Does Income Inequality Reduce Middle-Class Income Growth?

by

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for

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The Middle Class and Inequality: Scenario One

• When the economy grows, household incomes should rise for everyone. But if a large share of the economic growth goes to households at the top of the ladder, those in the middle may lose in terms of real incomes?

--their shares may fall, but do they see their incomes increase by less than they otherwise would, or perhaps even fall as top shares rise?

--if so, higher income inequality will yield slower middle-class income growth.
The Middle Class and Inequality: Scenario Two

- But it need not be true that growth leads to lower middle class incomes, so inequality may be helpful:

  -- larger top share could increase the pace of economic growth, which might result in more rapidly growing incomes for all— including middle-class households

  -- or a different group might bear the burden— poor, lower middle or upper middle incomes
For Instance, consider China

• In China and some other developing economies, incomes have increased sharply for the large majority of the population despite rapidly growing top share inequality.
• All the boats have been rising in China — the yachts and cruise liners, yes, but also the tugboats and rowboats.
• In this context, inequality is likely to be much easier to tolerate when most all real incomes are rising.
• But where rising inequality causes economic growth to be accompanied by flat or falling incomes for middle-class families, those who work hard and play by the rules, can become frustrated by their inability to get ahead, and by worry that their children won't be as well off as they are.
The US and many other rich countries are not like China

• In the United States, developments in the past half-century are consistent with the "inequality is harmful" hypothesis.

• Between the mid-1940s and the late 1970s, the top 1% of US households got about 8% of the income growth, and during that period middle-class incomes increased rapidly.

• Since 1979, the top 1% have taken a larger share of total income, about 13% on average, and in this period the incomes of middle-class households rose much more slowly, and more recently have been flat or falling.
And recent US polling evidence suggests this interpretation is correct:

- Middle class is sinking—only 42 percent overall (and 33 percent of blacks) now believe that hard work will get you ahead in society (August 2014 American Values Survey).

- NYT poll (Dec 2014): lowest percent who believe in start poor, work hard, move to riches, in 20 years.

- Most Americans (55 percent) believe that we do not have equality of opportunity.

- Only 16-34 percent of parents believe their children will be better off, an all time low.
Which leads to our research questions:

• Does this pattern hold if we compare US across other rich nations?
• Has middle-class income growth been slower in countries with greater top end income inequality?
• What can explain our results?
• And how, if at all, has the Great Recession (GR) and its aftermath begun to change these patterns?
Measures, Methods and Data

• Our approach – compare countries' average levels of top share income inequality over the period 1979-2013 with middle-class income (defined here as median income) growth over the 1979-2010 period.

• We have suitable/comparable data for sixteen countries: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, the UK, and the US.
But--

- The chief drawback is that we can't control for country "fixed effects"—country-specific factors that are difficult to measure quantitatively or for which we lack data, that are correlated with income inequality, overall growth and that might affect middle-class income growth.
Inequality Measure

- Our income inequality measure is the average share of income that goes to the top 1% of households.
- The data are for pretax income, measured for tax units and excluding capital gains, as these are the most comparable data across nations.
- They are compiled by the World Top Incomes Database (WTID)
- Data follows:
Top 1%'s share of pretax income, excluding capital gains. The large dot is the country's average during the time period and the small dots are its lowest and highest values.
Middle Class Income Measure

- Measure of middle-class income growth: absolute change in median post transfer-post tax household income 1979 to 2013.
- Calculate change in real median income by regressing income on year and then multiplying this measure of average yearly change, by 34, the number of years in the period 1979-2010.
- Incomes also adjusted for household size (hold constant demographic change)
- Converted to 2010 US $$ using purchasing power parities.
Middle Income Data Sources

• The household income data are from two sources: the Luxembourg Income Study (LIS) and the OECD. Because the two sources tell a very similar story about the trend for every country, we use whichever yields the longest time series.
Different middle class definitions?

- Is the median a reasonable indicator of middle-class incomes? We could opt for a more expansive measure — say, average income in the middle 50% of households (from p25 to p75)
- But doing so wouldn't alter the conclusion much, as change at the median tends to be representative of change for this larger group.
- Could be interested in bottom 40 real income growth as in inclusive growth and shared prosperity literatures?
Different median income measure?

• A more direct measure might be pre transfer-pretax income among working-age households, but unfortunately, such data are available for fewer countries.
• Figure A-2 includes these pre transfer-pretax data where they are available.
• In every case the over-time pattern is very similar to that for post transfer-post tax income.
Trends in Median Incomes

- Middle-class incomes grew rapidly in some countries, such as Ireland, Norway, and Australia (in the 2000s).
- In most others they increased at a respectable pace (e.g., Sweden, Denmark).
- In a few, Canada, Germany, Italy, Japan, and the United States, they barely rose.
- In the majority of nations, middle income growth had turned down by 2010.
Figure 2. Median household income, 1979-2013 in 16 countries.
Figure 2. Median household income, 1979-2013 in 16 countries
Consistency or Advantage?

