could result in broader institutional changes surrounding production that, in turn, can change the capacity of those with different skills to bargain and capture income. Fourth, changes in government fiscal policies can alter the degree to which market outcomes are subsequently re-distributed, resulting in changes in inequality.

Individual drivers can often impact on other determinants of inequality, while changes in the income distribution can also have a secondary impact on some of

[81] For example, globalization simultaneously affects how productive different production inputs may be, how firms are organized and run and how much bargaining power unions may have.

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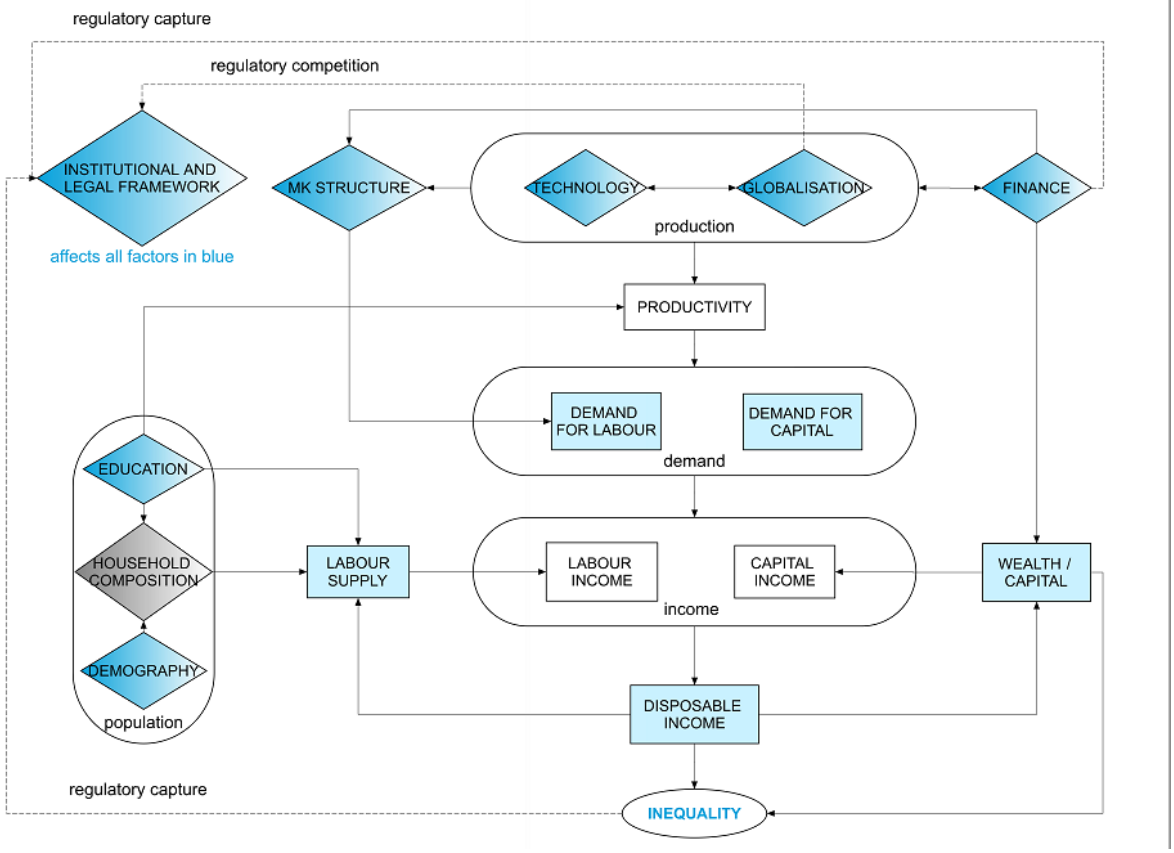
the determinants of inequality, providing either negative or positive feedbacks.[82] The interplay between these positive and negative feedbacks, as well as the strength of the causal links from drivers to outcomes, crucially depend on the broader social and political framework. Figure 90 offers a simplified schematic representation of the interconnection between determinants and outcomes.

Figure 90. The Roads to Inequality



Note: Diamond shapes = drivers; Boxes = intervening (mediating variables); Ellipses = outcomes of interest (inequality in our case; Dotted Arrows = Feedback mechanisms.
Source: Citi Research and OMS

Drivers are in principle independent variables, while outcomes are dependent variables. While more complex than similar schemes proposed elsewhere — see for instance OECD (2011) or Förster and Tóth (2015) — the representation is still stylized and incomplete as it attempts to include only the most relevant factors and important effects, leaving many feedbacks out of the picture.[83] Additionally, many of the drivers are not truly exogenous to the outcomes — with feedback mechanisms being both complex and ubiquitous. This is why quantifying the relative importance of different explanations for the increase of inequality in recent decades is so hard (and to some extent questionable).

[82] Negative feedbacks are stabilizers: more inequality implies changes in the structure of society that lead to less inequality, positive feedbacks are de-stabilizers, with more inequality prompting further increases in inequality.

[83] For instance, credit availability can influence labor supply, by allowing individuals to better smooth out consumption and income patterns over the life cycle, but the link between "finance" and "labor supply" is not present in the scheme.

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Technological change and **globalization** — "the twin forces […] that are radically reshaping the labor markets of rich and developing countries", in the words of Atkinson (2015) — are grouped together in the top oval, labeled "production." These forces mainly affect what can be produced, and how. **Finance** influences and is influenced by both: availability of credit fosters innovation and entrepreneurship, and makes it easier to operate on a global scale. At the same time, innovation in financial instruments and technological change in the financial structure (mainly thanks to ICT) improve the scope for financial intermediation.

Technological change, globalization and finance also affect **market structure**, mainly through changes in market concentration. Their effect on the **demand for capital and for different types of labor** (the factors of production portrayed in the second oval labeled "demand") is both direct and indirect. Direct, through changes in the production function and hence the productivity of each factor, and indirect through changes in market structure, involving a redistribution of market power. The second includes changes in the distribution of market power both upstream, in the factor market, and downstream, in the product market.

The third-from-top oval groups together the outcomes of economic processes: labor income and capital income. Labor income depends on productivity, and labor supply decisions. Labor supply is determined, among other things, by socio-demographic characteristics, in particular the age structure of the population (**demography**), **household composition** (characteristics of the partners, number, and age of children), and **education**. The degree of endogamy, or assortative mating, is part of the 'household composition' channel. Demography, education and household composition are grouped together in the oval on the left, labeled "population".

Market outcomes (labor and capital income) are then transformed into disposable income through the functioning of the tax and benefit system. Disposable income determines consumption and savings (hence, the accumulation of **wealth**, from which, through the intermediation of the financial system and the operation of capital taxation, capital income is derived). The distribution of disposable income and wealth then determines economic inequality.

The **institutional and legal framework** affects most of the drivers and intermediate variables (all those colored in red in the scheme). To start with, it defines the **tax and benefit system**, that affect the decisions of both firms and workers/households. Moreover, the institutional and legal system affects market structure (e.g., through the operation of antitrust laws), innovation and technological change (by defining constraints through standards, and incentives through the patent system), globalization (through tariffs and other protectionist measures), the functioning of the financial system (through regulation), the conduct of monetary policy (which affects the demand of labor and capital), demography (by means of family policies and immigration laws), and education (by mandating a minimum level of compulsory education, subsidizing supply and incentivizing demand). The institutional and legal system also affects the demand for the factors of production — labor and, indirectly, capital — through labor laws and the system of industrial relations.

At the same time, the institutional and legal system can be influenced by globalization — through the mechanism of **regulatory competition**, the threat that businesses will either move to or succumb to competition from countries with a more favorable system of incentives. Globalization can also result in an increased concentration of power in the hands of a restricted economic and financial elite (see, among others, Stiglitz, 2012), which might use it to implement regulatory changes that are even more favorable to them (**regulatory capture**).

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Does Inequality Undermine Growth, Opportunity and Democracy?

There is mounting evidence that high levels of income, wealth, and other types of inequality can have adverse effects on a range of other important outcomes such as economic growth, social mobility, social cohesion, legitimacy of democracy, political stability, and populism. These inter-connections are at the core of current concerns about inequality, and the potential channels of influence and emerging evidence about them are now considered.

Inequality May Harm Economic Growth Prospects

Traditionally, economic growth and income and wealth inequality has been thought of as a trade-off

The traditional view of the relationship between income and wealth inequality and economic growth is that of a trade-off: one can have equity at the expense of economic efficiency, or vice versa. Rarely, can one engineer greater levels of both. This view is usually based on one of three arguments.

Efficient allocation of resources may inevitably result in some inequality

First, inequality may not have major direct effects on growth, but the mechanisms and incentives required for an efficient allocation of resources may inevitably result in inequality. Attempts to lower inequality, e.g. via redistribution of income from the rich to the poor, would stunt incentives to focus effort and investment in the most productive areas and therefore depress economic growth.[84]

Inequality may act as an incentive for those lagging behind through harder work or investing in education, but evidence is mixed

Second, inequality may have a secondary, but direct, role in boosting growth by inducing more effort. This is because inequality may act as an incentive for those lagging behind individuals to expend more efforts to catch up with the better-off. This could be by working longer or harder, but potentially also by investing more into human capital and education (particularly if high inequality goes along with a high skill premium).

Incentives are clearly important and essential for the functioning of economies. Economic systems that have tended to stunt incentives for individual achievement have generally produced poor results. However, recent evidence seems to suggest a more nuanced view of the link between inequality, allocative efficiency, and incentives, is merited. Incentives can be misplaced in that they induce reckless greed and rent-seeking. That is, also incentives can, at least in some cases, be 'excessive.'

Evidence for direct incentive effects of inequality are mixed at best. On the one hand, the secular decline in aggregate annual working hours over time has appeared to slow down in recent decades, as inequalities have widened. Across countries, inequality also seems to be positively associated with average working hours (Bowles and Park, 2005). However, micro-evidence, based on experiments indicates the opposite; namely, that increases in inequality appear to lower effort, particularly when the inequality is perceived as unfair or higher inequality is associated with inequality in opportunity.[85]

Incentives themselves may have been poorly understood, greater increase in inequality does not seem to be driving more efficient allocation of effort and resources

The effect of incentives may not be as straightforward as commonly thought. For example, lower high-income tax rates do not always generate major additional incentives to produce and innovate. Positional considerations can often be central, while intrinsic rewards can be powerful too. [86]

[84] Okun, 1975.
[85] Breza, Kaur, Shamdasani, 2016; Ku and Salmon, 2016.
[86] Frank, 2011.

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It was thought inequality may help long-term economic growth driving increased aggregate savings

Third, in a savings-constrained economy, inequality may boost long-term economic growth by boosting savings, which in turn supports investment, as argued by Nicholas Kaldor in 1957. According to this view, the rich save more than the poor, in part because they can save more. A growing concentration of income in the hands of the rich would therefore, other things equal, boost aggregate saving, which in turn supports capital accumulation, and growth over medium and long term.

The savings rates of individuals increases with their income

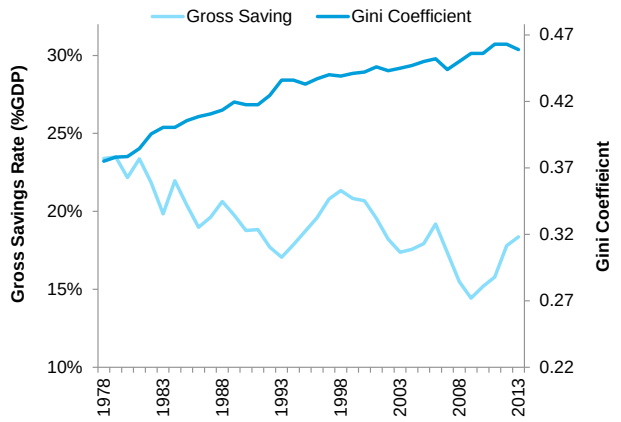
Cross-sectional evidence supports the view that the saving rate of individuals increases with their income. For example, an estimate for the U.S. finds that the bottom half of households in the income distribution have no savings at all, whereas the savings rate of the top quintile is 25%.[87] The saving rate of the top 1% is even higher (51%). Similar patterns are observed in the UK and several other advanced economies.[88]

However, there is no evidence that higher inequality *boosts* aggregate savings and investment.[89] Part of the explanation might be that higher inequality is associated with lower saving rates *at each level* of income. For example, the so-called "Veblen effect" (or more colloquially known as the "Keeping up with the Joneses" effect) states that individuals have a desire to imitate the consumption patterns of around them. This drives saving rates down as inequality increases.[90]

Growing income inequality has been associated with falling savings rates

Empirically, growing income inequality has been associated with falling savings rates in the U.S. and U.K. (Figure 91 and Figure 92). It remains an important area of debate whether this relationship is causal, and hence whether inequality has played a role, but in some cases it does seem to have been an important driver. For example, Crossley and O'Dea (2010) find that as inequality increases, savings rates fell among the bottom quintile of the income distribution in the UK, consistent with the Veblen effect (while they also increased among the top income quintile between 1975 and 2007).

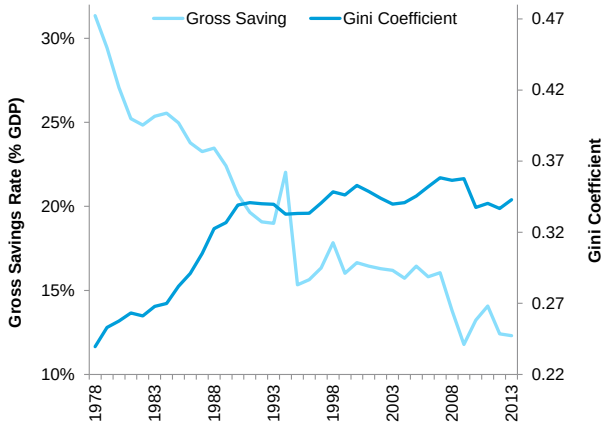
Figure 91. Gross Saving and Aggregate Inequality in the U.S. (1978-2014)



Note: U.S. Gini Coefficient relates to gross household income (post-tax and redistribution).

Source: World Bank (2016), Chartbook for Economic Inequality

Figure 92. Gross Saving and Aggregate Inequality in the U.K. (1978-2014)



Note: U.K. Gini Coefficient is for net equivalized household income (post-tax and redistribution).

Source: World Bank 2016, Chartbook for Economic Inequality

[87] Dynan, Skinner, and Zeldes, 2004.
[88] Fesseau and Mattonetti, 2013.
[89] Schmidt-Hebbel and Serven, 2000; Alvarez-Cuadrado and El-Attar, 2012; Lucchino and Morelli, 2012.
[90] Bowles and Park, 2005; Lucchino and Morelli, 2012.

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Why Inequality May Hurt Growth

Latest consensus is that inequality is a potential drag on economic growth

If there is anything close to a contemporary consensus, it is more tilted towards the new perspective of inequality as a potential drag on economic growth, as argued by Joseph Stiglitz (2012; 2015), the IMF (Ostry et al., 2014), the World Bank (Ferreira et al., 2014; Weide and Milanovic, 2014), the OECD (Cingano, 2014; OECD, 2015), and financial sector commentary (Morgan Stanley, 2015; Standard and Poor's, 2014), among others.

Why? First, there is no evidence that inequality boosts savings

There are a number of potential reasons why.

First, as noted earlier, there is no evidence that inequality boosts savings. On the contrary, private savings by households in the U.K. and U.S. fell during recent periods where inequality increased rapidly (such as the 1980s and in the lead up to the great financial crisis).

Inequality may actually have driven growing debt, especially among middle and low income people

In fact, there is evidence to suggest inequality may even encourage debt accumulation as more households try to 'keep up with the Joneses.' In this way, inequality may boost the risk and costs of financial instability.

During the 2000s, especially in the United States, sustained consumption among middle- and lower-income earners (here, defined by the lowest 90%) was funded by lack of saving and borrowing (see Figure 93). This maintained aggregate demand, but also generated growing private indebtedness. As concentrated income growth has combined with strong externalities in consumption, inequality may have driven growing debt, especially among middle and low income households. Politics may also have played a role here. As has been argued in the case of the U.S. ahead of the Great Financial Crisis (e.g., by Raghuram Rajan in his book *Fault Lines*), large income inequalities may have biased the political process in ways to allow the relatively poorer parts of the population to borrow more, i.e., increase the supply of credit.

