

The Rise and Future of Progressive Redistribution

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ABSTRACT

Starting from today's collection of estimates of fiscal distribution within each of 53 countries, we can begin mapping a history of how redistribution has evolved historically, and to project some influences on its trends in the next few decades. There appears to have been a global shift toward progressive redistribution over the last hundred years in all prosperous countries. The retreats toward regressive redistribution have been rare and have been reversed. As a corollary, the rise in income inequality since the 1970s owes nothing to any retreat from progressive government spending. Adding the effects of rising subsidy for public education on the later inequality of adult earning power strongly suggests that a fuller, longer-run measure of fiscal incidence would reveal a history of still greater shift toward progressivity, most notably in Japan, Korea, and Taiwan. The key determinant of progressivity in the decades ahead is population aging, not inequality itself or immigration backlash.

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Only a long history can reveal the causes and consequences of government redistribution. There are often long lags between the planting of redistributive measures and the harvest of redistributive results, and between the results and their effects on economic performance. Few heads of state could claim that the latest degree of redistribution reflects only the actions taken on their watch. More typically, they stem largely from policies and laws set in place earlier, and often much earlier.

Any historical explanation of redistribution should draw on experience from many countries. This need follows from the difficulty of making inferences about causal structure from the non-experimental data that history presents to us. Since the unit of observation has to be an entire polity, usually a national government, we cannot set up a laboratory for randomized control trials.

For the twenty-first century, fortunately, multiple studies have greatly strengthened our quantitative grip on how today's fiscal redistributions differ around the world, and have opened the door for writing new national histories. The OECD had been a leader in comparing income inequalities, either before or after the effects of government, among its growing set of members and associate nations, using data from the Luxembourg Income Study.¹ The LIS data have also yielded international comparisons for a similar set of countries by Wang, Caminada, and Goudswaard (2012). The redistributive experiences of Latin American countries have been compared in studies by the World Bank and the Inter-American Development Bank.² An even more global view of fiscal redistributions has been assembled in the current wave of studies and databases by the Commitment to Equity (CEQ) project, led by Nora Lustig.³ These international studies open this paper's empirics with their now-extensive set of snapshots from early in this century.

After so much progress on measuring redistribution around the world today, the real frontier today is the historical political economy of this issue. When, where, how, and

¹ See OECD (2008, 2011, 2014a, 2014b, 2016b, and especially 2016a).

² See de Ferranti et al. (2004, especially Chapter 9); Skoufias, Lindert, and Shapiro (2010) and the World Bank studies and databases cited there; and Bértola and Williamson (2017) and its sources.

³ See Lustig (2017), CEQ Institute (2017), and Lustig (ed.) (forthcoming).

why have governments shifted in their relative treatment of rich, middle, and poor over time? Can any of these historical changes be used for forecasting?

Initial progress has now been made. First, the OECD's *Divided We Stand* study (2011) was able to compare overall redistributions in the mid-1980s, mid-1990s, and mid-2000s for fourteen countries. The full two-decade change was toward progressivity in eleven of the fourteen countries, the only exceptions being Israel, Netherlands, and the United Kingdom. In almost all of these cases the net change was dominated by changes in the progressivity of social transfer benefits, not by changes in taxes or social security contributions. Essentially all of the two-decade rise in progressivity came in the first decade jump, from the mid-1980s to the mid-1990s. This finer timing was dictated largely, however, by business-cycle effects, since several countries were in recession in the mid-1990s. The main OECD result is that progressivity rose from the 1980s to the 2000s in the countries they studied.⁴

Pushing deeper into history for a single country, the team of Thomas Piketty, Emmanuel Saez, and Gabriel Zucman (2016, hereafter PSZ) has, with characteristic mastery, combined such materials into an account of America's net fiscal effects back to 1962, as part of their broader accounting for American total incomes back to 1913. Their larger Distributional National Accounts (DINA) project is pioneering work, the only comparable accounting for changes in US progressivity being the classic study of American fiscal incidence in 1950-1970 by Morgan Reynolds and Eugene Smolensky (1977).

This paper takes some initial steps toward that historical frontier. The history of fiscal redistribution must be built backward, starting from today's relatively abundant snapshots and assembling the historical movie reel backwards in time, for the best-data-supplying countries. For the United States, I extend the PSZ fiscal-distribution detail back to 1913, revealing some new movements. In addition, I fence out a new history of fiscal effects on inequality in Britain, turn to a remarkable Bengtsson-Holmlund-Waldenström (2016) study of Sweden, and then add new findings on inequality history in three Southern Cone countries of South America. I next survey two essential extensions of the topic – to the long-run inequality effects of subsidies to education, and to non-fiscal devices for

⁴ OECD (2011, Figure 10 of the Overview volume and Table 7.3 of the full volume).

redistributing income. This sets the stage for courageous, though data-based, conjectures about the future of progressive taxation, egalitarian social expenditures, and overall progressivity.

This paper's tentative steps toward a global history of government income redistribution suggest the following findings:

(1) In every country supplying adequate data, government budgets have shifted resources progressively, from the rich to the poor, within the last hundred years. Before World War I, very little was redistributed through government, mainly because government was so small, due in turn to poverty, lack of state capacity, and lack of mass suffrage.

(2) For all that has been written about a shift of political sentiments and government policy away from progressivity since the late 1970s, no such trend is clear yet, pending research on more countries. A slow sustained rise in progressivity shows up in data from the United States, Argentina, and Uruguay. Among democratic welfare states, the closest thing to a demonstrable reversal against Robin Hood is the slight retreat in Sweden since the 1990s. Globally, the most dramatic swing since the late 1970s has been Chile's record-setting return toward progressivity after the regressivity of Pinochet.

(3) Adding the effects of rising public education subsidies on the later equalization of adult earning power strongly suggests that a fuller, longer-run measure of fiscal incidence would reveal a history of still greater shift toward progressivity. This revision has its greatest impact in Japan, Korea, and Taiwan, which have excelled in raising lower ranks' earning power through primary and secondary education, but have offered little in direct transfers to the poor.

(4) Finding that redistribution of government budgets has continued to march slowly toward progressivity carries a strong implication for our interpretation of the rise in income inequality since the 1970s, so firmly established by the World Top

Incomes Project and by Thomas Piketty (2014). That rise may owe nothing to a net shift in government redistribution toward the rich, despite the lowering of top tax rates. If so, it is all the more important to explore what non-fiscal forces have widened gaps in market incomes around the world.

(5) The stability or slow advance in net fiscal progressivity since the late 1970s has not matched the rise in overall social transfers, because less-progressive public pension benefits have risen as a share of transfers, and of GDP, in most countries. That is, social insurance policy has betrayed a mission drift away from investing in children and working-age adults, and toward accepting rising pension bills. This mission drift toward the elderly implies a missed opportunity for pro-growth leveling of income. Unfortunately, the drift continues in this century, for most countries.

I. Overview: Issues, definitions, and caveats

(A.) Issues

A host of causal questions surrounds the still-unquantified history of redistribution through government. What roles were played by wars? By shifts in political power or the changing “need” for redistribution caused by shifts in the inequality of market incomes? All of these forces have been at center stage in the debate over the sources of overall inequality, and some of them have already been featured in explanations of government redistribution.

In the last three years, mass warfare has been spotlighted as a leveler of income and wealth, acting partly through government taxes and expenditures. Thomas Piketty (2014) placed the two World Wars at the center of history’s greatest period of income leveling. He implied that the wars pushed government policies toward the left and toward progressivity. Walter Scheidel (2016) agreed, and widened the same point, making war the dominant “Great Leveler” of incomes throughout human history. These landmark studies implied that government redistribution was one channel through which the leveling was

achieved, yet did not spell out such a link. The link has now been forged on the tax side by Kenneth Scheve and David Stasavage (2016). They emphasize that wars compelled the rich to pay very high taxes to compensate the non-rich for the sacrifices they had to make by serving in conscripted armies. As a natural corollary, Scheve and Stasavage predict that prolonged peace causes a retreat from tax progressivity and a reversion toward overall income inequality. Their case draws solid support from the decline of top tax rates in the later post-WWII generations, from the 1970s on. None of their clearly plausible interpretations, however, has yet followed through on a full quantification of fiscal progressivity, since they have not yet explored how the extra funds were spent after the war.⁵

History suggests a natural suspicion that fiscal progressivity has been unleashed by the expansion of political voice, enfranchising middle and lower income groups, and enfranchising women. The suggestion arises from the fact that the era giving them the vote was also the era in which social spending was launched, namely the era from the 1880s to the 1960s. Econometric macro-panels suggest some such relationships, though the results are not free of suspicions about endogeneity.⁶ How would the history of fiscal progressivity compare with this history of social spending aggregates? Would the spread of voting rights stand out as an event promoting progressive fiscal redistribution?

The effect of pre-fisc market income inequality on redistribution has also been debated at length. Is the median-voter intuition correct, meaning that greater skewness of market incomes provokes greater soaking of the rich (Meltzer and Richard 1981)? Or are the rich able to buy enough political power so that greater pre-fisc inequality causes less redistribution? Thus far, the latter suspicion remains stronger, especially in the United States since a conservative majority on the Supreme Court handed down its the *Citizens United* decision in 2010.⁷ This latter suspicion is also shared by Daron Acemoglu and James

⁵ The only real exception is Piketty, Saez, and Zucman's December 2016 study of US experience, to which I will turn shortly.

⁶ See Lindert (2004, volume 2, chapter 16) and Aidt, Dutta, and Loukoianova (2006).

⁷ Bartels (2008), Hacker and Pierson (2010), Gilens (2012) and Bonica et al. (2013).

Robinson, who muster both econometric evidence and historical contrasts to conclude that political inequality protects the rich sufficiently to raise post-fisc economic inequality.⁸

I have shared the suspicion that the rich use their political dominance to buy regressive budgetary policies, and have added evidence on the expenditure side. Yet the econometric support for this tendency is decidedly mixed, and not robust. As we will see shortly, raw correlations over time and space also speak equivocally.⁹

(B.) Definitions

This essay follows the difference between pre-fisc and post-fisc income inequality – that is, between original income (or market income or gross income) on the one hand and final income (or net income) on the other. While other studies have tried to give separate treatment to such intermediate inequalities as that of post-tax pre-transfer income, or a disposable income concept that ignores the distribution of aid in kind, this study sets those aside, and focuses on the full set of fiscal effects.¹⁰

The overall inequality measure that is used most here, as in most recent studies, is the gini coefficient, a putative measure of the share of national income that would have to be redistributed to achieve full income equality, in the absence of any behavior responses to such a massive transfer. Fiscal redistribution is simply the difference in the pre-fisc and post-fisc gini's, following a practice that has been handed down since that path-breaking study by Reynolds and Smolensky (1977). Progressivity obtains if the post-fisc inequality (gini) is less than the pre-fisc inequality, and regressivity obtains in the opposite case.

⁸ Acemoglu and Robinson (2007, 2012). A similar belief that inegalitarian political institutions cause economic inequalities, and retard growth, has been advanced by Stanley Engerman, Kenneth Sokoloff and Eric Zolt in the context of the Americas (e.g. Sokoloff and Zolt 2006 on the tax side).

⁹ See the introduction of the “Robin Hood paradox” in Lindert (2004, Ch. 1). On the ambivalent econometrics of the effect of pre-fisc inequality on fiscal redistribution, see Karl Moene and Wallerstein (2001, 2003) and Karabarounis (2011).

¹⁰ I re-emphasize that the “full set of fiscal effects” must include benefits in kind, and not just cash benefits. Studies have found that in-kind benefits such as health and education greatly reduce inequality even within the same year (see, for example, Paulus et al. (2010) and Aaberge et al. (2010)). Fortunately, our main sources have taken care to include the distributive effects of in-kind benefits. See OECD (2011, p. 39) and Lustig and Higgins (2016).

Where possible, I shall take care to note cases involving very different effects on upper and middle groups' fortunes versus the effects on middle versus poor.

Progressive or regressive *relative to what alternative policies*? Let us define fiscal neutrality as the counterfactual policy setting both taxes and transfers at the same shares of income up and down the income spectrum. In such a case the gini coefficients of inequality would be the same both before and after individual incomes are affected by the government budget, and the net redistribution would be zero, neither progressive nor regressive. More specifically, let this counterfactual policy be one of the same aggregate budget size.

Agreeing on these definitions will not dispel all the problems with the comparisons, and we must first review some obvious ways in which the measures fall short of capturing the overall impacts on the distribution of income.

(C.) Caveats

The limitations of conventional incidence calculations like those cited here are so strict that the fiscal incidence calculations are useful only as plausible suggestions about the direction of effect and the general orders of magnitude. As public finance textbooks warn their readers repeatedly, one should never imagine that all the possible effects of a particular set of budgetary flows have been worked out. Let us confront the traditionally cited dangers here – and then proceed with the traditional calculations anyway, while taking care to flag cases in which our knowledge of the underlying history warns that the measures mislead seriously.¹¹

Time horizons: For one thing, the conventional annual measures of fiscal incidence are too short-run, failing to match either the duration of the effects of that year's budgetary changes or the lifetimes of the affected individuals. The effects of this year's budgetary policies can continue for generations – think of the enduring effects of this year's wealth tax, or this year's spending on public health or education, for example. We'll return to this in Part III.

¹¹ For overlapping lists of warnings about fiscal incidence measures, see Reynolds and Smolensky (1977); Smolensky, Hoyt, and Danziger (1987); Bergh (2005); and Lustig and Higgins (2016, pp. 21-25).

Ultimately we care about the inequality of resources that people have over their entire lifetimes. This year's fiscal effects may mislead, by missing effects on the length of life, or by missing correlations between effects on incomes in different years of the same lifetime.¹²

Behavioral responses are assumed away by such measures. That is, they assume that the tax or benefit sticks, like flies to flypaper, exactly where it is imposed or paid out. People are supposedly taxed on their incomes without deciding to engage in less or more of the income-generating behavior. People in need are assumed to go on working, or not working, the same amount regardless of any social assistance they receive. Beyond peoples' failures to change their income-generating behavior in the first round, the traditional calculations further assume no subsequent effects on prices and factor rewards, which fits uneasily with the calculations' implying that spending is affected. As an extreme variant of this behavioral-response issue, other effects missed by the magnitudes of tax revenues and expenditures arise in the cases where a fiscal exaction is prohibitively expensive. If a tax makes people avoid an activity altogether, this can have great effects on the income distribution even though there are no tax collections to distribute between rich and middle and poor. In a later section, I'll use the Corn Law example to underline the point that in some cases a strong impact is hidden in prices and quantities of overall behavior, with no visible reflection in taxes or expenditures.

In addition, most of this paper sets aside the broader set of non-fiscal redistributive institutions, such as labor laws, human bondage, laws governing business competition, and policies favoring or harming certain output sectors.