- The top 1% income share data aren't entirely consistent with the median household income data. The median household income data exclude the top 1% due to sampling and non-sampling errors (like top-codes), the 1% data are based on tax units, and they don't fully capture government redistribution.

- Richard Burkhauser and colleagues suggest this makes a large difference in the calculation of overall inequality because the bottom of the distribution may not pay income taxes but benefit the most from redistribution.

- However, we focus not on the bottom but on the middle, where household units and tax units are more similar and where most income is from pre-tax sources (earnings).
Figure 3 shows the bivariate association between our outcome, change in median household income, and each of these two causes: (change in GDP per capita) and income inequality (top 1%'s income share)

The associations are fairly strong and in the expected direction — the larger the increase in GDP per capita, the larger the increase in median household income, and the larger the top 1%'s income share, the smaller the increase in median household income.
Figure 3. Change in median household income by change in GDP per capita and by top 1%'s income share, 1979-2013
Is it appropriate to control for economic growth?

- Is it appropriate to control for economic growth in estimating the impact of income inequality on middle-class income growth?
- If income inequality affects middle-class income growth in part by altering the pace of economic growth, then the answer is no.
- It's almost certainly true that at very low levels of income inequality the effect of growth is positive, with an increase in inequality boosting economic growth.
- And at very high levels of inequality the impact surely is negative, with an increase in inequality reducing growth.
- But what is the impact at the levels of income inequality we observe in existing affluent countries?
What to do?

• Across our sixteen countries, the correlation between top-end income inequality and economic growth is quite small, at +.16.

• Consistent with this finding, most existing research has concluded that if there is an effect in one direction or another, it is probably a small one. If that's correct, then it's appropriate to control for economic growth in assessing the effect of top-end income inequality on middle-class income growth.

• In a regression, economic growth and top-end income inequality together account for 76% of the variation in changes in median income across our sixteen countries (R-squared is .76)
Model & Results/ Interpretation

• We regress change in median household income on economic growth (change in GDP per capita) and income inequality (top 1%'s income share)

• Growth (change GDP) ought to be accounted for as it surely effects changes in both the top share and the median and may have an impact on either or both, and it does have an overall positive average effect, holding top shares constant

• The results:
  • Chg. Median income = $8555 - $1765 * top share + 1.3 * chg. in GDP per capita. (R² = .76)
  • Use the residual for our main effects regression
Figure 4. Change in median household income by top 1%'s income share, 1979 to 2013

Change in median income is adjusted for economic growth; it is the residuals from a regression of change in median income on change in GDP per capita. The lines are linear regression lines. The solid line includes all sixteen countries; the dashed line excludes the United States.
Interpretation

• If the top 1%'s share in country A was one percentage point higher than in country B, median income in country A rises by about $1,765 less between 1979 and 2010 than in country B.
• If the top 1%'s income share in country A was eight percentage points higher than in country B (actual range for our sixteen countries, top share 13% in the US and 5% in Sweden), the difference between these two nations would be $14,000.
• To put these in context:
  - real median income (for a three-person household) in the United States rose $7000 from $45,000 in 1979 to $52,000 in 2010
  - adding another $14,000 to that increase would have tripled the income gain of the median household in the USA
Interpretation

• The regression yields a coefficient of -55 for the top 1%'s income share. This number is in 2010 US dollars.

• It suggests that if the top 1%'s share in country A was one percentage point higher than in country B, median household income in country A is likely to have increased by about $63 less per year between 1979 and 2013, or $1,870 in total ($55 per year multiplied by 34 years), than in country B.

• If the top 1%'s income share in country A was eight percentage points higher than in country B — this was the actual range across our countries, with the top 1%'s share at 13% in the US and 5% in Sweden — the difference in median income growth between these two nations would be roughly $15,000.
Interpretation

• This is a large number.
• To put it in context, median income in the United States increased by $5,500 between 1979 and 2013 (see figure 2).
• Adding $15,000 to that increase would have made a big difference in the lives of middle-class Americans.
• For convenience, the numbers we show in our graphs and discuss in the test are for a typical-sized household — one with three persons.
Outlier effects

• This estimate of income inequality's impact on middle-class income growth isn't sensitive to the inclusion or exclusion of particular countries.

• Omitting countries one-by-one yields a range of -48 to -62 for the top 1% share coefficient.

• Perhaps most notably, the estimated effect is barely altered if the United States is excluded, as the dashed line in figure 4 indicates.
Discussion

• Is this an upper bound? Other factors *may be* correlated with income inequality that contributed to differences in overall growth and top income growth across these countries.