Higher levels of debt could mean greater financial instability

Higher levels of debt both make financial crises more likely and increase the cost of financial crises, once they occur.[91] Empirically, the role of inequality on fostering indebtedness is somewhat inconclusive. For instance, a study for 14 OECD countries between 1920 and 2000 finds no association between the change in inequality and *the change i*n debt levels.[92] However, Perugini, Holsher, and Collier (2015) find that countries with higher inequality appear to have *higher levels of debt*. In some contexts, especially where credit conditions have been loose, inequality may have been associated with growing aggregate debt and financial instability.

[91] Kumhof, Rancière and Winant, 2015.
[92] Bordo and Meissner, 2012.

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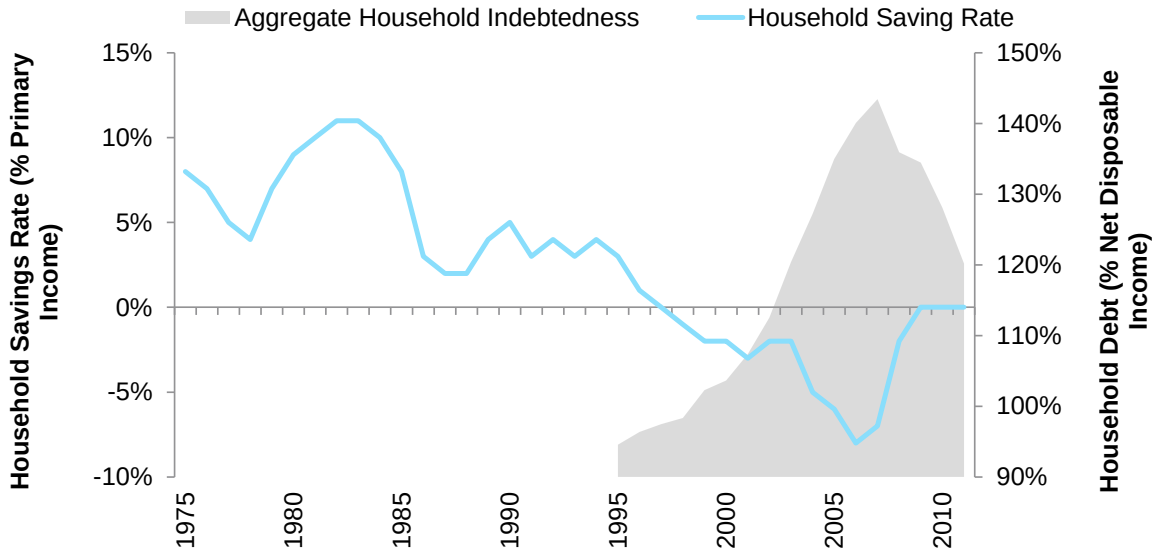
Figure 93. Savings Rate of Bottom 90% of U.S. Income Distribution



Notes: Private saving includes personal saving plus corporate retained earnings. It is net of capital transfers. Household debt is defined as all liabilities that require payment or payments of interest or principal by household to the creditor at a date or dates in the future. This indicator is measured as a percentage of net disposable income
Source: Saez and Zuccmann (2014); World Bank (2016)

Second, higher income may constrain demand as the rich tend to save more and consume less

Second, when growth is demand-constrained, inequality may lower growth as the rich tend to save more and consume less. In the U.S., one study suggests that if the bottom 99% had enjoyed the same increases in income that went to the top 1% between 1979 and 2007, aggregate consumption in the U.S. would been 5% higher.[93] There is also evidence that inequality was partly responsible for the slow recovery observed in the U.S. after the Great Recession.[94] This is particularly relevant in the context of the debate about excessively weak aggregate demand and 'Secular Stagnation'.

Third, higher inequality may reduce investment because it also affects the political process in ways that may be detrimental to investment

Third, higher inequality may reduce investment. This may be because of persistent low demand, but also because higher levels of inequality may affect the political process in ways which may be detrimental to investment (e.g. because of higher political — and therefore economic and financial — uncertainty and volatility, including the risk of expropriation and ex-post taxation). For instance, the typical narrative, taken from models of re-distribution such as Meltzer Richard (1981), is that as inequality increases, rational voters on middle and lower incomes (crucially, the median voter) demand more re-distribution.

A study by IMF researchers (Ostry, Berg, and Tsangarides, 2014) shed some light on the relationship between inequality and political re-distribution. They find that gross or market inequality (this is, inequality calculated from income before being adjusted by redistribution policies) is positively associated with redistribution levels in OECD countries, even after controlling for many other factors. In other words, there is hardly any correlation between gross and net inequality (after redistribution). The traditional argument is that this blunts economic incentives and erodes allocative efficiency (Okun, 1975).

[93] Krueger (2012), based on estimates from Dynan, Skinner, and Zeldes, 2004.
[94] Cynamon and Fazzari, 2016; Stiglitz, 2012.

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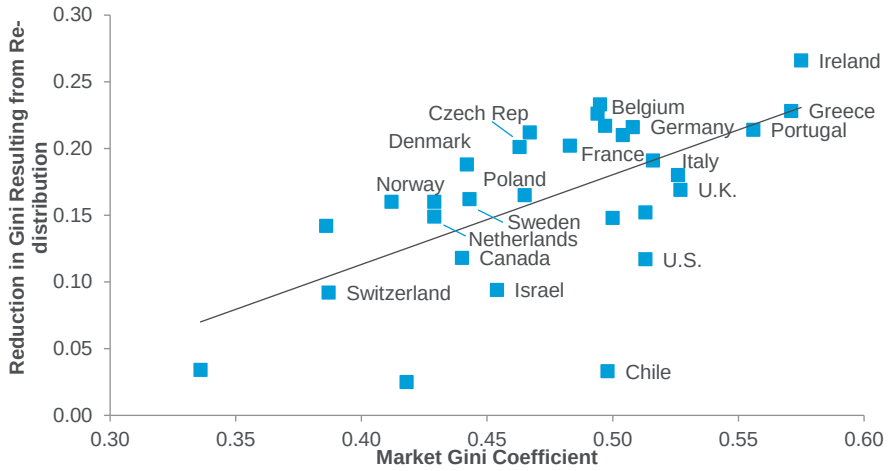
Figure 94. Gross Inequality and Re-Distribution, Selected OECD Countries



Note: Market Gini Coefficient refers to income before taxes and transfers.

Source: OECD (2016): Social Expenditure Database

Fourth, inequality may induce inefficient resource allocation and low competition

Fourth, inequality itself might induce inefficient resource allocation, including lack of equality of opportunities (meaning underinvestment in human capital), and low competition (meaning underinvestment in research & development). As discussed later, inequality enhances the political power of richer individuals, putting them closer to policy-makers and regulators. Lobbying activities and an increased 'revolving door' practices can lead to 'regulatory capture' in some industries, to the benefit of the incumbent companies, and to the detriment of competition.

There is considerable evidence showing that competition spurs innovation. The reason is simple: innovation allows firms to "escape competition".[95] For instance, between 1984 and 2004 the number of banks in the U.S. fell from around 14,000 to 7,500 approximately (increasing concentration), whereas innovation in the banking industry fell.[96] Similar conclusions arise from Correa and Ornaghi's (2014) study of a wide spread of U.S. industries, including manufacturing. In this case the authors show how, after controlling for other variables, competition spurs the number of patents arising from each industry, as well as firms' productivity. There is little equivalent research for countries other than the U.S., so it is not clear how widespread these issues apply in other advanced economies.

Last but not least, inequality and in particular perceived inequality and unfairness may affect the structure of an economy and society in ways which are harmful to growth. Such effects may range from insufficient incentives to invest in human as well as physical capital, from bolstering anti-social behavior, including corruption, criminal activity and tax evasion. Lower growth is by no means the only (and perhaps not the most significant) victim of these potential implications of inequality, but they do tend to lower growth.[97]

[95] Aghion, Harris, Howitt and Vickers, 2001.

[96] Bos, Kolari, and van Lamoen, 2013.

[97] For link between inequality, investment, and social disorder, see Gould and Hijzen, 2016.

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What does this all mean for Inequality and Growth?

More sophisticated analyses have tended to come to a similar conclusion: inequality has, on balance, been negatively associated with growth, and the size of the effect may well be economically significant.[98] For example, an OECD study focusing on 31 OECD countries between 1970 and 2010 found that a decrease in the Gini coefficient of household income by one point (e.g., from 0.35 to 0.34) is associated with an increase of the annual GDP per capita growth rate of 0.15 percentage points, all else equal. The accumulated effect of this higher growth rate over the 40-year period covered by this study would be to raise GDP per capita by 6% — equivalent to the difference between the U.K. and Belgium's GDP per capita, as of 2015.

Inequality may not only hamper the level of economic growth but also the average length of the growth spell

The view that inequality boosts economic growth (or at least, that attempts to lower inequality would harm economic growth) has been increasingly challenged, both conceptually and empirically. This may be unsurprising: while income and wealth inequality have risen sharply across most industrialized economies in recent decades, economic growth has been disappointing. Similarly, a simple look at the cross-country evidence also does not support the view that inequality boosts growth; countries that had higher levels of income inequality in 1980 have, since then grown slightly slower on average than less unequal economies. Inequality has, on balance, been negatively associated with growth

Many open questions remain about the interactions between global growth and inequality, but if there is anything close to a contemporary consensus, it is therefore more tilted towards a new perspective of inequality as a potential drag for economic growth. Interestingly, inequality may not only hamper the level of growth but also the average length of the growth spell. One study finds that an increase in Gini of household income by one point is associated with a 6% higher risk that the growth spell will end the next year.[99]

Many traditional views failed to incorporate the full social and institutional implications of inequality that can reduce economic growth

This does not mean that the traditional view of the relationship between inequality and prosperity is entirely flawed, but that it is very incomplete and therefore often misleading. Most importantly, it did not appropriately reflect the important economic consequences of the important social and institutional implications of inequality. And these adverse economic consequences are likely to be higher when inequality itself is high, i.e. the effects of inequality can be non-linear.

It is therefore perhaps unsurprising that Ostry et al (2014) find no direct effect of redistribution on the rate of growth. [100] Such policies may reduce allocative efficiency, but they also help alleviate some of the damaging social consequences that are detrimental to growth.

[98] See e.g., OECD (2015), Ostry, Berg and Tsangarides (2014), and Onaran and Obst (2016), Thewissen et al., 2015.
[99] Ostry, Berg, and Tsangarides, 2014.
[100] Ostry, Berg, and Tsangarides (2014) conclude that "*…redistribution appears generally benign in terms of its impact on growth; only in extreme cases is there some evidence that it may have direct negative effects on growth.*"

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Does (Rising) Inequality Limit Intergenerational Mobility and Opportunity?

A central concern associated with growing economic inequality is that it may drive increased social stratification and inequality of opportunity. While equality of opportunity is a good in itself, low equality of opportunity can be particularly corrosive for social cohesion. A positive feedback from rising inequality to lower mobility could contribute to a vicious cycle. Low equality of opportunity already contributes to growing economic inequality. If the latter further drives the first, there is a substantial risk that social stratification could rise much further.

Inequality can limit mobility and opportunity which could also lead to a societal misallocation of resources

Limitations on mobility and opportunity constitute a societal misallocation of resources. For instance, when inequality of opportunity is high, education is not directed towards the most talented; the most suitable are ultimately not assigned to the most appropriate jobs. If inequality is so severe, and institutions so deficient, that individuals are too constrained to invest in skills that they would otherwise rationally invest in, or are otherwise unable to pursue and maximize their own potential, we would expect lower growth, lower welfare and a less competitive economy. Additionally, greater inequality of opportunity can have important further effects. For example, it reduces effort (Ku and Salmon, 2012) and erodes social cohesion, further reducing economic productivity.

Higher inequality could also be associated with lower intergenerational mobility

There is some evidence that, cross-nationally, higher inequality is positively associated with lower intergenerational mobility. This is illustrated in what Alan Krueger, when Chairman of the U.S. Council of Economic Advisers, termed "the Great Gatsby Curve". The central measure used in economics to measure intergenerational mobility is "intergenerational earnings elasticity", which evaluates the association in percentage terms between the relative earnings or income of parents and children.[101] This is a measure of relative mobility, with a higher figure indicating lower mobility.[102] Figure 95 shows estimates of earnings mobility and income inequality (measured by the Gini coefficient) for a sample of 21 countries, brought together by Corak (2012). The Gini relates to household disposable income around 1985, while the earnings mobility measure is for children born during the first half of 1960 whose income as adults is measured in the mid to late 1990s. The simple correlation between these two variables is positive, which means that in countries with high income inequality, the intergenerational mobility is lower and the link between parental income and the kids' future income is higher.

[101] The IGE certainly captures the association between parent and children income, but it is also influenced by changes in the distribution of income, making the IGE an imperfect measurement of mobility. An alternative method to compute intergenerational mobility is the Spearman rank correlation, which does not focus on the *level* of income but on the *rank* that income represents in the distribution of income. Simply looking at summary measures may also miss important features of how mobility patterns vary across the income distribution. For example, Jäntti et al. (2006) use metrecies to look at income mobility across different subjections of the distribution- especially looking at mobility from the very lowest incomes. This is an important source of heterogeneity. For example, there is quite substantial upward mobility from the bottom earnings quintile in the Scandinavian countries, while the U.K. and, especially, the U.S. such mobility is remarkably low.

[102] Absolute mobility reflects the extent to which offspring are better-off than their parents (in terms of income, social class, etc.). Relative mobility captures how closely the position of offspring in the income or class distribution reflects the corresponding ranking of their parents, irrespective of overall displacements in the distribution. Here, we primarily focus on relative mobility.

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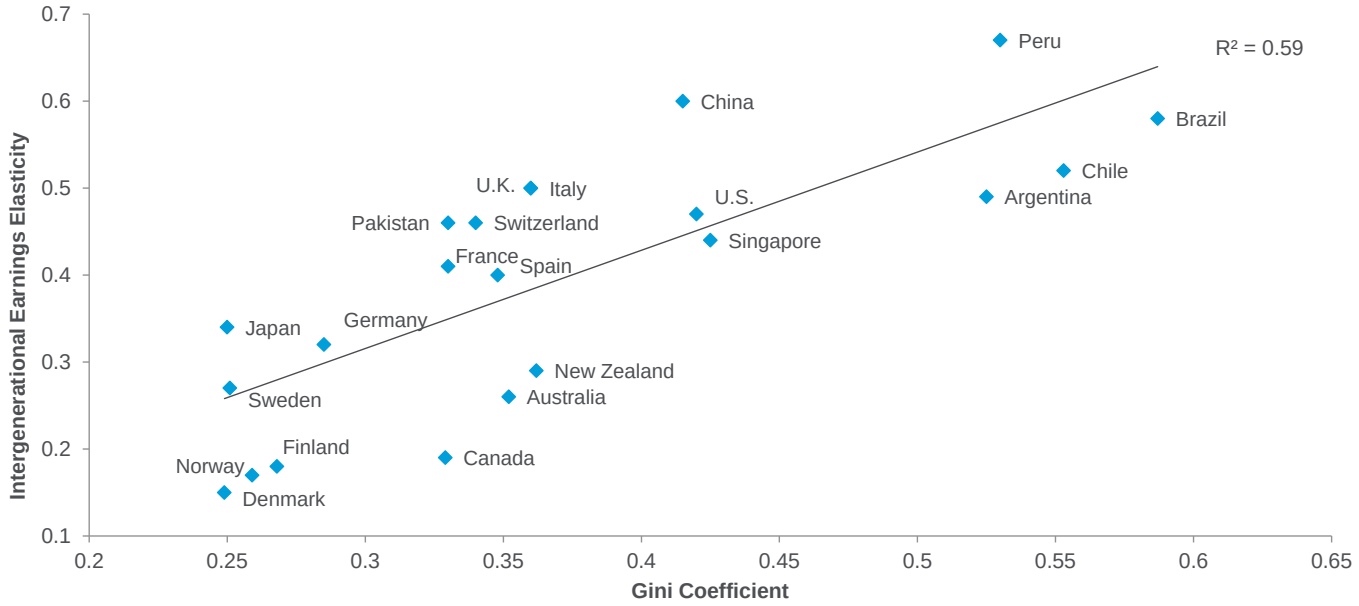
Figure 95. Income Inequality and Intergenerational Earnings Immobility



Notes: Gini is inequality in net equivalized household income (post-tax and redistribution); see Appendix for full definition. Intergenerational earnings immobility is measured by the elasticity between parental earnings and the adult earnings of their children. Corak (2012) derives this using data on a cohort of children born during the early 1960s, and measuring economic outcomes of the same individuals as adults in the 1990s.