Finally, the source materials themselves have shortcomings. Economists and historians need to weave a quilt from the diverse materials provided by tax returns, household surveys, government budgets, censuses, and industry studies into a coherent contrast of the distributions of income with and without the effects of government. No one type of source yields correct answers by itself.

¹² The daunting task of measuring effects over entire adult life spans has been performed by Lillard (1977) and, in ways matching our task even more closely, the study by Bengtsson, Holmlund, and Waldenström (2016) to which we turn below.

These definitions and warnings in mind, let us courageously proceed to explore the outstanding issues with the help of the latest data and incidence estimates.

II. The Rise of Redistribution

(A.) The latest fiscal snapshots

We can now compare inequalities in yearly incomes before and after taxes and transfers, and thus the net fiscal redistribution, for 53 countries around the world, in or near the year 2013 (Table 1 and Figure 1). Fortunately, our two main sources – the OECD and the Commitment to Equity Institute (CEQ) – used broadly similar estimation procedures.¹³ A limitation shared by these two sets of studies, however, is that they probably understate both the pre-fisc and the post-fisc inequalities to the same unknown extent. Both sets of studies are based mainly on household surveys, which tend to understate the pre-fisc incomes of those in the top five percent of the household income ranks. And both also miss part of the top incomes hidden in corporate form or in tax havens abroad.¹⁴ Yet since the post-fisc income distribution is derived by subtracting the better-seen taxes and transfers from the pre-fisc distribution, there is no clear direction of bias in our measures of net fiscal distribution.

One difference in their procedures is that the OECD measures follow only inequalities among persons in the working-age (18-64) population, to focus on differences

¹³ All of the conclusions derived from this comparison of snapshots draw support from the similar recent comparisons in OECD (2008, 2011), Wang, Caminada, and Goudswaard (2012), and Ostry, Berg, and Tsangarides (2014), that last of which draws on the large Standardized World Income Inequality Database (SWIID) of Frederick Solt (2009, 2014). While its use of interpolating and extrapolating assumptions makes the SWIID attractive for trying out hypotheses, I prefer to stick with the OECD and CED data sets, which will offer a clearer path of verification in terms of primary data. Readers seeking global income distribution data set should also consult Branko Milanovic's handy "All the Ginis" database for 1950-2015 (at <https://www.gc.cuny.edu>), though it does not offer pairings of pre-fisc and post ginis for the same country and year for the present purpose of tracing fiscal redistribution.

¹⁴ On the likely aggregate magnitudes of top incomes hidden abroad and/or in the form of corporate earnings, see Zucman (2013, 2015).

in earning power, whereas the CEQ studies follow the per-capita income of households with all ages of household head. I am still exploring what difference this could make in their measures of net fiscal redistribution. For the present, it seems safe to say that the following conclusions are not put at risk by this difference in their population concepts.

One clear conclusion from Table 1 and Figure 1 is that all of the data-supplying countries practice progressivity in redistributing through government budgets. That is, in all cases incomes were made less unequal by taxes and transfers, as one would expect from social insurance programs. Unless one suspects that countries not supplying data were generally redistributing in a regressive manner from poor to rich, progressivity can be viewed as a global phenomenon today.¹⁵

Fiscal redistribution has a distinct inter-regional geography. Three modern East Asian economies stand out for having achieved relatively equal incomes without same-year redistribution. These are Japan and Korea, shown in Figure 1, plus Taiwan. Their distinctive pattern has drawn commentary for some time, and we return to it later when incorporating the longer-run effects of subsidies to mass education.¹⁶ The United States, famously inegalitarian in comparison with most OECD countries, would seem to be closer to the center of the pack globally, once one includes the high income inequality and feeble social insurance in Latin American and African countries.

The snapshots in Figure 1 also yield a global update on the Robin Hood paradox, namely that progressive redistribution (Robin Hood) often shows up less in settings that need it more.¹⁷ Within a jurisdiction, the usual policy preference would call for more

¹⁵ Branko Milanovic (2000, pp. 389-90) similarly found that an OECD-oriented sample from the late 20th century yielded only positive differences between original market-income gini's and disposable-income gini's.

In a similar vein, out of 76 countries yielding redistribution estimates for the year 2007, only two (Philippines and Belarus) were estimated, or predicted, to have slightly regressive redistributions in Solt's SWIID 4.0. Three others in East Asia were estimated to have zero redistribution, and the remaining 71 were estimated to be progressive overall.

¹⁶ For earlier emphasis on these economies' equality-without-redistribution pattern, see Kwon (1997) and Jacobs (2000). The available estimates for other East Asian countries also suggest very little progressive redistribution, but starting from much greater income inequalities than in Japan, Korea, and Taiwan.

¹⁷ The Robin Hood paradox was introduced by this author (Lindert 2004, volume 1, Chapter 1). Nora Lustig (2017, pp. 5, 15-20) has rightly emphasized that the paradox fails

progressive redistribution whenever or wherever the inequality (or poverty) is greater. If this mandate were honored across jurisdictions, the slope in Figure 1 would be flatter than 45 degrees. By contrast, the Robin Hood paradox says that in many comparisons the slope across jurisdictions is steeper than 45 degrees, with less redistribution toward the poor where market incomes are more unequal (and/or the poverty rate is higher). Figure 1's international snapshot shows an intermediate result, with no clear tendency toward conventional leveling or away from it. The Robin Hood paradox can only suggest that in some, but not all, comparisons, the jurisdictions with greater inequality of market income will redistribute less toward the poor. Thus the paradox has a here-you-see-it there-you-don't relationship with the data, rather like the Phillips Curve. Still, the paradox is worth contemplating, because it fits two larger contrasts so well. For one, the countries that failed to supply the data needed for redistribution estimates like those in Figure 1 tend to be poorer and less egalitarian in their policies, fitting the paradox. For another, the long sweep of world history offers the same paradoxical contrast: earlier history brought more poverty and more inequality of market incomes, and redistributed less toward the poor.

(B.) When and where did progressivity rise? Recent correlates as clues

When did today's global tendency toward progressive use of government budgets first arise, and has it been retreating in recent years? Table 1 and Figure 2 introduce a correlation between progressivity and the share of national income spent on social transfers, a correlation of 0.60 for the whole sample or 0.68 without the questionable estimates for Argentina and Ireland. One might alternatively nominate progressive taxation as a correlate, using such measures as the top income tax rate or the share of taxes on income and wealth in GDP. Such correlations also appear in today's global cross-section, but are a bit weaker, a weakness we will rediscover when looking at individual country

to hold in many of today's international comparisons. Milanovic (2000, pp. 384-87) obtained regression results showing that greater pre-fisc income raised redistribution toward those below median incomes or those in the poorest decile, again contradicting the Robin Hood paradox. His sample, however, excluded most of the Latin American and Asian countries included in Figure 1 here.

histories.¹⁸ If one were to follow the social spending share back over time, it might offer valid initial hints about the rise, and possible fall, of progressive redistribution. Table 2 gives such hints for a wide range of countries. Two features seem obvious. One is that back around 1910, before the first World War, there were still no social insurance programs that channeled a large share of national product. By implication, pre-war governments must have done little or nothing to help the lower income groups by taxing the rich, and the whole history of rising progressivity must have unfolded over these last hundred years or so. Another obvious feature from the history of social transfers is that it reveals no dramatic reversals. None of these last eleven decades experienced a major multi-country decline in social transfers. We pick up the rough and indirect hint that there was a rise in progressive redistribution, but never a decline for any large subset of countries. Is the hint correct?

(C.) Fiscal redistribution since 1910

How did it really work in the great sweep of modern history? We have only the shallowest of histories for most countries. Fortunately, we now have historical tracings of fiscal redistribution for three rich countries back to the 1970s or earlier, and we also have long mappings of fiscal redistribution for a few Latin American countries.

(1) USA since 1913. For the United States in the well-documented era of continuous income taxation, we have the benefit of two studies that have set the world standard for consistency in redistribution measurement. Forty years ago, as noted earlier, Reynolds and Smolensky (1977) refined US data for 1950, 1961, and 1970 to yield complete income distributions before and after the effects of government budgets, based on consistent concepts of income and population. Looking through that twenty-year window of history, they saw remarkably less change in fiscal progressivity than the growth of government

¹⁸ For 21 countries supplying the needed data around 2013, the top income tax rate had a correlation of only 0.40 with net fiscal redistribution. The social transfer measure used here is the OECD's SOCX, which excludes expenditures on public education. Studying several countries for the 1980s-2000s, the OECD study *Divided We Stand* (2011, Chapter 7) also found that differences in benefits explained more of the overall progressivity than did differences in taxes or social security payroll contributions. The same aggregate correlation was emphasized by Kato (2003) and Lindert (2004, volume 1, Chapters 10-11).

social budgets might have suggested. Yet despite their emphasis on null trends, their change-in-gini measures did show that redistribution down the income ranks advanced at a pace we might find typical for OECD countries once we have fuller data.¹⁹

Now the team of Piketty, Saez, and Zucman (2016) has introduced their own consistent system of “distributional national accounts” (DINA) for the United States all the way back to 1913. Their measures, like those of Reynolds and Smolensky, apply consistent income and population concepts. Here, as in their larger work with Tony Atkinson and others on the World Top Incomes Project, they also offer a solution to the problem of under-reporting top incomes that has plagued survey-based income distribution studies. Further, for the years back to 1962, they deliver exactly what we seek here: measures of the effects of government-budget redistribution on the whole distribution of income. Applying a few frugal assumptions, I have extended their coverage of the net effects of government budgets on income inequality back from 1962 to 1913.²⁰

We start the new redistribution history by following the “Gini, overall redistribution” green line shown in both halves of Figure 3. The trend is unmistakably upward, toward progressivity, despite brief reversals under Ronald Reagan and George W. Bush. The overall net redistribution since 1913 has risen 9.51 percentage points, despite falling back by 1.37 points in 1980-1984, Reagan’s first term, and by 1.00 points in 2000-2003 at the start of the George W. Bush presidency. From 1910 all the way until 1970, the trends in net progressivity closely matched those of the share of social transfers in GDP.

¹⁹ Using their middling variant with “normal assumptions, except that general government expenditure is allocated by income” (Reynolds and Smolensky 1977, p. 71) yields these percentage ginis:

	RS pre-fisc	RS post-fisc	implied redistribution
1950	39.1	33.4	5.7
1961	39.8	33.3	6.5
1970	40.0	32.2	7.8

²⁰ The only gap to be filled in the PSZ series before 1962 is to allocate the incomes of those in the bottom 90 percent between a below-median group and a 50-90 group. My assumptions, detailed in the notes to Figure 3, yield pre-fisc and post-fisc distributions of income across 8 income quantile brackets, from the 0-50 percent group up through the top 0.01 percent. For these distributions gini coefficients of inequality were calculated, and the difference between the gini’s is the progressivity of fiscal redistribution for each year.

Since 1970 progressivity and transfers have continued to rise together, but the trend has not been as steep for progressivity as for social transfers, which expanded faster in the form of Medicare and social security than in the form of assistance targeted at the poor.²¹ Overall, the redistribution helped the lower-income half of the population more and more, especially in the decades between the presidencies of Coolidge and Reagan (Figure 3B), which delivered the New Deal and the Great Society. Conversely, the top income decile has continued to pay greater and greater net shares of national income in taxes.²² Interestingly, the PSZ estimates find that the 50-90-percentile group (“middle class,” if you wish) was disadvantaged between 1965 and 1983, but then favored from 1983 through 2000.

Note that American experience educates our choice of fiscal parameters as indirect clues to net redistribution when direct measures are lacking. That share of social transfers outperforms its tax-side rivals. As shown in Figure 3A, the dramatic movements in the top marginal income-tax rate are not mirrored in the PSZ measure of overall redistribution. Likewise, the average tax rate on income and wealth tells a very different story from the overall result in terms of redistribution between rich and poor. The one and only jump in that average tax rate occurred during World War II, when the sudden prosperity raised the share of households paying income tax from just the richest four percent to about 75 percent. The years since 1945 show no trend whatsoever in the average income and wealth tax. This result suggests that the American history of fiscal redistribution is better

²¹ Here the term “social transfers” violates a convention of national income and product accounting by including as “transfers” some direct payments for currently produced services such as health care. This is done here, as in Lindert (2004), to have a shorthand name for a concept matching the social expenditure measure of the OECD. I use the term “social spending” to include the public education spending omitted by the OECD measure. For an alternative history of the American welfare state using a full integration of public education into the overall measure of social expenditures, see Garfinkel, Rainwater, and Smeeding (2010).

²² The trends in impacts on the richest decile and poorest half of the population are sensitive to the choice of income denominators. Figure 3B shows their fortunes as shares of overall national income. Since 1980, the trends would have looked a bit different had Figure 3B graphed the fiscal impacts as shares of their class-specific pre-fisc incomes. The rising inequality of pre-fisc inequality since 1980 means that the class-specific impact ratios would bend upward more since 1980, with more upward movement in the effects on the poorer half and less downward trend against the top decile than shown here.

followed, or predicted, by the movement of progressivity on the social expenditure side, not the tax side.

(2) Britain since 1910. British history will someday allow sufficient data for us to trace fiscal incidence back to 1688, supplementing the excellent telling of the larger fiscal history by other scholars.²³ That will take consider work, however, because the official British presentations on fiscal incidence have kept switching definitions. The long series on *The Effects of Taxes and Benefits on Household Income* (and similar titles) covering many years since 1938/39, in particular, have switched population concepts from taxpaying units to consumption-equivalized household units. In addition, their income measures are largely based on household samples, subject to the usual problem of under-reporting top incomes, and their summary measures omit benefits delivered in kind rather than in cash.²⁴

Nonetheless, we can start with fairly consistent measures since 1977, and then build boundaries on the progressivity or regressivity of taxes and benefits for earlier years back to 1911. The relatively solid series from the Office of National Statistics for 1977-2014 is plotted in Figure 4. The summary measure shows no net change in fiscal progressivity over this recent period, yet reveals some gyrations reflecting politics and the macro-economy. The famous regressivity of Margaret Thatcher shows up as a drop of 4.2 gini points in progressivity from her first year (1979) to her last (1990) as Prime Minister. In between, however, progressivity seems to have jumped to a peak in 1984, before plunging. The early peak progressivity was an automatic byproduct of the combination of continuing unemployment compensation and the high unemployment rates triggered by the international slump and by Thatcher's disrupting labor markets and slashing subsidies to

²³ For the long era up to World War I, see O'Brien (1988), Brewer (1989), Daunton (2001). For the period since World War I, see Daunton (2002), and the British coverage within Baldwin (1990) and Steinmo (1993).