• BUT the forces that affect median income growth via their impact on the growth of the pie and/or the relative size of the piece that goes to the rich are already captured in these two variables.
Towards a why--

• Are institutions or policies more prominent in low-inequality countries than in high-inequality countries that result in economic growth getting to households in the middle of the distribution rather than to those near (but not at) the top or to those at the bottom?

• That type of institution or policy could produce the pattern we observe without top-end income inequality actually having much in the way of an impact on middle-class income growth.
What causes these changes?

- Some of the **usual suspects** — globalization, technological advancement, immigration, corporate governance structures, and others are likely to affect median income growth *via* their impact on the growth of the pie and/or the relative size of the piece that goes to the rich, so they are already captured in our regression.

- There are four others that are legitimate potential sources of spuriousness.
Four possibilities

- Skills
- Collective bargaining and centralized wage setting
- Hours effects
- Government Transfers
1. Skills story?

- The earnings return to skills—the amount by which earnings tend to rise as skill increases—may explain our findings.
- In a country with a lower earnings payoff for greater skill, middle-class employees are less likely to suffer relative to the top.
- The United States has the highest return to added skills as measured by the percentage increase in wages for a one standard deviation increase in skill.
- It also has one of the largest fractions of adult workers who have either fallen behind or not exceeded their parents' educational attainment, and a rising effect of inequality on college going and completion, with the children of the top quartile much more likely to both matriculate and graduate from post-secondary institutions.
Other factors: supply of skills

- The supply of human capital, or skills, could affect middle-class incomes independently from economic growth or income inequality.
- A useful country-level measure of skills is average adult literacy and numeracy scores from OECD’s PISA Survey of Adult Skills.
- The regression coefficient for the top 1%'s income share is -$2,220 instead of -$1,765, if included, meaning a bigger loss to median incomes with skills accounted for.
Labor market skill demand matters too

- The smaller the relative supply of skilled labor, the higher will be its wage.
- The United States has a high demand for skilled workers, but a relatively low supply of same (see Goldin-Katz) and hence has the highest return to human capital skills (experience and education) of any rich nation (next slide).
- Therefore top end high skill wage earners (mostly above the median) do relatively better in the USA, while lower skill workers do worse, again reinforcing the effect we find above.
Wage growth for men and women by education level

Fig. 6. Change in real wage levels of full-time workers by education, 1963–2012. (A) Male workers, (B) female workers. Data and sample construction are as in Fig. 3.

Source:
Wage returns to skills (experience and education) across nations
Figure A1. Returns to skill by top 1%'s income share, 1979-2013

Returns to skill: coefficient estimates on numeracy score in a regression of log gross hourly wage on numeracy, gender, and a quadratic polynomial in work experience.
And so what?

• Across our countries the return to skill is strongly correlated with the top 1%'s income share.
• The return to skill is measured as the average increase in earnings given an increase in numeracy. If we add this variable to our regression, the coefficient for the top 1% income share variable decreases from -55 to -24.
• This is probably a lower-bound estimate. Part of the reason the top 1% income share coefficient decreases so much when we add the returns to skill variable is that these two variables are so closely correlated. Ideally we'd like to have several countries with low top-end income inequality but high return to skill, and we'd like to have several countries with high top-end income inequality but low return to skill. In fact there are no such countries.
2. Centralized Wage Setting, Collective Bargaining and Unions

- A second potential source of spuriousness is centralized wage setting.
- These compress the earnings distribution, ensuring that wage increases for those on the middle and lower rungs of the ladder keep pace with those on the higher rungs.
Figure A2. Collective bargaining coverage by top 1%'s income share, 1979-2013

Collective bargaining coverage: share of employees whose wages are determined by collective bargaining
These may be important, but not the whole story

- collective bargaining coverage, the most useful comparative indicator of the labor market strength of unions and centralized wage setting, is correlated quite strongly with the top 1%'s income share across countries.

- But if we add it to our regression, the coefficient for the top 1%'s income share variable decreases only slightly, from -55 to -42.
3. Hours Effects

• It clearly makes a difference in real well being across nations if median incomes are attributable to longer or shorter hours of work, as well as at what wage level.

• A complete set of work hours by income level and country is not available for all of our nations.