Source: Corak (2012, 2016): Gini Coefficient Data extracted using http://arohatgi.info/WebPlotDigitizer/app/

The relationship between inequality and social mobility could be a cause and an effect, increasing the risk of destructive feedback processes

This relationship may reflect either cause or effect. On the one hand, lower social mobility may result in higher inequality as individuals cannot move into higher paying areas. Conversely, economic inequality may preclude social mobility. Both, likely, play a role; generating a risk of destructive feedback effects.

There is little clarity about which specific mechanisms might allow economic inequality to erode social mobility. A common narrative is that if the gap in economic resources between more and less-advantaged parents widens, this might enhance the ability of the former to transmit their socio-economic position to their children. However, the precise extent to which economic inequalities can be levered in this way depends on economic and social structures, the macroeconomic environment, redistributive and social policies, and indeed on how we think about and measure mobility.

There are two elements that are particularly important. The first is the degree to which growing economic inequality has driven the destruction of common 'social networks,' and increased social stratification. Key here is the degree to which people from all backgrounds commonly associate with one another, in a social or un-structured manner (e.g., as parents, not as employees/employers). The second element is the degree to which household and parental income can be used to protect and acquire access to elite social networks.

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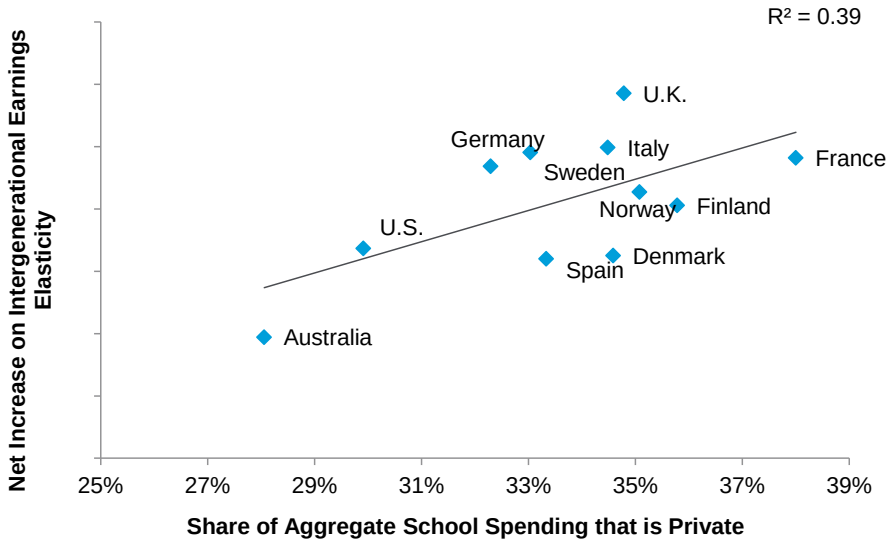
Housing, for example, is a particularly important mediator; if high income and wealth inequality is associated with high residential segregation, damage to social mobility resulting from economic inequality is likely to be compounded.[103] Housing, by virtue of the community it is based in, constitutes access into a social network. Where you live has an important effect on whom you interact with. When housing is heavily segregated by income or price, social networks become stratified by income. Low levels of residential segregation have been emphasized in a range of contexts, for example (Putnam, 2015), as a key facilitator of social mobility. Where these cross cutting social networks are destroyed, access becomes based on increasingly divergent levels of income. Where they survive, even high levels of income inequality may not have as severe an impact.

Important mediating factors such as education and housing inequality make it difficult to draw strong conclusions about economic inequality and mobility

It could be hazardous, therefore, to draw strong conclusions about the impact of economic inequality on mobility without taking these factors into account. Another, important, mediator is the nature of educational institutions. Educational inequality is a key channel linking income inequality and social mobility. If educational structures allow parental wealth and income to define educational access to a greater degree, the effects of economic inequality on social mobility are likely to be compounded.

Notably, however, the degree to which parental differences in income and wealth define differential educational access also varies significantly. There is some evidence that, for instance, countries with a high share of private education expenditure at a school level have higher intergenerational earnings elasticities, independent of the effect of household income inequality (see Figure 96 below). However, the extent of private education varies substantially.

Figure 96. Effect of Growing Private Education Spending on Equality of Opportunity



Notes: Adjustment for effect of economic inequality made through use of an OLS regression of private spending and Gini coefficient against intergenerational mobility. The impact of the Gini coefficient on intergenerational mobility (estimated using the OLS coefficient) has then been subtracted.

Source: Citi Research, Data From OECD Stat

[103] This is assuming housing is predominantly brought and sold on an open market.

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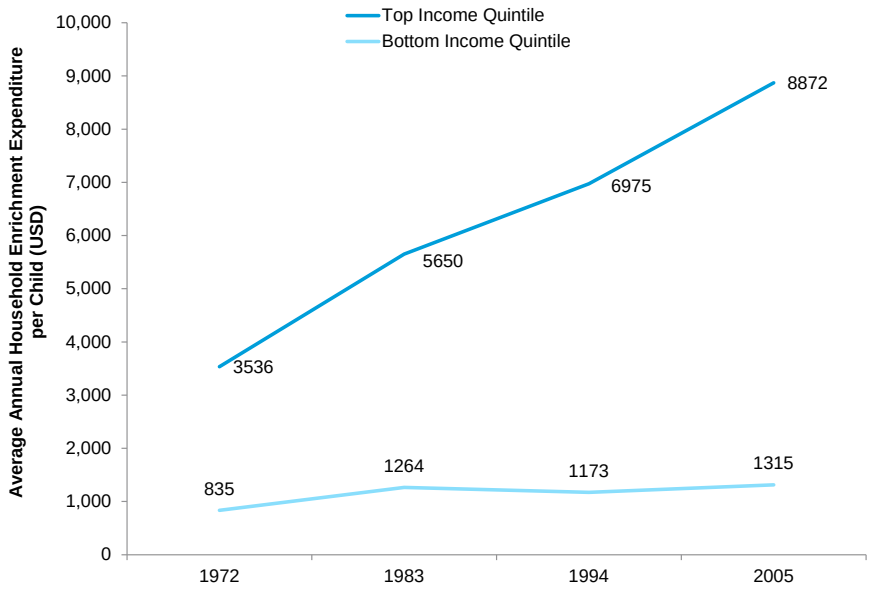
One study found that as household inequality increased, household investment on child enrichment diverged

These differences apply even where smaller household expenditures are concerned. For example, growing economic inequality has coincided with enlarged differences in human capital investment among American children. Duncan and Murnane (2011) look at so called 'enrichment expenditures'[104] on children in the United States, finding that as household inequality has increased, household expenditure on child enrichment has diverged between the richest and poorest. In other contexts, however, this gap may be alleviated by free access to afterschool clubs and so on. Policies and institutions retain an important mediating role here.

Figure 97. Average Household Enrichment Expenditure per Child by Income Quintile



Source: Duncan and Murnane (2011)

Despite these various mediating factors, a recent U.S. study controlled for a range of these variables and concluded that intergenerational mobility is still lower in areas with greater income inequality (Chetty, Hendren, Kline, Saez, 2014). A related study, also for the U.S., provides even stronger support for a causal effect. This finds, strikingly, that the gaps in *future* income between children from families towards the top versus the bottom of the income distribution is larger the greater the inequality in the area they are living (Chetty and Hendren, 2016). A range of other factors (such as high residential segregation, low quality of school and social capital), were found to mediate the effects of economic inequality on mobility. However, the impact of high income inequality remained when these were incorporated into the analysis.

Deteriorating intergenerational mobility could be affected by worsening educational access

Given this, and given income inequality increased in many advanced economies, a key issue is whether intergenerational mobility has measurably deteriorated. There are several complementary trends that suggest equality of opportunity may be worsening. Increasing relative returns to education incentivize individuals to invest in tertiary education. Recent, sustained growth in relative returns implies worsening educational access — many individuals are simply unable to gain access to these opportunities. In recent years, access issues relating to increasing upfront costs of

[104] 'Enrichment expenditures' refers to the amount of money families spend on books, computers, high-quality child care, summer camps, private schooling, and other things that promote the capabilities of their children.

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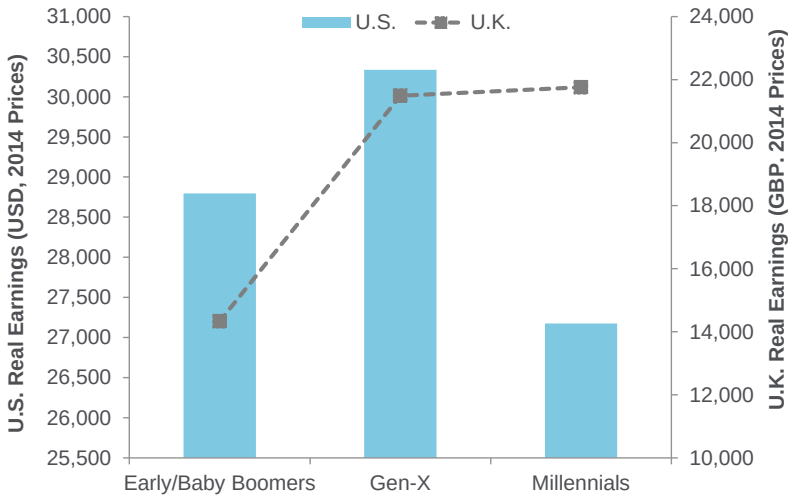
education and stagnating real wages mean household income may have become a particularly important determinant of educational access.[105]

Access to opportunities is increasingly based on means

This is crucial. Not only are growing wage premiums inefficient in aggregate (as all those who could productively study are not doing so)[106] but they increasingly reflect allocative inefficiencies as access to limited opportunities is largely not meritocratic but instead based on means. Historically, returns to college and intergenerational mobility over time in the U.S. mimic each other quite remarkably since at least the 1940s (Mazumder, 2012). Further, there is a strong correlation between existing returns to schooling and intergenerational mobility among advanced economies. This may have also played a role in reductions in absolute mobility[107] noted in recent years in both the U.S. and U.K. (See Figure 98) as the best among younger groups are increasingly unable to invest in in-demand skills.

Figure 98. Average Real Earnings at Age 27 of Respective Generations



Notes: Earnings all in 2014 prices. For the U.S., the data refer to 'early boomers' only- those born between 1940 and 1954. For the UK, the data refer to the average earnings at age 27 of all those born between 1946 and 1965.

Source: Citi Research; McKinsey (2016); US Bureau of Statistics; Corlett (2017); US Data extracted using http://arohatgi.info/WebPlotDigitizer/app/

Falling educational access may be impacting absolute income mobility

Estimates of the intergenerational earnings elasticity for the U.S. by Aaronson and Mazumder (2008) suggest that relative mobility may have been lower for adults working around 1990 than previously, when earnings inequality had risen. However, others have found that relative mobility has remained unchanged in recent decades.[108] For the U.K., trends over time in the relationship between earnings and parental income have been examined in widely-quoted studies by Blanden et al.

[105] Doyle (2016) notes that for every $1000 increase in fees, typically drives down enrollment by 3%. Notably this seems to be driven typically from individuals from poorer backgrounds. Hemel and Marcotte (2011) note, for example, that the effect of a cut in Pell Grant funding (a means tested benefit), on enrollment, was roughly twice that of aggregate fee increases. This implies poorer students are more price sensitive, in terms of enrollment, compared to their more well off counterparts.

[106] This is assuming constant costs of education over time, and that, in the first case, individuals were not investing in skills that did not have a positive economic yield.

[107] Absolute mobility measures how likely the average person is to exceed their parents' family income at the same age (Fields and Ok, 1999).

[108] Lee and Solon (2009); Chetty, Hendren, Kline, Saez, Turner (2014).

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(2001, 2004). They compared the relationship between the earnings of two cohorts of children and their family income at age 16, and found a stronger association for a cohort born in 1970 than an earlier cohort born in 1950s. Questions have been raised about the underlying data on incomes in these cohort studies, and how much weight to place on this finding has been contested.[109]

The story for other countries is also mixed. For France, Lefranc (2011) looked at men born between 1931 and 1975 and found reduced mobility for those born at the end of the 1950's and onwards. For Australia, Leigh (2007) found no significant changes in IGE for individuals born between 1911 and 1979. Same constancy in mobility is also found in Sweden (Heidrich, 2015) and Japan (Lefranc, Ojima and Yoshida, 2013), albeit for a shorter time. In both Finland (Pekkala and Lucas, 2007) and Norway (Pekkarinen, Salvanes, and Sarvimäki, 2017) intergenerational mobility improved for children born between 1930 and 1950, and it seems to have remained unchanged or for those born between 1950 and 1970 in Norway but may have worsened in Finland.

These developments do not seem particularly well-aligned with the evolution of income inequality. However the rapid increase in inequality over recent decades would not yet have worked its way through as yet to observed earnings or incomes for the next generation.

Implications of Inequality for Social Cohesion and Democracy

Rising inequality is a threat to social cohesion and the functioning of democratic institutions

High and rising inequality is increasingly seen as a threat to social cohesion and to the functioning of democratic institutions. There are two important mechanisms linking these trends. Firstly, high inequalities may directly reduce social trust, social cohesion and trust in elites and institutions. Secondly, inequality may also erode social cohesion as a result of its effects on social and political processes. Rising inequality may result in skewed political representation, which would make democracy less representative, collective decision-making less effective and erode social trust. Both trends interact and, combined, play an important role.

The level of 'trust' is positively associated with investment and economic growth

Social trust is a key form of social capital, enabling individuals to coordinate more effectively and pursue common objectives. Empirically, trust tends to be associated with lower corruption, better functioning governments, improved economic development and a more vibrant business environment. The level of 'trust'[110] in a society is positively associated with investment and economic growth, even after controlling for other factors.[111] It can also have especially important implications for trade and financial access.[112] Social trust is even associated with better health outcomes.[113]

[109] See Erikson and Goldthorpe (2007); Goldthorpe, (2012, 2015); Blanden, Gregg and Macmillan (2013).
[110] Trust usually refers to 'trust in others' (or 'generalized trust'), which is measured from the answer to the question "Would you say that most people can be trusted?" This is taken from surveys like the World Value Survey or Eurobarometer.
[111] These results have been corroborated by several other studies, using a varied selection of countries, periods, and estimation methodologies (e.g., Zak and Knack (2001); Beugelsdijk, van Schaik, (2005); Dincer, Uslaner, (2010); and Horvath, (2013).
[112] Roy, 2014.
[113] Elgar, 2010.

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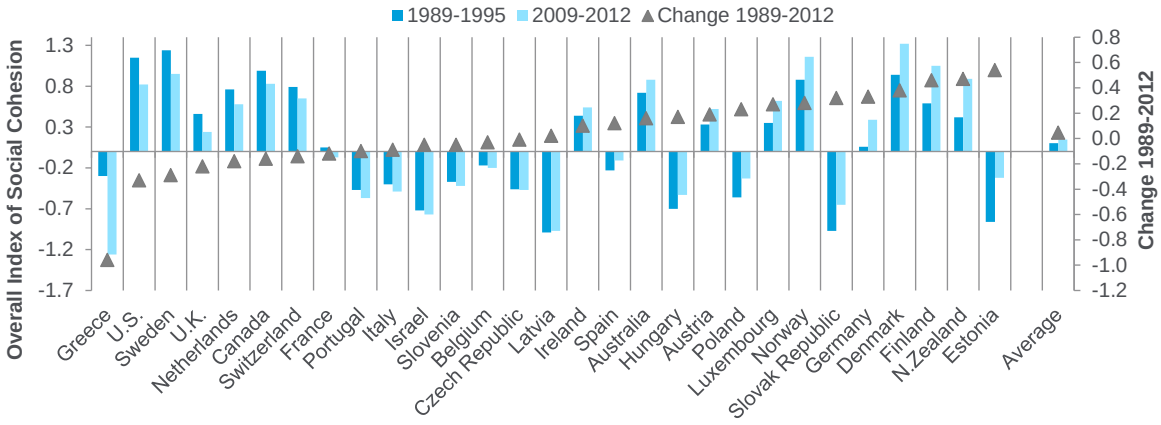
'Trust', has generally been declining in advanced economies

'Trust in others', and in national and supranational institutions, have generally been declining across the advanced economies.[114] Many countries (including the U.S. and the U.K.) have seen declines in these measures over the last 25 years, while others show improvements up to the Great Recession but subsequent decline (e.g. Belgium and Switzerland).

