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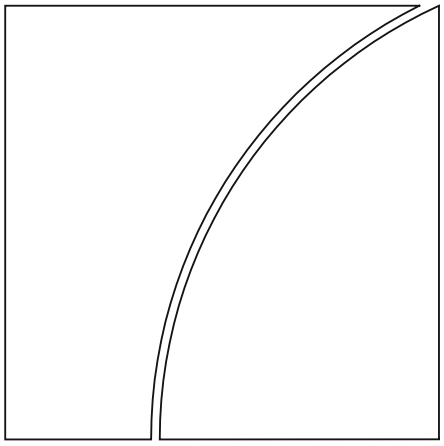

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World changes in inequality: an overview of facts, causes, consequences and policies

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Foreword

The 15th BIS Annual Conference took place in Lucerne, Switzerland, on 24 June 2016. The event brought together a distinguished group of central bank Governors, leading academics and former public officials to exchange views on the topic "Long-term issues for central banks". The papers presented at the conference and the discussants' comments are released as *BIS Working Papers* 653 to 656.

BIS Papers no 92 contains the opening address by Jaime Caruana (General Manager, BIS) and remarks by Kevin Warsh (Hoover Institution and Stanford Graduate School of Business).

World changes in inequality: an overview of facts, causes, consequences and policies

François Bourguignon*

Abstract

This paper reviews various issues linked to the rise of inequality observed particularly in developed countries over the last quarter century. Various data on the time profile of inequality are examined, which do not always fit the common view that inequality is everywhere trending upwards. Overall, changes in inequality appear to be very country-specific. The same conclusion obtains when examining the causes of these changes. There is little doubt that common forces affected the distribution of income in most countries, but idiosyncratic factors have amplified their effects in some cases and offset them in others. Country-specificity also holds with regard to policies aimed at correcting inequality, even though globalisation imposes constraints on some key redistribution tools such as taxation and the regulation of financial markets. International coordination and, in particular, more transparency in cross-border financial operations are needed if governments are to recover some autonomy in these matters.

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Introduction

Public concern about inequality has grown substantially in recent years. Politicians and journalists descant with increasing frequency on the increase in inequality as a threat to social stability, laying the blame on globalisation and its attendant so-called neo-liberal policies.

There is certainly much truth in such views. However, the lack of rigour in the public debate is striking, and one may doubt whether a constructive discussion of inequality, its causes and its economic, social and political consequences can take place without more clarity. Is it really the case that inequality is everywhere increasing more or less continuously, as actually seems to be happening in the United States? What type of inequality are we talking about: earnings, market income, household disposable income per consumption unit, wealth? What matters most: the inequality of opportunity or the inequality of economic outcome, including income? What kind of measure should be used? The recently highly publicised share of the top 5, 1.1% taken from tax data may not evolve in the same way as the familiar Gini coefficient defined on disposable incomes. And, then, what is known about the nature of the unequalising forces that seem to affect our economies and what tools might be available to counteract them?

In an international survey conducted in 2010, people were asked how they thought inequality had changed over the previous 10 years.[1] In few countries was the perception of inequality trends in agreement with what could be observed from standard statistical sources about inequality. US citizens felt inequality had remained the same, whereas it was surging by most accounts, Brazilians found it was also increasing despite the fact that, for the first time in over 40 years, inequality was declining, while French and Dutch people thought that inequality had increased although the usual inequality coefficients were remarkably stable.

Good policies must rely on precise diagnostics. It is the purpose of this paper to take stock of what is known at this stage about the evolution of inequality around the world. In so doing, it will be shown that an ever-increasing degree of inequality at all times and everywhere over the last 30 years is far from the reality, and that there is a high degree of specificity across countries. In turn, this suggests that the combination of equalising and unequalising forces may be quite different from one country to another. Some factors may be common and truly global but others may be country-specific, the outcome being quite variable across countries. It also follows that tools to correct inequality, if need be, may have to differ in nature depending on the causes of increased inequality.

Tackling all these issues in depth is beyond the scope of this paper. My aim is only to offer an overview of what is observed and the main ideas being debated in the field of economic inequality. The paper is organised as follows. It starts with a quick "tour d'horizon" of the evidence for the evolution of various dimensions of economic inequality. It then tackles the issue of the potential causes, identifying what may be seen as common to most countries and what may be specific. Finally, it touches upon the consequences of excessive inequality and the tools available to counter it, emphasising the rising constraints imposed by globalisation.

[1] Institut français d'opinion publique (IFOP), *The perception of inequality, comparison of views in 12 countries*, www.ifop.com/media/poll/1191-2-study_file.pdf.

A "tour d'horizon" of the origins of inequality

What are the stylised facts concerning the evolution of economic inequality in the world? Are all countries following the well documented US pattern where inequality has been increasing continuously over more than 30 years, and in practically all its dimensions? Or is it possible to identify alternative patterns?[2]

This review will show that various patterns are apparent in the evolution of inequality at the country level. Depending on the inequality concept used, those patterns are sometimes difficult to reconcile, except if one realises that different sources may lead to different appraisals. Overall, the conclusion is that inequality is higher today in a large number of countries than it was some 25 years ago and that, even in countries where the evidence is weak, available estimates possibly ignore some important unequalising forces.

Inequality in equivalised disposable income

"Equivalised disposable income" is the concept most frequently used in measuring inequality. Each individual in the population is arbitrarily allocated the income of the household where he/she lives, including taxes and cash transfers, divided by the weighted number of people in the household. In that calculation, each person in the household is weighted by a factor that takes into account economies of scale – *n* adults living together do not need as much as *n* isolated persons – and the differing needs of children needs and adults. In that way, the household income is made equivalent – ie equivalised – to that of a single adult. In some countries, the same calculation is made on household consumption expenditures rather than income, depending on which data are the most accessible. The latter concept is probably better to the extent that it corrects income volatility, which may be responsible for some spurious inequality. However, no regular series is readily available for a number of countries, including OECD countries.

Graph 1 shows the evolution of equivalised disposable income inequality in 21 OECD countries, as recorded by the OECD in collaboration with national statistical offices and in the six so-called BRIICS countries,[3] plus Colombia for later reference, as recorded in the World Bank's Povcalnet database. Inequality in emerging countries is generally defined on the basis of household expenditures per capita – ie without equivalising correction – except for Latin American countries and South Africa, where it is based on disposable income per capita. In all cases, inequality is measured by the Gini coefficient. The period covered by the data extends from the mid-1980s to the early 2010s. However, data consistency constraints impose shorter series for a few countries.

In order to show the variety of patterns in the evolution of inequality over the 1985–2012 period, the time series of Gini coefficients for the OECD countries have been organised into three groups. The first group (Graph 1a) comprises countries with a clear ascending trend over the whole period or at least over the last part of it – eg France. The United States is the most documented case of such a rising inequality trend, but the same pattern is present in Japan, despite a drop in the early

[2] An in-depth analysis of post-1970 trends in inequality in rich and middle-income countries can be found in Morelli et al (2015) and in Alvaredo and Gasparini (2015) for developing countries.

[3] Brazil, Russian Federation, India, Indonesia, China and South Africa.

2000s that was quickly compensated for later, and, more unexpectedly, in Denmark and Sweden despite their well known culture of egalitarianism. In all cases, the overall increase in the Gini coefficient between the beginning and the end of the period is greater than 3 percentage points. Such a figure is well above the level deemed to be at the limit of statistical significance, which would be between 1 and 1.5 percentage points when taking into account sampling and non-sampling errors.

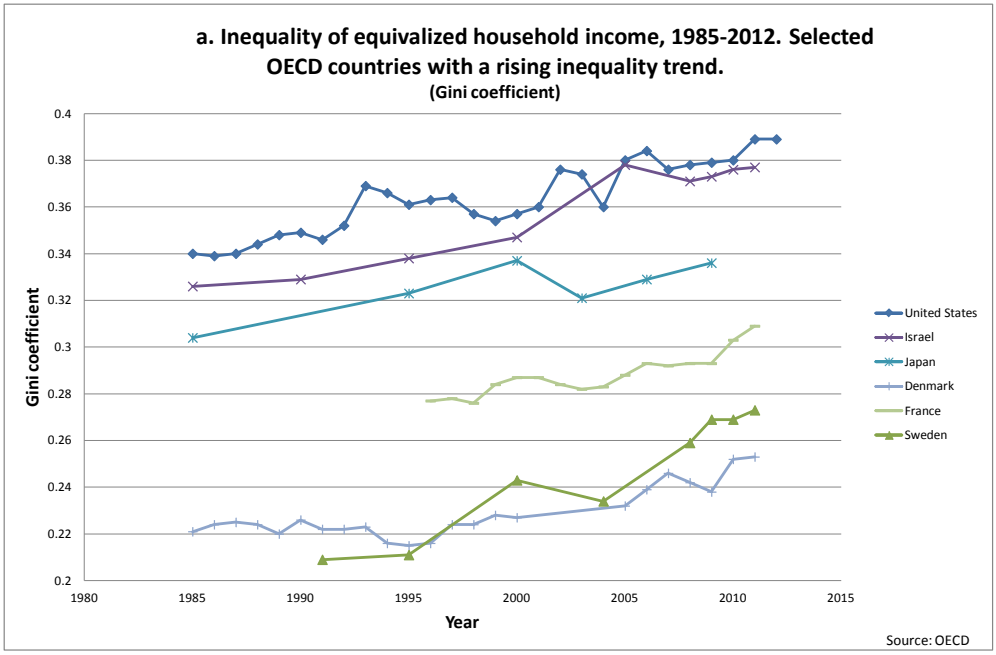
The evolution of inequality is shown for a second group of countries in Graph 1b. In those countries too, inequality increased between 1985 and 2012 but the increase took place in a single step over a few years. The case of the United Kingdom is illustrative. Inequality increased vigorously – ie by 5 percentage points – in the second half of the 1980s but it went down a little afterwards and then stabilised until the end of the period analysed. The same pattern is observed for Germany or Canada in the first half of the 2000s, or in Finland in the 1990s. Anticipating the discussion later in this paper, it should be noted that these one-step changes in inequality most often coincide with specific events or reforms in the corresponding countries: the effect of the Thatcher reforms in the United Kingdom, of the Hartz laws and wage moderation in Germany, the recovery of the Finnish economy after joining the EU etc. Note also that the inclusion of Austria and Spain in the one-step increase group is somewhat ambiguous because of the brevity of the period over which comparable data are available.

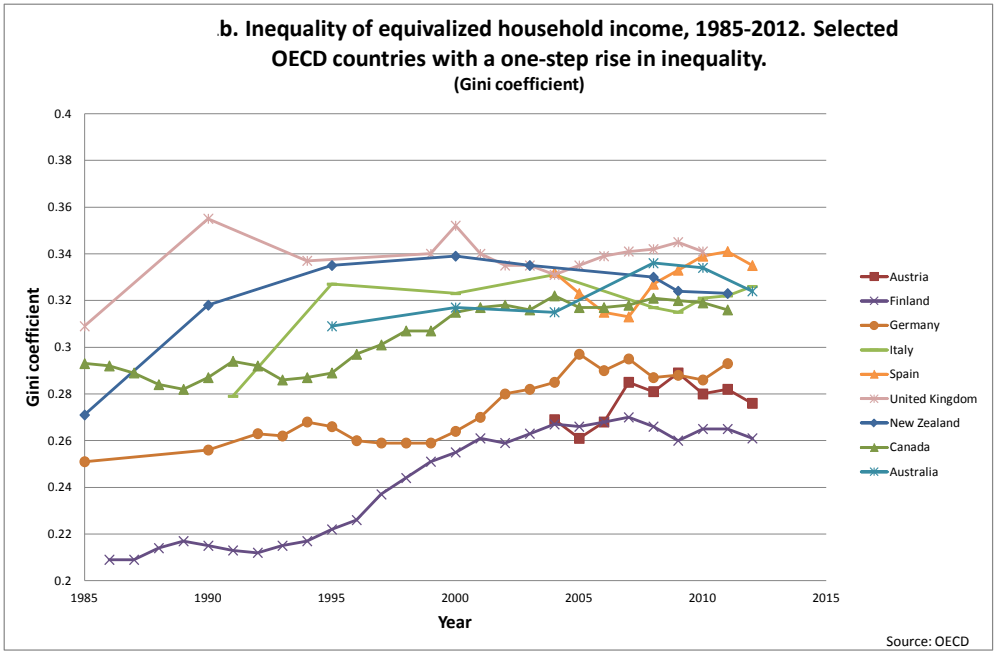
From Graphs 1a and 1b, it can be seen that, out of the 21 OECD countries considered in the present exercise, inequality is higher today than it was 25 years ago in at least 13 of them, including all the biggest (G7) countries. Yet, this is far from uniform across all rich OECD countries. Graph 1c shows that inequality remained more or less constant or even fell in countries such as Greece or the Netherlands since the mid-1980s, the same being true in several other small European countries over the last 10 years or so.[4]

Finally, Graph 1d show the evolution of inequality in the group of emerging countries known as the BRIICS and, for further reference, Colombia. Here too, the dominant pattern is that of an ascending trend in inequality, except in the case of the Latin American countries (Brazil and Colombia) and the Russian Federation in the short period where inequality declined after the surge that took place at the time of the break-up of the USSR and the transition to a market economy. The same type of transition is also partly behind the rising trend observed in China and, to a lesser extent, in India after the deregulation that took place around 1993.