²⁴ Specifically, they omit any inequality in the benefits of the National Health Service, housing subsidy, rail travel subsidy, and bus travel subsidy. Measuring the incidence of such transfers in kind would raise the progressivity of the final result, especially after World War II. In fact, detailed figures from the Office of National Statistics have allocated such aid-in-kind to disposable-income deciles for 1977-2016, though not for earlier years. In addition to these types of aid-in-kind, the official income distributions also omit public education and school meals and Healthy Start Vouchers, but I deliberately defer education-related subsidies to the next section, to mimic some other studies and to delay consideration of effects from subsidies that occurred deep in the past.

nationalized industries. That social spending rose during the local progressivity peak of 1984, and also with the peaks of 1994 and 2009-2011, reflects the counter-cyclicality of social insurance as Britain had designed it.

The top tax rate, a measure that lacks any automatic short-run response to the macro-cycle, does not fit Figure 4's 1977-2014 movements in progressivity as easily as does the social spending share. The top tax rate clearly showed the fingerprints of Margaret Thatcher, dropping from 20.8 percent to 15 percent in 1979 and then to 10 percent in 1990. The regressive intent was reinforced by her "Community Charge" of 1989-1990, which shifted local government assessments from realty valuations to a per capita levy. This poll tax sparked the riots that forced her out of office. Thus far, from the start of the ONS series in 1977 to 1990, the top tax rate seems to correlate well with our summary measure of progressivity. Yet from 1990 to 2009, we find that progressivity continued to drift upward with no rise in the top income tax rate.

To extend this history back in time from 1977 requires a retreat to identifying a broad range of possible degrees of progressivity, rather than a single best-guess estimate, because Britain's earlier data are less complete and less consistent in their construction. As a second-best solution, let us put upper and lower bounds on fiscal progressivity for each benchmark year yielding sufficient information to set bounds. We start with boundaries for 1911, and then consider 1938/39 – 1974/75, paying particular attention to upper bounds that overstate the possible progressivity in these years.

While we lack detailed empirical allocations of government taxation and spending among the rich, middle, and poor ranks for 1911, we can set an upper bound on their progressivity just by knowing their aggregate amounts. Here I exploit the fact that all social transfers and all direct taxes both took very low percentages of national income – social transfers were less than 1.4 percent of national income, and direct taxes on income, wealth, and specific assets were only 5.4 percent of GDP.²⁵ As long as redistribution was channeled through the government budget, it had to have been quite limited.

To set a specific upper bound on progressivity for 1911, let us imagine an implausible "Dennis Moore" over-progressivity based on these small percentages. Dennis

²⁵ These two percentages were borrowed from 1910, and assumed to apply to 1911 as well.

Moore was a farcical Robin-Hood-wannabe of the eighteenth century, played by John Cleese of the Monty Python Flying Circus in the late 1960s (*vide* YouTube). Moore kept stealing from the rich at gunpoint and delivering to the poor. He kept this up until the once-rich were destitute and the once-poor became contemptuous of the shoddy goods he was bringing them from the rich-turned-poor. Moore remained ignorant of the subtleties of the Lorenz Curve until the final episode (“Blimey, this redistribution of wealth is trickier than I thought!”). As long as Dennis Moore’s transfers were constrained by those government shares from the Britain of 1911, he could only have taken a maximum of 5.4 percent of national income from the very richest, stripping them of all income, and have given only a maximum of 1.4 percent to the very poorest, spreading the remaining 4.0 percent evenly (let us say) among the group initially in the middle.²⁶ The resulting 6.1-percentage-point reduction of the gini would have fallen well below the 13.5 percent of 1977, when the more reliable ONS series begins. In other words, more than half of the progressivity delivered by the late 1970s, or today, must have been achieved after 1911. Before 1911 there must have been relatively little progressive redistribution through government, the only likely exception being the French War Era 1792-1815, when progressive taxation and poor relief were roughly as substantial as they were in 1911.

When was the historic net gain in progressivity achieved between 1911 and 1977? The most reliable lampposts in this long darkness are the sample-based Surveys of Personal Incomes for 1938/39 – 1974/75 published by the Inland Revenue. A strength of these income distributions before and after taxes is that they do indeed tell us how much taxation was paid by each part of the income distribution, unlike the sketchier returns we used for 1911. By itself this data improvement lowers the upper bound on progressivity. On the other hand, not knowing how social transfers were distributed makes for greater uncertainty, since the aggregate transfers represented larger shares of national income

²⁶ These fiscal amounts are applied to the Bowley-Routh-Stamp hybrid pre-tax income distribution for 1911, downloadable in the Global Price and Income History website (<http://gpih.ucdavis.edu/distributions>).

It might have been possible to achieve a slightly great reduction in the gini in 1911 had Dennis Moore taken care to impoverish the rich only down to the median income, instead of down to zero. Yet my Dennis Moore calculation seems a secure overstatement of 1911 progressivity, and remains true to the ridiculous spirit of his television script.

than they did back in 1911. Thus for this later era, we have to ask: Given the exact amounts that the government took from the different classes in direct taxes, how might government have distributed the social transfers and all the rest of those direct-tax revenues, so as to clearly overstate or clearly understate the true progressivity? A clear understatement of the true progressivity would emerge from assuming that the social transfers were given to all classes as a poll subsidy, while the residual government expenditures (e.g. national defense) were given out in proportion to pre-fisc income. This understatement is traced out as the bottom of the green range in Figure 4 (adding the implausible assumption of zero progressivity back in 1911). As for the overstatement, let our hypothetical Dennis Moore be a bit more aware of the Lorenz curve subtleties this time, in a way that raises the upper bound. Let him seize all government direct taxes and give them uniformly to the poorest ranks. Some iteration finds that the greatest upper-bound redistribution under this assumption would spread the social transfers uniformly across the bottom 40 percent – not a narrower transfer lifting each of the bottom ten percent above median income. Delivering the social transfer budget to the bottom 40 percent yields the likely overestimate, or upper bound, plotted for the years up to 1974/75.

The bounded-redistribution exercise reveals that at no time before 1969-70 could British policy have achieved the progressivity of 1977 (13.5 percent gini reduction) or today (i.e. the 13.6 percent reduction of 2014). The nearest approach was a net redistribution somewhere below the upper bound of 12.9 percent in 1949/50, late in Clement Atlee's prime ministry. To summarize the whole century for Britain, fiscal progressivity rose along with the social budget share from 1911 to mid-century, and then oscillated with only a small net gain.

(3) Sweden since 1968. A third developed country's solid estimates of net fiscal redistribution have the added virtue of extending beyond the usual one-year measurements to show how different fiscal redistribution looks in the perspective of whole lifetimes. Let us reap its harvest of life-cycle perspectives from Sweden before returning to its historical movements in single-year redistribution measures.

Niklas Bengtsson, Bertil Holmlund, and Daniel Waldenström (BHW) have successfully exploited a 3.35 percent random population sample drawn from Sweden's panel data from tax returns, censuses, and social programs running all the way from 1968

through 2009. The combined sources allow them not only to quantify the effects of age and gender grouping on annual inequality and redistribution, but also to calculate the adult-lifetime inequality for the cohort of those born between 1928 and 1948. One central conclusion is that inequalities and net fiscal redistributions are lower than the corresponding single-year measures we have come to rely on. Another is that the entire difference between annual progressivity and adult-lifetime progressivity is explained by the progressivity of social benefits, not progressivity on the tax side.

Sweden's history of single-year fiscal redistribution can be traced back to 1968 using the BHW series graphed in Figure 5. Over this period the net progressivity clearly rose, from a 7.6 percent gini reduction in 1968 to a redistribution of 12.3 percent in 2009. Yet it had an equally clear rise and fall within this period. The progressivity of fiscal redistribution peaked twice, first around 1983 and again in 1993-94. The first peak was a moment in which the tide of Sweden's class struggle had most favored the Left. In the late 1970s and early 1980s the Social Democrats pushed hard with social spending, taxes, and labor market interventions to tax capital and enhance wages, leading to a backlash by employer groups.²⁷ The second peak was more cyclical, and in fact hid a contemporaneous shift away from progressivity. By 1993-94 over-expansionary monetary and fiscal policies, combined with a fixed and overvalued exchange rate, had triggered a slump. Within those years the austerity was accompanied by so much payout of automatic social supports as to produce an ostensible second peak in fiscal progressivity in Figure 5. Yet the redistributive reality of these same years was that they ushered in the thoroughly orthodox reforms of the Economics Commission (Lindbeck Report) at the end of 1992. One should thus view 1993-94 as the moment of reforms that caused the gradual retreat from progressivity in the years that followed. Thus over the entire period covered by the BHW estimates, 1968-2009, there was only that moderate net gain in fiscal progressivity from 7.6 percent to 12.3 percent. On the other hand, one could choose to emphasize that within this period, progressivity fell back from a peak of 20.5 to 12.3 in the period 1993-2009.

When did Sweden acquire the fiscal progressivity achieved by 1968, the start of the BHW time series? Again, as with the United States and Britain, the whole rise of

²⁷ See Lindert (2004, vol. 1, 271-82) and the sources cited there, plus the Swedish coverage in Baldwin (1990) and Steinmo (1993).

redistribution from rich to middle and poor waited until the last hundred years. As of 1910, all direct taxes, mainly on realty, amounted to only 4.0 percent of GDP and all social transfers amounted to a mere 1.0 percent.²⁸ Thus an extreme overstatement of progressivity would have to have produced less than the 6.1 gini reduction of our Dennis Moore exercise for Britain in 1911. That is hardly surprising, since Sweden's politics before World War I was still conservative and anti-egalitarian. Thus the arrival of progressivity has to have come later than 1910, and mainly after World War II, when universalist social programs came together. Again, as with Britain and the United States, the historical rise of progressivity followed the social transfer share more closely than it followed tax parameters.

(4) Chile since 1965. Aside from the Communist Revolutions and their later reversals, the most dramatic swing in the fiscal treatment of rich and middle and poor arose in Chile's recent history. The Chilean story shows, even more than that of the United States or Britain or Sweden, that our ultimate dating of the great reversals cannot be revealed by the same-year budget-based calculations. In the Chilean case, the swings were set in motion a couple of decades before they would show up in the annual estimates of redistribution. So it was for the harsh regressivity of the dictatorship of Augusto Pinochet (1973-1989), and so it was for the delayed rise of progressive redistribution when democracy returned to Chile in 1989-1990.

The year-to-year indicators of redistribution between rich and middle and poor since 1965 are shown in Figure 6. At face value, they seem to highlight a swing to serving the rich in 1976-78, a swing reflecting short-run tax cuts, and a mysterious further swing in the same regressive direction in the late 1980s.

In fact, some key shifts in policy occurred back in the mid-1950s, in 1979-81, and with the return to democracy in the early 1990s, though Figure 6 cannot reveal them. Leaving the fuller telling of the story to another writing (Arroyo Abad and Lindert 2016), let us here focus on Pinochet's radical pension reforms of 1979-81, their prelude and their aftermath. Pensions were at the heart of the Chilean redistribution story.

²⁸ Flora et al. (1983, volume 1) and Table 2 above.

The pension system set up by Chile's famous pension reform was, and still is, a large share of annual GDP. To clear the way for understanding its effects, one should begin by noting that it is not what it is often described to be. It was not a privatization of Social Security, as many have thought. There was no Social Security system to replace, but only a flawed and incomplete pension system for the privileged occupational groups of the formal sector. The reform also did not exactly privatize or liberalize pensions. It forced individuals to place pension contributions and benefits more firmly in the hands of the state and the expensive private pension managing funds (AFPs) that the state appointed. It also raised the state's commitments and pension deficits, and these are projected to continue until 2045. Government pension spending, far from phasing out, truly soared.

The 1979-1981 pension reform needs to be understood as a system with these key features:

(1) The Pinochet regime inherited a badly broken and underfunded pension system in which formal sector workers were being subsidized. The regime chose to honor their underfunded entitlements of the well-off by creating new government obligations to be covered by general taxpayers.

(2) The reform exempted the military from individualized forced savings or the defined-contribution feature. Military personnel continue to get generous net defined benefits from the taxpayers.

(3) To convert from defined benefit pensions to a defined-contribution system for civilians, the regime and its post-1989 successors have had to pay deficits to the transition generation. The deficits have continued ever since, though they dipped after 2000, as we shall note again later.

More specifically:

First, as mentioned, the previous system was badly broken, and the rise of unsustainable obligations was hidden from the official data of those pre-reform years. The occupational system for the more established formal-sector occupations, dating back to the 1920s, was increasingly mismanaged after about 1955. What had been a contributory system that should have funded itself slid into deficit, as more and more employees evaded making contributions while keeping their benefit entitlements. Between 1955 and 1979 the ratio of contributors to pensioners fell from 12.2 to 2.5, a result which cannot be

explained by demographic trends, but rather resulted from allowing evasion of contributions while delivering generous benefits to those covered (Acuña and Iglesias 2001, p. 20).

For our accounting framework, this poses a problem of fiscal timing. Fiscal programs often give tax or benefit accruals in years that can be quite distant from the years of collection or payout. The 1979-1981 Chilean reform is perhaps Latin America's largest case of such a discrepancy. The obligations taken on in the 1980s in effect honored formal sector workers' evasion of pension contributions dating back to the 1950s, with benefits to be paid over subsequent years in ways that our studies have trouble tracking year by year. The military regime found itself inheriting a dilemma, one forcing it to choose between a shocking markdown of all occupational pension benefits and honoring the obligation to cover the full deficit. They chose the latter, with the result that the huge pension expenditures favoring higher-income beneficiaries suddenly show up in our graphs around 1975, even though they had secretly accrued over the previous two decades.

Second, as we have noted, the Pinochet regime did not dare to slash military pensions, nor did it include them in the forced-saving reform, even when holding its firmest grip on power.

Third, like any change in pension regime that tightens up, in pursuit of eliminating deficits, Chile's new system faced the threat of double-taxing the transitional generation, forcing it to pay for the preceding generation's retirement while also paying for its own. Like the military exemption, this necessitated deficits lasting for a generation, from 8.4 percent of GDP in 1982 to 3.9 percent by the close of the century. Clearly, the transition from a broken and underfunded system to a fully funded "defined contributions" system was fiscally costly for Chile, as it has also proved for other countries imitating Chile's transition. It was also not progressive in Chile's case, since the beneficiaries of the deficit were, and still tend to be, upper-income groups, largely the same formal sector groups that underpaid for their pension entitlements before the reform. The redistribution away from the rich in this century has been led by a rise in progressive taxation on income and wealth.

In this turbulent way, Chile over the last half century has ended up with a clear net

shift toward progressive redistribution. Other data-supplying countries of Latin America have also drifted toward progressivity, on a smoother and more monotonic time path.²⁹

III. Redistribution beyond the short run

These case histories illustrate a point that must be addressed by the emerging history of redistribution: Even if we restrict ourselves to fiscal redistributions, the effects of any one policy, or change in policy, play out over many years, and cannot be captured by their seeming effects on rich and middle and poor within the same year. This year's wedges between pre-fisc and post-fisc inequality affect future pre-fisc inequality. The subject calls for inter-temporal accounting.

