Figure 1: Gini coefficient

Source: Kopczuk, Saez, Song QJE'10: Wage earnings inequality
Top 10% Pre-tax Income Share in the US, 1917-2014

Source: Piketty and Saez, 2003 updated to 2014. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.
Decomposing Top 10% into 3 Groups, 1913-2014

- Top 1% (incomes above $423,000 in 2014)
- Top 5-1% (incomes between $174,200 and $423,000)
- Top 10-5% (incomes between $121,400 and $174,200)

Source: Piketty and Saez, 2003 updated to 2014. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.
Top 0.1% US Pre-Tax Income Share, 1913-2014

Source: Piketty and Saez, 2003 updated to 2014. Series based on pre-tax cash market income including or excluding realized capital gains, and always excluding government transfers.
Real average national income:
Full adult population vs. bottom 90%

Average income in constant 2012 dollars

0 10,000 20,000 30,000 40,000 50,000 60,000 70,000

All adults

Bottom 90% adults

Real values are obtained by using the national income deflator and expressed in 2012 dollars. Source: Appendix Tables XX.
2. Federal Average Tax Rates by Income Groups
(individual+corporate+payroll+estate taxes)

Source: Piketty and Saez JEP'07
2A. Tax revenue/GDP in the US, UK, and Sweden

Source: Kleven-Kreiner-Saez NBER WP 2009
Total tax revenues were less than 10% of national income in rich countries until 1900-1910; they represent between 30% and 55% of national income in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.
Figure 11: National wealth in 1770-1810: Old vs. New world

- Other domestic capital
- Housing
- Slaves
- Agricultural Land

Figure 12: Capital shares in factor-price national income 1975-2010

Source: Piketty and Zucman (2014)
The fluctuations of national capital in the long run correspond mostly to the fluctuations of private capital (both in Europe and in the U.S.). Sources and series: see piketty.pse.ens.fr/capital21c.

Source: Piketty (2014)
FIGURE II: Association between Children’s Percentile Rank and Parents’ Percentile Rank

A. Mean Child Income Rank vs. Parent Income Rank in the U.S.

B. United States vs. Denmark

Notes: These figures present non-parametric binned scatter plots of the relationship between child and parent income ranks. Both figures are based on the core sample (1980-82 birth cohorts) and baseline family income definitions for parents and children. Child income is the mean of 2011-2012 family income (when the child was around 30), while parent income is mean family income from 1996-2000. We define a child’s rank as her family income percentile rank relative to other children in her birth cohort and his parents’ rank as their family income percentile rank relative to other parents of children in the core sample. Panel A plots the mean child percentile rank within each parental percentile rank bin. The series in triangles in Panel B plots the analogous series for Denmark, computed by Boserup, Kopczuk, and Kreiner (2013) using a similar sample and income definitions (see text for details). The series in circles reproduces the rank-rank relationship in the U.S. from Panel A as a reference. The slopes and best-fit lines are estimated using an OLS regression on the micro data for the U.S. and on the binned series (as we do not have access to the micro data) for Denmark. Standard errors are reported in parentheses.

Source: Chetty, Hendren, Kline, Saez (2014)
FIGURE II: Association between Children’s Percentile Rank and Parents’ Percentile Rank

Notes: These figures present non-parametric binned scatter plots of the relationship between child and parent income ranks. Both figures are based on the core sample (1980-82 birth cohorts) and baseline family income definitions for parents and children. Child income is the mean of 2011-2012 family income (when the child was around 30), while parent income is mean family income from 1996-2000. We define a child’s rank as her family income percentile rank relative to other children in her birth cohort and his parents’ rank as their family income percentile rank relative to other parents of children in the core sample. Panel A plots the mean child percentile rank within each parental percentile rank bin. The series in triangles in Panel B plots the analogous series for Denmark, computed by Boserup, Kopczuk, and Kreiner (2013) using a similar sample and income definitions (see text for details). The series in circles reproduces the rank-rank relationship in the U.S. from Panel A as a reference. The slopes and best-fit lines are estimated using an OLS regression on the micro data for the U.S. and on the binned series (as we do not have access to the micro data) for Denmark. Standard errors are reported in parentheses.
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:

<table>
<thead>
<tr>
<th>Country</th>
<th>Probability</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>7.5%</td>
<td>Chetty, Hendren, Kline, Saez 2014</td>
</tr>
<tr>
<td>UK</td>
<td>9.0%</td>
<td>Blanden and Machin 2008</td>
</tr>
<tr>
<td>Denmark</td>
<td>11.7%</td>
<td>Boserup, Kopczuk, and Kreiner 2013</td>
</tr>
<tr>
<td>Canada</td>
<td>13.5%</td>
<td>Corak and Heisz 1999</td>
</tr>
</tbody>
</table>