Figure 99. Social Cohesion Over Time, EU/OECD Countries (1989-2012)



Notes: Dragolov et al. (2016) index of social cohesion has nine main elements: social networks; trust in people; acceptance of diversity; identification; confidence in police; perception of fairness; solidarity and helpfulness; respect for social rules; civic participation. In each panel, the index is measured over four years for each country. Country sample for (simple) average includes all countries shown.

Source: Citi Research; Dragolov et. al. (2016)

There appears to be a consistent link between inequality and declining social trust

Empirically, there appears to be a consistent link between inequality and declining social trust. One study (Zak and Knack (2001), using data from 1970 to 1992 for 41 countries, shows that inequality erodes trust. These results have been confirmed by several other studies including Horvath (2013) and Dincer, Uslaner (2010); Beugelsdijk and van Schaik (2005). A negative association between inequality and trust has been found by Barone and Mocetti (2016) using data from the World Values Survey between 1981 and the mid-2000s and covering 27 advanced economies. A one percentage point increase in the Gini index for income inequality leads to a fall of two percentage points in the share of individuals who believe that 'most people can be trusted'. Another report by researchers at the IMF (Gould and Hijzen, 2016), focusing on European countries and the U.S., finds a strong effect of wage inequality on 'trust in others,' arguing that the increase in inequality between 1980 and 2000 in the U.S. accounts for 44% of the corresponding decline in trust.

Decreasing familiarity between socioeconomic categories, a feeling of unfairness and lack of trust in media can all erode social trust

The literature highlights several potential mechanisms via which inequality could directly erode social trust. First, inequality increases the socioeconomic distance between individuals, reducing the familiarity between them. Second, when greater inequality is perceived as unfair (as exemplified for example in the "we are the 99%" slogan), trust can be easily eroded. Last but not least, as recent events demonstrate, trust in media — an essential component of a functional democracy — can also be undermined. This also undermines common understanding, and subsequent capacity for effective public discourse and debate.

[114] Dragolov et al., 2016.

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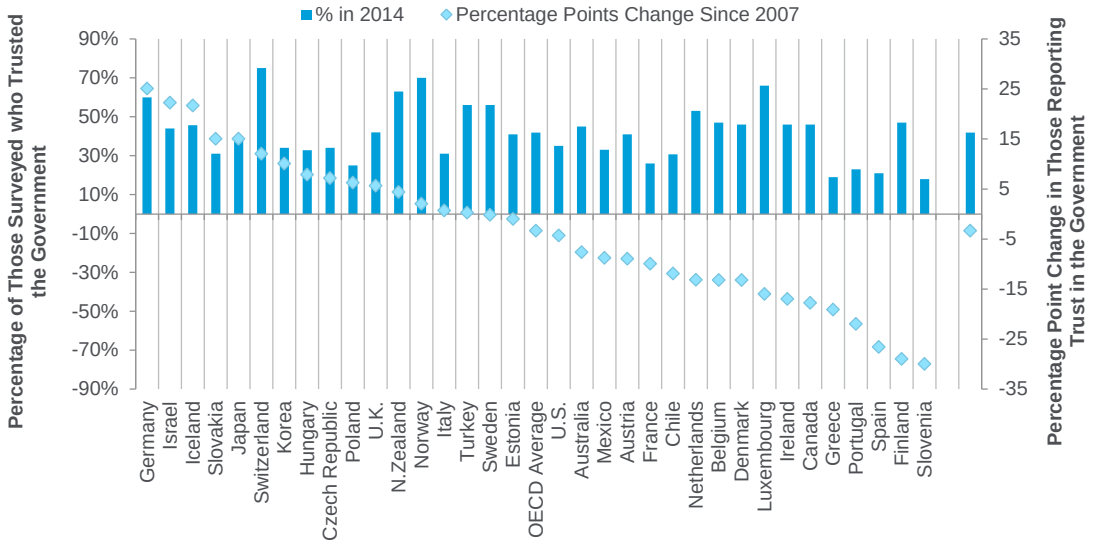
These links are particularly strong when inequality at the top is high, intergenerational mobility is low, and when inequality grows between individuals with the same educational attainment. This highlights that when greater inequality is recognized as unfair; trust can be especially easily eroded. This focuses attention not only on how much inequality has increased, but also in how it has developed.[115]

Inequality also undermines trust in governments and democratic institutions

As well as generalized trust in others, inequality also appears to undermine trust in governments and democratic institutions specifically. Such trust has been declining in many advanced economies,[116] and this has continued to fall following the crisis (see Figure 100). Many have linked this trend with growing inequality. Researchers at the IMF found that inequality was correlated with falling social trust in governments.[117] Inequality may partly explain documented increases in Euroscepticism,[118] with a widening gap in anti-EU sentiments between individuals with low and high levels of education. More fundamentally, Andersen (2012), focusing on 34 modern democracies using data from the World Value Survey, found that countries with higher income inequality had lower support for democracy across the income spectrum.

Figure 100. Confidence in National Government in 2014 and its Change Since 2007



Source: OECD (2015) Government at a Glance; World Gallup Poll

[115] Rapid increases in income for the very highest earners may have been particularly damaging here. Additionally, the importance of greater returns to capital, compared to wages, has also likely been important. Piketty (2014) argued that this resulted in 'arbitrary and unsustainable' concentrations of wealth and income. This may also have led inequality to be particularly damaging. This also highlights the importance of social mobility.

[116] Dragolov et al., 2016.

[117] Gould and Hijzen, 2016.

[118] Gould and Hijzen, 2016.

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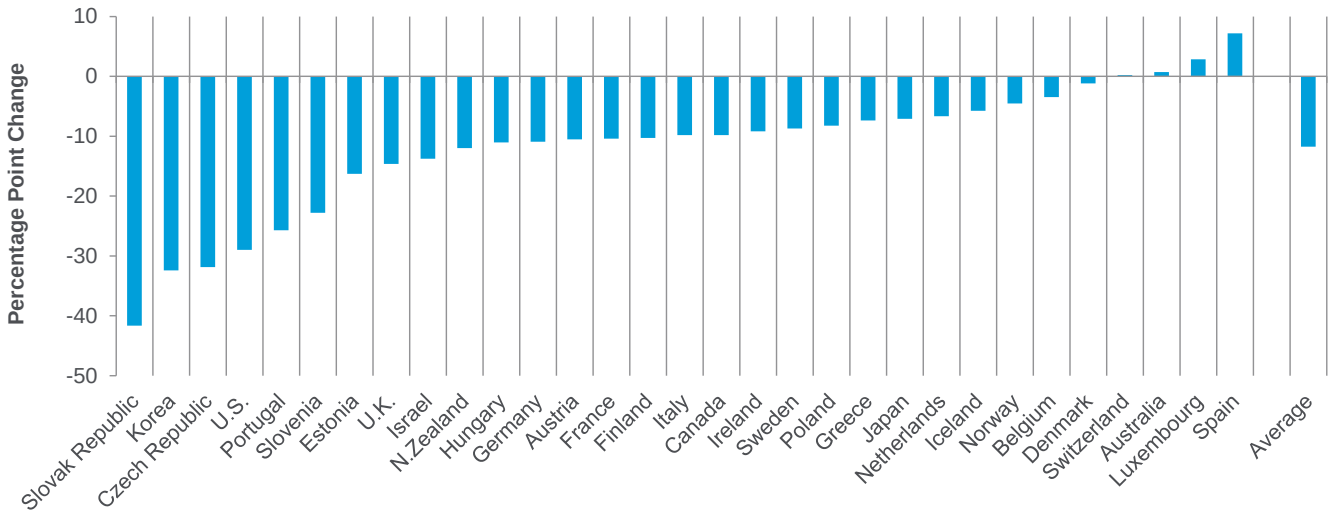
Growing inequality has driven reductions in voter turnout

Growing inequality, especially when linked with trends such as income stagnation; seems to have direct, significant, impacts on confidence and trust in government. A healthy democracy requires engaged citizens, but if trust in others and public institutions (including democracy) has been eroded, it is not surprising that political participation has also fallen. Figure 101 presents the change in voter turnout in OECD countries since 1980. Only four countries have experienced an increase in turnout, and two of these (Australia and Luxemburg) have compulsory voting.

Figure 101. Trends in Voter Turnout 1980- 2010 (Closest Election to), OECD



Note: Country sample for (simple) average includes all countries shown.
Source: Citi Research, OECD (http://dx.doi.org/10.1787/888932382121)

Falling participation has also been concentrated, in particular, among low income, less well educated, cohorts. Data presented by Jaime-Castillo (2009) shows that, in a variety of elections in the 2000s, large gaps in electoral participation exist depending on income. In the United States, for example, those in the bottom income quintile are 25% less likely to vote than those in the top income quintile (Figure 102).

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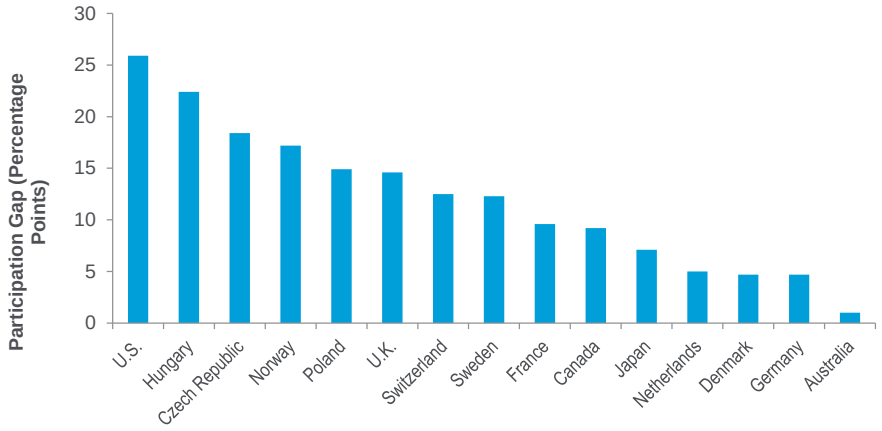
Figure 102. Gap in Electoral Participation Rates Between those in the Top Income Quintile and those in the Bottom Quintile (Early 2000s)



Notes: Reference year by Country: 2001 (Denmark, Norway, Poland); 2002 (Czech Republic, France, Germany, Hungary, Netherlands, Sweden, Switzerland); 2004 (Australia, Canada, Japan, U.S.); 2005 (U.K.)..

Source: Citi Research, Jaime-Castillo (2009)

There is considerable evidence that income inequality is directly implicated here. A study for 23 OECD countries by Castillo (2009) finds a negative effect of inequality (and particularly of inequality at the top) on electoral turnout. An analysis of the 2009 European Parliament election by Horn (2011) also finds a negative association between inequality and voter turnout. Similar evidence exists across U.S. states. Solt (2010) shows that the average predicted probability of voting in different states falls as the Gini of the state increases.

Education is also a strong predictor of turnout

Several mechanisms linking inequality and participation appear to be at play here. Declining trust is directly implicated. Additionally, Dassonneville and Hooghe (2016) show, for Germany, Norway, the Netherlands, and the U.S. (but not for Denmark or Sweden), education is becoming a stronger predictor of turnout. Civic engagement has an important role in electoral turnout. An individual is generally more likely to vote (all else being equal), if they are less socially isolated, compared to when making the decision alone.[119] Lancee and Van de Werfhorst (2012) look at rates of civic participation[120] and find European countries with higher inequality are associated with lower participation among the less well-off and higher participation among the better-off.[121] Particularly acute reductions in civic activity, and growing loneliness, among poorer people may have further depressed voter turnout here.

[119] Dragolov et al., 2016.

[120] This is defined as involvement in formal organizations like charities, political parties, professional groups, etc., and social participation as the degree of individuals' interaction with family and friends.

[121] This also has direct implications for inequality of wellbeing. Falling civic participation is often associated with growing loneliness (Rodgers, 2005). This is increasingly concentrated among lower income people (Hortulanus, 2009).[121] As loneliness is often associated with poorer health and well-being outcomes, especially among the elderly, increasing disparities in civic engagement may, therefore, be worsening ultimate social inequality (Victor and Bowling, 2012). Other trends associated with this include growth in insecure working practices and contracts. This can often make voluntary or broader community involvement more difficult (see Taylor et al. (2017)).

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Reduced voter turnout is usually concentrated among less well-off voters, leading to an erosion of political power of the less well-off

This may have important secondary effects. Reduced voter turnout has eroded the political power of less well-off people. Declining civic participation has also had a direct effect here. As inequality increasingly drives differences in electoral and civic participation, governments may respond in kind, further marginalizing less well-off voters as governments focus, to a greater and greater degree, on securing the votes of those who remain most engaged.

How political campaigns are funded has also led to a decrease in political power for the less well-off

Simultaneously, it seems other factors have increased the political leverage financial means can generate, further skewing political representation. This is related, among other things, to way political campaigns are funded. As social organizations (such as unions) have shrivelled and party membership has declined, campaigning technologies have changed concurrently such that financial capital is more central to political campaigning. The growing significance of money corroborated by studies of recent U.S. elections, Ferguson et al. (2016) show that between 1980 and 2014, money significantly affected both U.S. Senate and House election results, with the OECD also noting the close correlation between financial backing and electoral success (OECD, 2013).

Financial resources have become more determinative in electoral campaigns in recent years. Growing inequality has simultaneously meant the wealthy have more capacity to finance political campaigns

Growing inequality has also meant that the capacity of richer individuals to finance political campaigns, parties, and lobbying activities has grown relative to that of the rest of society. As money itself has become more politically determinative, a growing number of very wealthy people have come to lever significant political power. Analysis by the Sunlight Foundation shows that the proportion of contributions to political parties coming from the top 0.1% of donors in the U.S. grew from 19% in 2000 to 29% in 2014.

Cross-national evidence in patterns of (mis) representation suggest this has had material implications on the positions of politicians, compared to voters. A widely-cited study for the U.S. shows that government policies and legislative processes respond much more to the political preferences of people from more wealthy backgrounds, with the preferences of most citizens having little impact on the policies the government pursues.[122]

In some cases, it seems that political representation has become skewed towards the wealthy

Related, Barber (2016) finds Democratic senators in 2012 to be more liberal and Republican senators more conservative than most of their voters, as shown in Figure 103. In contrast, Figure 104 indicates that senators across both parties are very much aligned with their donors' ideology, despite the fact that these donors represent less than 5% of the population. Belchior (2013) also found that members of the European Parliament also appear ideologically more extreme than their voters.[123]

Given political misrepresentation can also erode social trust and political engagement; this increases the risk of destructive feedback effects.

[122] Gilens, 2012.

[123] This pattern is consistent with excessive donor influence as, given the large amounts of money and effort being expended by donors, we would expect these figures to be more ideological, and ideologically motivated, compared to voters (May, 1973).

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Figure 103. Ideological Distance Between Voters and Senators, U.S.