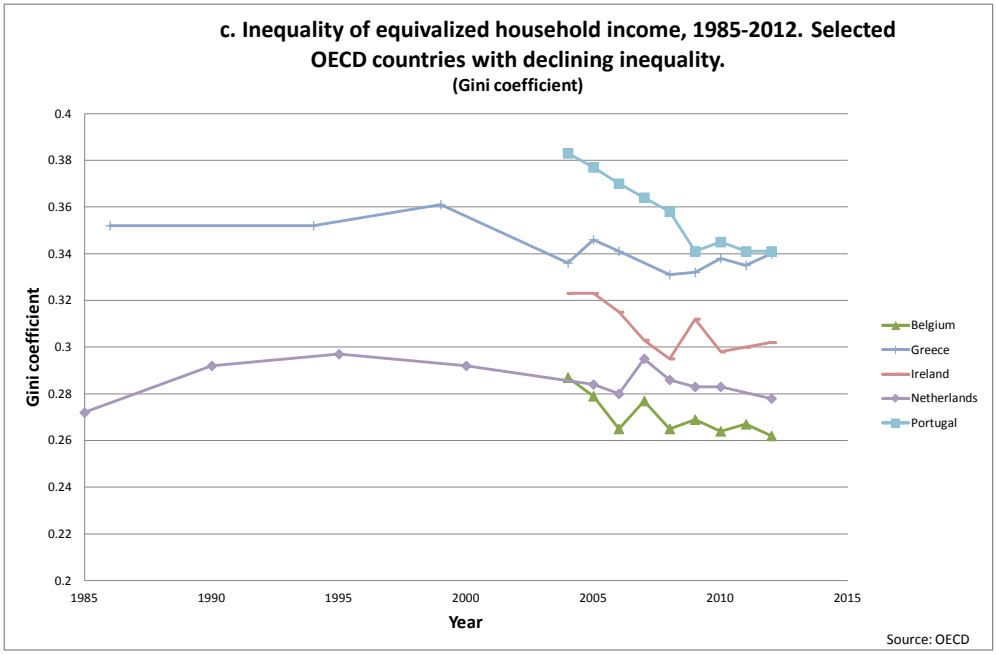
[4] Note that eastern European OECD countries have been excluded from the analysis because of the very specific inequality shock caused by the transition to a market economy. For most of them, it would obviously be true that inequality is higher today than it was in the mid-1980s before the transition.

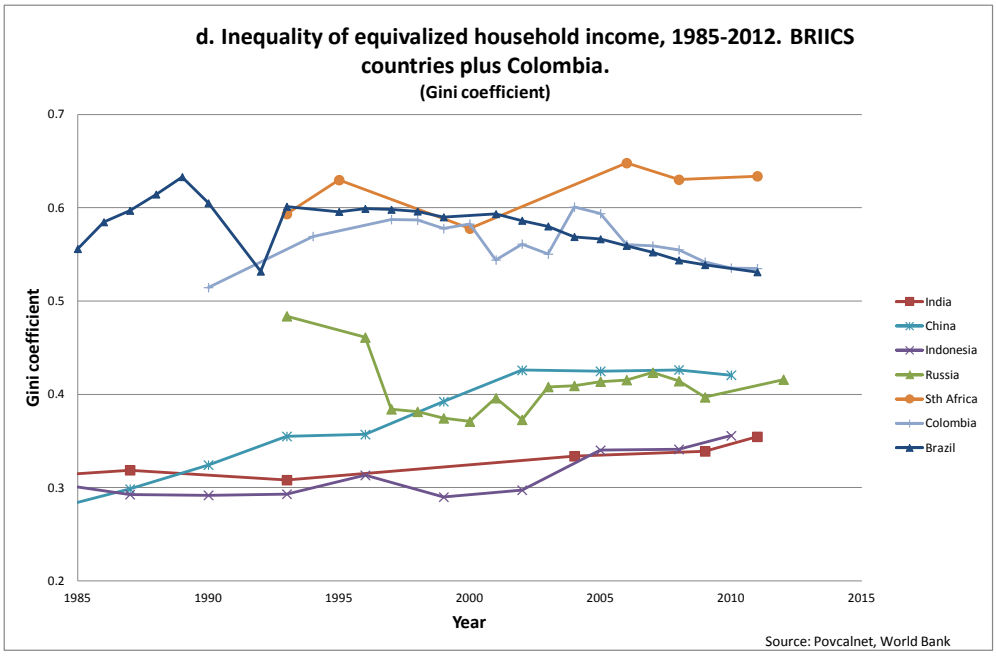
Graph 1. Inequality of disposable household income in selected OECD and emerging countries: 1985–2012





Graph 1 (continued). Inequality of disposable household income in selected OECD and emerging countries: 1985–2012





Yet, it can be seen that the trend is still present in both cases some 15 years after the liberalisation of the economy. The difference in the scales used in Graph 1d and the preceding ones must also be stressed. Changes in the Gini coefficients between the beginning and the end of the period under analysis are often quite sizeable, amounting to more than 10 percentage points in China and 5 points in Indonesia.

As with OECD countries, however, it would be wrong to conclude that inequality has increased in most emerging and developing countries. Actually it has declined in most Latin American countries since the early 2000s, as in the case of Brazil and Colombia in Graph 1d, although it is true that it had substantially increased in the

previous decade and a half. Overall, the change between the mid-1980s and the early 2010s may not always be significant – as in Colombia.

The situation differs across the other developing regions. A diverse range of outcomes is observed in Asia, with, for instance, a rising trend in Bangladesh, stability in Vietnam, and a declining trend in Thailand. On the contrary, available estimates for the Middle Eastern and north African countries suggest a relative stability of inequality – excluding, of course, countries in conflict, for which no data are available. Data in sub-Saharan countries are generally of lesser quality and not always comparable over time. They also cover a shorter time period, typically 15 years at most. Yet, diversity is also observed in that region. Among countries with data of reasonable quality, inequality has been increasing in Ghana, Tanzania and Zambia, it remained approximately constant in Senegal and Cameroon and fluctuated very strongly in Ethiopia, Nigeria and Uganda. In those latter cases, however, one may wonder whether these fluctuations are not mere measurement errors.

In summary, based on available data, it cannot be said, when referring to disposable household income or consumption per capita, or per adult equivalent as in OECD countries, that inequality has been increasing everywhere in the world over the last two or three decades. In the rich world, it is true that it is higher today than it was in the mid-1980s in most countries, but a continuously increasing trend is observed only in a handful of countries. In others, inequality has increased at some point of time and then tended to stabilise. In the emerging and developing world, diversity seems to prevail: inequality is on the increase in a number of countries but it is stable in others and even declining in yet others. Overall, however, it is the feeling of diversity that dominates when comparing the experience of countries around the world.

Of course, such a conclusion depends heavily on data quality and, possibly, on the concept by which inequality is defined. It will now be seen that different definitions of inequality may lead to different growth patterns over time and that it is quite possible that inequality statistics on equivalised or per capita disposable income and their evolution over time may be biased downwards.

Comparing alternative definitions of inequality

Much emphasis has been put lately on the share of "top incomes" (most often the top 1%) in the total income of households, and a bit less on the inequality of earnings among employees as opposed to household income per capita. An important issue is thus whether these various aspects of economic inequality provide a convergent view or whether changes in inequality depend on the perspective being adopted.

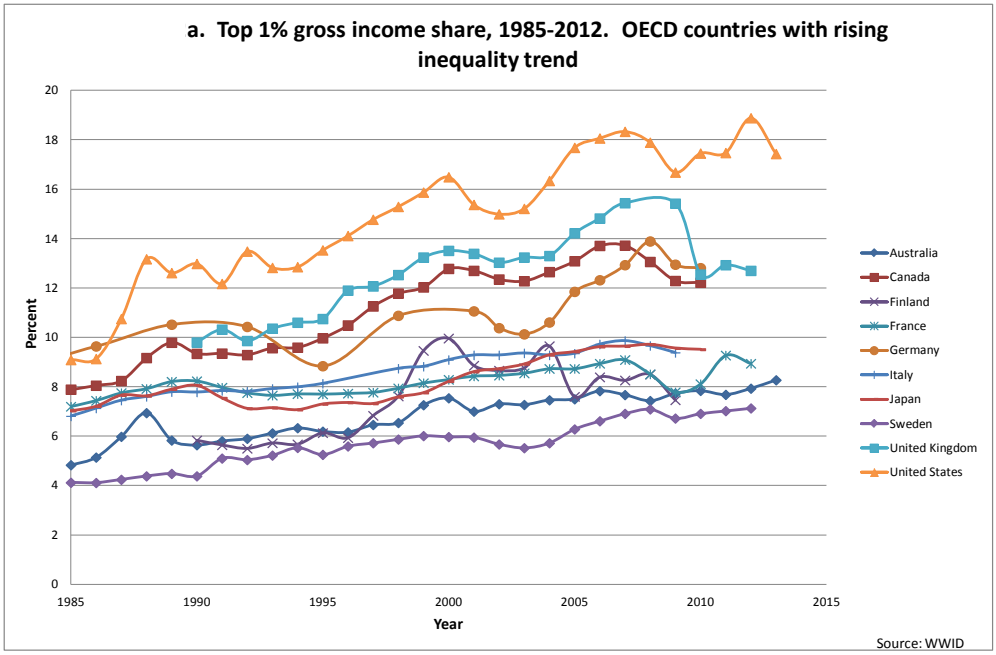
Such a conclusion would not be really surprising, as various inequality indicators may give various degrees of importance to economic mechanisms, leading to more or less inequality. For instance, the inequality of earnings and the inequality of disposable household income are related through how many earners there are in a household and how their earnings are correlated. Depending on which inequality concept is used, a drop in the employment rate of poor people may thus simultaneously generate an increase in the inequality of equivalised household income and a drop in the inequality of earnings, by reducing the weight of the lower tail of the distribution of earnings. Likewise, top income inequality indicators refer to tax units, often adult individuals rather than households, and to income before taxes and transfers – ie gross or market income. Thus a change in the tax law – eg the definition of tax units and taxable income or change in tax rates – will necessarily

cause some discrepancy between top income inequality indicators and the Gini coefficient of equivalised household income.

Graph 2 shows the evolution over time of two inequality indicators: the share of the top 1% of people or tax units in gross or "market" income, as computed from tax data and available in the WWID[5] database, and the inequality of earnings among full-time employees as observed in labour force surveys and measured by the ratio of the 90th percentile – the lower limit of the earnings of the top 10% – to the median (P90/P50). The two indicators are reported over the same period and countries as before but only for the countries where consistent data series are available. As in Graph 1, countries are grouped according to whether the inequality indicator shows a rising trend throughout the period or not.

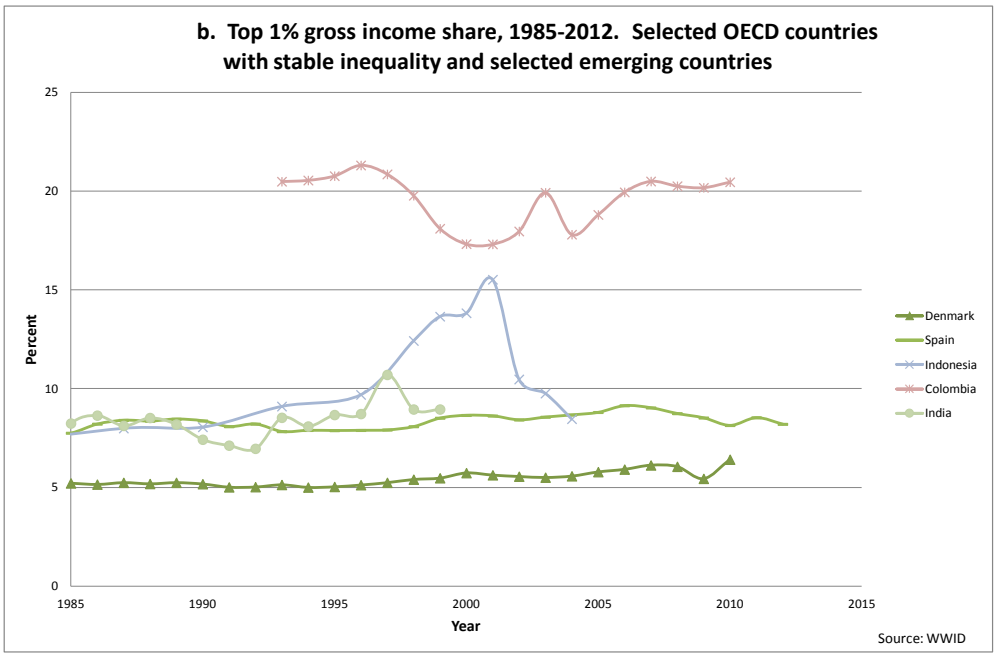
Compared with Graph 1, these two inequality concepts give a fully consistent picture of rising inequality in only a very few cases. As a matter of fact, it is only in the United States, Norway and Sweden that the two indicators in Graph 2 exhibit the same rising trend as the Gini coefficient in Graph 1. For those three countries, there thus is little ambiguity in the statement that "inequality is rising". In the other countries, there is always one inequality indicator that shows an evolution different from the others as illustrated by the following few examples.