The three natural channels for introducing the inter-temporal nature of fiscal redistributive effects are government treatment of non-human capital, government treatment of human capital, and deferred payment obligations such as public pensions. The first of these three channels has been well introduced by Thomas Piketty's (2014) book, and by the larger Piketty-Saez-Zucman research program on capital and inequality. We can expect them to fill in the inter-temporal feedbacks whereby income and wealth taxation reduce accumulation and later property incomes, especially at the top of the distribution. The third of these three intertemporal channels, public pension obligations, will move to center stage in the final section of this paper. Here we turn to the second channel, public influences on human capital.

(A.) The generational echo from public education spending

Many studies of fiscal redistribution have already quantified a same-year effect of public subsidies to education, yet none has treated the larger deferred effects. The studies of the United States, Sweden, and Latin America do include a same-year effect, as if the benefits of taxpayers' paying for your (say) fifth-grade education accrue to your parents this year and not to you, the student, any time in the future. Convention has thus equated

²⁹ See the quantitative histories of fiscal redistribution in Argentina, Uruguay, Costa Rica, Colombia, and Peru sketched by Arroyo Abad and Lindert (2016).

public education with babysitting. As convenient as this convention may be, it misses most of what public education spending does to the different income ranks.

Public spending on education affects the inequality of later pre-fisc earnings, and the progressivity of government's contribution to reducing that inequality, through two channels. One is that a rise in inequality of adults' accumulated schooling should directly widen the inequality of their earnings. The other is that a rise in their average schooling should bid down skilled-wage premiums, again reducing the inequality of earnings or of income. While it is not easy to trace these inequalities in education subsidies and in final earnings, this strong link should be pursued, given that the international literature on social rates of return to schooling shows consistently high average rates.³⁰

Delivering measures that reveal the right directions and the right orders of magnitude of the delayed distributional effects requires information on how much government money is spent on the different levels of education, how unequal are the adults in the years of education they attained, and how the private rates of return differ by levels of education. While data on public and private expenditures for education are sparse before 1960, we do know that every country that delivered primary and secondary education to its children did so through overwhelmingly public funding. Thus the historical gains in primary and secondary education can be thought of as something paid for primarily by taxpayers, so that inequality of public investment in individuals' education can be tied very closely to the inequality of years of education attained.

We can now trace out the inequality of years of schooling attained by adults in every country since 1870, thanks to a major extension of the Barro-Lee database by Jong-Wha Lee and Hanol Lee ((2016), building on Barro and Lee (2013)). Figures 7A-7C trace the gini's for fourteen countries, gini's obtained by dividing levels of schooling into seven categories (zero years, incomplete primary, ... , complete tertiary). The inequality history bears a simple pattern, as if the adult population of every country followed a downward logistic curve in educational inequality tied to its level of economic development. All countries have converged downward in the inequality of adults' schooling levels, while at the same time converging upward in their national averages for schooling. Indeed, a graph

³⁰ Patrinos and Psacharopoulos (2011), Montenegro and Patrinos (2014), Chaudhary and Lindert (forthcoming).

of the rising national averages presented by Lee and Lee would look like a reciprocal of these declining inequalities. To be behind other countries in raising adults' average schooling is the same thing as having been behind in equalizing their schooling, with a lag of about one generation.

These gini's would have been gini's for education's contribution to adult earnings, had the marginal value of education's contribution to adult earnings been the same for each year of publicly provided schooling. While no such marginal equality holds, the contrasts in Figure 7A-7C can be viewed as correctly signed, and they understate the impacts on the gini coefficients of final income.

The inequality of schooling attainment bears the clear fingerprint of unequal government subsidies to education. Countries where many adults never finish primary or secondary education are countries that have previously discriminated in favor of subsidizing higher education available only to relatively few, at the expense of broad mass education. This fingerprint of elitist backwardness has now been traced in detail by Ben Ansell (2010). Table 3 underlines the point with one fingerprint of elitism in subsidizing education, namely the ratio of (public tertiary-education expenditures per pupil), divided by (public pre-primary + primary expenditure per child of primary-school age), a ratio that combines the disparity of subsidies with the incompleteness of mass enrollments at the primary level. As can be seen, this ratio is low for advanced countries, with an equalizing effect on adult schooling. Yet for many countries in South Asia or Latin America, adults who have completed tertiary education today, mainly from upper-class families, received a large multiple of the government aid given to the average child of primary-school age in the late twentieth century. The delay in raising and equalizing education has particular bite for Latin America, a region that could otherwise have developed much earlier. That the region held back on mass education across the twentieth century has been emphasized by many scholars, and we return to it in the final section here.^{31, 32}

³¹ See, for example, Engerman, Mariscal, and Sokoloff (2009); Frankema (2009); Lindert (2010); and Arroyo Abad and Lindert (2016).

³² Note that this section has emphasized that more equal mass schooling tends to equalize earnings of adult. There is also a macro-channel, working through induced movements in relative exchange rates. Extra mass schooling, by raising average educational attainments, bids down the pay premiums of the more highly skilled.

(B.) Summarizing the long history thus far

Before exploring the most likely determinants of future movements in fiscal redistribution, let us summarize some basic conclusions suggested by its history to date.

One conclusion is that the Robin Hood arrived only recently. That is, the phenomenon of government's redistributing more than, say, six percent of national income from richer to poorer looks younger than 100 years. Earlier regimes took less and gave less. Only for Britain and the Netherlands during the French War era could the redistribution have favored the poor at the expense of the rich as much as it did in the still-penurious government budgets around 1910. Why so late in history? The causal accounting called for here is less difficult than with other emerging features of the politics of redistribution. I would suggest that deeper analyses will still end up featuring these three restraints on earlier progressivity:

- Millennia of poverty deprived the world of sufficient surplus to generate, or to redress, income inequalities (Milanovic, Lindert, and Williamson 2011).
- Only with the early modern era did governments in Western Europe establish the fiscal capacity and the creditworthiness to marshal large shares of national income for any fiscal purpose.³³
- Only with the late nineteenth and early twentieth centuries did voting power extend down to the working classes.³⁴

The upward march of progressive redistribution over these last hundred years has seen very few major reversals, and even for the United States, Britain, Sweden, and Chile, and for the few other Latin American countries studied by Leticia Arroyo Abad and myself (2016), net transfers flow in greater degree today than they did half a century ago. Furthermore, education's delayed effects, once they are calculated, should reinforce this trend considerably. Such education-equalization effects have been large and highly

³³ See, for example, North and Weingast (1989), Dincecco (2011), Dincecco and Katz (2016), and again O'Brien (1988) and Brewer (1989).

³⁴ I continue to believe that progressive redistribution and social spending waited upon the extension of the franchise to the lower half of the income ranks and to women. Yet Aidt, Dutta, and Loukoianova (2006) rightly report that the evidence is mixed.

progressive only in this and the last century. Calculating them may especially elevate the relative progressivity of the three East Asians (Japan, Korea, and Taiwan) who seemed to transfer so little from rich to poor in the usual one-year calculations of redistribution.

Note again that with or without the lifelong egalitarian effects of public mass schooling, fiscal progressivity has clearly continued to rise since the 1970s. Thus the changes in redistribution do not help to explain many countries experienced a rise of pre- or post-fisc inequality. Rather what we know about redistribution adds a bit to the puzzle of these last forty years.

IV. Prospects for progressivity in peacetime: Right turn ahead?

Now that we see a hundred years of drift toward progressive redistribution, does it appear to have been driven by forces that are likely to change predictably in the next few decades? Are negative forces gathering strength, forcing a retreat from the progressivity achieve so far?

There are not many forces that seem likely to accelerate the trend toward redistributing from the rich in the next few decades. One possibility requires an international constellation of events, something not yet experienced. A possible move toward greater taxation of high incomes might take the form of a multinational tightening of the fiscal net around the rich that are increasingly using tax havens abroad. Gabriel Zucman has described how this might happen, if major economic powers agree to threaten the havens with serious trade sanctions (Zucman 2013 and 2015, chapter 4). If such multinational tightening achieved a true shift toward progressivity, however, the change might not show up in conventional measures of redistribution because these come from sources that fail to capture tax-haven incomes in the first place.

I group the remaining possible determinants into those that are commonly imagined, and one that is the main threat to progressivity of a particular kind, namely progressive redistribution among the young.

(A.) Less likely determinants

(1) The rise of pre-fisc inequality itself could spark an egalitarian political shift, as many have naturally imagined, and as many have hoped. Yet the historical evidence tends to tilt away from such a belief. The cross-sectional evidence, as we saw with Table 1 and Figure 1 above, gives a mixed or null-ish result. The march of history tends to contradict the idea that pre-fisc inequality breeds progressive redistribution. In the United States, for example, that would have predicted that the masses would have soaked the rich more under Presidents Taft or Coolidge than they did under Roosevelt or Truman.

(2) Peace. As we have noted, several social scientists have recently argued persuasively that mass modern warfare has been the main stimulant to progressive taxation and confiscation (Piketty (2014), Scheidel (2016), and Scheve and Stasavage (2016)). They also agree on an underlying reason: Protracted peace undermines the case for taxing the rich heavily, in the absence of mass sacrifice by the lower classes. While hoping that the premise of peace is correct, one should not expect much more progressive taxation. This does not, however, rule out progressive social expenditures, which made most of their gains in the postwar era. Progressivity on the expenditure side may well continue, but is not likely to expand. Any further expansion of progressive social spending will be checked by the likely stasis in each of those three main causes of its rise to date: Poverty is now a low share of the population, fiscal capacity is fully developed,³⁵ and mass enfranchisement has hit its ceiling in the OECD countries.

(3) Buying out declining economic sectors. This paper, like most other studies quantifying redistribution, has confined itself to fiscal redistributions of the kind that are conspicuous in government budgets. We should pause briefly, however, to remember that these political outcomes are bundled together with other policies that redistribute, whether overtly or covertly. A larger writing of the story of redistribution would have to look inside such political bundles.

The only point to be made here about not-visibly-fiscal redistributions is that their effects on inequality are more mixed than their generally negative effects on long-run

³⁵ That is, except for its inability to capture capital and incomes that flees to foreign tax havens.

growth.³⁶ The first of three quick examples would be agricultural policy, which tends to shift from taxing agriculture in less developed settings to subsidizing it in developed countries. In most settings, the policies tend to be regressive in their impact, with the taxed farmers in underdeveloped settings (e.g. West Africa cocoa farmers 1970s-1980s) tending to be smallholders and the subsidies in developed countries (e.g. the EU's Common Agricultural Policy) tending to become capital gains for landholders. Help for declining industrial sectors, our second example, tends to favor a mix of uncompetitive labor and capital interests spread along the income spectrum. Such aid to declining sectors has even prevailed in Japanese industrial policy, despite the myth of MITI's favoring competitive export sectors.³⁷ The third and final example consists of the employee protection laws of Southern Europe and Latin America, which favor senior workers in stagnant sectors at the expense women and youth seeking jobs. The impact can be seen as regressive within the ranks of labor, but not so regressive in the overall income spectrum.³⁸

(4) Immigration backlash. Will immigration backlash undermine the welfare states and reverse the advance of progressive redistribution? The threat seems real, yet the mechanism is not so obvious. The outcome will surely depend on the form that the backlash takes.

Let us consider three kinds of cases in which there would not be much threat to social spending on natives. First consider the possibility that immigration is simply blocked. In such a case, immigrants will cease to be a short-run budgetary burden, aside from the cost of enforcing the barriers at the border. In such a case, social spending on the native population can continue as before. A second, and nearly equivalent, possibility is that the government reacts to the anti-immigrant spirit with a combination of blocking boat people and over-border refugees, while continuing to admit the highly skilled. Such a "filtering" combination is being practiced by such non-welfare-states as Australia and Switzerland. Here again, there is little threat to social programs for established citizens, since the skilled immigrants passing through the filter will quickly become net taxpayers. A

³⁶ Note that here the implicit counterfactuals become more free-market rather than just income-neutral budgets.

³⁷ See, for example, Beason and Weinstein (1996).

³⁸ These examples, and some evidence for them, are detailed more fully in Lindert (2017) and sources cited there.

third possibility is that immigrants are still allowed to enter, but the government discriminates against them in its provision of social services. If such discrimination were practiced, then social services could resemble Jim Crow schooling by race in the US South, or schooling by race under South Africa's apartheid, -- or China's restrictive *hukou* passport system, as practiced in its major eastern cities. The discrimination against migrants would make it easier to avoid dilution of benefits for natives. Thus far, however, countries accepting immigrants have been unwilling to saddle themselves with immigrants who are not entitled to basic social services.³⁹

The countries most likely to translate heavy immigration, plus strong opposition to that immigration, into a reduction of universal social entitlements would be the welfare-state countries that absorb large numbers of refugees, without skill requirements, yet remain unwilling to discriminate against them in the provision of basic social services. The highest likelihood of such a dilution of welfare state benefits seems to face Germany and Sweden since the mass influx of Syrian, Iraqi, Afghan, and other refugees since 2014. In these two prime-target countries, a visible strain on social entitlement standards may soon appear.

(B.) The main threat to progressive investment in the young: aging

The only clear threat to progressive social spending comes from demography and politics. All populations are aging faster than careers are lengthening, thus raising the share of adult life spent in retirement. In addition, and perhaps in response, policy has shifted toward helping the elderly and keeping them out of poverty.⁴⁰ This does not necessarily threaten the progressivity in government treatment of the elderly themselves, but it definitely threatens to erode progressive social spending on children and adults under 65, hurting both progressivity and economic growth. The dangerous shift in priorities can be

³⁹ A near approach to this case of receiving immigrants while denying them basic services threatened to arise when Californians passed Proposition 187 in 1994. The proposition called for denying public K-12 education and other public services to the families of those non-US-citizens who had entered the state without legal documentation. However, Proposition 187 was struck down by the state's Supreme Court, and has never been implemented.

⁴⁰ See Lynch (2001, 2006) and Lindert (2014).

described either as a shift from investing in people for the long run to insuring them for the short run, or, in Martin Ravallion's (2013) terminology, a shift from promotion to protection.

The threat to egalitarian treatment of the young can be seen in a number of ways, including the recent international patterns shown in Figure 8 and in Figures 9A-9C. First, In Figure 8, we see a stark reminder of the fact that Latin America continues to choose generous pensions over educating its children. In this respect they are less education-oriented than Spain and Portugal, the original mother countries. The Latin American pension benefits are further inflated by the fact that they are delivered to public sector officials and to former employees of the top private formal sectors, with only very meager general pensions covering the whole population. Shifting to a more OECD set of countries, Figures 9A-9C show the mission drift away from investing in the young to insuring the elderly. In 1995 and 2005 (and today) net transfers have eliminated half or more of poverty among the elderly in all these countries (Figure 9A). The story is quite different for those of working age or for children (9B, 9C). Here the clear underperformers in removing poverty through transfers are Japan, the United States, Portugal, Canada, and Switzerland.⁴¹

What trend can we foresee in this political mission drift toward favoring the elderly? The elderly share of the adult population will continue to rise. This demographic fact of life has a clear implication for providing for old age:

As the share of elderly rises, their annual benefits past the age of 65 should not rise as fast as the average annual incomes of those of working age.⁴²

⁴¹ Greece would also have shown up as an underperformer for the young if it had been included in this OECD data display.