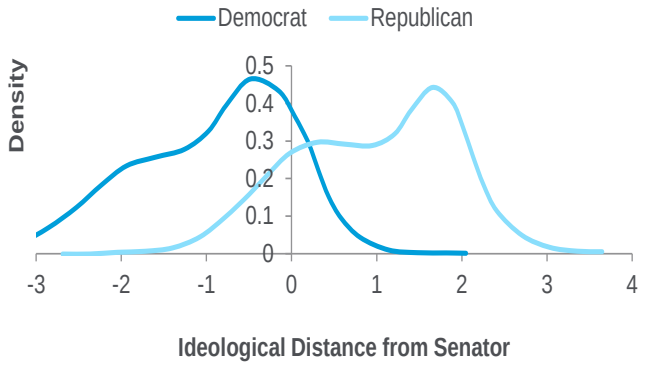
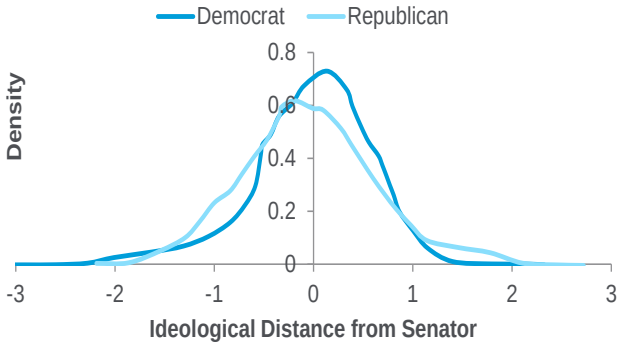


Figure 104. Ideological Distance Between Donors and Senators, U.S.



Note: Both figures show the distribution of ideological views of senators and their voters.
Source: Barber (2015); data extracted using http://arohatgi.info/WebPlotDigitizer/app/

Political Polarization and the Rise of Populism

Inequality may have an important role in the rise of populist political movements

The aforementioned problems in political representation can constitute an opportunity for those outside the political 'establishment' to bridge the gap between voters and increasingly decoupled political representatives. The rise of populist political movements can be interpreted (among other things) as such an exercise in political arbitrage. However, the growth of populist politics also appears to reflect more fundamental and widespread change. Populist ideas and sympathies[124] appear to have increased across society, independent of changes in party politics. In both cases, inequality may have had an important role. However, these links are complex and heavily mediated. More research is needed to reach concrete comparative conclusions.

Cultural backlash is one explanation for rising populism alongside growing inequality

Two broad narratives have emerged explaining growing public support for populist political movements. The first suggests that this is the result of increasing numbers in society that have reacted against 'post-material' politics.[125] These voters find themselves poorly represented by mainstream political parties, especially in cultural terms,[126] and have increasingly turned to populist groups. In Europe, Inglehart and Norris (2016) explore the determinants of the recent rise of populism using European Social Survey data for 31 countries. They find that growing support for populist parties has been predominantly driven by a "cultural backlash;" a reaction against increasingly pervasive "post-material" values and movements.

[124] Mudde categorizes political populism according to three characteristics: Anti-establishment views, authoritarianism, and nativism. Here, we adopt the same definition.
[125] This being politics that emphasizes issues such as environmentalism, liberation issues, and places a premium on self-expression (Inglehart, 1977).
[126] Goodhart, 2017.

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Increasing inequality between regions and larger social groups may have also played a role

Growing inequality, especially between regions and larger social groups, may have played a role in this trend; especially in the emergence of distinct populist political movements. Support for post-material politics has a relatively close, positive, correlation with education and aggregate income on a regional level[127] (ESS, 2016; Eeckhout et al., 2014; Glaeser and Resseger, 2010). Notably support for post-material ideas is usually concentrated in more economically significant regions. In contrast, supporters of populist politics have often been concentrated in communities and regions with less aggregate economic heft — even if voters themselves were not necessarily materially marginalized. Usually, for example, disproportionate numbers of these voters are found in rural areas. This is notable in the U.K. and U.S., but also in Italy, Austria, Lithuania, and Turkey.

Growing economic disparities alongside regional economic disparities may have played an important role in driving new political affiliations

The aforementioned problems with political representation may have played an important role in the emergence of this latter pattern and populist parties in general. In some cases, significant, and growing, material means in these areas, alongside growing regional economic disparities, resulted in cultural uniformity among the mainstream parties. This was owned by more economically significant communities that were largely supportive of post material themes and trends.

Mainstream parties have often converged on more socially and economically liberal perspectives in recent years. For example, throughout the 1990s, several European social democratic parties moved to a more liberal position. In many cases, this was motivated by a wish to make more targeted appeals to voters in more economically empowered areas, and develop new sources of party funding.[128] Such changes are observable in the UK, Germany and Denmark.[129]

These processes left a rump of marginalized supporters, usually with more traditional, unrepresented, social views. Such voters seem to have played an important role in the rise of populist parties.[130] Ford and Goodwin (2014) note that a large number of UKIP voters, for example, are ex-Labour voters in smaller cities and rural regions who stopped engaging with the party on a cultural level as the party moved to a more socially and economically liberal position. Generally, many supporters of populist parties are culturally alienated voters who, previously, did vote for mainstream parties. As mainstream parties increasingly converged on liberal points of view, this afforded populist groups space to capitalize.

[127] Education and aggregate regional income are closely related as those with higher skills typically converge on cities as a result of superior job search and matching (Eeckhout et al., 2014); (Glaeser & Resseger, 2010). Additionally, those with greater levels of education are also less likely to support populist parties (Inglehart & Norris, 2016) and are more likely to support and emphasis ‘post material’ political issues (see, for example, Taylor, 2012); Guber, 2012); World Value Survey, 2014).

[128] For example, for the U.K. Labour Party, see Dorey (1999).

[129] Such moves were also facilitated by complementary trends such as growing de-unionization. De-unionization has been a crucial driver in these processes, especially in contexts in which unions played a more combative role (such as in the Anglo-Saxon Economies). This made it easier for parties to move ideologically, but also made it more likely that voters would break alignment with these political parties as they moved. (Meret, 2011; Oesch, 2008).

[130] Ford and Goodwin (2014) note the importance of UKIP’s transition, around 2009, to focusing on building support among English, ex-Industrial communities. This strategy was first articulated by Paul Nuttall during UKIP’s 2009 European Election Campaign.

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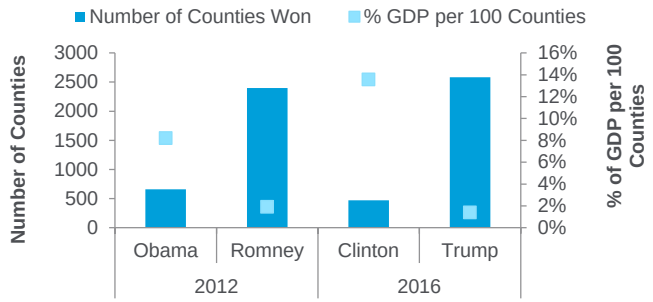
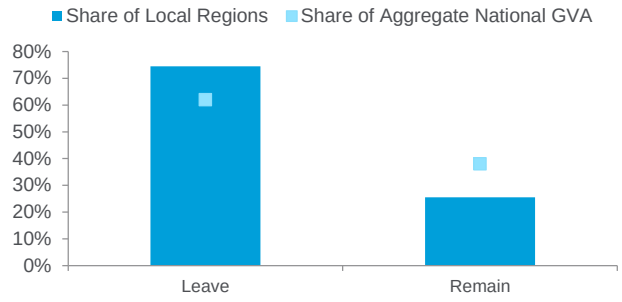
Similar trends seem to have been observed in the United States. Cultural factors seem to have been instrumental in President Trump's electoral support, especially amongst more rural communities.[131] The gap in economic productivity in regions that voted for Donald Trump and Democratic candidate Hilary Clinton is stark. In the 2016 election, as shown in Figure 105, Hillary Clinton won 472 counties and 64% of U.S. GDP, while Donald Trump won 2,584 counties, but only 36% of GDP. Similar trends are observable in results from the 2016 U.K. EU Referendum (Figure 106). This might help explain why the cultural views expressed by voters in these regions were previously not well represented by mainstream political parties.

Figure 105. Support For US Presidents, 2012 and 2016, By County and Economic Weight



Source: Citi Research. Brookings (2017)

Figure 106. Support for Leave and Remain in UK European Referendum by Local Authority and Economic Weight



Source: Citi Research, ONS; Electoral Commission

These changes are likely to vary significantly across countries. As noted earlier in the report, changes in regional economic inequality vary significantly. Additionally, representative dynamics are heavily mediated by party and electoral systems, among other things. These can play a crucial role in determining changes in mainstream party policy, as well as broader changes in the coalitions they reflect. More research is needed to determine the precise role growing regional inequality may have played in the emergence of distinct populist political movements.

Inequality may also play a role in driving social sympathy for populism…

Inequality may have also played a role in driving fundamental, social sympathy for populism, as well as changing the way in which social attitudes are reflected. This, explanation for growing political populism highlights the role of falling and stagnating incomes, falling job security, and the erosion of social security in potentially driving public sympathy for populist ideas.

Superficially, there is little supporting evidence for this

Superficially, there appears to be little supporting evidence for this. Inglehart and Norris (2016), for example, look at individual data from 31 European countries and find little evidence of a link between economic marginalization and propensity to vote for populist political causes. Dependency on social welfare benefits, for example, was associated with lower support for political populism. In fact income is often positively associated with propensity to support populist political causes and parties. According to figures by the American National Election Studies, two thirds of Trump voters were wealthier than the average American.[132]

[131] DelReal and Clement, 2017.
[132] Carnes and Lupu, 2017.

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However, more sophisticated analyses do reveal important links: For one thing, while the economically marginalized do not make up the majority of populist support, growing support among poorer people has been central to their growth. For example, the greatest 'swing' of voters from Democrat to Republican in the 2016 U.S. Presidential election was observed among low income voters.[133] Similarly, the swing of economically marginalized working-class voters to UKIP was a central component of their growth.

Inequality has likely increased support for political populism, especially when inequality has been associated with recent increases in economic insecurity

Additionally, some economic factors also seem to have played an important rose in driving populist support. Unemployment has had a positive effect;[134] self-reported financial distress also has a significant impact. Notably, changes in such economic factors, in particular, seem to have been important in the rise of populism. For example, across Europe, change in unemployment status is particularly strongly correlated with growing populist support.[135]

These effects are also much stronger when participation rates are accounted for. Economic insecurity depresses political participation. Guiso et al. (2017) adjusts for this, revealing a significant growth in sympathy for populist politics among the materially marginalized as their relative state, and aggregate inequality, worsens. In this sense, economic trends associated with inequality have driven sympathy for political populism up beyond electoral support for populist political causes.

Inequality may have also increased support for political populism across all voters by contributing to falling social trust

More generally, inequality may also have played an important indirect role by eroding social trust. As discussed in the previous section, inequality has contributed significantly to falling social trust in many of the advanced economies in recent years. Distrust, especially of government and politics, is an essential component of political populism;[136] there is good empirical evidence of a positive cross national link between social trust and political populism.[137] Low trust drives sympathy with populist ideas, while also providing a justification to break with parties many voters have supported for decades.[138]

[133] Pew Research, 2017.
[134] Guiso et al., 2017; Inglehart and Norris, 2016.
[135] Algan et al., 2017.
[136] Mudde, 2007.
[137] Inglehart and Norris, 2016.
[138] Goodwin, 2017.

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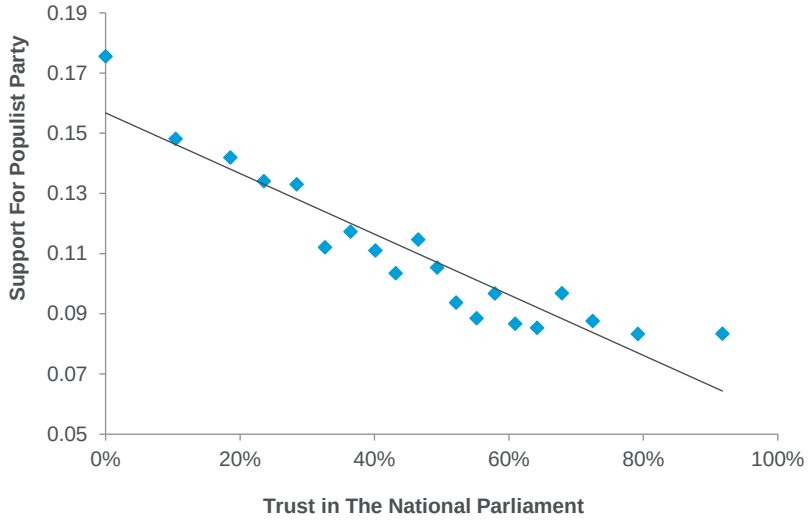
Figure 107. Trust in National Parliament and Support for Populist Parties Across Europe



Source: Dustmann et al. (2017): Data From the European Social Survey; data extracted using http://arohatgi.info/WebPlotDigitizer/app/

Inequality may have had an important, widespread, impact here. The effect of inequality on populist support, via distrust, seems to be quite extensive- roughly half the size of the direct effects.[139] Interestingly, inequality seems to drive social distrust among all people, not just the economically marginalized. Recent studies have found that individuals that are distrustful and economically insecure do not vote as consistently for populist political causes as those who are more distrustful and economically secure.[140] In this way, inequality may be driving populist sympathies across the entire income distribution.

Other drivers of growing political populism include wage stagnation and regional economic depression

However, inequality is clearly not the only driver of growing political populism. Rather, it seems that inequality and political polarization, in a direct and indirect sense, have resulted from common socio-economic trends, with outcomes also often mediated by cultural context. Directly, wage stagnation among (what are now) lower income groups has played a key role. More broadly, other drivers of inequality, such as globalization, also appear to be significant, though the main political consequences of this driver result from regional economic malaise, rather than inequality.

The link between economic stagnation and political polarization has a long history. For example, de Bromhead, Eichengreen and O'Rourke (2012) found that support for political extremism in the 1930s grew with sustained economic stagnation. Notably, they show this had a significant role in growing political extremism.

Regional economic stagnation has also been a central component of recent increases in inequality. In the United States, for example, income growth in 15 counties has driven the vast majority of the recent aggregate increase in income inequality.[141] As income elsewhere has stagnated, this has driven both aggregate inequality, and, in some cases, growing populist support.

[139] Guiso et al., 2017.
[140] Inglehart and Norris, 2016.
[141] Galbraith, 2012.

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Regional economic stagnation seems to have driven anti-globalization sentiments in many communities. A widely-cited study by Autor et al. (2016) finds that, among U.S. districts, the growth in U.S. imports from China during the period 2002-2010 is an important predictor of the extent of political polarization in that district. Trade-exposed districts initially in Republican hands become substantially more likely to elect a conservative Republican, while trade-exposed districts initially in Democratic hands become more likely to elect either a liberal Democrat or a conservative Republican.

Globalization can depress local economic conditions and drive political polarization

The key issue, raised by Autor et al, is that globalization can depress local economic conditions — driving political polarization. Regional and local economic depression is a common theme to the rise of populism. This also appears to have been an important factor in the Brexit referendum. Clarke and Whittaker (2016) focus on the geographical characteristics associated with a greater "leave" vote, and find that the local employment rate is also a key factor here. Becker et al. (2017) shows that the 'Leave vote' in the U.K. referendum was typically stronger in areas with high incidence of low pay, while low income growth, on a local level, was correlated with vote leave shares.

Research finds middle income people were most prone to political populism

Interestingly, Inglehart and Norris (2016) find that middle income people were most prone to political populism. Typically, the greatest political sensitivities were among the "petit bourgeoisie" (which includes small entrepreneurs, shopkeepers, merchants, self-employed artisans, and independent farmers). Historically, this group has often proven more prone to populist political messages in cases of economic stagnation.[142] In many cases, recent periods appear to exhibit similar dynamics.

Concentrated local stagnation therefore, has not prompted populist support among poorer people in particular, but rather seems to generate broader political anxiety and populist support in depressed communities. It seems that poor local economic performance and prospects have played an important role in populist and extreme party support. Looking at support for the National Front in France, for example, optimism for the future had a crucial effect on support, across all income groups. This highlights the role of equality in life opportunities, community empowerment and local economic growth to addressing issues with political populism.

[142] Lipset (1963); Bell (2001).