Graph 2. Inequality in selected countries: top 1% share of gross income and P90/P50 ratio of individual earnings: 1985–2012

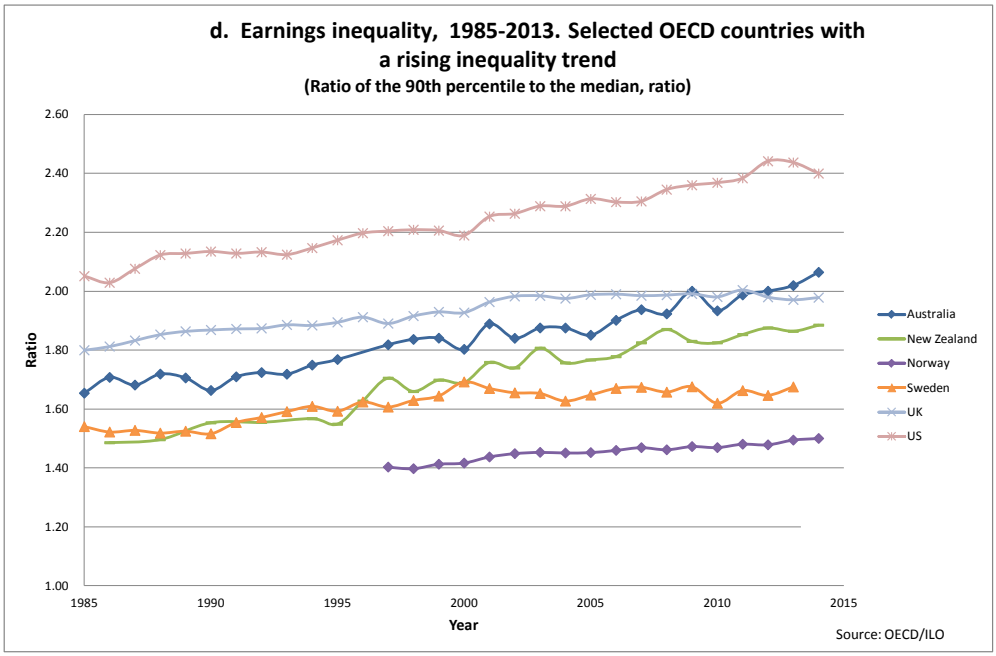


5 The World Wealth and Income Database, www.wid.world/.

Graph 2 (continued). Inequality in selected countries: top 1% share of gross income and P90/P50 ratio of individual earnings: 1985–2012



Graph 2 (continued). Inequality in selected countries: top 1% share of gross income and P90/P50 ratio of individual earnings: 1985–2012



In the United Kingdom, the inequality of equivalised household disposable income stayed roughly constant during the 15-year period, following a surge of inequality in the second half of the 1980s, say from 1990 to 2004. Yet, the share of the top 1% in household gross income went up from 9.8 to 13.3% during that period, whereas the inequality of earnings went also up, by approximately 10%. Based on the share of the top 1% in Graph 2a, one would conclude that inequality has increased more or less continuously in the United Kingdom over the last 25 years, except for the small drop in 2010. Considering the equivalised disposable incomes, however, the conclusion would be that inequality tended to fluctuate around a constant level after a big jump in the late 1980s.

A rather opposite case could be made in the case of Germany. There, the inequality of equivalised disposable income increased rather vigorously in the early 2000s, as seen in Graph 1b. But the share of the top 1% remained more or less constant and the inequality of earnings also fluctuated around a constant level (Graph 2d) during that period. In the late 2000s, however, the top income inequality increased substantially and the inequality of earnings moved up a little, whereas the Gini coefficient of the equivalised household income showed only slight fluctuations.

Among OECD countries, divergences are readily apparent in the case of Denmark, Finland and Italy. In the few emerging countries where top income data are available over a period of some length, Graphs 1d and 2b show contradictory evolutions. In Indonesia, top income inequality surged in the late 1990s and fell in the mid-2000s, whereas the Gini coefficient of equivalised household income was flat in the former case and rising in the latter. The same contradiction is observed in the case of Colombia in the second half of the 2000s and in India in the mid-1990s.

Divergences between the inequality of earnings and that of disposable household income are more easily understandable than between the latter and the top 1% gross income share. In the former case, selective changes in labour force participation, in assortative mating, or even in fertility may explain how the inequality of earnings among individual earners and of household disposable income could not

always move in the same direction. Such arguments are less credible in the case of the top 1% share in market income and the Gini coefficient of equivalised disposable income. Even if the former refers to individuals or tax units rather than households, rich individuals tend to live in rich households. If it is true that the tax system reduces the degree of inequality when going from market to disposable income, it does not eliminate it, so that a change at the top of the market income distribution is most likely to generate a change in the same direction in the distribution of disposable income or consumption expenditures. The lack of consistency between inequality in market and disposable income illustrated by the examples above must thus come either from changes in the tax system, affecting mostly disposable income, or differences in the coverage of the data sources behind the two indicators. Taxes in OECD countries generally went down during the period under analysis, so that one should have observed more parallelism than is the case between the inequalities of market and disposable incomes. This suggests that discrepancies might actually come from differences in statistical coverage. This is still more likely to be the case in emerging countries, where income taxation is extremely limited.

As far as household surveys are concerned, it is well known that sampling and surveying procedures tend to undersample the very wealthy or super-rich and/or under-estimate their income. The undersampling comes from the fact that there are only a few super-rich in the population and those who are actually sampled may refuse to be surveyed.[6] The under-estimation is often due to the person being actually interviewed in surveys not being really aware of the actual income of the household he/she belongs to. The market income share of the top 1% raises estimation concerns too.[7] One issue is how to define the top 1% of the population: in terms of tax units, or individuals, including children or not. The difference may be sizeable. The estimation of the total gross income of households needed to compute the share of the top 1% raises the difficulty that national accounts estimates of total household market income rely on definitions different from that of "taxable income" in tax data[8] – for instance, capital gains are not included in national accounts but are accounted for in tax data, whereas imputed rents of owner-occupied housing are seldom reported in tax returns.

In general one would expect that, in the absence of strong structural changes in market incomes or in the redistribution system, including taxation, the inequality measures derived from the two sources would move in a parallel way, as is the case for instance for the United States and Sweden in Graphs 1a and 2a. Thus, discrepancies observed in other countries present in Graph 2a but not in Graph 1a, would most likely reflect sampling and reporting problems in survey data, or changes in taxation.

A rather systematic analysis of the relationship between the two indicators is reported in Morelli et al (2015, pp 683–7). They find that a 1 percentage point change in the top 1% share is associated with a 0.6 percentage point change in the Gini coefficient of household disposable income (elasticity between 0.2 and 0.3). The formula proposed by Atkinson (2007) suggests that, if top incomes were completely

[6] In the United States, for instance, Korinek et al (2006) find evidence of an increasing undersampling and/or under-reporting of top incomes.

[7] On estimation issues concerning the top 1% gross income share statistics, see Atkinson et al (2011, pp 12–8) or Morelli et al (2015, pp 652–67).

[8] The WWID database reports income shares of market income including or excluding capital gains for countries where the distinction can be made.

unaccounted for in household surveys, the corresponding change in the Gini coefficient of market income would be around 0.6 percentage points and, due to taxation, less for disposable income. This could mean that, on average, a substantial part of top incomes are actually included in household surveys. More problematic is the fact that they find that the relationship ceases being significant after the 2000s, as if the representativeness of surveys had weakened in that period.

A careful attempt at reconciling or, more exactly, combining household survey data behind the equivalised household disposable income inequality statistics and the tax data behind the top 1% market income share has been conducted in the United Kingdom by Burkhauser et al (2016). Actually, an initial correction of top incomes in the survey data on the basis of tax data is performed by the British administration responsible for the survey (the Department for Work and Pensions). Building a synthetic distribution of market income by juxtaposing survey data up to the 90th percentile of the distribution and tax data for the top 10 percentiles, Burkhauser et al found that this correction is incomplete. According to their estimates, the under-estimation of the Gini coefficient would be below 1 percentage point between 1995 and 2004 but would have reached 2 percentage points between 2005 and 2008. In terms of the series reported in Graphs 1 and 2, it would thus be the case that the former misses an increase in inequality at the middle of the 2000s.[9]

It would be important to proceed to the same type of reconciliation in other countries. However, the fact that the top 1% share is much smaller in the countries appearing in Graph 2a would make the correction much less sizeable than in the United Kingdom. Problems are more serious in emerging countries such as Indonesia, where survey data would seem to have missed a substantial increase in inequality coming from the top of the distribution between 1996 and 2002, during a major crisis in that country.

This emphasis on top incomes must not lead to playing down the effect of changes in the structure of gross income by type of income – ie wages, self-employment income, profits, rents, – below the top 1% or changes in taxation in explaining discrepancies between the time behaviour of inequality as shown in Graphs 1 and 2. In the case of Germany, for instance, the increase observed in the Gini coefficient of disposable household income in the first half of the 2000s might be the reflection of rising unemployment, increasing atypical employment – ie so-called mini-jobs – and wage moderation, which affected the gross income of people far below the top 1% and might have had only an indirect impact on the top 1% share.[10]

Another reason why the difference between the gross income share of the top 1% and the Gini coefficient of equivalised disposable household income is likely to correspond to different aspects of the evolution of inequality rather than the statistical imprecision of household surveys in advanced economies is that, in several of them, the inequality of disposable income is based on administrative data rather than surveys. Data for Denmark and Finland, for example, are register data that can

[9] Note, however, that the combination of the two databases performed by Burkhauser et al (2016) is not devoid of problems. In particular, the issue of the difference in the statistical unit between tax data (the "tax unit") and survey data (disposable household income per adult equivalent) is not fully solved.

[10] Schmid and Stein (2013) add the fall in the income share of labour as an explanatory factor of the increase in inequality in the first half of the 2000s. Yet, one could have expected that this factor would also have increased the share of the top 1% in total gross income.

be used to estimate both inequality indicators, depending on whether one includes taxes and transfers in the definition of income. In the case of Denmark, the top 1% share of gross income is rather flat over the whole period whereas the inequality of disposable income increases continuously. In the case of Finland, the disposable income inequality seemed to plateau after 2000 whereas the top 1% share fluctuated rather sharply.

With this multidimensional view of inequality in mind when examining the evolution of the various common indicators of inequality over the last 25 years in advanced countries, the dominant factor is without any doubt the rather general increase in the inequality of gross incomes as measured by the share of the top 1%. In comparison, the Gini coefficient of disposable household income and the inequality of earnings, as measured by the P90/P50 ratio, exhibit much more diversity.

Although there is little evidence available in the inequality of gross incomes based on tax data in developing and emerging countries, the cases of Colombia, India and Indonesia in Graph 2 suggest that the discrepancy with the inequality of disposable income may be more substantial and possibly caused by the imperfect coverage of household surveys.[11] The facts that the huge cycle in gross incomes in Indonesia is not at all present in disposable incomes (Graph 1d), or, in the case of Colombia, that the top 1% share has been approximately constant between 2005 and 2010, whereas the Gini coefficient of household disposable income per capita fell substantially during the same period, give some weight to the view that the data sources behind the two indicators have a different coverage.

This view is not really new. Seventeen years ago, two researchers from the Inter-American Development Bank, Székely and Hilgert, undertook a comparative analysis of Latin American data on income distribution, as already collected for quite some time in several countries through household surveys. Their conclusion was that: "*...standard household surveys ... are unable to capture the incomes of the richest sectors of society; so the inequality we are able to measure is most likely a gross underestimation*".[12] This is most probably still true today and applies not only to Latin America but to most developing and emerging countries.

The functional income distribution

The surge of interest in economic inequality has led quite naturally to a public focus on micro, or individual data. Less emphasis is put on macro aspects and, in particular, the distribution of national income among factors of production. Historically, however, and possibly because of the lack of access to micro data, this had been the main theme of research by economists. Yet, there should be a rough link between the macro approach and the micro measurement of inequality since the remuneration of the various factors of production weighs differently in household incomes, depending on the level of household affluence. In particular, labour income weighs more on average in the total income of low and middle income households, whereas the other

[11] A rather direct proof that non-labour income plays a minor role in standard household surveys is provided in Menezes-Filho and Scorzafave (2009), who show strictly parallel evolutions of the Gini coefficient of household disposable income and that of earnings. See also the discussion of the quality of Latin American income distribution data in Bourguignon (2015).

[12] Székely and Hilgert (1999).

factors (capital, land, intellectual property rights and other sources of rent) weigh more in the income of richer households.[13]

Actually, the link between the functional distribution of national income and income inequality is an indirect one, and it is certainly not the case that a change in the former automatically entails a change in the same direction in the latter. Not all incomes from non-labour factors are actually distributed to households. Some of them are essentially capitalised in asset values, which are not transformed into incomes as long as the asset owners do not sell them for one reason or another. Yet, over some period of time and ceteris paribus, it should be the case that a drop in the GDP-share of labour should correspond to some increase in the degree of inequality of gross and disposable income across households. If it does not, this may be because household surveys behind equivalised disposable income inequality do not accurately capture non-labour incomes or because the tax treatment of some of these incomes – and possibly tax evasion – minimises their impact on the inequality of gross incomes. Yet, in both cases, it can be said that a drop in the GDP-share of labour is a factor that potentially increases inequality. Observed changes may not fully reflect this pressure because of incomplete coverage of the data or countervailing forces.