Two caveats on Figures 9A-9C: (1) they do not include spending on public education, on which Japan and the United States would look better in the OECD's comparisons; and (2) the figures include all government pension benefits, without subtraction of the parts contributed earlier in life by the retired employees themselves.

⁴² This result is derived from a steady-state budget balancing equation in Lindert (2004, vol. 1, pp. 195-196). Like the usual treatments of the redistributive side of public pensions, I simplify by comparing only a single year's payments of public pension benefits, whether contributory or non-contributory in origin, with the collection of payroll contributions from the working population in the same year. A desirable fuller analysis would quantify

This clear warning is both softer and louder than it may sound at first. Softer, in the sense that it does not mean pensions have to drop in real purchasing power. Pensions should still keep ahead of the cost of living – it's just that they cannot grow as fast as earned incomes per person of working age, which historically grow at about 1.8 percent a year, adjusting for inflation.

Yet the warning should sound louder when one realizes that it applies to the future of any kind of provision for old age, no matter how private or public. The curse of longer life is not specific to Social Security or other public pensions. It is the same even if you, as a young adult, decide to rely only on your own savings for old age. To plan ahead, if you live to age 65, you are likely to live to 85 even at today's survival rates. Your grandfather only had to plan on living about 14 years more, if he were to reach age 65. Even in such an individualist calculation, your annual consumption in retirement has to be a lower share of annual earnings than in the past, because you'll live more years. So it's not a problem restricted to government pensions, but a problem facing *any* pension plans, be they individual savings, private job-based pensions, or Social Security.

Thus as long as consumption per elderly person keep in step with wage and salary rates, population aging threatens to raise the share of GDP devoted to subsidizing the elderly. To avoid paying for this with an upward march in tax rates, or with cutbacks in public spending on more productive – and progressive -- investments in the young, society needs to trim the relative generosity of annual pension subsidies. Figure 10 plots a half century of the elderly support ratio, namely the old-age and survivor benefits per person over 65, divided by output per person of 18-64 working age. To keep the share of national product paid as benefits to the elderly from rising forever, each of these national curves should be dropping, and dropping fast enough to match the rise in the elderly share of the population. That, however, is not the current direction of movement. It has clearly dropped only in Chile, which has returned to normal pension behavior from its abnormal crisis described earlier. One might also note the slight decline for Sweden since its crisis of the 1990s, aided slightly by the pension reform of 1998. Yet in general, and for most OECD

the full adult life cycle of benefits and contributions, to isolate the redistributive non-contributory component.

countries not graphed here, the elderly support ratio has not declined as it should. And in the well-known case of Greece, austerity has not yet prevented the relative support for the elderly from soaring unsustainably.

If progressive transfers and investments for children and for those of working age are to rise, with pensions being held in check, something has to give.

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Table 1. Recent Snapshots of Fiscal Redistribution in 53 Countries

Country	Data years	Gini coefficient of inequality (%)		Implied progressivity of fisc. redistribut'n	Public social transfers as % of GDP
		Pre-fiscal market inc.	Post-fiscal final income		
Argentina(a)	2012/3	50.2	29.8	20.4	19.6
Armenia	2011	46.9	35.7	11.3	8.6
Australia	2013	42.4	32.1	10.3	18.7
Austria	2013	42.6	28.1	14.5	27.6
Belgium	2013	42.7	26.6	16.0	29.3
Bolivia	2009	50.3	44.6	5.6	10.0
Brazil	2008/9	59.3	45.2	14.1	19.9
Canada	2013	41.1	32.5	8.6	16.8
Chile (d)	2013	50.3	41.9	8.3	10.2
Colombia	2010	57.2	50.6	6.6	9.3
Costa Rica	2010	51.2	40.0	11.2	14.1
Czech Rep	2013	38.7	25.9	12.8	20.3
Denmark	2013	40.1	25.5	14.7	29.0
Dom Rep	2006/7	51.4	45.8	5.6	5.1
Ecuador	2011/2	48.2	40.0	8.2	6.2
El Salvador	2011	43.7	39.4	4.3	7.4
Estonia	2013	45.0	35.7	9.3	15.9
Finland	2013	42.2	26.2	16.0	29.5
France	2013	44.5	29.4	15.1	31.5
Georgia	2013	50.7	38.3	12.4	9.3
Germany	2013	41.9	29.9	12.1	24.8
Greece	2013	51.2	35.3	15.9	28.0
Guatemala	2011	51.1	48.7	2.4	4.5
Honduras	2011	56.1	53.8	2.3	4.0
Hungary	2013	41.1	28.7	12.4	22.1
Iceland	2013	33.7	24.6	9.1	16.6
Iran (c.)	2011/2	42.9	34.3	8.5	12.2
Ireland (b)	2013	53.3	31.6	21.6	20.2
Israel	2013	42.4	34.1	8.3	16.2
Italy	2013	44.5	32.9	11.6	28.6
Japan	2013	37.6	32.0	5.6	23.1
Korea	2013	30.5	28.0	2.5	9.7
Latvia	2013	43.3	34.5	8.8	14.4
Mexico (e)	2010	50.9	42.9	8.0	7.9
Netherlands	2013	39.6	28.4	11.2	22.9
Nicaragua	2009	48.2	43.5	4.7	6.1
Norway	2013	37.7	26.2	11.5	19.4
NZ	2013	41.6	33.0	8.6	21.8
Peru	2009	50.3	46.4	3.9	6.5

Poland	2013	42.3	30.4	11.9	19.0
Portugal	2013	49.6	34.5	15.2	25.5
Russia	2010	49.1	32.3	16.8	17.2
Slovakia	2013	37.2	27.0	10.2	18.1
Slovenia	2013	41.7	25.5	16.2	24.0
S. Africa	2009/10	77.1	59.5	17.6	10.6
Spain	2013	47.9	35.2	12.7	26.3
Sweden	2013	38.3	28.1	10.2	27.4
Switz	2013	34.0	28.7	5.3	19.2
Turkey	2013	40.3	38.2	2.1	13.4
UK	2013	47.1	35.3	11.8	21.9
Uruguay	2009	52.8	38.6	14.3	17.9
USA	2013	47.8	39.2	8.6	18.8
Venezuela	2012	41.1	34.1	7.0	15.7

Sources and notes to Table 1 and Figures 1 and 2:

The income distribution estimates are for 2013 from the OECD update (2016a), and for indicated years from Lustig (2017a) and CEQ Institute (2017, 24june version).

Most of the shares of social transfers (excluding public education) are from the OECD iLibrary, last accessed May 2017. Those for Latin America, Armenia, Georgia, Iran, Russia, and South Africa are from CEQ Institute (2017).

The OECD income distributions cover working-age (18-64) persons, apparently including those who were neither household heads nor economically active. This seems to contrast with their earlier study of income distributions around 2008, for which “Income inequality is measured by the Gini coefficient based on equivalised household disposable income (after taxes and transfers for total population) for OECD countries and per capita incomes for the emerging market economies outside the OECD area” (OECD 2014, p. 22).

For the CEQ studies, I have used the CEQ variant that considers contributory pensions to be direct transfers, and only for countries for which the researchers calculated per-capita household income distributions rather than consumption distributions. Their direct-transfer variant seems more comparable to OECD reporting conventions.

The correlation between net redistribution and the social-transfer share of GDP = 0.60 for all 53 countries, and 0.68 omitting the suspect outliers Argentina and Ireland.

(a) The income distributions for Argentina may overstate progressivity. One reason for this suspicion is that Argentine income distributions exclude much of the rural population. Another is that its redistribution includes an apparently large progressive effect of indirect market effects. This differs from their treatment of other countries, except that the same feature appears in their implied measures of Russian redistribution.

(b) The income distributions for Ireland 2013 were not included in EU’s Statistics on Income and Living Conditions, and seem suspect given other literature on recent Irish policy. Ireland’s fiscal progressivity (difference in gini’s) may also have been exaggerated by inconsistent handling of the gap between domestic income and national income, a gap that looms large in the case of Ireland.

(c.) For Iran and South Africa, the gini’s are based on the alternative assumption that contributory pensions are deferred income. However, this made a difference of less than

one percent in gini in 13 other comparable income-distribution countries. Only for Armenia, among countries omitting indirect market effects, did the pension assumption make a greater difference in the gini (a 6.6% difference).

(d) For Chile, Table 1 gives the results as stated in the CEQ studies. For the same year 2013, the OECD found, for households with heads aged 18-64 years, a pre-fisc gini of 0.492, a disposable-income gini of 0.467, yielding a net fiscal progressivity of 0.025.

(e) For Mexico, Table 1 gives the results as stated in the CEQ studies. For the same year 2013, the OECD found, for households with heads aged 18-64 years, a pre-fisc gini of 0.4715, a disposable-income gini of 0.4590, yielding a net fiscal progressivity of 0.0125.

Table 2. Macro Hints of Progressivity: Social Transfers since 1910

	Percentages of GDP							1990	2000	2013
	1910	1930	1960	1970	Old 1980	New 1980				
Argentina	0	0	3.6	9.5		8.3	18.6	16.5	21.1a	
Australia	1.1	2.1	7.4	7.4	12.8	10.3	13.1	18.2	18.1	
Austria	0.0	1.4	15.9	18.9	23.3	22.0	23.2	25.5	27.6	
Belgium	0.4	0.6	13.1	19.3	30.4	23.1	24.4	23.5	29.3	
Canada	0	0.3	9.1	11.8	15.0	13.3	17.5	15.8	16.9	
Chile	0	0.5	1.4	2.6		12.8	9.8	12.7	10.5	
Denmark	1.8	3.4	12.3	19.1	27.4	20.3	22.0	23.8	29.0	
Finland	0.9	3.0	8.8	13.6	19.2	17.7	23.3	22.6	29.5	
France	0.8	1.1	13.4	16.7	22.6	20.2	24.3	27.5	31.5	
Germany		5.0	18.1	19.5	25.7	21.8	21.4	25.4	24.8	
Greece	0	0.1	10.4	9.0	11.1	9.9	15.7	18.4	28.0	
Ireland		3.9	8.7	11.9	19.2	15.7	16.8	12.6	20.2	
Italy	0	0.1	13.1	16.9	21.2	17.4	20.7	22.6	28.6	
Japan	0.2	0.2	4.0	5.7	11.9	10.2	11.1	16.3	23.1	
Mexico	0	0				1.7b	3.2	4.8	7.4c	
Netherlands	0.4	1.2	11.7	22.5	28.3	23.3	24.0	18.4	22.9	
NewZealand	1.4	2.4	10.4	9.2	15.2	16.7	20.5	18.5	19.4	
Norway	1.2	2.4	7.9	16.1	21.0	16.1	21.6	20.4	21.8	
Portugal	0	0	4.5	6.1	11.9d	9.5	12.2	18.5	25.5	
Spain	0.02	0.1	3.9	10.0	16.7d	15.0	19.2	19.5	26.3	
Sweden	1.0	2.6	10.8	16.8	25.9	24.8	27.2	26.8	27.4	
Switzerland		1.2	4.9	8.5	14.3	12.8	12.1	16.3	19.2	
UK	1.4	2.7	10.2	13.2	16.4	15.8	16.0	17.6	21.9	
US	0.6	0.6	7.3	10.4	15.0	12.8	13.2	14.2	18.8	

Sources and notes to Table 2:

The “Old” OECD series are those for 1960-1981 given in OECD (1985). The “New” OECD social expenditure (SOCX) series was accessed through OECD iLibrary. Additional sources used are Lindert (1994, Table 2), Flora et al. (1983), and Espuelas (2012, p. 4).

a = year 2009.

b = year 1985.

c = year 2011.

d = year 1978.

Blank = Data not available.

Table 3. Elitist Public Expenditure on Education, Late 20th Century

Each ratio = (Public tertiary-education expenditures per pupil),
divided by (public pre-primary + primary expenditure
per child of primary-school age)

	1985	1995
<i>Developed countries --</i>		
Canada	1.5	1.6
Japan	..	0.9
USA	1.4	1.4
OECD 1988	2.0	..
<i>Latin America and the Caribbean --</i>		
Costa Rica	7.8	4.3
Dominican Repub.	4.4	1.6
El Salvador	..	2.7
Guatemala	..	7.9
Honduras	9.5	5.5
Jamaica	25.3	18.3
Mexico	..	4.7
Nicaragua	12.9	..
Panama	3.7	4.9
Trinidad & Tobago	18.4	..
<i>Asia --</i>		
Bangladesh	9.8	..
China	27.6	11.4
India	8.4	9.1
Indonesia	6.7	..
Korea, Repub. of	0.9	0.4
Malaysia	10.5	9.4
Myanmar	..	5.1
Nepal	32.7	18.9
Pakistan	31.8	..
Papua New Guinea	2.1	..
Philippines	2.2	..
Singapore	7.7	..
Sri Lanka	7.1	8.3
Thailand	2.0	3.0

Source and notes to Table 3:

The main underlying source is Unesco, *World Education Report 1998*. The OECD average for 1988 is from OECD *Education at a Glance*, 1992, p. 63 (primary school only, assuming net enrollment ratio of 1.00). All numbers are combined averages for males and females.

Sources and notes to Figures 3-10

Figures 3A and 3B (United States):

The source is Piketty, Saez, and Zucman (2016) and its data links. Of these, I used mainly the Excel file for “Distribution” appendix, Tables B1 and C1, and the “Macro” appendix, Table 11b.

To break their 0-90 percent group down into the 0-50 and 50-90 groups before 1962, I began on the pre-fisc (original income) side, using interpolations within and between the OBE-Goldsmith series for 1929, 1935/6, 1941, 1944, 1947, 1950, 1956, and 1961.

The most difficult task is that of roughly allocating the post-fisc shares for the 0-90 percent of the income ranks between 0-50 and 50-90, for 1913-1961, using social expenditure clues. First, from the Piketty-Saez-Zucman macro worksheets, add together these seven shares of national income:

- Disability insurance
- Unemployment insurance
- Workers' compensation
- Supplemental security income
- TANF / AFDC
- Other Social assistance benefits in cash
- Other social transfers in kind

Assume that these accrue to the 0-50 group, not the 50-90 group, and that the distribution of taxes is as worked out by PSZ.

Then the share of national income spent on these net transfers to the 0-50 group exceeds that of the 50-90 group by the amount of such macro expenditures. Call these V.