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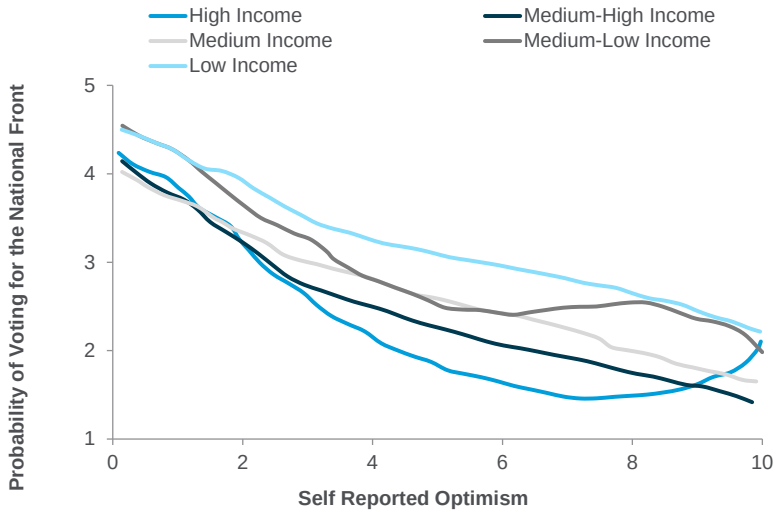
Figure 108. Optimism for the Future and Probability of Voting for the National Front in the 2016 Presidential Election



Source: Gethin and Jenmana (2017); data extracted using http://arohatgi.info/WebPlotDigitizer/app/

The fact that support for populist parties has risen in countries where inequality has been fairly stable over time (such as Austria and France) points to the complexity of the factors at work. As noted above, culturally-based support for populist political parties is significantly affected by voting systems and party structures. Similarly, the effects of regional economic malaise are also mediated by a range of factors including broader educational opportunities, political participation rates, and so on.

Crucially, cultural and economic factors seem to interact in important ways. Looking at Europe, communities and individuals that traditionally had stronger authoritarian traits, have turned to populism more rapidly, in the face of economic malaise, compared to communities elsewhere (Dustman et al. (2017)). In this sense, rather than thinking of cultural and economic factors as competing explanations for growing support of populist causes, they should be seen as complementary; both have played an essential role in the rise of populism.

Cross-nationally, there is no link between aggregate inequality and support for nationalist parties

These links, in many instances, are highly complex. As a result, cross-nationally, there is no link between aggregate inequality and recent support for nationalist parties (see Figure 109). Additionally, there are no strong links between income level and propensity to vote for populist political movements.

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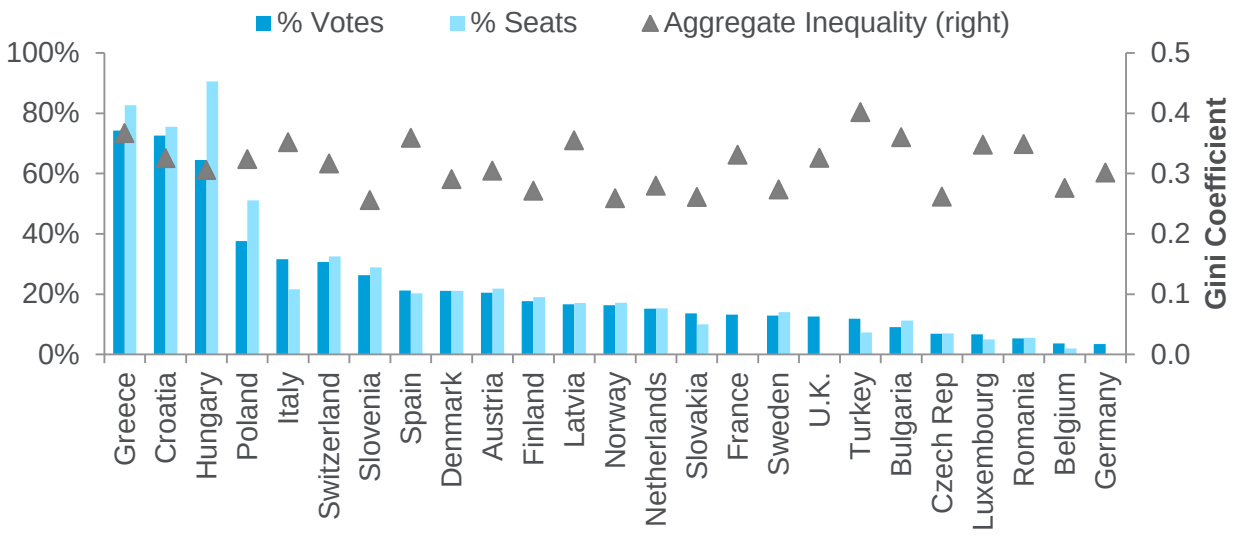
Figure 109. Support for Populist Party and Aggregate Inequality by Country



Notes: Gini coefficient reflects inequality in net, equivalized household income (post-tax and redistribution). Definition of a populist party derived using data from the Chapel Hill Expert Survey.
Source: Citi Research; Inglehart and Norris (2016); OECD (2016)

Regardless of their precise character, however, these trends are having a material impact on important areas of policy. In many cases, mainstream parties have changed their policies to accommodate more radical views.[143] The effects of this are noticeable, especially with respect to trade and globalization. Burgoon (2013) finds that inequality has fueled anti-globalization sentiments among political parties in 22 advanced economies. Inequality has also shifted the position of major parties, as reflected in their election manifestos, at the right and left of the political spectrum towards greater anti-globalization.[144]

Overall, though, more research is needed to develop a clear comparative understanding of the factors behind rising populism, and the role inequality may have played.

[143] For example, Wagner and Meyer (2017) find that all mainstream parties have accommodated right wing populist views in some way in the Netherlands, Austria, Denmark, France, Germany, U.K., and Switzerland.
[144] The strongest effect of inequality on anti-globalization alignment – at least from the manifesto perspective — is among conservative parties, and in countries where redistribution in terms of taxation and social security is low (Burgoon (2013)).

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Key Implications, Gaps, and What's Next?

A more nuanced understanding of inequality and its impact on economic growth is evolving

A key theme in this report has been the dramatic change in perspectives on the nature, implications and significance of inequality in recent years. As inequality has risen, it has become a core concern across the industrialized world, to citizens, policymakers, academics and businesses. The notion that there is a clear, unambiguous trade-off between equality and prosperity is being replaced by a much more nuanced understanding of the potential channels through which high and rising inequality can in fact undermine economic growth, social cohesion and well-being. Combined with the onset of the Great Recession — in which rising inequality may itself be implicated — the consequences not just for economic performance but for political and social sustainability are now at the top of the agenda.

Inequality doesn't show signs of being self-correcting

One critical question is what to do about high and rising inequality. The evidence we surveyed shows no signs that the trends in inequality are self-correcting. In addition, some of the underlying forces that are implicated in the rise of inequality — notably disruptive technological progress — show no sign of slowing down. Sometimes, as in the case of lowering barriers to international trade and finance, rising inequality was an unintended (though perhaps foreseeable) consequence — rising inequality was a 'bug.' On other occasions, such as deregulations in the labor market in many European countries in the 1990s, rising inequality was deemed to be a necessary evil to boost the efficiency of those labor markets and economies – it was a 'feature.'

The good news is therefore that inequality should in principle be amenable to broad-based, well-designed, and forceful intervention within and across nations. The precise nature and calibration of the optimal policy interventions will depend on the circumstances and preferences and will therefore vary across countries.

Broad-based policy responses are likely the most effective tools against inequality

But a few common elements likely apply. Just as inequality has many drivers and operates at many different levels, the required policy responses also need to be broad-based. Reinforcing redistribution and safeguarding the standard of living for the poor as well as the middle class and providing them with a tangible stake in the prospects of economies and societies is undoubtedly important, but probably only part of the answer. To be effective, such actions also have to be focused on changing the distribution of incomes from the market. Income from work is central, supporting earnings will be key but a more even distribution of capital and the income from it will also be vital.

Smart regulation of market forces will be required — smart to intervene to ensure vibrant levels of competition in the product market, preventing and breaking up monopolies where they stand in the way of innovation or prosperity, but also mitigating incentives for rent-seeking. Safeguarding access to opportunity is critical. This will likely require public investments in education, training and retraining, and measures to increase access to capital for investments, including for human capital investments.

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Knowledge Gaps

Gaps in data, especially with respect to trends in income inequality, need to be filled. This should focus attention on making existing data more comparable

This report has been based on the available evidence and research, and in concluding it is worth highlighting some key gaps in the knowledge required to frame such action. The first and most striking one is with respect to trends in income inequality themselves, and the need to bring together information from household surveys capturing inequality across the entire distribution with tax data on top incomes to produce a clear and consistent picture. Such gaps in robust evidence are even more evident in the case of wealth.

Different sources may not provide the same picture of wealth inequality levels and trends in a particular country, and differences across countries in the nature and reliability of the available data greatly complicate efforts to reliably capture cross-country variation and tease out what it suggests about the underlying causal processes. This also applies to the dynamic interactions between inequality in income and in wealth, and to the role of capital transfers from one generation to the next in wealth accumulation. This is especially important in a context of rising income inequality, but it remains poorly understood.

Distinguishing more clearly the impact of how global forces is filtered through national context, institutions, and policies is key

While a range of contributory factors to increasing inequality has been discussed in this report, a clear picture of their relative importance remains elusive, and the same is true of the various channels through which inequality feeds back to growth and prosperity. This reflects *inter alia* data constraints, the high number of potential factors and interactions, limited within-country variation, and potential reverse causation. Distinguishing more clearly how the impact of global forces is filtered through national contexts, institutions, and policies is key; in this context it is particularly important to broaden beyond the U.S. to put its distinctive evolution and setting firmly in comparative context. It is also important to tease out mechanisms through which rising inequality may be transmitted across countries, for example through capital flows, financial markets, a ‘race to the bottom’ in taxation, social provision and regulation, and via multilateral institutions.

More work is also needed to understand the nature and implications of recent trends in market power. Changing market power in both the labour and the product markets seem to have played an important role. However, recent trends in both, and the extent to which these are interconnected, remain poorly understood. The bargaining power of workers may not be independent of the degree of product market power of firms, and this may help explain namely why economic growth has not been feeding through fully to wages and percolating down to those in the middle and lower parts of the distribution.

More work is needed to look at the relationship between earnings and job dispersion as well as the effects of changes in the occupational structure

With increasing earnings dispersion playing a central role in rising inequality, more effort is required to understand the extent to which job polarisation in occupational terms is driven by supply or demand factors, especially to distinguish the impact of task-based technological change from other factors. More work is also needed to determine what precise effects changes in the occupational structure have on income inequality, and how this can vary. Changing occupational hierarchies within firms, as well as widening pay gaps between them, may also drive earnings dispersion but are also not well captured and studied comparatively.

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Relationships between inequality and inflation, monetary policy and household debt also need to be examined

Another neglected but important set of issues relates to the complex inter-relationships between inequality and inflation, monetary policy, and household debt. The potentially regressive effects of monetary policies such as quantitative easing, and the build-up of household debt in some countries as a response to increasing inequality and stagnating income and associated risks, are hotly debated. Greater understanding of these causal channels and inter-connections is urgently needed as the inflation and interest rate environment changes.

Growing insecurity and uncertainty around individual employment and earnings trajectories, together with stagnating real wages, may be an important contributor to increasing anxiety and disenchantment with conventional politics. Indicators of trends in insecurity at an aggregate level are now emerging, but developing and analysing reliable measures at the household level is key to understanding how generally insecurity is growing and how it has been impacting on behaviour and attitudes.

More attention also needs to be devoted to the role individuals, unions, and company can play in driving inclusive growth

Enhanced understanding of the drivers and consequences of inequality across this range of topics, and more broadly, is essential to inform strategic responses to address inequality and promote inclusive growth. While governments must be central in responding to rising inequality, more attention also needs to be devoted to the role that individuals, unions, and companies can play in driving inclusive growth.

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Appendix: Measuring Inequality

Inequality is a complex concept; even measuring what has been happening to income and wealth inequality, a portion of broader social inequality, is challenging. Conceptually, it can be difficult to decide what exactly to measure and include as income or wealth. Empirically, it is often hard to get a representative picture of the data; even in rich countries with their relatively well-developed data collection systems.

In assessing the robustness of key claims made about the extent and nature of recent increases in inequality, the strengths and weaknesses of the underlying data and measures must be taken into account. Here, we briefly outline the data used to measure the distribution of income and wealth.

Measures of inequality

The share (of income or wealth) going to the top 1% of the distribution has become a popular measure of inequality, in light of pronounced changes seen in those shares in recent years. However, it is also important to capture what has been happening to inequality across the entire distribution. For that purpose, summary inequality measures are employed, which measure dispersion across the entire income or wealth distribution.

The most commonly-used is the Gini coefficient, which ranges from 0 (indicating no inequality) up to 1 (indicating maximum inequality; see Box). The Gini coefficient has several important characteristics that make it particularly attractive for cross-country comparisons, including that this measure of inequality does not change depending on whether a country is rich or poor or on the size of the population.

For rich countries, Gini coefficients generally lie between 0.20-0.40, though they can range up to roughly 0.60 in some developing economies.[145] Gini coefficients also tend to change slowly: a change in the Gini coefficient of 0.05 or above in a single year is generally associated only with periods of enormous social upheaval, such as a revolution or war (Galbraith, 2012).

Alternative summary measures for inequality across the entire distribution are also employed in the research literature. We use some of these alternative measures in this report, including the mean log deviation and Theil statistics. These have the advantage that they can be decomposed into inequality between and within different subgroups. Each of these measures, however, incorporate a set of judgments about how much importance or weight to assign to for example income differences around the middle versus towards the top or bottom.

Box 4: The Gini Coefficient

The Gini coefficient is calculated using a cumulative income distribution line known as a 'Lorenz Curve.' This is plotted by ranking all households from the poorest to richest, and potting their cumulative income, or wealth, share. Each point along the curve displays the share of wealth or income accrued up until that point, i.e., to the bottom 25%, 50% and 75% of earners, for example, respectively. In the case of perfect equality, the Lorenz curve would be a straight, 45 degree line, as the bottom 50% of all earners would account for 50% of all income. In the case of perfect inequality, a single individual would account for 100% of all income. The line would then be at a 90 degree angle.

The Gini coefficient is computed as the ratio between two areas — the area between the 45 degree line and the Lorenz curve divided by the area below the 45 degree line. The greater inequality is, the greater is the area between the 45 degree line and the Lorenz curve, and therefore the greater the Gini coefficient.

[145] South Africa, for example, has a Gini Coefficient of 0.63.