→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.
The Geography of Upward Mobility in the United States
Probability of Reaching the Top Fifth Starting from the Bottom Fifth

US average 7.5% [kids born 1980-2]

Source: Chetty et al. (2014)

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org
The Geography of Upward Mobility in the United States
Odds of Reaching the Top Fifth Starting from the Bottom Fifth

US average 7.5% [kids born 1980-2]

Source: Chetty et al. (2014)
that much of the variation in upward mobility across areas may be driven by a causal effect of the local environment rather than differences in the characteristics of the people who live in different cities. Place matters in enabling intergenerational mobility. Hence it may be effective to tackle social mobility at the community level. If we can make every city in America have mobility rates like San Jose or Salt Lake City, the United States would become one of the most upwardly mobile countries in the world.

Correlates of spatial variation

What drives the variation in social mobility across areas? To answer this question, we begin by noting that the spatial pattern in gradients of college attendance and teenage birth rates with respect to parent income is very similar to the spatial pattern in intergenerational income mobility. The fact that much of the spatial variation in children's outcomes emerges before they enter the labor market suggests that the differences in mobility are driven by factors that affect children while they are growing up.

We explore such factors by correlating the spatial variation in mobility with observable characteristics. We begin by showing that upward income mobility is significantly lower in areas with larger African-American populations. However, white individuals in areas with large African-American populations also have lower rates of upward mobility, implying that racial shares matter at the community (rather than individual) level. One mechanism for such a community-level effect of race is segregation. Areas with larger black populations tend to be more segregated by income and race, which could affect both white and black low-income individuals adversely. Indeed, we find a strong negative correlation between standard measures of racial and income segregation and upward mobility. Moreover, we also find that upward mobility is higher in cities with less sprawl, as measured by commute times to work. These findings lead us to identify segregation as the first of five major factors that are strongly correlated with mobility.

The second factor we explore is income inequality. CZs with larger Gini coefficients have less upward mobility, consistent with the "Great Gatsby curve" documented across countries. In contrast, top 1 percent income shares are not highly correlated with intergenerational mobility both across CZs within the United States and across countries. Although one cannot draw definitive conclusions from such correlations, they suggest that the factors that erode the middle class hamper intergenerational mobility more than the factors that lead to income growth in the upper tail.

Third, proxies for the quality of the K–12 school system are also correlated with mobility. Areas with higher test scores (controlling for income levels), lower dropout rates, and smaller class sizes have higher rates of upward mobility. In addition, areas with higher local tax rates, which are predominantly used to finance public schools, have higher rates of mobility.

Fourth, social capital indices—which are proxies for the strength of social networks and community involvement in an area—are very strongly correlated with mobility. For instance, areas of high upward mobility tend to have higher fractions of native-born white residents, higher school test scores, and lower crime rates. These findings lead us to identify social capital as the second of five major factors that are strongly correlated with mobility.

Finally, we find that communities with a higher percentage of people who are employed in high-skill jobs have higher rates of upward mobility. This finding is consistent with the idea that areas with more opportunities for high-skill jobs are more likely to have high levels of upward mobility. These findings lead us to identify high-skill jobs as the third of five major factors that are strongly correlated with mobility.

Note: This table reports selected statistics from a sample of the 50 largest commuting zones (CZs) according to their populations in the 2000 Census. The columns report the percentage of children whose family income is in the top quintile of the national distribution of child family income conditional on having parent family income in the bottom quintile of the parental national income distribution—these probabilities are taken from Online Data Table VI of Chetty et al., 2014a.

Table 1. Upward Mobility in the 50 Largest Metro Areas: The Top 10 and Bottom 10

<table>
<thead>
<tr>
<th>Rank</th>
<th>Commuting Zone</th>
<th>Odds of Reaching Top Fifth from Bottom Fifth</th>
<th>Rank</th>
<th>Commuting Zone</th>
<th>Odds of Reaching Top Fifth from Bottom Fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>San Jose, CA</td>
<td>12.9%</td>
<td>41</td>
<td>Cleveland, OH</td>
<td>5.1%</td>
</tr>
<tr>
<td>2</td>
<td>San Francisco, CA</td>
<td>12.2%</td>
<td>42</td>
<td>St. Louis, MO</td>
<td>5.1%</td>
</tr>
<tr>
<td>3</td>
<td>Washington, D.C.</td>
<td>11.0%</td>
<td>43</td>
<td>Raleigh, NC</td>
<td>5.0%</td>
</tr>
<tr>
<td>4</td>
<td>Seattle, WA</td>
<td>10.9%</td>
<td>44</td>
<td>Jacksonville, FL</td>
<td>4.9%</td>
</tr>
<tr>
<td>5</td>
<td>Salt Lake City, UT</td>
<td>10.8%</td>
<td>45</td>
<td>Columbus, OH</td>
<td>4.9%</td>
</tr>
<tr>
<td>6</td>
<td>New York, NY</td>
<td>10.5%</td>
<td>46</td>
<td>Indianapolis, IN</td>
<td>4.9%</td>
</tr>
<tr>
<td>7</td>
<td>Boston, MA</td>
<td>10.5%</td>
<td>47</td>
<td>Dayton, OH</td>
<td>4.9%</td>
</tr>
<tr>
<td>8</td>
<td>San Diego, CA</td>
<td>10.4%</td>
<td>48</td>
<td>Atlanta, GA</td>
<td>4.5%</td>
</tr>
<tr>
<td>9</td>
<td>Newark, NJ</td>
<td>10.2%</td>
<td>49</td>
<td>Milwaukee, WI</td>
<td>4.5%</td>
</tr>
<tr>
<td>10</td>
<td>Manchester, NH</td>
<td>10.0%</td>
<td>50</td>
<td>Charlotte, NC</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