Graph 3 shows the evolution of the GDP-share of labour in the G20 countries between 1985 and 2012 – but only from 1995 on for emerging countries. In all countries, labour shares have been adjusted so as to take into account self-employment or "mixed" incomes that actually combine labour and non-labour incomes. There are various ways of performing that adjustment, which lead to different estimates of labour shares, but all point to the same trend.[14]

What can be seen in Graph 3 is a drop in the labour share for almost all G20 countries, which is very pronounced in a number of countries. If that drop fully corresponded to an increase in the share of the wealthy people in the population, then the change in income inequality could be substantial.[15] Roughly speaking it would amount to 60% and 80% of the change in the labour share. In Japan, this could represent an increase of some 7 percentage points in the market income Gini, and around 2 to 3 percentage points in Germany, France or the United States. This is far from negligible. However, because, only one part of non-labour income is actually distributed to households and because taxes are levied – at both the corporate and the personal level – the increase the inequality of household disposable income would be much smaller.

The drop in the labour share is comparable in the emerging G20 countries reported in Graph 3b. Karabarbounis and Neiman (2014) and Guerriero (2012) extended this kind of analysis to a larger number of developing countries, with results comparable in a majority of instances with those shown there.

Is this fall in the labour share consistent with the previous evidence on the evolution of the inequality of disposable household income, or in other words, do we observe an increase in inequality in those countries where the labour share fell most?

[13] This link between the functional distribution of income and income inequality is the central theme of the book by Piketty (2013) and its commentators – see the symposium on wealth and inequality in the *Journal of Economic Perspectives* (2015).

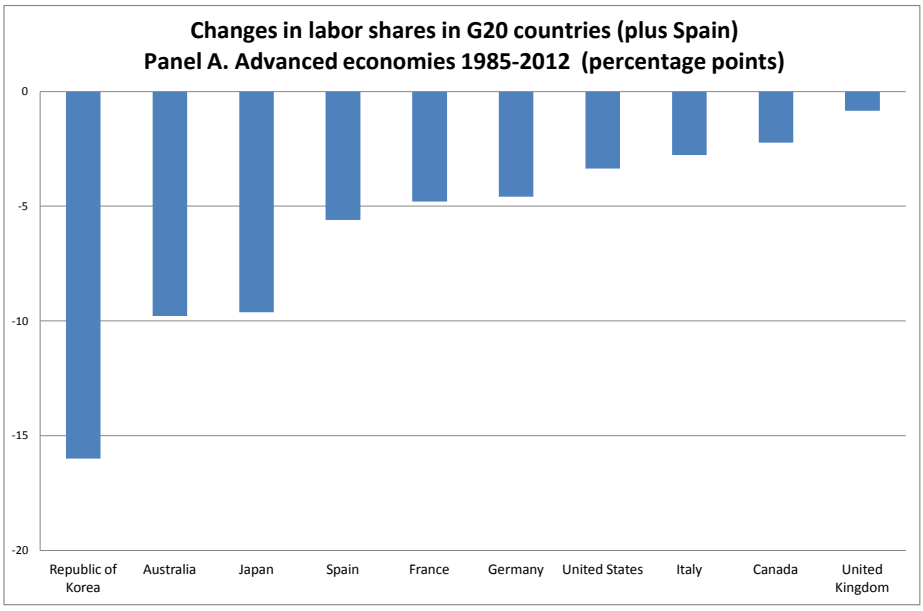
[14] On the nature of the adjustment and the resulting estimates see Guerriero (2012) or Karabarbounis and Neiman (2013).

[15] Following the formula in Atkinson (2007), the adjustment ΔG in the Gini coefficient due to the under-reporting ΔS of capital income would be given by: $\Delta G = (1-G)\,\Delta S$, where G is the Gini coefficient or market income.

The answer to that question is ambiguous. On the one hand, it is generally the case that countries with a rising inequality trend (as in Graph 1a) also exhibit a declining share of labour – eg the United States, Australia, Japan, and even Sweden or, to a lesser extent, France. Even in countries with a one-step increase in inequality, the increase often coincides with a period of a falling labour share. As can be seen in Graph 3, which shows annual evolution of the labour share for the G7 countries, this is the case for Germany in the first half of the 2000s or Canada between 1995 and 2005. In the United Kingdom, no big change has taken place in the labour share since 1990, which is consistent with little change being observed in the level of inequality. It turns out that the same rough consistency is observed for Brazil, South Africa or China. But there are also inconsistencies. In a recent paper, Francese and Mulas-Granados (2015) found a statistically insignificant effect of the labour share on disposable income inequality in a panel cross-country regression with country fixed effects in a sample of around 90 countries.[16]

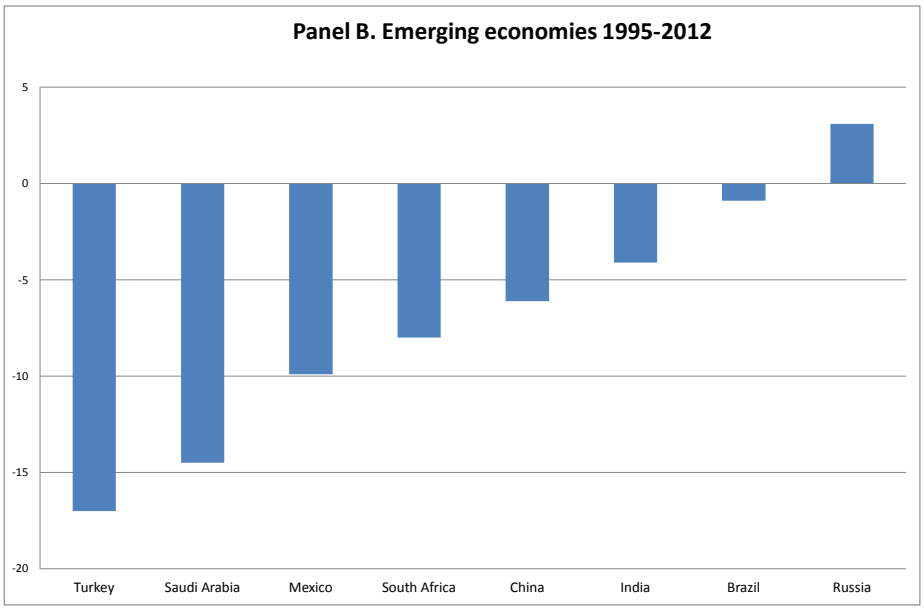
The relationship between income inequality and the labour share should be stronger when defining inequality on gross rather than disposable incomes. Here too, the evolution of the two series are roughly consistent in the case of the countries with a clear rising trend in the top 1% share. But inconsistencies are sometimes observed. In Germany, the labour share dropped significantly between 2000 and 2005. Yet, the top 1% barely changed. In the opposite direction, the labour share did not change much in the United Kingdom but the top 1% share increased more or less continuously.

Graph 3. Evolution of the GDP-share of labour in the G20 countries between 1985 and 2012



16 See also ILO (2015) and Glyn (2009). Francese and Mulas-Granados (2015) also decompose the change in the Gini coefficient into changes in the labour share and the pseudo-Ginis of labour and non-labour incomes. They also obtain a zero effect of the labour share. But this decomposition is not fully correct, as the pseudo-Ginis are themselves affected by a change in the labour share.

Graph 3 (continued). Evolution of the GDP-share of labour in the G20 countries between 1985 and 2012



Note: Figures refer to the change in the adjusted labour share between 1985–2012 for advanced economies and 1995–2012 for emerging economies. Exceptions include: Saudi Arabia: 2002–09, Turkey and Mexico: 1995–2014, South Africa: 1995–2013, and Brazil: 1995–2009. Data refer to the adjusted labour income share except for China and the Russian Federation, where the unadjusted labour income share is used. Data for Argentina and Indonesia are not available. Prior to 1991, the adjusted labour income share in Germany refers to West Germany.

Overall, what should be concluded from this brief discussion of the GDP labour share as a possible indicator of inequality? That a fall in the labour share exerts some upward pressure on inequality is quite obvious and is very roughly confirmed by rising inequality of both disposable and market income in several countries. Yet, this effect may be counteracted by other forces acting on the distribution of labour and non-labour incomes. It is also possible that it is not very visible, as with corporate savings raising the value of shares without necessarily increasing the money income of shareholders. When giving rise to cash flows, those flows may be badly recorded in tax data and under-reported in household surveys. They may also go completely unrecorded, as in the case of tax evasion or when household surveys miss top-income households. In developing countries, it is not surprising not to see a relationship between the labour share and disposable income inequality as the latter miss a large part of capital income.

What general conclusion does come out of this review of the evolution of various national inequality indicators?

There is no doubt that the Gini coefficient of the equivalised household disposable income has been rising more or less continuously over the last 25 years or so in a number of countries, including several advanced and emerging countries. In many other advanced countries, it is the case that inequality today is higher than 25 years ago, even in the absence of an actual trend. There is no doubt either that another inequality indicator, the share of the top 1% in gross income, has also risen continuously during the same period in several countries, although available data cover only a limited set of countries. Finally, there is no doubt that the labour share in national income has fallen in a large majority of countries, which also suggests that the weight of the most unequally distributed sources of income has increased.

Yet, it would be a mistake to ignore the strong heterogeneity that does exist across countries when comparing three inequality indicators referring respectively to equivalised disposable income, gross income and earnings. There are very few countries where all three indicators, or even two of them rose more or less continuously over the past 25 years or so and, in several cases, these indicators show rather different patterns over that period. One reason is purely statistical, the population coverage of the data sources behind those indicators being different and possibly incomplete in the top for household surveys. At the same time, it is also the case that these indicators correspond to various aspects of inequality and are therefore more or less sensitive to economic mechanisms differently affecting these aspects.

The labour share evidence suggests that, indeed, some unequalising forces have been at work in most countries of the world. The important point, however, is that those forces, which most probably are also behind the changes in the gross income share of the top 1%, where these data are available, have not always produced an upward trend in disposable income inequality, as measured by the standard Gini coefficient of equivalised household disposable incomes. This heterogeneity across countries is an important conclusion of this quick tour d'horizon of changes in country inequality around the world.

Two hypotheses can be made for those countries with divergent trends across inequality indicators, despite the unequalising forces that seem to be present through the drop in the labour share. On the one hand, countervailing forces or policies may have permitted the unequalising pressure to be neutralised when considering disposable incomes. On the other hand, the data sources behind standard disposable inequality measures may have failed to capture the actual increase in inequality that may have taken place at the top of the distribution. The latter is most likely to be the case in developing and emerging countries, less so in advanced countries. Yet, this apparent divergence across indicators makes it difficult to establish a diagnostic for the evolution of inequality. Identifying the source of these divergences and correcting them should be an absolute priority for both the research community and national statistical offices.

It is now time to explore in more detail the nature of the unequalising forces that seem to have affected most countries as well as those more country-specific factors that have eventually resulted in those forces having only a limited effect on inequality.

Possible causes for changes in inequality

The preceding discussion on inequality trends around the world according to various indicators of inequality suggested that there are common forces behind the rising trend observed over the two or three last decades in a sizeable number of countries, most notably when considering the inequality at the top of the distribution of gross income and the declining trend in macro labour shares. At the same time, the heterogeneity that is observed in relation to other inequality indicators, in particular the Gini coefficient of disposable income, suggests that country-specific factors have also been at work over the last two or three last decades.

In what follows, we list those various forces and factors, and show how, in combination, they may be responsible for the apparent heterogeneity of the evolution of inequality across countries. We begin with common forces and then

consider more idiosyncratic factors, which may nevertheless be common to various countries.

Common unequalising forces

Almost by definition, globalisation and technological progress are the most obvious common factors of income distribution changes across countries. Their distributive impact has been thoroughly analysed and discussed in the recent literature.[17] What follows is a very brief statement of what may be drawn from it.

In developed countries, globalisation and skill-biased technological progress are certainly responsible for a rise in the share of total income going to capital and for a slow growth of wages and employment of unskilled labour. This hypothesis emerges from a simple argument based on the familiar Hecksher-Ohlin framework of international trade and has been widely discussed in the literature. Initial estimates suggested that, in a US context, technological progress was more important than the expansion of trade in explaining wage inequality – essentially the skill differential. Yet the revision of an earlier modelling exercise by Krugman (2008) and more recently the estimate by Acemoglu et al (2015) of the huge impact of Chinese import competition on US manufacturing employment potentially give more importance to globalisation. Also, the hypothesis has been made that, over a more recent period, even middle-skill workers have been affected by globalisation and technological progress, while low-skilled workers recovered a little through rising employment in personal services. The former effect may have taken place through the outsourcing of routine accounting, bookkeeping or call-centre-type jobs to emerging countries and through computer algorithms increasingly substituting for various types of clerical work.[18]

Technological change and globalisation are also seen as major factors in explaining the fall in the labour share in advanced countries.[19] Here too, technological change seems the dominant factor but, in agreement with the standard Hecksher-Ohlin model, capital must have benefited from the expansion of trade in rich countries either directly or through the geographical reallocation of manufacturing tasks through foreign direct investments and outsourcing. The "financialisation" that came with globalisation is another factor that has worked in favour of capital income and inequality at the top of the distribution, through rising pressure on the shareholders' value of companies, as well as the remuneration of top executives and employees in financial intermediaries.