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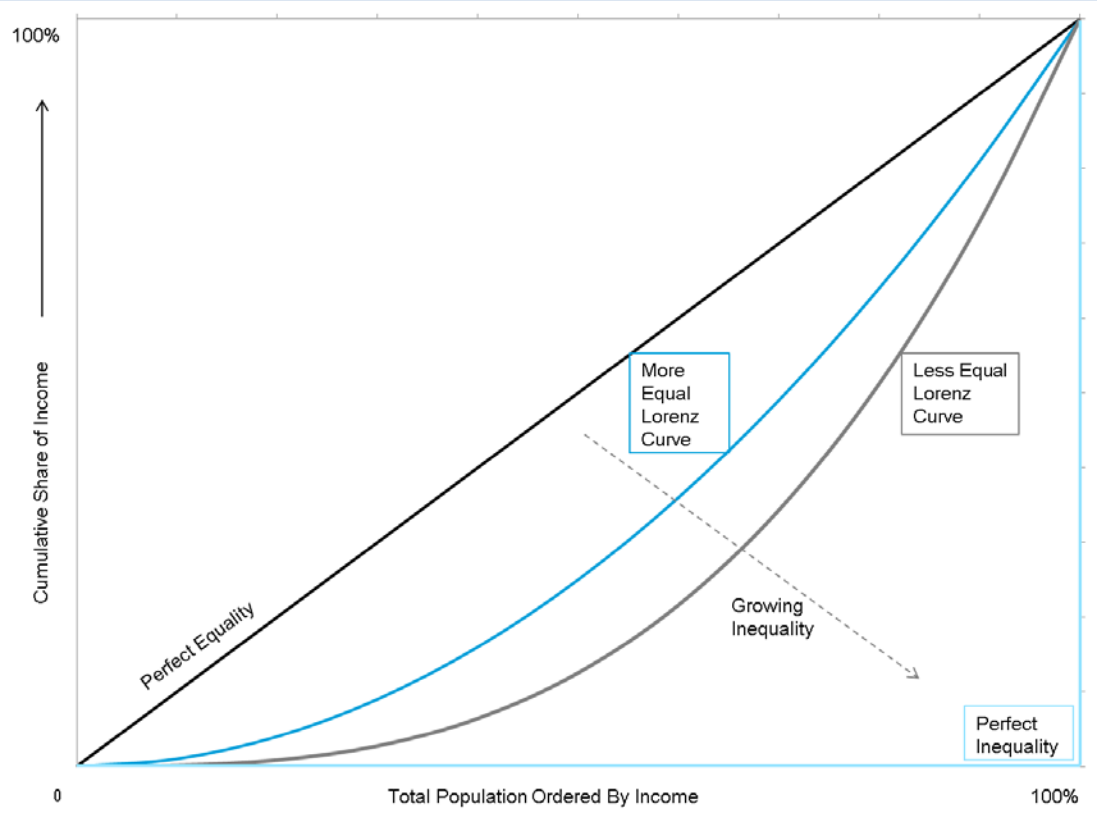
Figure 110. Calculation of the Gini Coefficient



Source: Citi Research

It is often important to look behind such summary measures of inequality to analyze developments in a particular part of the distribution, such as how the bottom has fared versus the middle versus the top. One common approach is to rank households by income, distinguish each one-tenth (decile) or one-fifth (quintile) of the distribution and derive the share in total income they receive. We also use this measure in this report, referring to 'the income share' of (for example) the top 10% of earners. As well as the shares themselves, the ratio of the share going to the top 10% or 20% to the bottom tenth/fifth are also often used to reflect how the distribution is changing over time.

Another complementary approach, having again ranked households by income, is to compare how different points in the distribution have evolved relative to the mid-point, the median (conventionally labeled P50). This is often done by looking at the income of, say, the 10th percentile (P10) compared to the median (P50/P10) and how this has evolved over time. The 25th, 75th and 90th percentiles are often used in the same way. Expressing these cut-offs as a proportion of the median then reveals whether each is moving closer to or further from the middle of the distribution. This indicates whether certain elements of the distribution are becoming more compressed, or more dispersed and unequal.

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Figure 111. Common Measures of Inequality Used in This Report

Summary Statistics	
Gini Coefficient	This is a measure of dispersion that measures the divergence between a given economy, and one of perfect equality. This is calculated by ranking all individual or household incomes, then determining their respective cumulative income/ wealth (for example, the income of the bottom 50%) (see Box 4 above).
Mean Log Deviation	This shows the percentage 'deviation' between the expected income of a randomly selected individual or household and overall mean income.
Relative Mean Deviation	This measures the percentage of aggregate income that would have to be transferred such that all incomes were equal.
Theil Index	This is an entropy measure of inequality. One of its most useful characteristics' is the capacity to disaggregate aggregate inequality into those portions resulting from inequality within and between regions.
P90/P10 Ratio	This is the ratio of the income of the 90th percentile of the income/ wealth distribution, compared to the 10th (ordered lowest earner to highest).
'Specific' Indicators(Used to Examine Specific Components of the Income Distribution)	
Top 1% Share	This is the share of total wealth/ income held by the top 1%.
P90/P50	This is the ratio of the 90th percentile of the income/wealth distribution compared to the median. This is a measure of inequality among the richer portions of society.
P50/10	This is the ratio of the median of the income/wealth distribution compared to the 10th percentile. This is a measure of inequality among the poorer portions of society.

Source: Citi Research

Capturing Income Inequality Empirically

Data on income inequality come primarily from household surveys, which seek to obtain information from a representative sample of the population. Surveys face a variety of challenges. Some of these include:

- **Inherently struggling to capture relatively small groups in the population** (such as 1% or 0.1% of all households)[146]
- **Successfully getting responses across the full distribution:** Response rates at both the top and bottom of the income distribution, in particular, tend to be low. Those at the bottom may be more transient in terms of accommodation and difficult for surveys to trace, and perhaps less likely to be in their sampling frames in the first instance. This makes them more difficult to reach in many cases. Those at the top of the income distribution can also be difficult to track down. This also means that surveys may often understate or miss changes in the share of income going to the very top, while also under-estimating the number of people on very low incomes. Combined, this can lead the degree of income inequality to be understated.
- **Obtaining full and reliable information on income from different sources, especially on capital income:** Income from certain sources – notably from capital in the form of rent, interest and dividends – is also difficult to capture, as can be seen from comparisons with other sources.[147] This is partly because those income sources are particularly heavily concentrated towards the top of the distribution, but also because respondents are less likely to provide a reliable figure than in the case of, for example, wages and salaries. Income from self-employment is also more complicated conceptually and more difficult for respondents to reliably estimate, often resulting in underreporting (Hurst and Pugsley, 2014). In some instances information from administrative sources, in particular from tax and social transfer systems can be used to supplement survey responses, but issues with representativeness and reliability remain.

[146] This is the result of sampling error.

[147] For the United States, for example, see Johnson and Moore (2008).

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In making comparisons across countries and over time, further issues arise with respect to harmonization, comparability and consistency. Statistical agencies and other data producers may not always adopt an identical approach to measuring income, and surveys will differ in their design and implementation, so that apparent differences in income inequality may, to some extent, reflect differences or changes in measurement practices. Among the developed economies, major efforts have been made to address this in recent years by statistical agencies, international organizations and academics, to promote comparability and facilitate meaningful monitoring and analysis of inequality. These include, the European Community Household Panel, the Luxembourg Income Study database, the OECD Income Distribution Database and The Inequalities' Impacts database.

Figure 112. Sources of Comparative Data on Inequality

Name	Description	Parent Body	Link
European Community Household Panel/ EU-Statistics on Income and Living Conditions (EU-SILC)	The European Community Household Panel (ECHP) is a panel survey in which a sample of households and persons has been interviewed year after year. These interviews cover a wide range of topics concerning living conditions. They include detailed income information, financial situation in a wider sense, working life, housing situation, social relations, health and biographical information of the interviewed. The total duration of the ECHP was 8 years, running from 1994 to 2001 (8 waves). As from 2003/2004, the EU-SILC survey covers most of the above-mentioned topics. Both summary inequality indicators and household micro-data are available	Eurostat with the national statistics offices of Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Sweden, and the United Kingdom.	http://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions
Luxembourg Income Study Database	The Luxembourg Income Study Database (LIS) is a harmonized income database comprised of microdata collected from about 50 economies. This data is harmonized into a comparable data set using a common set of Harmonization guidelines.	LIS: Cross-National Data Center in Luxembourg	http://www.lisdatacenter.org/our-data/lis-database/
OECD Income Distribution Database	This is the OECD's collection and compilation of detailed income and wealth inequality indicators from its member countries	Organization for Economic Co-operation and Development (OECD)	http://www.oecd.org/social/income-distribution-database.htm
Growing Inequalities' Impacts (GINI)	This is a database of income inequality indicators from 1980 to 2010 for 30 countries brought together from national sources in a collaborative research project funded by the EU's Framework Programme 7	Growing Inequalities' Impacts (GINI)	http://www.gini-research.org/articles/data_2

Source: Citi Research

These data sources cover different periods and may not always show the same picture over time for a given country; judgment is required as to the most suitable source to rely on for the purpose at hand.

The Income Measure and Unit of Analysis

Our primary interest is in the command over resources that a household's income provides, and the standard of living it allows its members to attain. As a result, we are mostly interested in 'disposable' income – that which is under the discretionary control of individuals and households. This is usually measured per household.

The standard measure of net disposable income available in surveys includes income received by individuals in the household from employment and self-employment, income from capital (in the form of rent, interest and dividends), and income from social security transfers and private transfers, from which income taxes and social security contributions are then deducted.[148]

[148] A detailed discussion of the income concept and its implementation in a survey context are in the report of the 'United Nations Economic Commission for Europe' of experts from national statistical offices and international organizations, (2011).

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$(Labour\ Income + Capital\ Income)$	$+Social\ Security\ Income$	$-Taxes\ and\ Social\ Security\ Contributions$	$= Net\ Disposable\ Income$
[Market Income[149]]	[Gross Income[150]]		

A given level of income (even net taxes and transfers) will have different implications for individual material wellbeing depending on how many people it must support, so we follow standard practice in using income adjusted to take differences in household size into account. This put household income on a common footing. Rather than simply dividing income by the number of persons in the household, this entails dividing by the number of 'equivalent adults' (see box). Each person in the household is attributed an 'equivalized' income; this assumes resources are fully shared within the household so that each member of it has the same standard of living. This may not always be the case, but a more satisfactory alternative in assessing trends over time is not available.

The majority of the data used in this report relates to this net and 'equivalized' income figure; when other measures are used, this is made clear. Usually, in this report, the use of other measures is the result of issues with data availability- including when looking at shares of aggregate income accrued by the top 1% of earners (see Box 5 below).

Box 5: Taking Household Composition into Account in Measuring Inequality

Where household income is being taken as a measure of living standards, some adjustment is necessary to take differences in household size and composition into account, since a given income will provide a higher standard of living for a person living alone than for example a couple with two children, One straightforward approach is to simply divide total household income by the number of persons in the household to get income per head. However, that will miss the fact that there will be some cost savings from living together rather than separately — the larger family still only needs one fridge or washing machine.

This is conventionally addressed by instead dividing household income by the number of 'equivalent adults,' designed to take those economies in living together, and sometimes differences in needs between adults and children, into account. The choice of which equivalence scale to use is somewhat arbitrary, although informed by studies of for example household consumption patterns. One commonly-used scale is the so-called 'modified OECD scale' which assigns a value of 1 to the first adult in the household, 0.5 to each other adult, and 0.3 to each child; a couple with two child then represents a total of 2.1 'equivalent adults'. This scale is often used in comparative research and in figures produced by, for example, the European Union. Another widely-used approach is to take the square root of household size: for the couple with two children, this will be 2. Sensitivity analyses suggest that the relative position of different household types and demographic groups – notably the position of the elderly versus children – may be significantly affected by the use of different equivalence scales, but trends over time and rankings across countries are much less affected (Burniaux et al., 1998).

Irrespective of the particular scale employed analysis of inequality generally then proceeds on the assumption that the resources coming to the household are shared so that each of its members can be taken to have the same standard of living. While this may not always be the case, and the control and distribution of resources within the household is an important topic on which there has been some research, for a comparative perspective on inequality trends one has to rely on the household as the income-sharing unit.

[149] Market income is income before any cash transfers have taken place. This, therefore, refers to the sum of employment income and capital income.

[150] Gross income is the total income a household initially receives, without any deductions. This is used in some sections of this report, such as Chapter 3 on wealth inequality. When used, this will be clearly labeled.

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Capturing Trends in Top Incomes

As noted previously, surveys often struggle to fully capture the share of income going to the top 1% of earners. This has prompted researchers to try a different approach, based on tax and national income data.[151] This approach was pioneered by Tony Atkinson and Thomas Piketty, underpinning the latter's much-commented-on book *Capital in the 21st Century*, and measures gross (pre-tax) fiscal income.

Over the last decade researchers from a range of countries have combined data on high incomes reported for tax purposes with national accounts data on total household income and data on the numbers in the population to produce estimates of the share of that total going to the top 10%, 1% and often 0.1% of the distribution. These are brought together in a public database, the World Wealth and Income Database (until recently called the World Top Income Database).[152]

These estimates are available for some OECD countries and a growing number of non-OECD countries. They are produced following a common approach, but the variation across countries (and sometimes over time) in the nature of the underlying data limit the extent to which this can be applied in a fully consistent fashion. For example, depending on how the tax system is or was framed, the income recipient unit may be the individual, nuclear family, or broader unit.

Additionally, the fact that they rely heavily on income reported for tax purposes mean that the top income share estimates might be affected by the extent and nature of tax avoidance and tax evasion. Atkinson et al. (2011) conclude that these need to be taken seriously and can quantitatively affect the conclusions drawn. Notably, legal tax-exemptions for certain forms of capital income seems to pose more serious problems for comparability than tax evasion and tax avoidance *per se*.[153] Further, the way in which total income — including for those not included in the tax statistics — is derived will depend on the detailed configuration of the national accounts an how these are treated in compiling the estimates. These are all important sources of variation.

These estimates mostly refer to the share of top gross rather than disposable income (before income tax and social insurance contributions are deducted). This is the result of variations across tax systems, especially in the way income is reported. These render the consistent calculation of net disposable income impossible. In this report, for sake of comparability, we have used 1% share of gross income only. Further, such differences also determine, for example, whether and how certain forms of capital income and capital gains are reported and thus if they can be included in the income measure (Atkinson, Piketty and Saez, 2011).

[151] This approach was originally pioneered by Simon Kuznets in the United States and combines national and average income data, derived from national accounts, with income tax data to construct estimates of top income share.

[152] These estimates have also been analyzed in a comparative framework in for example: (Atkinson and Piketty, 2007, 2010); (Atkinson, Piketty and Saez, 2011); (Alvaredo et al., 2013), as well as underpinning Piketty's Capital in the 21st. Century (2014). See http://topincomes.parisschoolofeconomics.eu.

[153] Atkinson et al. (2011) argue that the erosion of capital income from the tax base has made it much more difficult to capture all sources of capital income (often rendering this impossible). They view this as one of the main shortcomings of their data set.

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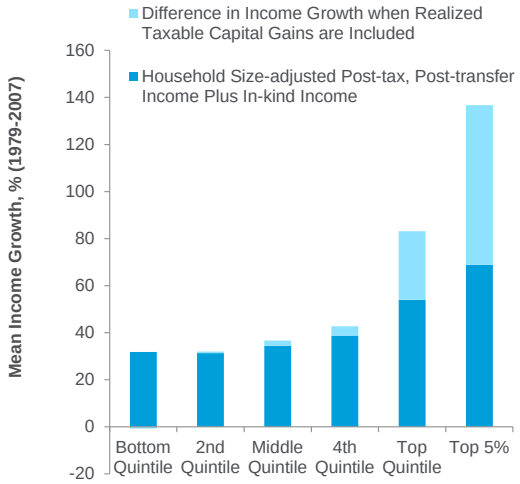
Figure 113. Mean Income Growth by Income Quintile, % (1979-2007)



Note: Calculations based on March CPS data fused with data from SOI tax returns and NBER TaxSim results.
Source: Citi Research, Armour et al. (2012)

Capital gains are particularly important towards the top of the income distribution but very difficult to trace, and are not covered by the top income share estimates available for most countries. Estimates of the distribution of realized capital gains are available for the U.S. and Sweden, where capital gains also appear to have become more important over time (see for example Armour, Burkhauser and Larrimore, 2013, and Roine and Waldenstrom, 2012).

Looking at the U.S., income growth since 1979 has been focused among the top quintile; this is highest among the top 5% of earners. However, this disparity in income growth, between the top and the rest, appears to be much greater when realized, taxable, capital gains are taken into account (Figure 113). This suggests that the income share of the top 1% may have grown more severely than much of this data would imply.

To be consistent with other countries the trends and data discussed in this report relate to income excluding such gains. These limitations must be kept in mind, but they do not undermine the capacity of these estimates to capture key trends in a new and improved way.

Income Dynamics and Income vs Consumption Inequality

A household's income can vary considerably over time, and income measured at a point in time may not fully reflect the economic resources available to it for consumption, resulting from savings or the capacity to borrow. This is one reason why it is helpful to see household incomes alongside their wealth. It also means that being able to track incomes from one year to the next, capturing resources over a longer period alongside levels of income volatility, is very important. This requires longitudinal data on the same persons at different points in time, obtained either by surveying the same individuals repeatedly, or by tracking individuals using administrative data (for example from the tax and social insurance systems). Data availability in this area has improved significantly over time, including from the longitudinal household surveys that have been run for decades in countries such as Germany, the U.K. and the U.S. However, making cross-country comparisons can still be problematic.