Given that (0-50 net transfer receipts) + (those for 50-90) = the given 0-90 share, and that (0-50 net transfer receipts) is greater than (50-90 transfer receipts) by the value (V) of the seven programs listed above, one can work out the missing net-transfer detail from these two equations:

Share 0-50 plus share 50-90 = share 0-90, and

Share 0-50 minus share 50-90 = V.

Figure 4 (United Kingdom):

The estimates are launched from these two internet sites, and the sources they cite: (1) For 1911 and 1938/39-1974/75, from <http://gpih.ucdavis.edu/Distribution.htm>; (2) For 1977-2014, from <http://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/theeffectsoftaxesandbenefitsonhouseholdincome/financialyearending2015>.

Figure 5 (Sweden):

The source is Bengtsson, Holmlund, and Waldenström (2012, 2016). I drew mainly on their annual baseline series for the inequality about all adults of ages 20-64, in Table A7 of their 2012 working paper. For annual inequalities within the entire population 20 and up,

see their (2016, p. 640). For the males-only series, with its more uniform labor force participation, the annual inequalities run lower (2016, p. 641).

Figure 6 (Chile):

The estimates are presented and documented in Arroyo Abad and Lindert (2017), and as downloadable Excel files from <http://gpih.ucdavis.edu/Government.htm>, in the file “Chile quintile effects 1842-2013.”

Figure 7 (inequality of school attainment in 14 countries, 1870-2010):

The source is Lee and Lee (2016), and its links to data files. Lee and Lee helpfully offer time series on the shares of the adult population having educational attainments falling into seven categories: zero years, incomplete primary schooling, completed primary, incomplete secondary, completed secondary, incomplete tertiary, and completed tertiary. Their detailed estimates made it possible for derive (“back out”) the average numbers of years for the three incomplete levels (incomplete primary, incomplete secondary, and incomplete tertiary) for all of our fourteen countries. For some other countries, however, the derivation of average years without completion exceeded the boundaries of what was possible. This was true, for example, in Germany from 1990 on and in Italy from 1960 on.

Figure 8:

The source is Arroyo Abad and Lindert (2016), and the sources cited there.

Figure 9:

The source is OECD (2008, p. 142), and the data link supplied there.

Figure 10: OECD, Social Expenditures series, and United Nations, *World Population Prospects 2015*, from <https://esa.un.org/unpd/wpp/Download/Standard/Population/>, accessed 8may2017. I have not yet been able to isolate and subtract the contributory component of pensions from these series.

Figure 1. Recent Snapshots of Income Distributions in 53 Countries

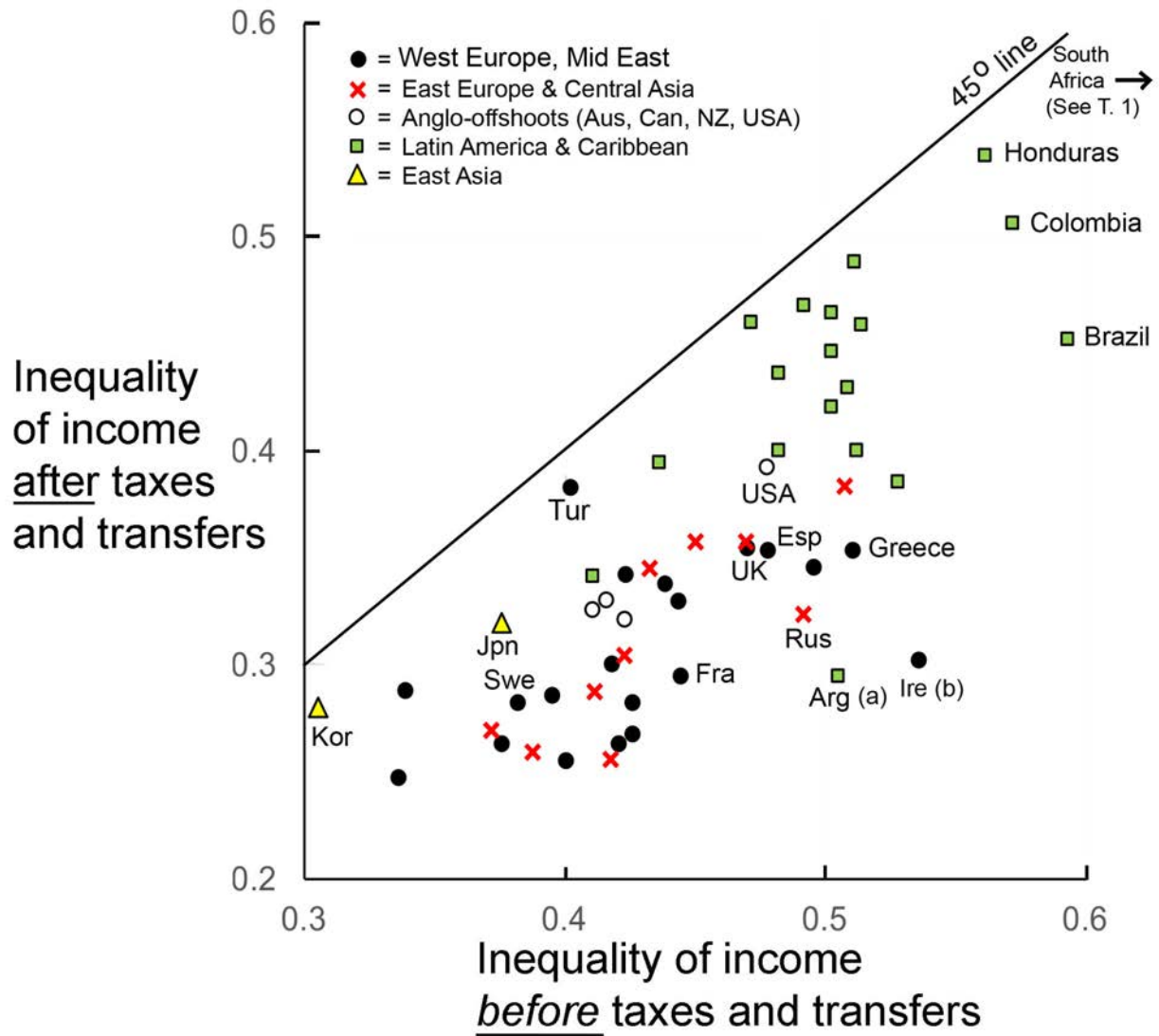


Figure 2. Social Transfers as a Predictor of Fiscal Redistribution, 53 Countries circa 2013

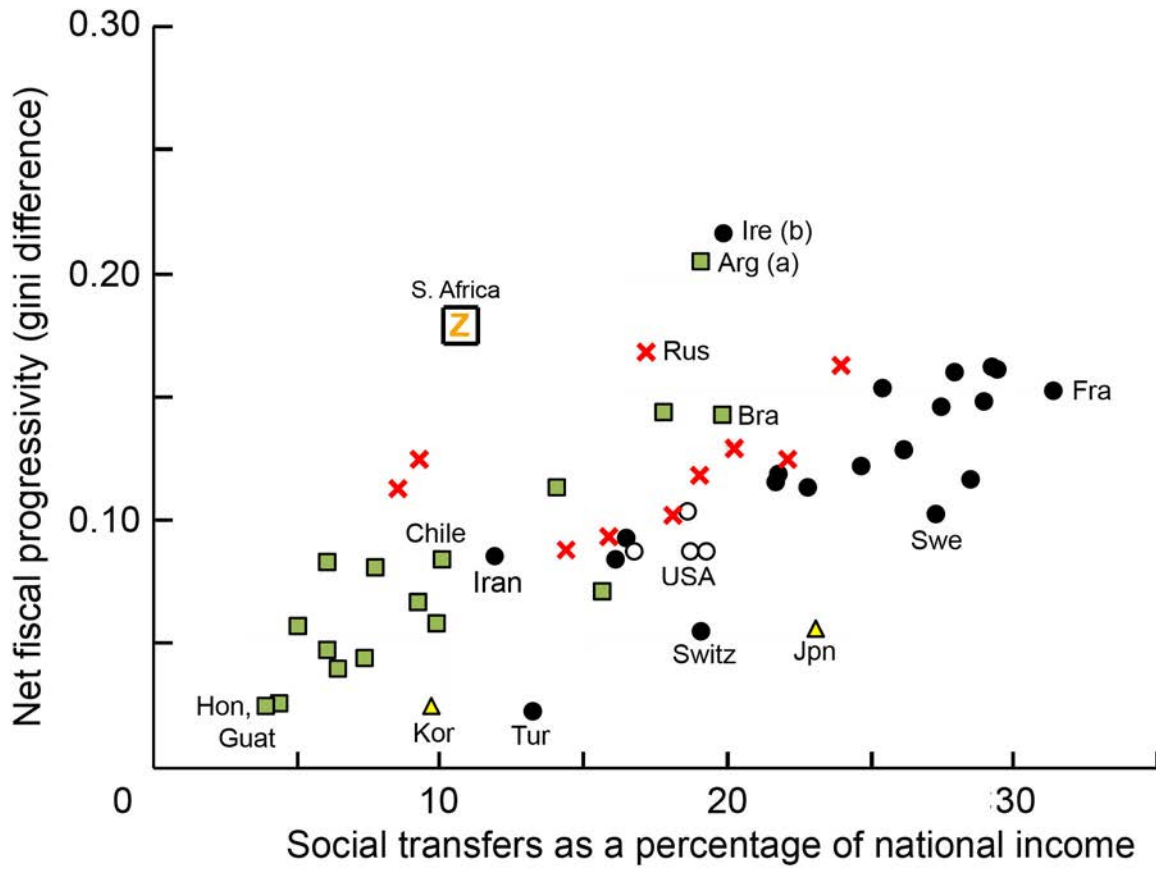


Figure 3. Fiscal Redistribution in the United States, 1913 - 2014

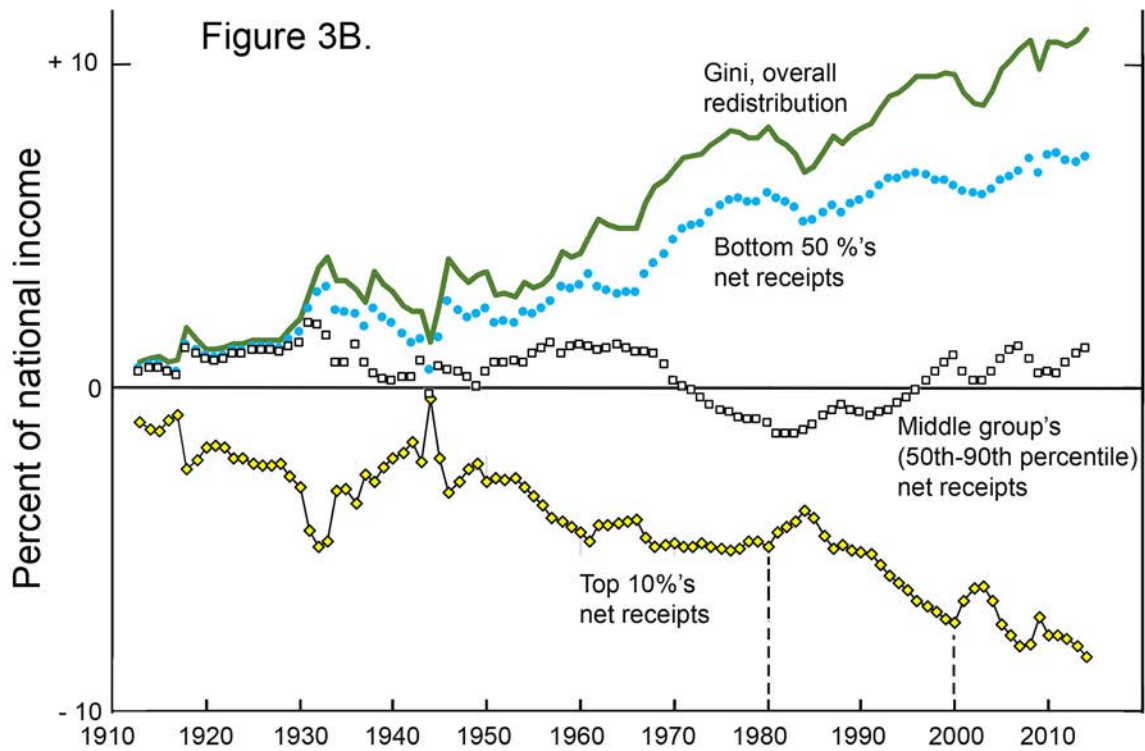
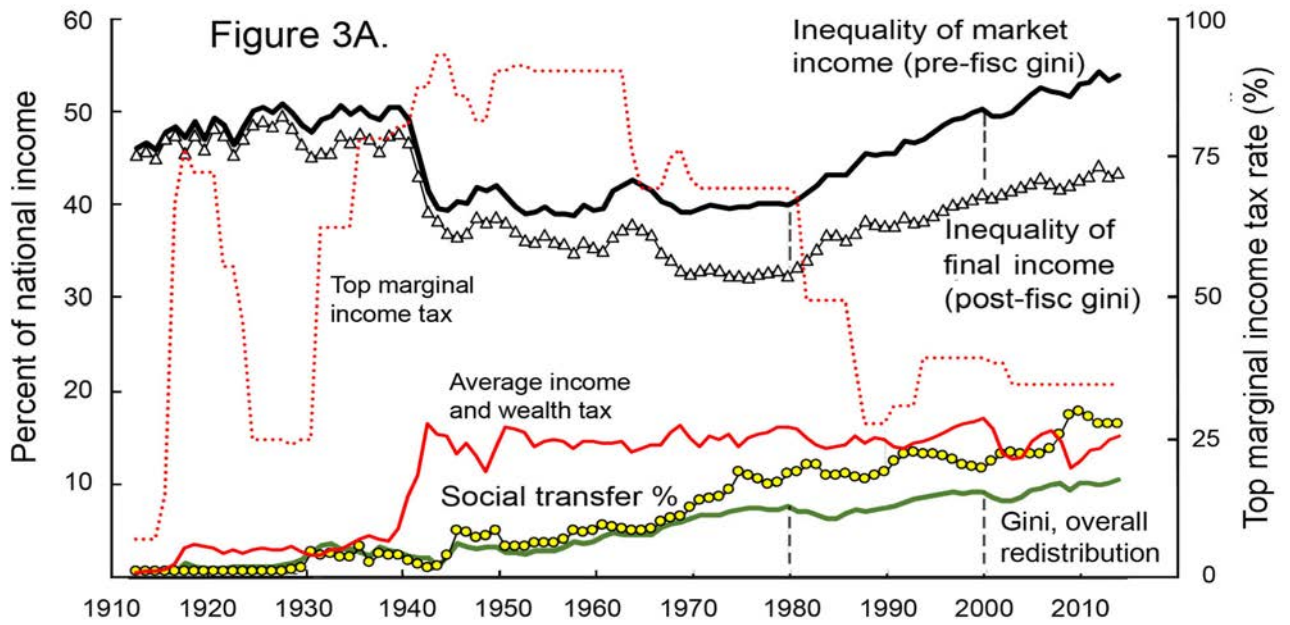