Were the same forces present in emerging and developing countries? Standard trade theory would suggest that the expansion of North-South trade should have benefited labour and diminished capital in developing countries, thus lessening inequality. However this argument is valid only under the assumption of a perfectly competitive labour market. If wages are set exogenously in the modern sector of the economy, as in the well-known Lewis model of "unlimited supply of labour", then labour benefits from trade expansion mostly through migration from the countryside or from the informal sector to modern firms rather than a generalised increase in

17 See for instance OECD (2011), Pavcnic (2011) or Kanbur (2015).

18 See for instance Autor and Dorn (2013) for the US economy and Goos et al (2014) for European countries.

19 See the recent survey by OECD and ILO (2015).

wages, whereas the capital share increases in the modern part of the economy. The overall effect of trade opening on inequality is thus ambiguous: inequality decreases at the bottom of the distribution and increases at the top. Something of this type may have happened in China. However, many other factors were also present that may explain an increase in inequality: the transition from a socialist to a market economy in the first place as well as, possibly, the Kuznets mechanism by which inequality tends to increase in the first stages of development, and, as in advanced economies, the financialisation process and technological change.

Another way globalisation may have affected top income inequality in developing countries is through the enhanced international mobility of highly skilled workers. Because of that mobility, top executives and civil servants tend to be paid at real rates approaching those of advanced countries, thus contributing to exacerbated inequality at the top of the distribution.

Idiosyncratic factors of change in inequality

If the unequalising forces linked to globalisation and technological change are likely to affect the macro labour share and top incomes in most countries, as seen in the preceding section, their final impact on the distribution of disposable income depends on institutional factors and policies, which may have mitigated or reinforced their effect, and on the presence of mostly exogenous phenomena pushing inequality in the same or the opposite direction. Those institutions, policies and exogenous factors are largely country-specific, which may explain the heterogeneity in the evolution of disposable income inequality stressed above.

The factors with the most direct impact on inequality are those policies that explicitly redistribute income through taxes and cash benefits. These also are the factors for which a first round of distributional effects is easily identified through simple micro-simulation modelling, even though general equilibrium effects may often be expected to dampen first-round effects. As a matter of fact, many of the major changes observed in the inequality of disposable income in the countries considered in the first section of this paper are the result of changes in the parameters of the tax-benefit system. This is true, of course, of tax reforms. In the United States, using a simple micro-simulation model, Bargain et al (1914) show that 1 percentage point of the 1.3 percentage point increase of the Gini coefficient observed between 1986 and 1988 was due to the tax reform of 1986. Similarly, Clark and Leicester (2004) found that 40% of the increase in the Gini coefficient of disposable income in the United Kingdom between 1979 and 1990 was due to the reform in taxes and benefits undertaken by the Thatcher government. Similar examples could be found in several other countries, including the German income tax reform of 2004 – see Schmid and Stein (2013). The same applies to emerging countries. In Brazil, for instance, it was estimated that 20% of the very sizeable drop in the Gini coefficient of household consumption expenditures per capita between 2003 and 2009 was due to the launch of the conditional cash transfer programme, Bolsa Familia.[20]

Another policy parameter, not available in all countries that directly affect the distribution of gross income, is the minimum wage. Here again, both the United States and Brazil provide good examples. In the United States, it is found that, during the 1980s at a time when the lower tail inequality of earnings increased substantially,

[20] See Souza and Medeiros (2013).

the drop in the real minimum wage may explain 30–40% of that fall (see Autor et al (2016)). In Brazil, Firpo and Reis (2006) found that the evolution of the minimum wage contributed 36% of the reduction in inequality between 2001 and 2005.[21]

Few other policies have a purely distributional objective and, thus, their actual impact on inequality is difficult to identify, which was actually already the case for globalisation and technological change. Employment-related policies might be thought to have a more direct influence on inequality than trade or macro policies. However, no strong evidence is available. Based on panel cross-section data for developed countries, Checchi and Garcia Penalosa (2009) found very limited effects. Even in Germany, the case made that the Harz laws, which reformed the unemployment compensation system and some other aspects of the labour legislation, were a major cause of the increase in inequality in the 2000s is rather weak. As explained by Schmid and Stein (2013), several other factors were also at work and it is difficult to disentangle their respective effects. The deregulation of several key sectors, including public utilities, and privatisations, have also often been mentioned as possible causes for rising inequality in the 1980s and early 1990s, both in developed and, still more so, in developing countries. Yet, it is difficult to find convincing direct evidence and precise quantification of their effects.

More is known about the distributional impact of mostly exogenous changes in the demographic structure of the population and in some key dimensions of economic behaviour. Changes in the age and educational structure of the population, in the composition of households – in particular, the importance of lone parenthood – marriage or cohabitation behaviour, fertility, assortative mating, labour force participation, especially of women – have all been shown to have a potentially powerful effect on the inequality of equivalised disposable incomes, even though this effect may be hidden behind that of other factors. In all these case, it is possible to get a good estimate of first-round effects through micro-simulation methods. It is more difficult to take into account the general equilibrium impact of those changes.

The 2011 OECD report on inequality provides an order of magnitude for the contribution of changes in household structures and labour supply behaviour to the average increase in the inequality of equivalised household labour income. It turns out that, on average over OECD countries, changes in assortative mating and in the structure of household composition explain 22% of the increase in the Gini coefficient, whereas the increase in the inequality of earnings, partly caused by globalisation and technological change, explains 40%.[22] Interestingly enough, the fall in male employment contributed to an increase in inequality, the drop in the employment rate taking place more frequently in low-earnings households, whereas the increase in female employment had exactly the opposite effect, offsetting the previous effect. For developing countries, an ambitious micro-macro modelling exercise based on micro household data for a large number of countries showed that changes in the Gini coefficient of disposable income to be expected from changes in the demographic structure of households (age, education, composition) were quite sizeable, amounting in some countries to 2–3 percentage points over a period of 25 years.[23]

[21] Yet, it must be noted that several cash transfers in Brazil are indexed on the minimum wage, which means that its impact upon inequality goes beyond its effect on the distribution of wages.

[22] OECD (2011, p 35 and Chapter 5).

[23] See the chart in Bourguignon and Bussolo (2013, p 1426).

In the case of developing another key structural factor potentially responsible for distributional changes is the evolution of the sectoral structure of the economy over the development process, as famously emphasised by Kuznets (1955). Many authors have stressed for instance the importance of changes in the income gap across Chinese, Indian or Brazilian regions as a major factor in the evolution of overall inequality in those emerging countries.

In sum, if it is most likely that globalisation and technological change have been two major sources of increasing inequality in most countries in the world, it is also the case that many other factors have influenced the evolution of inequality in those countries over the last two or three decades. In some cases, they may have reinforced the unequalising pressure of globalisation, in others they have mitigated it. Hence the heterogeneity observed across countries and across the inequality indicators considered in the first section of this paper, although the undersampling of top incomes in household surveys in comparison with tax data is also part of the story.

It must also be stressed that some of the policies considered above as having an impact on the distribution of income are not necessarily independent from the globalisation drive. For instance, the drop in marginal income tax rates observed in many developed countries since the mid-1980s, especially in connection with capital income or capital gains, has often been justified by the need to reduce incentives for the emigration of capital and people in a world where both are increasingly mobile. A competitiveness argument has also frequently been used to justify deregulation policies, especially in the financial sector and the labour market.

As a final remark to conclude this brief review of the causes of change in the degree of inequality of income, it is worth insisting on the relative lack of a systematic decomposition analysis of changes in the various inequality indicators into the effects of key factors, related to policies, population structure, economic behaviour and exogenous forces such as globalisation and biased technological change. Decomposition methods are now quite standard for some factors such as population structure, labour force participation or the returns to education, even though they most often rely on partial analysis and miss potentially important general equilibrium effects. The same is true of redistribution policies. What is missing is a more structured way of accounting for the impact of more diffuse phenomena such as globalisation or technological change.

The cost of excessive inequality and corrective policies

Two points of view may be adopted in considering the level of inequality: normative and positive. Normatively, inequality maybe seen as essentially unethical, in terms of either income or material well-being, or in terms of the capacity to achieve one's desires. One way or another, inequality may then be contested on moral grounds. Positively, inequality may be seen as involving economic costs by inducing dysfunction in the economic system, either directly or indirectly. Without minimising in any way the ethical perspective, what follows focuses essentially on the economic consequences of inequality. However, space constraints allow for only a brief overview of the rather voluminous literature that has arisen from rising concerns about inequality over the last 20 years.[24]

[24] For a more complete survey of that literature, see Bourguignon (2015).

A short statement of the content of that literature could be that: (a) excessive inequality is bad for economic efficiency and growth, but how much is "excessive" or "too much" is essentially unclear; and (b) redistribution policies aimed at reducing inequality are costly. Apart from the political economy of such policies, which determines whether they are implemented or not, a key issue is whether their economic cost would be more than offset by the gains from reducing inequality. The problem is that estimates of the cost of both more inequality and less inequality through redistribution are extremely imprecise.

Numerous attempts have been made to estimate the aggregate cost of inequality by simply regressing GDP growth rates over the level of inequality, typically the Gini coefficient of equivalised or per capita household income or consumption expenditures, on panel cross-country data, together with other standard growth determinants as initial GDP per capita or average level of education. Overall, there seems now to be a consensus that the relationship is negative, but there is a considerable variance across studies and great imprecision in the estimates. Moreover, that relationship is only valid "on average" across countries and may not be relevant for specific countries. One may also wonder if a major drawback of this kind of analysis lies in the fact that, as seen above for developing countries in particular, inequality measures miss changes taking place at the top of the distribution.

Looking more structurally at the relationship between inequality and economic efficiency and growth, three channels of influence may be discerned. The first stresses the link between the inequality of opportunity, as defined by people's unequal access to income-generating activities due to family background, discrimination or other market imperfections, and both economic efficiency and income inequality. Unequal access to education, to credit, to good jobs, to security or to justice prevents people from using their talent and pursuing privately or socially profitable projects, or reduces their incentives for doing so. The economy would be more efficient and the distribution of economic rewards would be less unequal without such "primary" inequalities. Microeconomic evidence for such inequalities and inefficiencies is plentiful. What is not clear, however, is the size of their effect at the aggregate level and how much would be collectively gained by weakening them.

A second channel, somewhat underemphasised in the literature, goes through the demand side of the economy rather than the supply side, as in the preceding argument. As the propensity to consume is smaller among rich than it is among poor or middle-class people, increased inequality reduces the dynamism of aggregate demand in the economy and weakens investment incentives in domestic markets. This argument has been used by several authors as a possible explanation of the US subprime crisis. The slowdown in demand due to increasing inequality was offset for several years by easier credit for households in the bottom and middle part of the income scale, which led to the development of a real estate bubble, growing household indebtedness and ultimately to the crisis.[25] In developing countries, a theoretical argument of this type was developed by Murphy et al (1989), but does not seem to have attracted empirical checking.

[25] A formal model has been proposed by Kumhof et al (2015). See also Rajan (2010) and Stiglitz (2012). Note that this argument ignores the potential role of the public sector in the growth of aggregate demand. In China, for instance, the increase in inequality took place at the same time that public investments surged. Yet, it can also be seen that today's efforts by the government to promote a development more centred on domestic demand have not yet been fully successful.

The third channel goes through endogenous redistribution. At some stage and through political economy mechanisms, excessive inequality triggers some income redistribution, which, in turn, may be detrimental to growth through the distortions it introduces in the functioning of the economy. Redistribution would thus prevent inequality from continuing to increase, but at the cost of a less efficient economy.

This channel has been investigated recently in an IMF paper that introduced redistribution along gross income inequality within a standard cross-country growth regression model.[26] It was found that inequality had a negative impact on growth but redistribution – as measured by the difference between the Gini coefficients of gross and disposable household incomes – had no significant impact on growth.

In this light, it would be tempting to say that redistribution is a policy instrument that enables a reduction in inequality and faster growth. Yet, there are two difficulties here. The first is that the empirical exercise undertaken in that paper relies on a synthetic database that reconstructs, rather artificially, gross income inequality data for developing countries. Measurement errors are thus likely to plague the regression results. Second, the finding that income inequality may negatively affect growth could hide the fact that it is actually a determinant of income inequality, rather than income inequality per se, that actually weakens growth. For instance, inequality in educational achievements or in the access of SMEs to credit may lead to both slower growth and more inequality of income. If so, redistributing income would not do much for growth. Equalising access to quality education or credit would be what is needed to reduce income inequality and accelerate growth, in line with the argument above that what slows development is the inequality of opportunity rather than of income.

There is also the issue of the way in which excessive inequality triggers redistribution. This may be through democratic voting, through social movements, or in a more diffuse way through the political system, depending also on the perception that the public may have of the extent of inequality and its causes. These days, the hypothesis that the rise in inequality, or at least the perception of it, may be responsible for the success of populist politicians is gaining ground among political commentators in advanced economies. If those populists were to win elections, it is not unlikely they would take decisions that militate against economic efficiency. At this stage, however, such an argument can only be purely speculative.