Note: This table reports selected statistics from a sample of the 50 largest commuting zones (CZs) according to their populations in the 2000 Census. The columns report the percentage of children whose family income is in the top quintile of the national distribution of child family income conditional on having parent family income in the bottom quintile of the parental national income distribution—these probabilities are taken from Online Data Table VI of Chetty et al., 2014a.

Source: Chetty et al., 2014a.
The figure depicts the share of total household wealth owned by the top 10%, obtained by capitalizing income tax returns versus in the Survey of Consumer Finances. The unit of analysis is the family. Source: Appendix Tables B1 and C4.
This figure depicts the share of total household wealth held by the 0.1% richest families, as estimated by capitalizing income tax returns. In 2012, the top 0.1% includes about 160,000 families with net wealth above $20.6 million. Source: Appendix Table B1.
Figure A6: The composition of capital income in the U.S., (details)

- Housing rents (net of mortgages)
- Noncorporate business profits
- Corporate profits
- Net interest
- Profits & interest paid to pensions
DINA confirm the rise of income inequality, but post-tax inequality is less.

Top 10% national income share: pre-tax vs. post-tax

Source: Appendix Tables II-B1 and II-C1
The macro rate of tax rose until the 1960s and has been constant since then.

Source: Piketty, Saez, Zucman (2016)
Tax progressivity has declined since the 1960s

Average tax rates by pre-tax income group

% of pre-tax income

Source: Appendix Table II-G1.

Source: Piketty, Saez, Zucman (2016)
Top income shares of pretax national income among adults aged 20+ (income within couples equally split). Source is World Inequality Database wid.world (from Piketty, Saez, Zucman 2018).
Average, bottom 90%, bottom 50% real incomes per adult

Average national income per adult: 61% growth from 1980 to 2014

Bottom 90% pre-tax: 30% growth from 1980 to 2014

Bottom 50% pre-tax: 1% growth from 1980 to 2014
Share of pre-tax national income

Source: Saez and Zucman (2019), Figure 1.1
Average vs. bottom 50% income growth per adult

Average national income per adult: 61% growth from 1980 to 2014

Bottom 50% post-tax: 21% growth from 1980 to 2014

Bottom 50% pre-tax: 1% growth from 1980 to 2014
<table>
<thead>
<tr>
<th>Income group</th>
<th>Number of adults</th>
<th>Average income</th>
<th>Income share</th>
<th>Pre-tax income</th>
<th>Average income</th>
<th>Income share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Population</td>
<td>234,400,000</td>
<td>$64,600</td>
<td>100%</td>
<td>$64,600</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Bottom 50%</td>
<td>117,200,000</td>
<td>$16,200</td>
<td>12.5%</td>
<td>$25,000</td>
<td>19.4%</td>
<td></td>
</tr>
<tr>
<td>Middle 40%</td>
<td>93,760,000</td>
<td>$65,400</td>
<td>40.5%</td>
<td>$67,200</td>
<td>41.6%</td>
<td></td>
</tr>
<tr>
<td>Top 10%</td>
<td>23,440,000</td>
<td>$304,000</td>
<td>47.0%</td>
<td>$252,000</td>
<td>39.0%</td>
<td></td>
</tr>
<tr>
<td>Top 1%</td>
<td>2,344,000</td>
<td>$1,300,000</td>
<td>20.2%</td>
<td>$1,010,000</td>
<td>15.6%</td>
<td></td>
</tr>
<tr>
<td>Top 0.1%</td>
<td>234,400</td>
<td>$6,000,000</td>
<td>9.3%</td>
<td>$4,400,000</td>
<td>6.8%</td>
<td></td>
</tr>
<tr>
<td>Top 0.01%</td>
<td>23,440</td>
<td>$28,100,000</td>
<td>4.4%</td>
<td>$20,300,000</td>
<td>3.1%</td>
<td></td>
</tr>
<tr>
<td>Top 0.001%</td>
<td>2,344</td>
<td>$122,000,000</td>
<td>1.9%</td>
<td>$88,700,000</td>
<td>1.4%</td>
<td></td>
</tr>
</tbody>
</table>
Gini Coefficient California pre-tax income, 2000, Gini=62.1%