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These longitudinal data sets reveal that there is considerable mobility in incomes from one year to the next, and the degree of inequality tends to be reduced the longer the time-horizon over which it is measured. If mobility was much higher in countries with high levels of inequality, the gap between them and those with low inequality could narrow as the 'observation window' lengthens. However, this does not appear to be the case with any degree of consistency. For example, the study by Aaberge et al. (2002) uses longitudinal data to compare the United States with the Scandinavian countries, and shows that the ranking of countries with respect to inequality remained unchanged when the accounting period for income was extended from one to 11 years. Higher income inequality does not systematically go with greater mobility.[154] There is no basis for assuming that countries with high cross-sectional inequality will appear in a relatively better light when inequality is measured over many years.

The fact that household income fluctuates over time is clearly of major importance in itself. But it is also sometimes used to argue that consumption is a better measure of economic well-being. Studies often find that consumption inequality is lower than income inequality. For the U.S., for example, Fisher, Johnson and Smeeding (2015) find that consumption inequality is about 80 percent as large as disposable income inequality, and that the rise in consumption inequality was two-thirds that of income inequality from 1984 to 2011.

However, Attanasio, Hurst and Pistaferri (2012) found that that between 1986 and 2010 consumption inequality had increased by only slightly less than income inequality. While there is certainly much to be learned by examining income and consumption together, both conceptual and empirical considerations suggest that simply focusing on consumption is not satisfactory. Conceptually, the fact that a household facing a substantial fall in income is able to sustain its expenditure levels for a time by drawing on savings or borrowing should not mask the fact that the fall in its current flow of resources has taken place. Such instability is costly in a direct sense, and has been associated with household stress- among other things.

Additionally, from a measurement perspective, expenditure surveys systematically underestimate consumption of certain types of goods and richer households may underreport their consumption generally. Importantly, this seems to explain a large portion of the divergences between consumption and income expenditure in some cases. Aguiar and Bils (2015) for example correct U.S. household expenditure for systematic measurement error, and having done so find that consumption inequality has tracked income inequality much more closely than estimated by direct responses on expenditures.

We, therefore, prefer to use income inequality measures whenever available. We only use consumption inequality, in this report, in cases where data on the income distribution is either unavailable or likely to be uninformative – e.g., when looking at inequality at the global level.

[154] Garnero et al. (2016) focus on earnings rather than income, and apply simulation methods to short panel data to generate longer-term individual earnings and employment trajectories for 24 OECD countries.

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Capturing Global Income Inequality and Poverty

The data challenges faced in empirically capturing income inequality and poverty on a global basis are severe. Issues of cross-national comparability and differences in data quality are particularly extensive, as countries at very different levels of development, with very different data collection infrastructures, are being compared. We draw on estimates recently produced by the World Bank, based on data brought together in its PovcalNet database (http://iresearch.worldbank.org/PovcalNet/home.aspx).

These estimates differ in quality. They are largely based on data from household surveys, but for three-quarters of the countries covered the indicator of living standards at household level relates to consumption rather than income. This is regarded as more feasible and satisfactory in many developing economies as agriculture and the informal sector dominate and detailed income survey data is often unavailable. However, income is preferred as a measure of inequality among those countries for which it is available.[155]

The recent *Report of the Commission on Global Poverty* (2017) for the World Bank, led by Tony Atkinson points to the inconsistency between the concepts of income and consumption captured by surveys and national accounts statistics. It also points to missing and non-comparable household surveys, faulty population data and gaps in survey coverage. It concludes that - despite considerable recent improvements — the data and statistical foundations for measuring global poverty remain fragile.

Additionally, comparing the cost of living across countries, i.e., what a particular level of income will buy, is also key to measuring global material inequality. This is highly problematic. Market exchange rates will not accurately capture these differences so Purchasing Power Parities (PPPs) are estimated and employed instead, but the World Bank hardly exaggerates when it describes this is ‘a tricky endeavor’ (see Box 6).

Box 6: Purchasing Power Parities

Market exchange rates do not accurately capture differences in purchasing power in one country versus another and thus can bias comparisons of living standards. The purchasing power parity (PPP) exchange rate is the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each. Data on prices and expenditures within countries to gauge purchasing power parities are collected through the International Comparison Program (ICP), an independent worldwide statistical partnership hosted by the World Bank. PPP exchange rates are more stable over time than market rates, and unlike them can include non-traded goods and services, which tend to be cheaper in low-income than in high-income countries.

However, the ICP is a huge statistical undertaking and produces new price comparisons only at infrequent intervals, between which the PPP rates must be estimated, and methodological choices made can have a significant impact. The current World Bank poverty estimates make use of the most recent round of the ICP, relating to 2011 prices. Compared with the previous (2005) round, on average prices in the developing world were lower than previously found relative to those in the United States, affecting the incidence of poverty in the developing world. Vigorous debates ensued as to whether these poverty trends were driven by real changes in cost-of-living parities, or induced by differences in data collection and index-number methodologies between the two ICP exercises.

Such uncertainties, and questions about the underlying logic of this approach to uprating an international poverty threshold, led the recent *Report of the Commission on Global Poverty* (2017) to recommend that the global poverty estimates should be updated up to 2030 on the basis of changes in national Consumer Price Indices rather than revised in the light of new rounds of the ICP to that point.

[155] As noted previously, consumption often understates the degree of inequality as it often fails to capture trends at the top of the income distribution.

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Purchasing power parities are especially important when measuring global poverty in this report. There are two main categories of poverty measures: absolute and relative poverty (see Box 7).[156] We use the absolute poverty measure, when looking at global poverty, as we discuss trends in the number of people living in extreme poverty, rather than social exclusion or broader material inequality.[157] This, however, requires a 'poverty threshold' to be set; this being the monetary income below which basic human needs can no longer be met. Purchasing power parities are key in ensuring this figure reflects a consistent standard of living across jurisdictions.

Box 7: Poverty Measures

Absolute poverty is defined as a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It is measured by examining the income level necessary to meet such basic needs. Those with incomes below this line are deemed to have to be in a state of poverty. How best to set this threshold is also much debated. The World Bank places most emphasis on an international poverty line based on national thresholds in a selection of the poorest countries, which was $1.25 per day in 2005 purchasing power terms and is now $1.90/day after the 2011 PPP revisions (see box above). The Report of the Commission on Global Poverty has recommended that the World Bank complement this poverty measure with other approaches, including incorporating basic needs, subjective and non-monetary poverty indicators. For our purposes, however, it serves to convey the dramatic extent of recent changes in extreme poverty across the developing world.

Relative poverty defines poverty in relation to the economic status of other members of the society: people are poor if they fall below prevailing standards of living in a given societal context. This is usually (and imperfectly)[158] measured by looking at the number of full time employed people living off incomes less than, say, 60% of a given country's median income.

As a result of these issues, the available global estimates of income inequality and poverty at the global level must be treated with even more caution than inequality measures for the industrialized world. This is despite the real progress that has been made in recent years in broadening the coverage and improving the quality of the underlying data. This must be borne in mind when reading the parts of the report dealing with global inequality and poverty.

Measuring Wealth

Whereas income refers to a flow of resources over a stated period – for example a week, a month or a year — wealth refers to a stock of assets at a point in time. In trying to capture individual and household wealth empirically, the most common concept employed is current net worth. This is also employed in this report and is comprised of:

- The current value of non-financial assets such as the household's main residence, other property, self-employment businesses and durables
- The value of household financial assets such as bank deposits, bonds and shares
- Net household liabilities such as home mortgages and other loans

[156] Relative poverty measures in richer countries often look for example at the number of people living on incomes less than 60% of the median income in the country in question.
[157] In other areas of the report, such as in discussions on economic security, relative poverty measures are discussed.
[158] See Nolan, B. & Whelan, C. (2011).

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The availability and comparability of data on wealth inequality has been improving in recent years (see Box 8). Household surveys are a primary source of estimates of the distribution of wealth, though they face even greater measurement challenges than in the case of income, with issues of sampling and non-sampling error compounded by the nature of wealth's distribution.

Wealth is more concentrated than income, as we have seen. Sampling from such a highly skewed distribution further increases the likelihood that inequality will be underestimated and much of total wealth missed, as the top of the distribution cannot be properly captured. This can be partially addressed by over-sampling the upper tail if a satisfactory sampling frame is available, but this is not always the case.

Under-reporting and non-response may be particularly high for the wealthy, but they also arise for other households' too. Survey respondents' assessments of current market values may not be well-informed. The valuation of assets can raise complex conceptual and practical issues, prompting error. This is especially likely in those areas where a broader market is not readily observable or where assets themselves are more complex. This means data for financial assets and unincorporated businesses tend to be more problematic than for house values, for example.

There may also be differences in the design and implementation of wealth surveys that further affect the comparability between such estimates across countries.

Box 8: Sources of Comparative Data on Wealth Inequality

The Household Finance and Consumption Surveys (HFCS) organized under the aegis of the ECB, collecting household-level data on households' finances and consumption in Eurozone countries (https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_hfcn.en.html);

The micro-data from national wealth surveys brought together in the Luxembourg Wealth Study database (http://www.lisdatacenter.org/our-data/lws-database/);

The wealth inequality indicators in the OECD's Wealth Distribution Database (https://stats.oecd.org/Index.aspx?DataSetCode=WEALTH);

The wealth inequality series in the World Wealth and Income Database (http://www.parisschoolofeconomics.eu/en/research/data-production-and-diffusion/the-world-wealth-income-database/).

The annual Global Wealth Report from Credit Suisse, which presents estimates of wealth levels and distribution by country, region and globally based on data from national aggregates by asset type, household surveys and Forbes Rich Lists.

Alternative sources of data are also employed to produce estimates of wealth inequality. Wealth or estate tax data is often used, as are applying what are termed 'capitalization methods' to the flows of capital income reported in tax data (or surveys). The feasibility of using tax data depends of course on the way wealth or transfers of wealth between persons are taxed in the country in question, and this varies greatly across countries and, often, over time. However, as in the case of income, such sources may allow trends in the distribution of wealth to be estimated over a much longer period than wealth surveys. For certain countries such estimates are very informative (as brought out in for example Alvaredo et al. (2017) for the U.K., Piketty (2015), for France and Saez et al. (2016) for the U.S.).

For a comparative picture of wealth inequality across countries, surveys remain the main data source despite their limitations in capturing top wealth holders and certain forms of wealth. Having micro-data on both income and wealth together at a household level also allows the relationships between them to be explored,

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including the extent to which specific types of wealth are concentrated among high-income households in comparison to the income distribution.

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Figure 114. Summary of Main Measures and Data Sources in this Report

Data Source	Countries and Time Periods Covered	Income Measures	Income Inequality Measures Reported	Methodology and Issues
Eurostat- EU-Statistics on Income and Living Conditions(Link)	Earliest data goes back to 1995 for some countries. Most recent data is 2016.Data is typically annually reported. Data covers the EU-28 set of countries, as well as several additional states.	Net-equivalized disposable income.	Gini Coefficient. Mean and Median income data. Share of income by income decile, and quintile. Relative Poverty is also reported.	Data based primarily from income surveys, more specifically the EU-SILC monitoring instrument, and previously the European Community Household Panel Survey.
Luxembourg Income Study database (Link)	Earliest waves from 1971-75, the latest are from 2016. Data is typically reported every 3-5 years. Most OECD countries are covered in some form.	Net-equivalized disposable income.	Gini Coefficient of net, disposable, equivalized household income. Mean and Median income data. Share of income by decile, and quintile.	Data based primarily from income surveys. Micro-data is available.
OECD Income Distribution Database (Link)	Data ranges back to the mid-1970s for some economies, mostly the data begins around 1985-7. Data covers OECD economies, as well as several partner economies.	Net-equivalized disposable income. Decile ratios of wage income can also be found elsewhere from the OECD.(Link)	Large number of inequality indicators are reported, including: Gini, Palma ratio, income ratios and relative poverty rates.	Data based primarily from income surveys.
The Growing Inequalities' Impacts (GINI) collaborative research project funded by the EU's Framework Program (Link)	Data is collated from a range of national and comparative sources, and generally goes back to around 1980.	Net-equivalized disposable income.	Gini coefficient and poverty rates.	Data based primarily from income surveys.
Chartbook of Economic Inequality (Link)	Data is collated from a range of national and comparative sources, with the period covered varying by country and measure.	Measures of overall income inequality tend to be net-equivalized disposable income, gross income data is reported when top income shares only are being examined.	Range of inequality measures, including: Gini coefficient, Top 1% Income Share, Top 0.05% Income Share, Poverty rate, P90/P50 ratio, Top 1% Wealth Share.	For overall inequality measures, data based primarily on income surveys. For the Top 1% Income, tax and national account data is used.
World Wealth and Income Database (Link)	Data, in many cases, dates back to the early 20th century. Often, data is reported annually, or every 5 years or so.	Income data is mostly based on gross income, often with capital gains not included.	A range of measures on both income level, and income and wealth inequality, are included, these are mostly shares held by different deciles.	Data is derived using tax and national account data.
World Bank PovcalNet database (Link)	Annual data between 1995 and 2014. It covers all regions in OECD members (both at the large and small geographical scale, defined as TL2 and TL3, respectively). Some non-OECD countries are also included, at the TL2 geographical level.	Regional income per equivalized household	Data does not report an inequality measure	
Clio Infra- Datasets (Link)	Database includes 169 counties. This is likely the most comprehensive database in terms of its country coverage. Data generally ranges back to the late 1980s.	Gross Household Income, net household income and Household Consumption are all used to measure material inequality.	A range of inequality measures are included on both a national and global level. Gini coefficient data is reported, as are absolute poverty rates.	Serious methodological challenges exist when using this database. Most fundamental are the different units that are used to measure material inequality.
University of Texas Inequality Project (Link)	Data goes back as far as 1800 in many cases.	Gross household income is used in this data.	This data reports the Gini coefficient.	Extensive estimation is used in the derivation of these figures, especially over such a long period.
Luxembourg Wealth Study database (Link)	1968 countries are covered by these estimates that stretch back to the 1960s.	Inequality in gross household income data is estimated here.	The data reports a 'Theil Statistic.' These figures can be easily aggregated.	These estimates are derived using estimates of income disparities between regions and larger groups. They systematically underestimate aggregate inequality as a result, but they can be good reflections of ordinal changes.
OECD's Wealth Distribution Database (Link)	Earliest waves from 1995, the latest are from 2015. Data is typically reported every 5-10 years. Many OECD countries are covered.	This is inequality in household net worth (either of individual or of household).	Large numbers of wealth distribution statistics can be derived from the microdata. The main figures, reported by LIS themselves, are: Gini Coefficient, mean and median income data, share of wealth by income decile, and quintile.	Data based primarily from surveys. This results in issues of non-response and miss-sampling, especially at the top of the distribution.

Source: Citi Research

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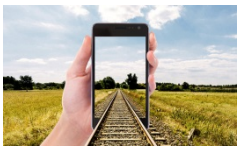

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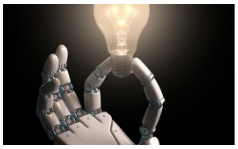

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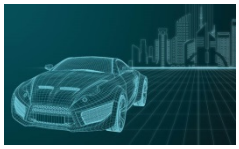

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Key Insights regarding the future of Inequality

EDUCATION

Social mobility is essential to vibrant societies and economies. Education plays a big part in generational advancement, helping children do better than their parents. / Rising inequality could generate barriers to social mobility. Parents may be able to transmit their social privilege to their children and parental income inequality will translate into substantially different life opportunities, particularly via education.

SOCIAL CONSTRUCTS

Falling trust in institutions has been closely associated with inequality. This is likely a factor in civic and political participation, particularly among less well-off people. / Declining electoral participation can often result in further biased political representation in favor of the well-off, worsening initial problems associated with inequality and social trust.

POLICY

Incentives that would propel societies to prosperity have often failed, creating instability and leaving great potential untapped leading to increasing recognition that inequality is more harmful than previously thought. / Inequality is rooted in a host of institutional features and choices and is amenable to broad-based, well-designed and forceful intervention within and across nations. To be effective, this action will have to be focused not just on reinforcing redistribution, but even more on changing the distribution of income from the market.

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