In sum, even with a strictly positive view, there is little doubt that an excessive degree of inequality of income is associated with economic and non-economic costs. The association may be direct, as with the argument of aggregate demand, but it may also be indirect, as with the view that inequality that produces economic inefficiency is more that of opportunity rather than income, or with the view that too much inequality triggers redistribution pressure with potentially major costs if not met. The key question, however, is "how much is too much". What is the level at which the cost of inequality becomes prohibitive? There is no precise answer, and there probably cannot be, to that question. Referring to the endogenous redistribution pressure argument, this limit also depends on the perception of inequality by the population, and their tolerance of it.[27] It also depends on whether the rise in inequality takes place

[26] See Ostry et al (2014).

[27] Medgyesi (2013) analysed the relationship between individual attitudes towards inequality in six waves of the World Value Surveys and the actual degree of market or disposable income inequality on a cross section of countries. In advanced countries, using LIS inequality estimates, he found a significant but extremely weak relationship. Yet, it is not clear that such data and this kind of econometrics accurately reflect long-run attitudinal changes with respect to inequality.

in a Pareto-improving context, where all people see an improvement in their standard of living, as in China over the last three decades, or whether it is mostly people at the top who benefit from growth, as observed in the United States.

Assuming there is an agreement that inequality in standards of living should not increase further, what can policymakers do? Inequality may be fought downstream through income redistribution and minimum income guarantees. It may also be fought upstream by equalising opportunities to access income-enhancing facilities. Finally, inequality can be fought by intervening in the functioning of specific markets.

Progressive income taxation is clearly the most effective policy for correcting excessive inequality. As a matter of fact, it was seen above that it was the weakening of that progressivity that caused a rise in inequality in various countries. If progressive taxation entails distortion costs, they do not seem to have been prohibitive in view of generally satisfactory observed growth performances in the periods preceding tax cuts. Of course, the situation may be different today with the enhanced mobility of capital, companies and people that attends the globalisation process. Most governments would hesitate today to increase effective tax rates on corporate and personal capital, and top marginal tax rates on labour income, fearing that companies, capital and highly skilled people would leave the country. Yet, it must be acknowledged that there is a considerable uncertainty in the public economics literature about how sensitive this mobility is to tax rates, or more generally about the elasticity of taxable income to the tax rate.[28] Also, the recent progress worldwide in making capital movements and income shifting by multinationals more transparent[29] should increase the autonomy of national tax policies and their capacity to reduce inequality. Even though globalisation sets limits to the average tax rate and the progressivity of tax systems, it does not seem to be the case that national governments are totally powerless on that front. A fortiori, in developing countries, the very limited reliance on income taxation does leave scope there for more aggressive redistribution.

The progressivity of redistribution systems concerns both the top of the distribution, through taxation, and the bottom, through cash or in-kind transfers. Efficient safety nets have been introduced in most advanced countries in recent decades. Care should be taken to adjust them over time so as to maintain the standard of living of the poorest people above thresholds set not in absolute but in relative terms with respect to the mean or median income of the population. This should prevent inequality from increasing even if globalisation and technological change keep negatively affecting the bottom of the income distribution. The success of conditional cash transfer policies in several developing countries has shown that cash redistribution is also possible in the developing world and that it could reduce both monetary poverty and its negative consequences for development. These policies should be expanded but, of course, this also requires increased taxation, to ensure that the burden does not fall on the poor.

[28] See, for instance, Saez et al (2012) and their conclusion that "Estimates of the elasticity of taxable income in the long run (ie exceeding a few years) are plagued by extremely difficult issues of identification, so difficult that we believe that there are no convincing estimates of the long-run elasticity of reported taxable income to changes in the marginal tax rate" (p 43).

[29] That is, the Foreign Account Tax Compliance Act (FATCA) signed between the United States and more than 100 countries, the related Automatic Exchange of Information (AEOI) agreement signed by 100 countries under the auspices of the OECD, or the Base Erosion and Profit Shifting (BEPS) agreement aimed at enhancing the transparency of multinationals' geographical income distribution.

Fighting inequality upstream means enhancing the opportunities of the poorest segments of the population and, in particular, the income-enhancing facilities open to them. Education is an obvious area of intervention, especially in connection with the quality of schooling, which is unequally distributed in numerous countries, developing and developed. The PISA surveys show that the variance of 15-year old students' cognitive test scores may differ widely across countries and over time, a major part of it coming from the students' family background. As some studies show that differences in high school performance are positively correlated with the future earnings of children,[30] it may be expected that a higher variance in test scores is associated with greater earnings inequality later in life.

Human capital accumulated in the first part of life matters for lifetime income. So does inherited wealth. In this respect, inheritance taxation is an important tool for enhancing equality. It is somewhat surprising that it has lost importance in many countries, even in countries with a strong egalitarian culture such as Sweden. As with capital income, international mobility may be an obstacle to effectively reducing inequality at the top of the wealth scale via taxation. Following Piketty (2013), it should also kept in mind that intergenerational wealth transmission will be an increasing cause of inequality in the future.

Lowering inequality of opportunity may also require interventions to correct market failures with a direct impact on inequality. Fighting discrimination, whether on ethnic or gender grounds, is a case in point.

Finally, market regulation may also be a tool for countering inequality at the top of the income scale when markets do not function competitively and generate rents for those who hold market power. Financial deregulation has often been mentioned as a possible reason for the rise in inequality in many countries, as a country's top earners generally include a disproportionate number of people employed in that sector. The reason for this might be that the market power of big financial intermediaries generates rents which are distributed among employees, especially to those in senior positions. But market power is also present in other sectors. The case of the telecommunication sector in Mexico, a pure monopoly feeding the enormous wealth and income of its owner, may be the best illustration of this.[31]

More radical interventions might also be envisaged. The more radical they are, however, the more costly they are likely to be in terms of economic efficiency. In several developed countries, some political circles are in favour of counteracting the adverse distributional effects of globalisation through protectionist policies. Of course, the cost of such policies may be enormous in comparison with the social benefits of a potential and uncertain reduction in inequality. Embarking on such policies is precisely the kind of hazard that excessive inequality might unleash, if it paved the way to an electoral victory by a populist government.

Policies along the more moderate lines suggested above would also most probably face opposition, in particular from top income earners if they are directly targeted by tax reforms. Whether such policies would be adopted depends on the way incomes and political power are intertwined. If they are tightly correlated, then

[30] See French et al (2015) for the United States.

[31] Of course, it is unlikely that Carlos Slim Helú, the owner of Telmex, appears in the household sample surveyed by the statistical office, whereas a rough estimate suggests that he may earn as much as 0.4% of total household income in Mexico.

high inequality may become impossible to correct without major political and economic costs. This is another reason for not allowing it to grow uncontrolled.

Conclusions

To conclude this overview of the recent changes in inequality around the world, five points can be stressed.

Recent developments in the use of tax data to appraise the evolution of inequality show consistency problems with more standard inequality measures based on household surveys, as, for instance, those used by the OECD in its reports on inequality. Surveys seem to incompletely take into account top incomes in advanced countries and to ignore them in the few emerging countries where a comparison is possible. Inconsistencies also appear when comparing standard inequality measures with the evolution of the GDP labour share, whereas one would expect a negative relationship over a sufficiently long time period.

Whatever the way income inequality is measured, inequality is greater today than it was 25 years ago in a majority of advanced countries and in some emerging countries – including China, India and Indonesia. However, only a few countries exhibit a continuously rising trend for all inequality indicators. Among the rest, several show a rising trend in the top gross income share, but standard measures of household disposable income have often stabilised in the last 10 years or so. Of course, there is no reason to believe this stabilisation will last. This simply points to some country heterogeneity with respect to the evolution of inequality. It is simply that inequality is not increasing everywhere, at all times and according to all indicators.

It would be hard to deny that universal forces have affected the distribution of income across countries. Globalisation and skill-biased technological change have undoubtedly had an unequalising influence in most countries, in particular by pushing up the remuneration of skilled or highly skilled labour, and capital. However, other forces have been at play. This is the case, in particular, for redistribution policies (taxation and cash transfers), labour market regulation (minimum wage), and changes in the demographic structure of the population (age, education, household composition) and some behavioural dimensions (labour supply). Depending on the country, these factors may have noticeably modified the income distribution. Being often idiosyncratic, they also explain the heterogeneity observed among countries.

There is a cost to excessive inequality. The recent literature has tried to estimate that cost through growth regressions with inequality on the right-hand side. It has also explored the channels through which this cost is created, with emphasis on the role of inequality of opportunity as a primary cause for inefficiency and income inequality. Most important, however, is the idea that excessive inequality will, at some stage, trigger pressures through the political system for major redistribution policies and structural reforms that may be detrimental to efficiency and growth. At what point, or in response to what particular manifestation of inequality, such costly reactions will arise is essentially unclear. Under these conditions, there is a clear danger in letting inequality grow untrammelled. At some stage, everybody stands to lose from it.

Optimally, policies to correct inequality or preventing it to grow should be directed upstream, addressing the causes for income inequality and economic

inefficiency, rather than concentrating downstream on pure redistribution tools, with all their distortion costs. As upstream policies will generally need additional resources, however, it is a mix of policies that is needed. In this respect, it is worth stressing that there may still be scope today for reverting to more progressive taxation systems in advanced countries, and also in emerging countries, where income taxation is grossly underutilised.

Several theoretical political economy models of growth and distribution insist upon multiple long-run equilibria, one of them being a high degree of inequality, high concentration of political power and slow growth. Given the unequalising forces that are present in today's economies, care must be taken not to converge towards that bad equilibrium.

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Comments by Barry Eichengreen*

Inequality and the role of technology, globalisation and policy in its development are among the leading issues of our day, and François Bourgignon is among our leading analysts of those issues. For this conference, he has provided a comprehensive survey of recent inequality experience. I cannot pretend to do better. What I can do is to place his analysis in a longer-term perspective.

The connections between economic growth, technological change and distribution are, of course, among the most fundamental questions in all of economics. They are being highlighted, as we speak, by a simultaneous slowdown in growth (across much of the world), rapid technological progress (in some sectors), and a rise in inequality (in some countries). This confluence poses challenges for analysts. Fortunately, these issues are not entirely new. To the contrary, the question of how technological progress, structural change and government policy interact to affect distribution is one of the classic questions in my own subdiscipline, economic history.

Specifically, the question arises in connection with the Industrial Revolution, where it is traditionally known as the "standard of living debate". The question there is whether the living standards of the working class rose or fell in the early stages of industrialisation in England, from roughly 1770 to 1830, and whether inequality widened or narrowed in this period. On the one hand, Marx and Engels were pessimistic, as they famously wrote in *The Communist Manifesto*,

"Owing to the very more extended use of machinery and the division of labour, the work of these proletarians has completely lost its individual character and therefore forfeited all its charm for the workers. The worker has become a mere appendage to a machine…Wages decrease in proportion as the repulsiveness of the labour increases…Those who have hitherto belonged to the lower middle class – small manufacturers, small traders, minor recipients of unearned income, handicraftsmen and peasants – slip down, one and all, into the proletariat…Private property has been abolished for nine-tenths of the population: it exists only because these nine-tenths have none of it."

On the other hand, English economic historians, writing in the early 20th century, were considerably more positive (see inter alia Clapham (1930), Ashton (1948)).

The next wave of scholarship on this question, in the 1950s and 1960s, was no more conclusive, based as it was on fragmentary evidence and a priori reasoning (see inter alia Hobsbawm (1959), Hartwell (1961)). The optimistic interpretation, following Hartwell, was that inequality rises in the early stages of industrialisation as workers leave the land for high-wage employment in industry (higher-wage employment than in agriculture); the standard of living rises as a result. The pessimistic interpretation, following Hobsbawm, is that inequality rises because surplus must be marshalled for industrial investment; this occurs by expropriating the open fields and destroying artisanal employment (causing incomes in agriculture to fall). As a result, working-class living standards decline, and inequality widens.

Eventually this debate was resolved in favour of the pessimists. Systematic anthropomorphic evidence on stature, that of military recruits for example, as in Floud, Wachter and Gregory (1990), showed that the heights of working-class

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Englishmen tended to fall in the half-century prior to 1830, after which they recovered, whereas no such U-shaped movement was evident in the stature of the upper class and aristocracy. Thus, we are reminded of two things. First, that economics (and economic history) has become much more of an empirical science. And second, how those warning of undesirable social consequences and of the possibility of a serious political backlash if worsening inequality is not addressed, are not exaggerating. Remember the Luddites, in other words.

More generally, 19th-century experience illustrates the kaleidoscopic nature of global inequality. There was declining inequality among the now-advanced countries, for which there is evidence of a convergence of average income levels, driven by the spread of industrialisation and by immigration from lower to higher real wage economies. But at the same time, there was growing inequality between the advanced and developing world, this being the period of the "Great Divergence". Finally, within the group of now-advanced economies, there was growing inequality, or at least a growing gap between the incomes of those at the top and the masses of the population. For countries such as the United States, this was in contrast to the situation in the first half of the 19th century, when Alexis de Tocqueville in 1841 had memorably described America as "more equal…than…any other country of the world…in any age of which history has preserved remembrance".

In contrast to de Tocqueville's impression, the last part of the 19th century was then marked by the emergence of the great fortunes of the Robber Barons: concentrations of wealth and power associated with new technologies unrestrained by anti-trust law or progressive taxation. Not for nothing was this known as "the Gilded Age".