Figure 4. British Fiscal Redistribution since 1911

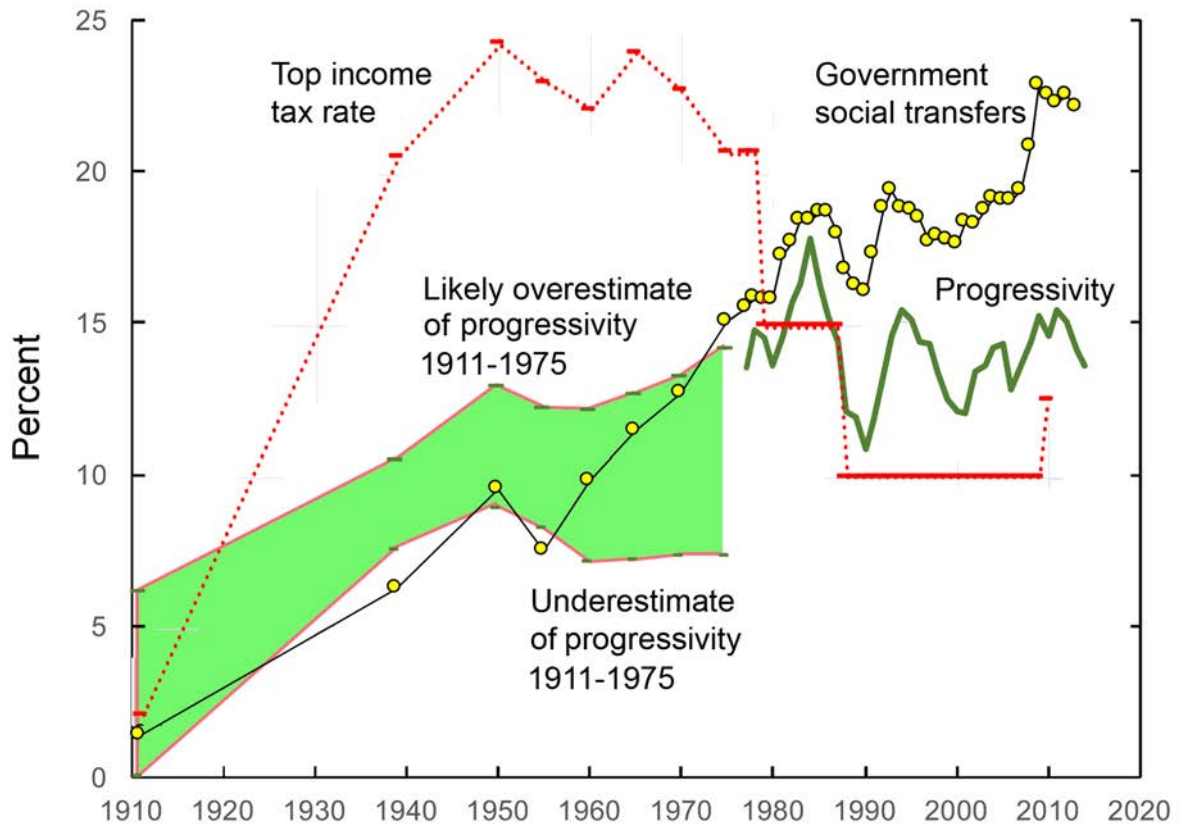


Figure 5. Fiscal Redistribution in Sweden, 1968-2009

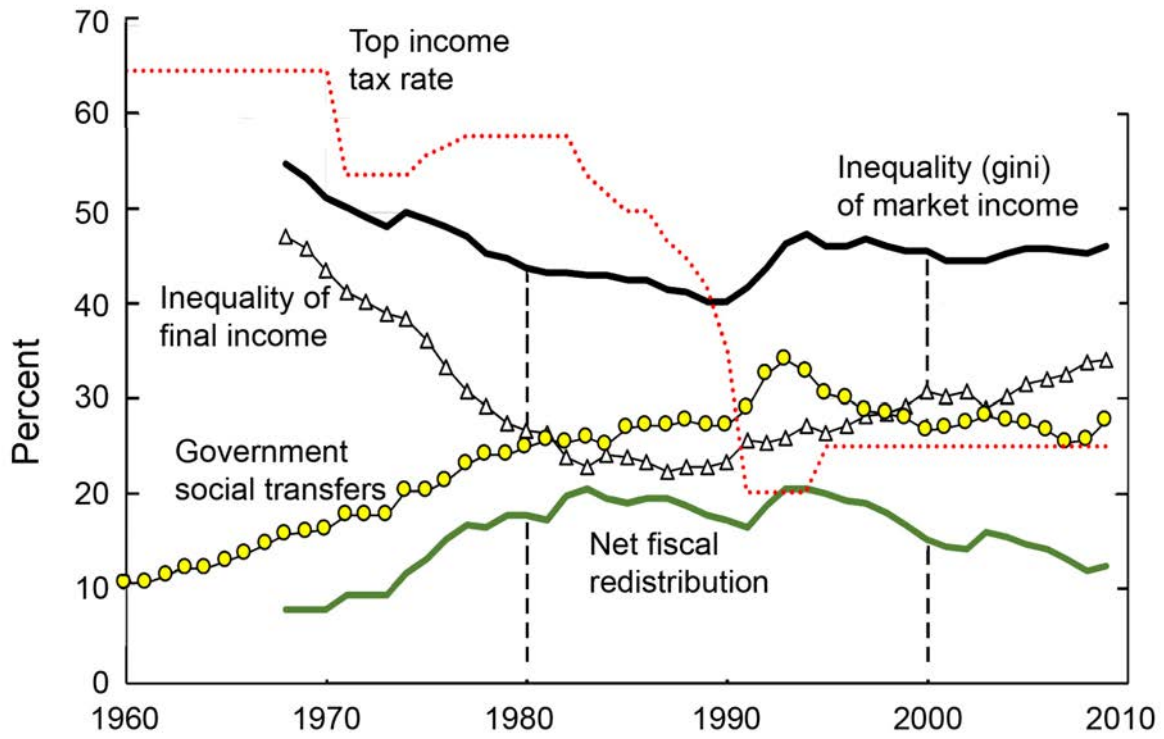


Figure 6. The Effects of Fiscal Redistribution on the Income Ranks in Chile, 1965-2010

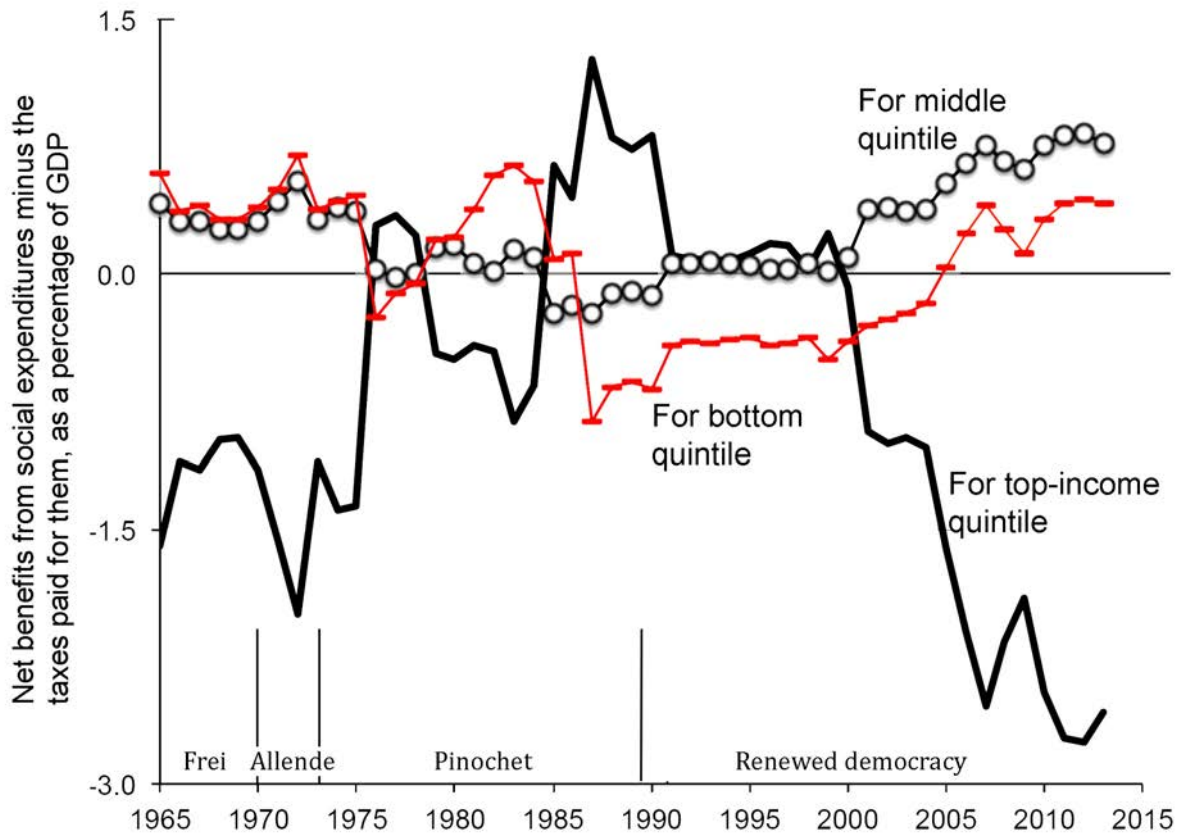
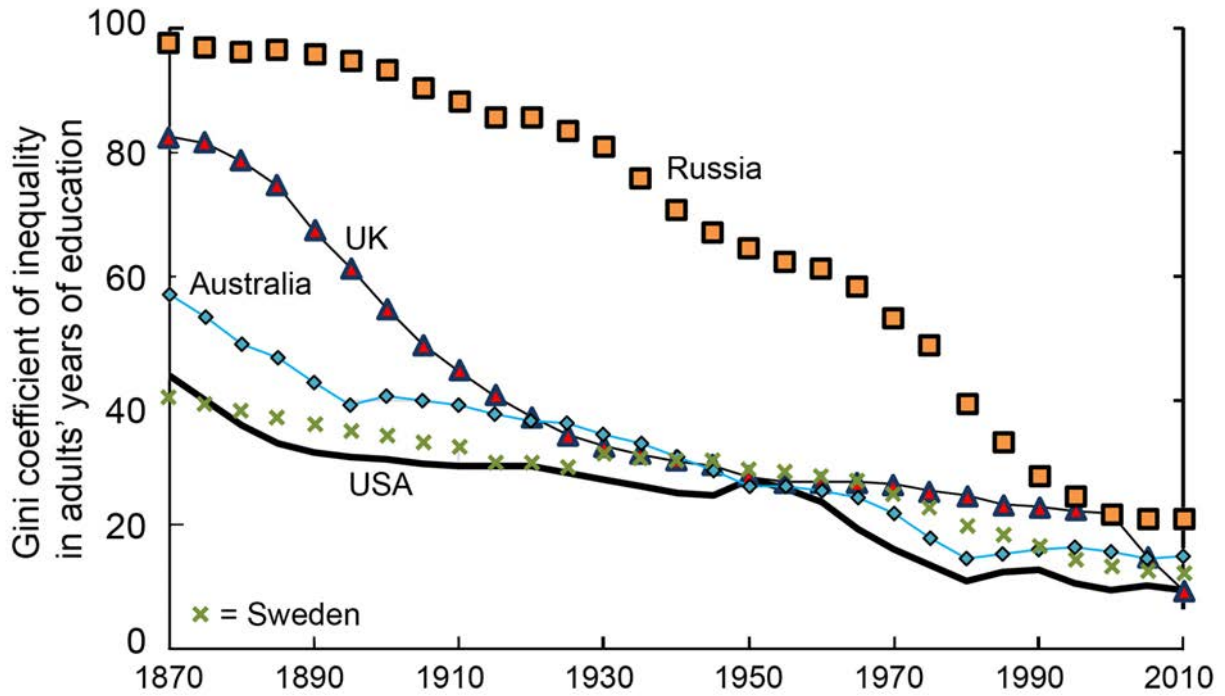
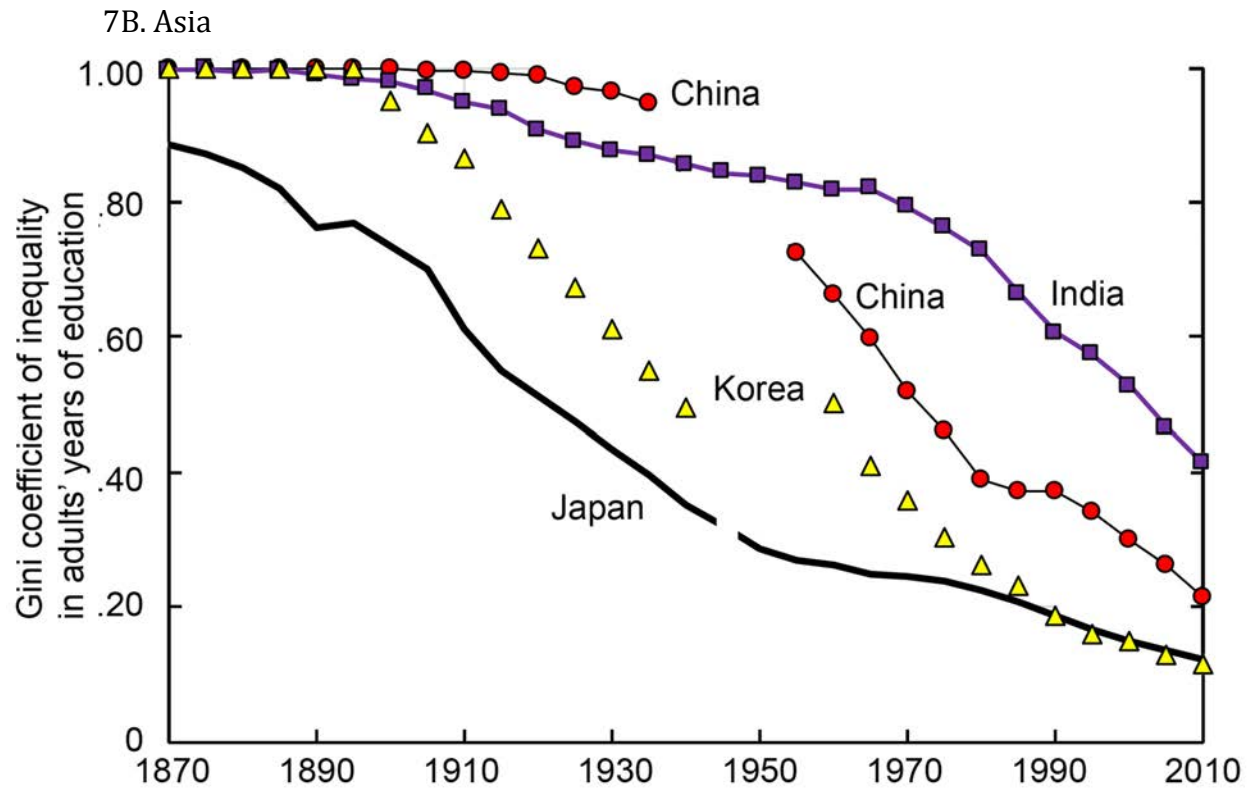