• But what evidence we do have might be suggestive.
Table 1. Average Annual Hours Worked/Employed Person

<table>
<thead>
<tr>
<th>Country</th>
<th>1979</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1832</td>
<td>1728</td>
</tr>
<tr>
<td>Canada</td>
<td>1841</td>
<td>1710</td>
</tr>
<tr>
<td>Denmark</td>
<td>1636</td>
<td>1546</td>
</tr>
<tr>
<td>Finland</td>
<td>1869</td>
<td>1672</td>
</tr>
<tr>
<td>France</td>
<td>1804</td>
<td>1479</td>
</tr>
<tr>
<td>Japan</td>
<td>2126</td>
<td>1745</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1556</td>
<td>1381</td>
</tr>
<tr>
<td>Sweden</td>
<td>1530</td>
<td>1621</td>
</tr>
<tr>
<td>U.K.</td>
<td>1813</td>
<td>1654</td>
</tr>
<tr>
<td>U.S.</td>
<td>1829</td>
<td>1790</td>
</tr>
</tbody>
</table>

So the USA works the most hours

- For families with children under age 14, the United States had by far the largest number of two parent full time workers in these nations. Nearly 60% of children under 14 living in coupled households have both parents working full time in the US, compared to German and Dutch couples where dual full time earners are below 20% of all 2 parent households.
- There is also evidence that the share of single parents working either full or part time as of 2007 was the highest by far in Japan and the USA.
- USA also has by far the largest number of workers who work weekends and evenings.
- It appears that some countries, where median household income was flat or falling such as the United States and Japan, one finds more full time workers and workers who worked longer and non normal hours.
**Figure A3.** Change in hours worked per working-age person by top 1%'s income share, 1979-2013

Hours worked per working-age person: employment rate for persons aged 25-64 multiplied by average hours worked per employed person
Hours don’t seem to matter

• In practice, however, that doesn't seem to have been the case.
• As appendix figure A3 shows, there is no association between the top 1%'s income share and change in hours worked per person across the countries.
• In most cases such choices are determined by national norms, family patterns, and public policies, but this might also be an effort to maintain middle class incomes.
4. Government transfers?

- A fourth possible source of spuriousness that we should consider is government transfers. A number of the countries in which the top 1% get a comparatively small portion of the income also have large public safety nets. It could be that middle-class incomes in these nations have been increasing comparatively rapidly because of increases in transfer payments such as pensions, unemployment compensation, or sickness insurance, rather than because top 1% incomes have been held in check.

- The most straightforward way to assess this possibility is to compare trends in median posttransfer-posttax incomes, which we use in our analyses, with trends in pretransfer-pretax incomes among working-age households. If this hypothesis is correct, we should observe a noticeable difference in the trends for these two measures in low-inequality nations such as Denmark and Sweden. We don't observe any such pattern.
Some examples from Figure A-2: 

- The data shown in this figure are for a household with three persons (the median household size in these nations) with all adjustments.
- Look at some outlier countries at the top of the high income shares deck.
- Look at other outliers at the bottom of the high income change deck.
- Rest are all in the paper.
At the top end: USA and UK

United States

- Pretransfer-pretax, aged 25-59
- Posttransfer-posttax, all ages

United Kingdom

- Pretransfer-pretax, aged 25-59
- Posttransfer-posttax, all ages
Then: Canada and Germany

![Canada and Germany graphs](image-url)
And: Ireland and Spain
At the other end: Denmark and Finland

- **Denmark**
  - Pretransfer-pretax, aged 25-59
  - Posttransfer-posttax, all ages

- **Finland**
  - Pretransfer-pretax, aged 25-59
  - Posttransfer-posttax, all ages
And: Netherlands and Sweden
• Our analysis includes the years 1979 to 2013.
• Has the income-growth-reducing effect of top-end income inequality changed during this period?
• To find out, we split this period into two: 1979-2000 and 2000-2013.
• For the first period, which covers the 1980s and 1990s business cycles, the estimated income-reducing effect of a one-percentage-point increase in the top 1%'s income share is -37. For the second period, it is -54.
• it may also be the case that each increase in top-end inequality now does more damage than it used to.
Bottom Line

• Logic suggests that if households at the top get a large share of a country's income, those in the middle class will experience slower income growth.

• Developments in the world's affluent nations since the late 1970s are consistent with this worry.

• In the highest-inequality nation, the United States, the top 1%'s income share is about eight percentage points higher than in the lowest-inequality countries, Sweden and Denmark. The data suggest that this difference may have reduced income growth for middle-class households in the United States by $15,000 over the period from 1979 to 2013.

• But this isn't simply an American tale. Even leaving the United States out of the mix, there is a strong negative relationship between top-end inequality and median income growth in affluent nations.
Concluding remarks

• Logic suggests that if households at the top get a large share of a country's income, those in the middle class will experience slower income growth.
• Developments in the world's affluent nations since the late 1970s are consistent with this concern.
• In the highest-inequality nation, the USA, the top 1%'s income share is about eight percentage points higher than in the lowest-inequality countries, Sweden and Denmark.
But not just a USA story

• Even leaving the United States out of the mix, there is a strong negative relationship between top-end inequality and median income growth in affluent nations.

• Returns to skills and wage setting appear to explain much of the differences; hours worked and government redistribution do not.
Comments most welcome

Thank You

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