Combining these three elements into a global estimate of inequality is not easy. One ambitious attempt is that of Bourguignon and Morrison (2002), who sought to construct a summary measure of 19th and 20th-century global inequality trends. Their estimates, which seek to account for both within and across-country distribution, suggest that global income inequality increased continuously between 1820 and 1910, over which period the global Gini coefficient rose from 0.50 to 0.61.

Estimates like these are necessarily heroic, since they rely on data on distribution within countries for only a limited number of economies. To do better, we must concentrate on cases where the evidentiary basis is more complete. We can look to the United States, for example, where the "Statistical Movement" was strong and for which we have new analysis courtesy of Lindert and Williamson (2016), and hope their experience generalises to other countries. Lindert and Williamson's analysis, which involves constructing Gini coefficients over time, points to rising inequality through 1875, after which this measure of inequality plateaus. But the authors also document a rise in the share of the top 1% continuing after that (this being the Robber Baron effect).

The Gini coefficient and top 1% share then both rose still further in the 1920s. We know the former from Kuznets (1953), who found that the Gini coefficient for the United States increased (from 0.22 to 0.39) between 1920 and 1929, while we know the latter from the work of Piketty and Saez (2003). The rise in top income shares in the 1920s was mainly a reflection of the rise in capital income associated with the stock market boom; it was associated with the same imbalances that gave rise ultimately to the Great Crash and the Great Depression. Naturally, this interpretation of the Depression has attracted increased attention and sympathy in the aftermath of our own crisis (see Rajan (2010)).

The subsequent period, from the 1930s to the 1970s, was then characterised by a fall in inequality (both a fall in the share of the top 1% and a fall in inequality more generally). Goldin and Margo (1992) refer to this as "The Great Compression". But, while there is agreement on the trend, there is no agreement on the causes. That the share of the top 1% fell dramatically after 1928 suggests a role for reduced capital income after the 1929 crash. But there was also plausibly a role for New Deal policies (new legal protections for trade unions, anti-trust policy, and so forth). The 1930s were then followed by strong wartime demands for unskilled labour, sharp increases in progressive income taxation during and after World War II, and increases in educational attainment across large swaths of society. This multiplicity of factors suggests that the subsequent reversal – the post-1970 trend toward greater inequality – similarly had no single cause.

Skill-biased technological change (favouring the relatively well educated) and globalisation (disadvantaging the unskilled in the advanced countries) are the popular explanations for this recent trend toward rising inequality, the problem being that differences across countries (to put it in the simplest terms, higher and more rapidly rising levels of inequality in the English-speaking world than elsewhere) seemingly rule out both explanations, since all economies (English-speaking or not) have experienced technological change and Chinese competition. The implication is that tax and regulatory changes, which have varied sharply across countries (and between the English-speaking countries and others specifically), played an important role in this cross-country variation.

What then is the policy agenda suggested by this history? First, historical experience highlights the importance of tax policy for distributional outcomes. Second, it points to the role of competition policy, corporate governance and labour relations (the role of unions as a mechanism for assuring that labour accrues a share of economic rents, in other words) in shaping the distributional impact of market forces. Third, it directs attention to the importance of investment in education for long-term distributional trends. Fourth and finally, it alerts us to the danger of a political backlash if the social consequences are not addressed.

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Comments by Raquel Fernández*

Inequality is too important to be ignored by policymakers, even those primarily concerned with macroeconomic issues. When macroeconomic performance is viewed through a distributional lens, the following types of question emerge: how are the gains from growth shared in a country? How does the business cycle affect how gains and losses are distributed? How does an economic crisis impact income and wealth distribution? Similarly, for globalisation: how are the gains/losses from trade, offshoring, capital flows, and migration spread through the population? The answers to these questions matter, as the legitimacy of pursuing growth and macroeconomic stability rests primarily on the belief that all benefit. After all, what is a policymaker's justification for focusing on growth and macroeconomic stability if the benefits are not widely diffused through the population?

As is by now widely known, inequality has increased markedly in most advanced economies over the last 25 years (see Graphs 1a–d in François Bourguignon's paper). A different, though related issue, is to ask how countries have distributed the gains from growth in a given period. Below, I plot the annual compounded growth rate in median equivalised household income relative to that of per capita GDP for over 20 higher-income OECD countries. In this diagram, the dashed 45-degree line labelled 0-0 represents equal annualised growth in the two measures, whereas the parallel dashed lines below it represent growth rates in median household income that are a given number of percentage points below that in per capita GDP. For example, Austria, Germany and the United States lie between the dashed line labelled –1.0 and –1.5 indicating that, in these countries, median equalivalised household income grew 1 to 1.5 percentage points less than per capita GDP. On the other hand, in Norway and the Czech Republic, median equalivalised household income grew by more than per capita GDP but only by less than half a percentage point. As is clear from the diagram, in all but 3 countries (Estonia is not shown) median household income grew less than per capita GDP.

While one may wish to adjust these measures in a variety of ways (eg using Gross National Income rather than GDP, deflating both growth measures by the same CPI deflator etc), there is no real justification for policymakers to focus only on the x-axis: per capita growth. Indeed, I would urge countries and international organisations to make the distributional gains from growth easily accessible and comprehensible to the general public. In particular, since the median is only one measure, one would like to know how different deciles in the population have benefited from growth and to obtain information on specific categories (eg the top 1%, the poor, and various ethnic or regional breakdowns depending on the country). Knowing, for example, that the 1993–2000 expansion under President Clinton led to 4.0% annual growth in average real income and that the 2002–07 expansion under President Bush led to 3.0% annual growth is not as satisfactory an indicator of welfare as understanding how this growth was distributed. For example, the household income of the top 1% grew by 10.3% annually whereas the bottom 99% of the population experienced 2.7% annual growth over the Clinton expansion; the equivalent numbers for the Bush expansion are 10.1% for the top 1% and 1.3% for the bottom 99%. In both cases, the fraction of total

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growth captured by the top 1% is extremely large, although the difference – 45% of total growth under Clinton vs 65% under Bush – is also instructive.[32]

A similar point can be made for cross-country comparisons. For example, the fact that household average real income in the United States grew by 32.2% from 1975 to 2006 versus 27.1% in France during the same period may indicate the somewhat superior macroeconomic performance of the former. As shown by Atkinson et al (2011), however, when one excludes the income that went to the top 1%, average US real incomes grew by only 17.9% during the period whereas the equivalent average French real incomes grew at much the same rate (26.4%) as for the whole French population. Therefore, the better macroeconomic performance of the United States versus France is reversed when the top 1% is excluded.

For the policymaker, measures of the distribution of the gains from growth should be common and important indicators of the economy's health. Ideally, these measures would also be complemented by information on how the quality and quantity of state-provided services have evolved (eg health services), as welfare, rather than necessarily market income inequality, should be the main focus. Lastly, these measures should be made easily available, in a reader-friendly manner, so that they are understood by virtually all, not just the economically literate.

The fruits of globalisation have also been under increased scrutiny. As shown by Lakner and Milanovic (2015) in their now famous elephant graph plotting the growth rate of percentiles of the global income distribution over the 1998–2008 decade, the income percentiles that would correspond to those of the middle classes of rich countries (say between the 80th and 90th percentile) are also those that saw the lowest growth over this time period. How much of this is a result of globalisation versus technological change versus national policies, however, is unclear.

Historically trade has been cast in a very positive light in advanced economies (although it has always been more suspect in developing countries). While trade theory predicts distributional consequences, these have been presumed to be either short-term (if labour is mobile) or to be diffused over large groups of workers. For the most part, economists had concluded that technological change rather than trade was responsible for the growth in inequality. The nature of trade has changed for these economies, however, from a mostly North-North exchange with presumably small distributional consequences, to trade with the so-called Asian tiger economies and then China, India and Brazil among others. The share of US trade with low-income countries, for example, was 9% in 1991 but reached 28% in 2007. While trade is not the culprit for the long-run declining share of employment in manufacturing in the United States, which has been steadily falling since the mid-1940s, several recent papers have found that expanded trade since the 1990s, particularly with China, is associated with falling employment in manufacturing.

Autor, Dorn and Hanson (2013) use the fact that the industry composition of manufacturing varies across regions (commuting zones) to examine the impact on manufacturing of China's greatly increased exports to the United States as of the 1990s – a result of Chinese economic reforms and its accession to the WTO. Instrumenting the extent to which import penetration is due to Chinese supply by using changes in imports in several other high-income countries, the authors find sizeable effects from the "China shock" on local labour markets and conclude that a

[32] Atkinson, A, T Piketty and E Saez (2011): "Top incomes in the long run of history", Journal of Economic Literature, vol 49, pp 3–71.

quarter of the decline in US manufacturing employment in 1990–2007 is due to import competition. More importantly, adjustment in local labour markets is very slow. Using longitudinal data, Autor, Dorn, Hanson and Song (2014) study workers who are ex ante observationally similar but employed initially in different industries. Using a similar methodology to the one just discussed, they show that the worker whose initial (1990) industry is more affected by import competition suffers long-term lower earnings, has more job churning, and spends more years receiving social security disability insurance. Workers, it seems, are not easily mobile across sectors.

What then are the causes of increased inequality? Globalisation (trade and outsourcing) and technological change are at the top of most lists, but also domestic policies, changes in the assortativeness of marriage, decreases in union strength, and demographic changes. There is little known, however, about the mechanisms that, through these forces, give rise to inequality. What is the quantitative importance of a "superstar" (winner takes all) economy relative to skill-biased technological change, for example? How is the declining labour share (see, eg, Karabarbounis and Neiman (2013)) being generated? Understanding the interplay of forces and the way they impact the economy is key to good policy. The absence of results means that we are most often left with the usual litany of reforms: more progressive taxes, better systems of education, the introduction of basic income etc. While these may all be helpful, a deeper understanding the root causes and mechanisms is fundamental to formulating the most effective policy response.

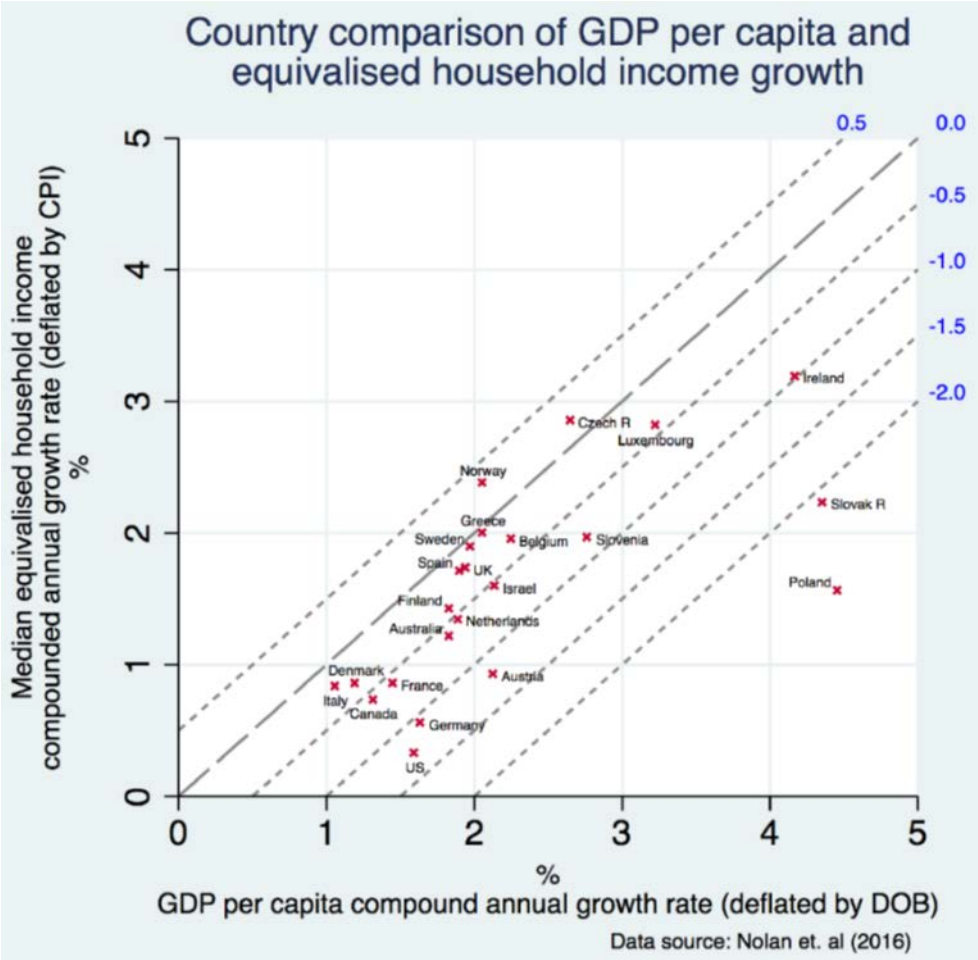
Some interesting hints regarding potential mechanisms generating inequality come from recent work by Song et al (2016). The authors use the universe of data on the earnings of all employees from 1978 to 2013 from the US social security administration. Graph 1a plots the change in the average log earnings of given percentiles of the earnings distribution, with every percentile representing an average of 0.7 million workers per year. The fanning out of these percentiles illustrates the well known increase in labour earnings inequality that has taken place over this period. Graph 1b, on the other hand, plots the change in the average log earnings of the employees of the firms for which individuals in the different percentiles are employed. That is, the 95th percentile, for example, consists of average log earnings of the "colleagues" of each of the individuals in the 95th percentile. Graph 1c reveals a very interesting finding: plotting the difference in the growth of earnings of an individual vs their colleagues for each given percentile of individual earnings, there does not appear to be much of a differential. This leads to the conclusion that the growth rate of incomes of all workers within a firm has been very similar. It would follow from this that the increase in inequality comes not from the top pulling away from the bottom within firms, but rather that top firms are pulling away from bottom firms.