Figure 7. The Inequality of Adults' Education Attainment in Fourteen Countries since 1870
 Gini coefficients of years of education completed by adults 25-64

7A. Europe and Its Anglo-offshoots





7C. Latin America

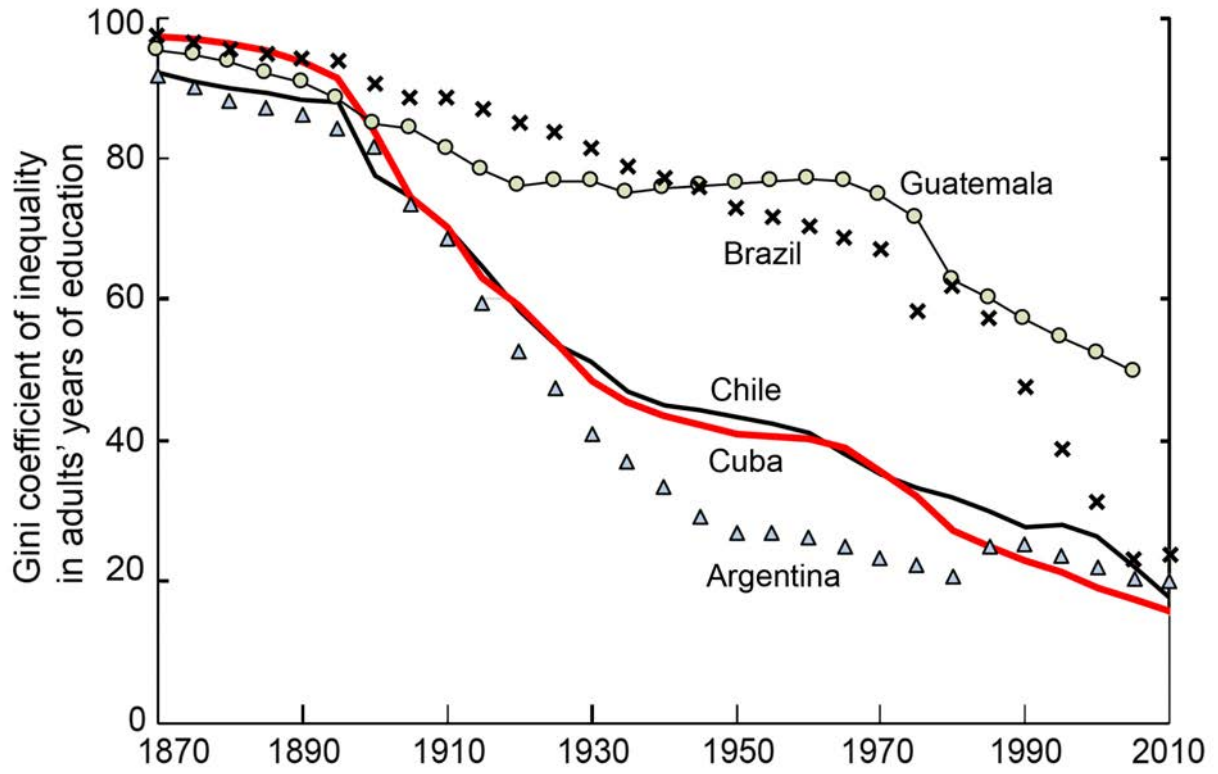


Figure 8. Supporting Pensions vs. Education: Latin America vs. Others, 2010

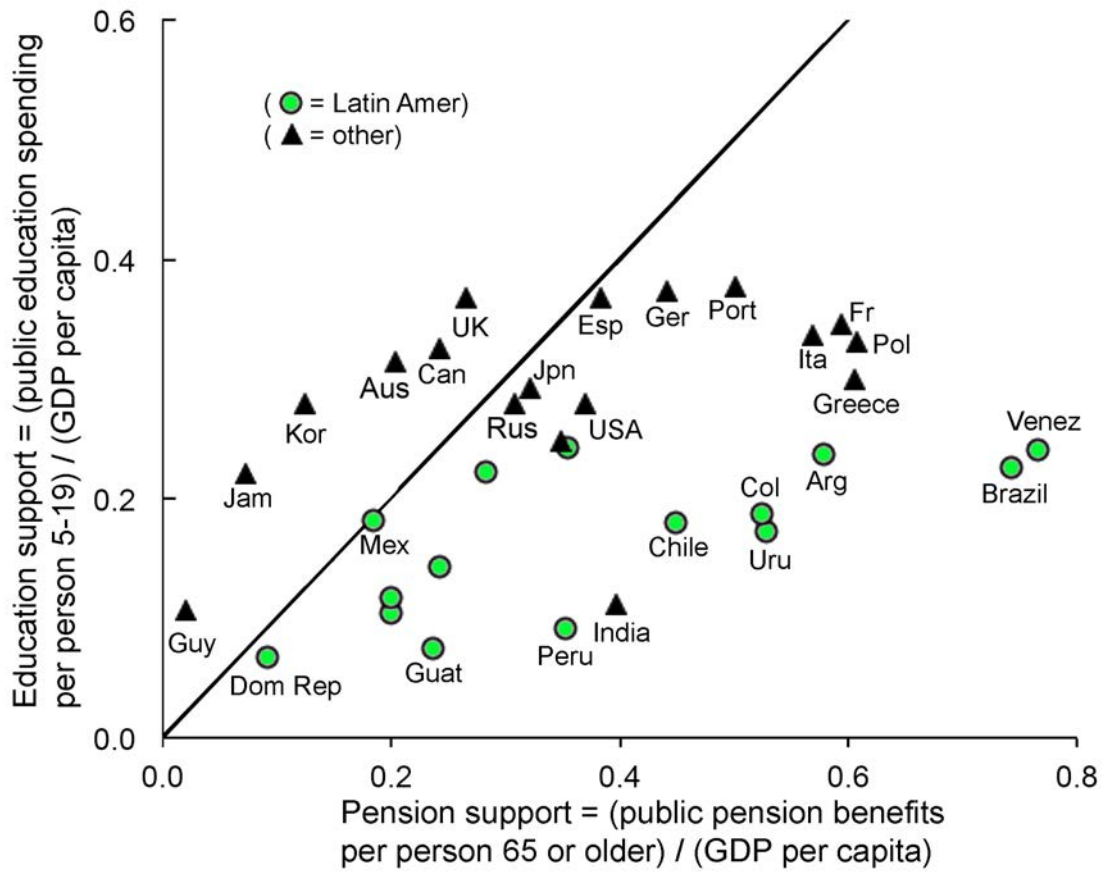
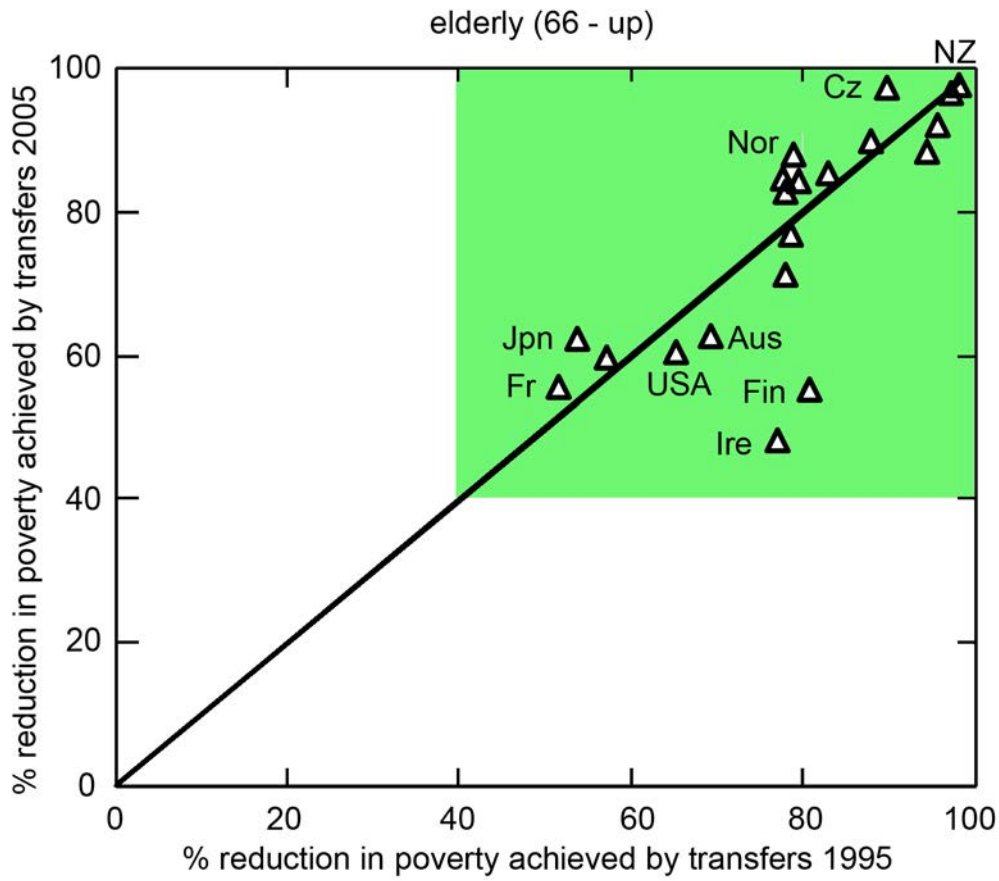
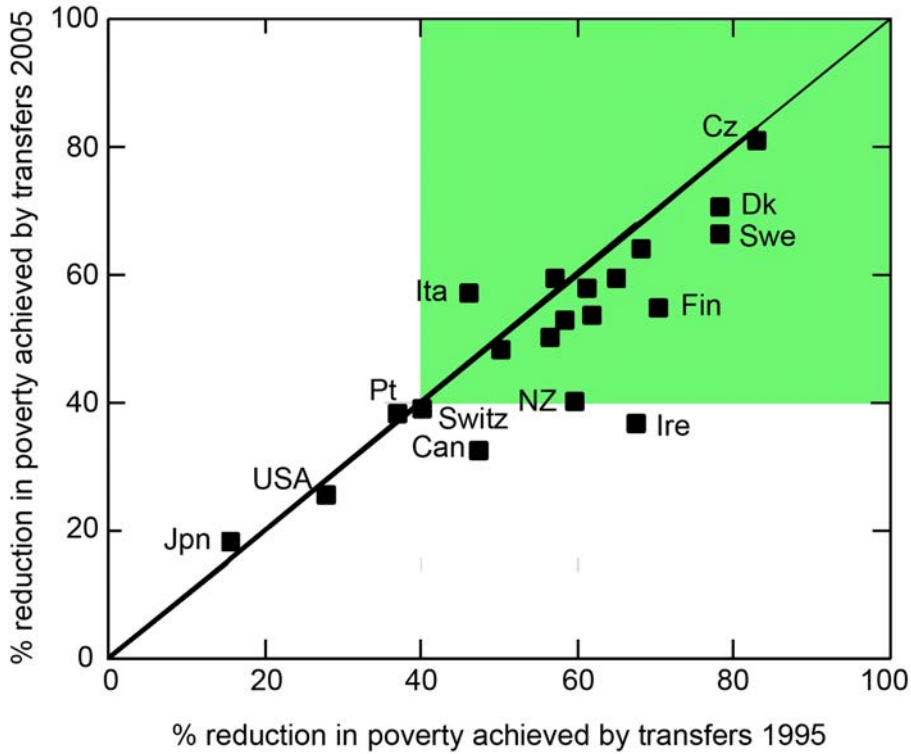


Figure 9. The Effect of Net Transfers in Reducing Poverty among Age Groups in the OECD

9A. Among the elderly (66 and older)



9B. Among the working-age population (18-65)
working age (18-65)



9C. Among children (0-17)

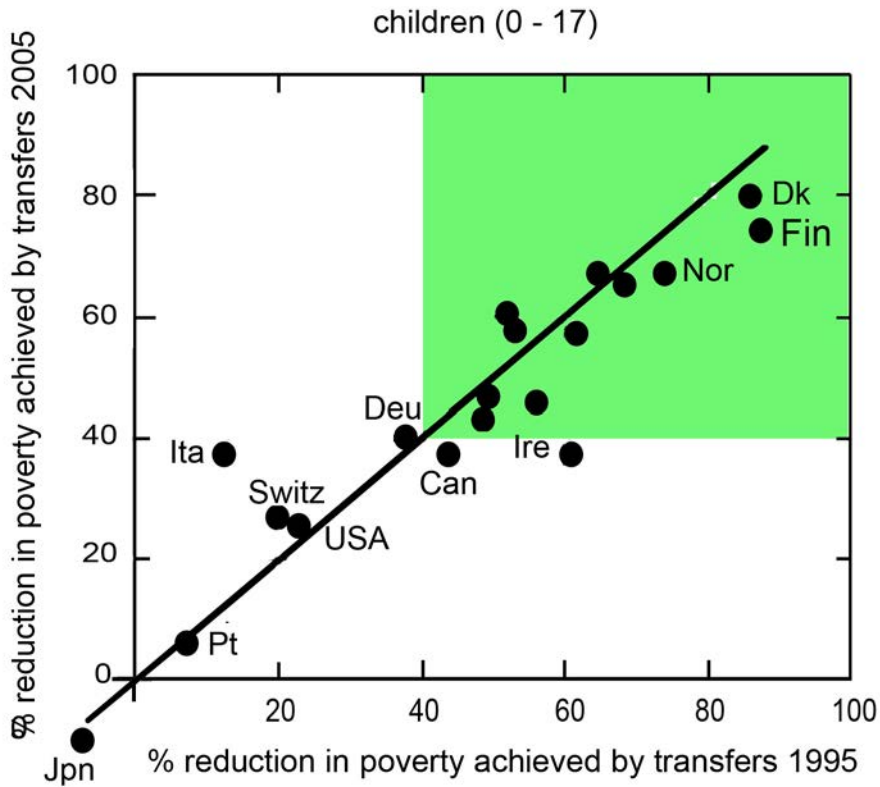


Figure 10. Elderly-Support Ratios in Six Countries 1960-2013