Source: Annual Report 2001 California Franchise Tax Board
Men still make 85% of the top 1% of the labor income distribution

Share of women in the employed population, by fractile of labor income

Source: Appendix Table II-F1.
Top 1% Pre-Tax Income Share, 1913-2018

Piketty-Saez-Zucman (comprehensive income)

Piketty-Saez (reported income with capital gains)
Top 1% Pre-Tax Income Share, 1913-2018

Piketty-Saez (reported income with capital gains)
Average tax rates by income group in 2018 (% of pre-tax income)

Average tax rate: 28%

Working class (average annual pre-tax income: $18,500)
Middle-class ($75,000)
Upper middle-class ($220,000)
The rich ($1,500,000)
Average tax rates by income group in 2018
(% of pre-tax income)

Corporate & property taxes
Consumption taxes
Payroll taxes
Individual income taxes
Estate tax
Average tax rates by income group (% of pre-tax income)

- Working class
- Middle-class
- Upper middle-class
- The rich
**Interpretation.** In 2015, fiscal revenues represented 47% of national income on average in Western Europe and were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. **Note.** The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). **Sources and series:** see piketty.pse.ens.fr/ideology.
Interpretation. Total fiscal revenues (all taxes and social contributions included) made less than 10% of national income in rich countries during the 19th century and until World War 1, before rising strongly from the 1910s-1920s until the 1970s-1980s and then stabilizing at different levels across countries: around 30% in the U.S., 40% in Britain and 45%-55% in Germany, France and Sweden.

Sources and series: see piketty.pse.ens.fr/ideology.
this cost should be considered as a tax on workers that the government imposes to achieve wider health insurance coverage (Saez and Zucman 2019b). Like other taxes, this cost should be subtracted from income for the computation of post-tax income.

In short, there is no perfect measure of post-tax income. To measure the inequality of income after taxes and transfers, disposable cash income is perhaps the most meaningful concept. Disposable cash income captures income available for saving and consumption, excluding the collective consumption of services like education and health mandated by the government. But disposable cash income does not add up to national income. Post-tax national income captures all of national income by deducting all taxes and adding back all forms of government spending and the government deficit. But computing post-tax national income requires assigning collective consumption expenditures as well as the current government deficit to individuals. There is no obvious, universally “correct” way to do such an imputation, and there will never be.

Does this mean that we cannot know what is happening to inequality? Of course not. There are no raw facts in the social sciences. Rather, there are attempts at
The choices we make in our distributional national accounts are of course not the only possible ones, but we stress that they are the opposite of arbitrary. Instead, they follow consistent, internationally defined economic concepts. Using concepts that are the product of international deliberation—at least as a starting point—can help control the effect of national political and ideological idiosyncracies and contribute to more coherent and comparable statistics.

When taking a comprehensive perspective on taxation, a dramatic decline in the progressivity of the US tax system appears. Figure 5 depicts the US average tax rate by income groups from 1950 to 2018. All federal, state, and local taxes are included. Taxes are expressed as a fraction of pre-tax income. P0-10 denotes the bottom 10 percent of the income distribution, P10-20 the next 10 percent, etc.

The choices we make in our distributional national accounts are of course not the only possible ones, but we stress that they are the opposite of arbitrary. Instead, they follow consistent, internationally defined economic concepts. Using concepts that are the product of international deliberation—at least as a starting point—can help control the effect of national political and ideological idiosyncracies and contribute to more coherent and comparable statistics.

When taking a comprehensive perspective on taxation, a dramatic decline in the progressivity of the US tax system appears. Figure 5 depicts the US average tax rate by income groups for various years from 1950 to 2018. All federal, state, and local taxes are included and taxes are expressed as a fraction of pre-tax income. P0-10 denotes the bottom 10 percent of the income distribution, P10-20 the next 10 percent, and so on. We split the top 10 percent into smaller groups all the way to the top 400 wealthiest Americans popularized by Forbes. Taking all taxes together, the US tax system used to be slightly progressive or roughly proportional for the bottom 99 percent of the income distribution but highly progressive within the top 1 percent. In 1950, for example, the upper middle class (the top 10 percent excluding the top 1 percent) paid average tax rates of around 25 percent, while the top 0.01 percent paid almost 70 percent of its income in taxes.