Although the authors place emphasis on the conclusion that one may draw from the above – that inequality is a fundamentally an inter- rather than an intra-firm phenomenon – there are two important exceptions to this. First, this is not the case for mega-firms that employ more than 10,000 individuals. These firms account for almost 30% of employment and the divergence in earnings growth between the median and top employees over this period was 156% compared with 22% in smaller firms. Second, the generally similar pace of growth for all employees within a firm does not hold once one drills in to examine more closely the top 1%. As shown in Graph 5 below, the top half of the 1% experienced earnings growth that significantly exceeded that of their colleagues. Thus, in terms of thinking about the economic forces that generate earnings inequality, it is important to keep in mind both the immense growth of earnings at the very top relative to their colleagues and the

substantial heterogeneity in firm experience once we distinguish between very large and medium and small firms.

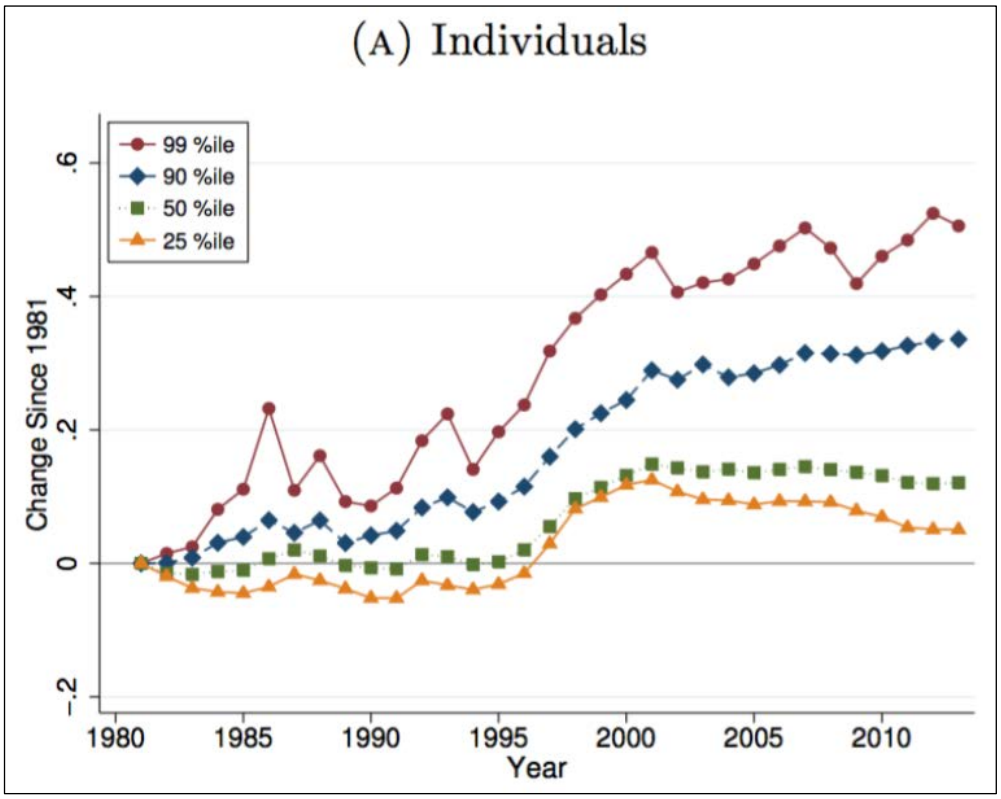
These comments were delivered during the BIS Annual Conference on 24 June 2016, the day Brexit was announced. Since then, political outcomes have continued to surprise. The growth in inequality and the economic situation of lower and middle income groups undoubtedly has some connection to these. There is no reason to believe that inequality will fall without some intervention. Indeed the growth of automation is likely to increase inequality, as it will affect large numbers of relatively routine jobs, both manual and clerical. Some observers speculate that this, along with robotisation, will fundamentally change the ability of an economy to function at anything close to full employment. Prolonged periods of stagnation and future low productivity growth, as predicted by some economists (at least for high-income economies) will also tend to increase inequality and place greater stress on the legitimacy of how many societies operate. Last, but not least, immigration, while an important force in decreasing world inequality, may exacerbate economic inequality in the host country and play the role of a convenient political scapegoat if its benefits are not clearly articulated. A transparent policy that deals with its perceived cultural and economic consequences seems urgent if the benefits from immigration are to be preserved. While these concerns were once far removed from the province of the traditional macroeconomic policymaker, we are no longer living in traditional times.

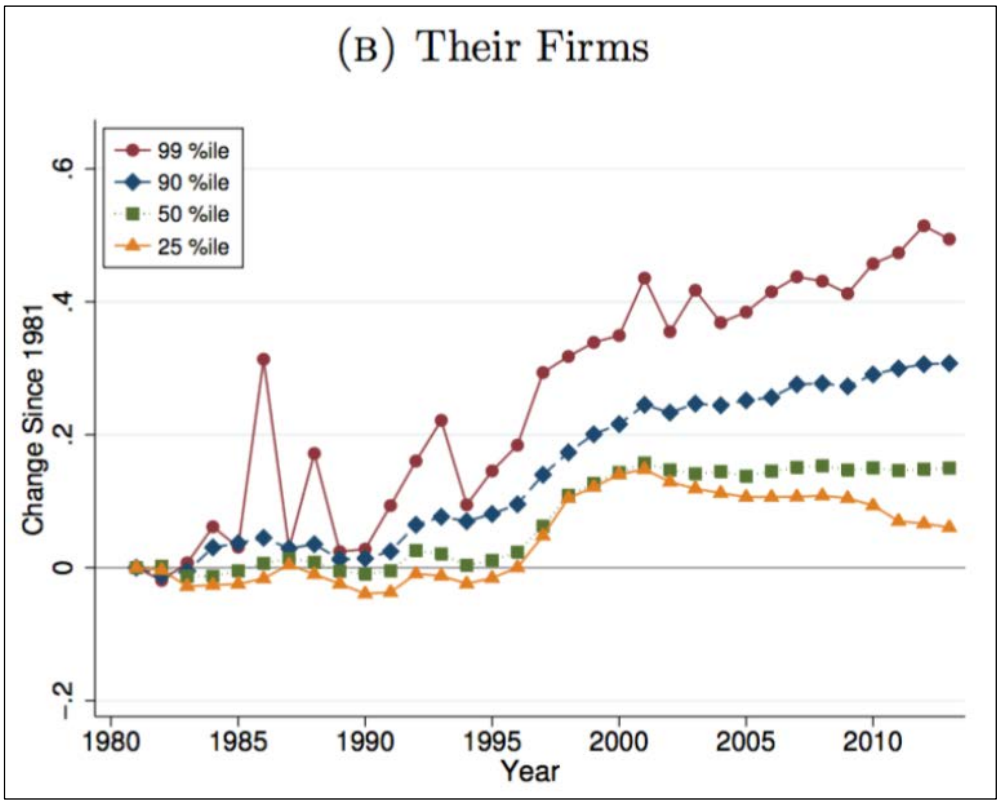
Graph 4. Country comparison of GDP per capita and equivalised household income growth



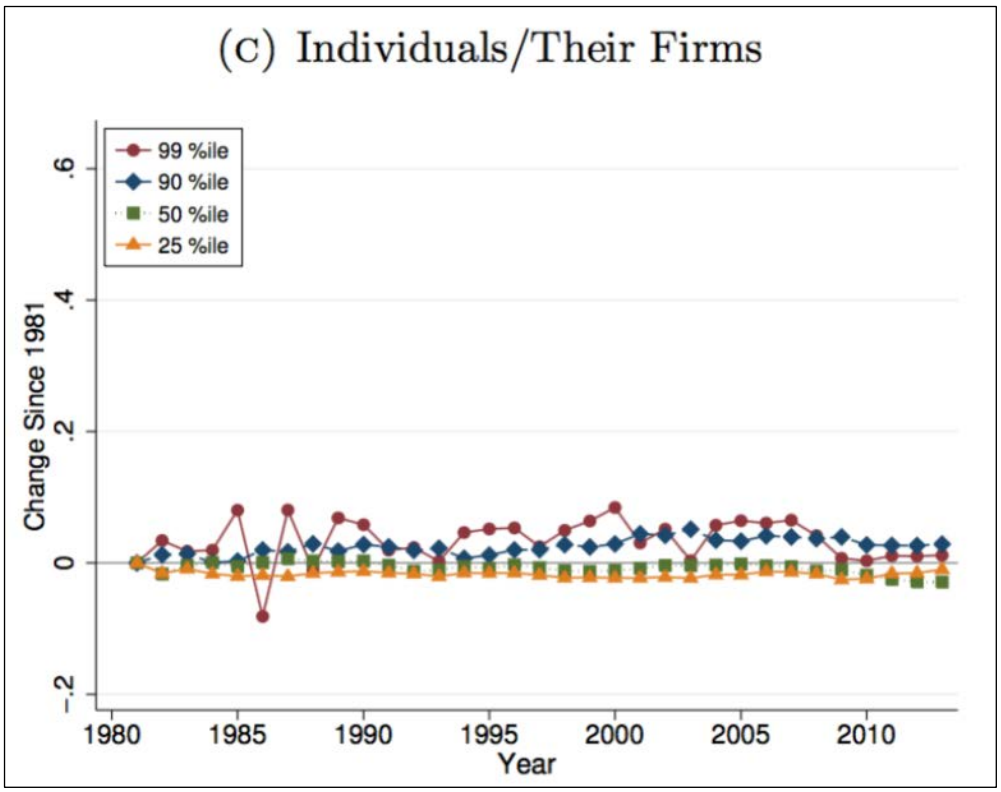
Data source: Nolan et al (2016) using LIS household survey data and OECD National Income accounts.
Outliers: Hungary (1.92,–0.22), Estonia (3.62, 6.14)

Graph 5. Rise in inequality of annual earnings between 1981 and 2013 among top 1% of earners

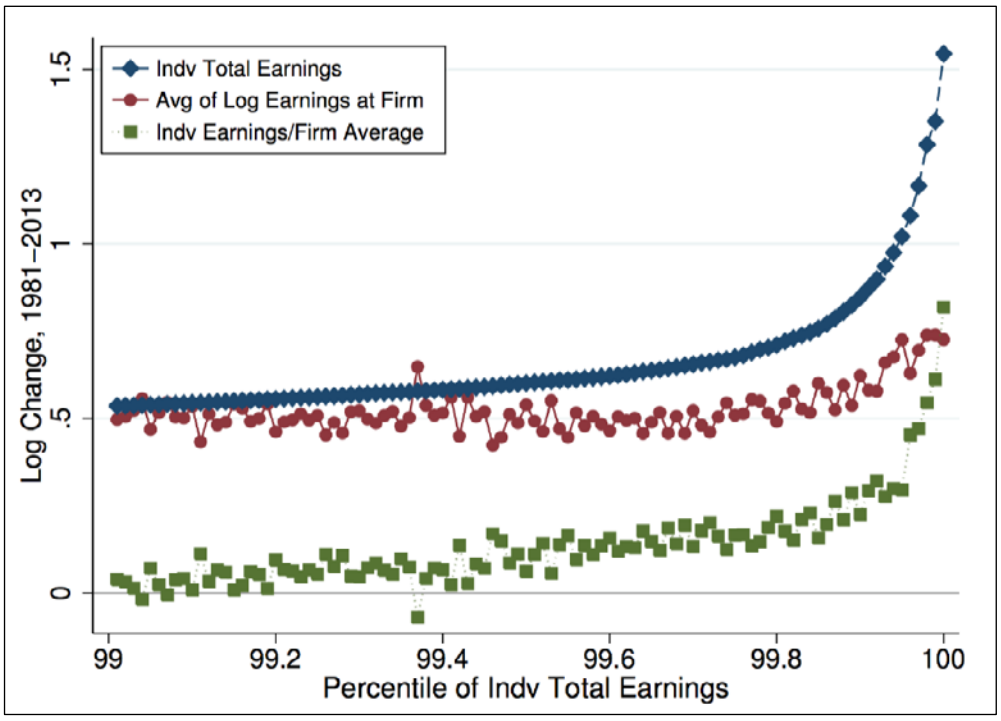




Graph 5 (continued). Rise in inequality of annual earnings between 1981 and 2013 among top 1% of earners



Source: Song et al (2016). Only firms and individuals in firms with at least 20 employees are included. Only full-time individuals aged 20 to 60 are included in all statistics.



Source: Song et al (2016). Only firms and individuals in firms with at least 20 employees are included. Only full-time individuals aged 20 to 60 are included in all statistics.

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