Distributional National Accounts: Methods and Estimates for the United States

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There is a large disconnect today between the study of inequality and macro

**Macro:** use national accounts, with no distributional information

**Inequality:** use survey & tax data, inconsistent with macro totals

This gap makes it hard to know *growth is distributed* and to analyze the causes of the rise in inequality

How does growth of bottom 50%, middle 40%, top 10% adults compare to total growth?

What part of rise in inequality owes to change in factor shares vs. changes in the concentration of labor and capital?

How do taxes and gov spending affect the distribution of growth?
This paper: attempt at constructing Distributional National Accounts (DINA)

We construct a **micro database** of income, wealth, taxes and transfers consistent with national accounts totals in the US:

- First income inequality series covering 100% of national income
- First growth statistics by quantile consistent with macro growth
- First assessment of total redistributive effects of gov. intervention

→ Getting back to Kuznets’ original intent to study growth & inequality jointly, but with more and better data

→ Ultimate goal: being able to better compare ineq. across countries
Our objective:
Distribute national income
National income = labor income + capital income

The share of capital and labor in national income

Capital income

Labor income

% of national income

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

A growing fraction of labor income is missed by tax data.
Reconciling national capital income and capital income reported on tax returns

From taxable to total capital income

Didivends, interest, rents & profits reported on tax returns

Imputed rents + property tax

Corporate income tax

Income paid to pensions & insurance

Retained earnings

Non-filers & other

% of national income

Source: Appendix Table I-S.A8.
Most capital income is missed by tax data

From taxable to total capital income

- 2/3 missed by tax data

Didivends, interest, rents & profits reported on tax returns

Source: Appendix Table I-S.A8.
Methodology:
How we distribute national income
How we move from fiscal income to total national income

1. **Start with public-use samples of tax returns (1962-2010)**
   
   High quality, oversamples top

2. **Supplement public-use files using additional IRS data**

   Age and gender information since 1979

   Labor split for couples & fringe benefits on W2 since 1999

3. **Impute missing income using SCF and CPS**

   Non-taxable capital income (pension funds, imputed rents): SCF

   Monetary transfers: imputed based on CPS distribution by family income deciles and basic demographics

4. **Distributionally neutral assumptions for public goods**
We consider three main concepts of income matching national income

**Factor national income**

Sum of all labor income and capital income

**Pre-tax national income**

Subtracts contributions for pensions and social insurance, adds corresponding benefits (pensions, disability, unemployment)

**Post-tax national income**

Subtracts all other taxes

Adds back all other forms of government spending (individualized transfers + public goods)

\[\downarrow\]

Same national income total for factor, pre-tax and post-tax → gives the broadest view of the redistributive effects of the government

Detailed income & wealth variables matching national accounts aggregates

Demographic information: age, gender, marital status, children

Can be used to compute wide array of growth & inequality stats, and simulate tax and transfer reforms

For 1913-1961: we rely on tabulated tax statistics → produce series for specific income fractiles (top 10% and above)
The distribution of US national income and growth: Pre-tax vs. post-tax
DINA confirm the rise of income inequality, but post-tax inequality less
Bottom 50% national income share: pre-tax vs. post-tax

Source: Appendix Tables II-B1 and II-C1
Post-tax growth for bottom 50% has been anemic, and eaten up by health spending

Real income of bottom 50%: pre-tax vs. post-tax

Post-tax

Pre-tax

Post-tax, excluding health benefits

Medicare + medicaid

Average income in constant 2014 $

Source: Appendix Tables II-B7, II-C7 and II-C3c.
The bottom 50% does not benefit on net from cash redistribution

Real income of bottom 50%:
pre-tax vs. post-tax

Average income in constant 2014 $:

- Post-tax
- Medicare + medicaid
- Post-tax private
- Post-tax, excluding health benefits

Source: Appendix Tables II-B7, II-C7 and II-C3c.
For bottom 50% working-age adults, pre-tax income has collapsed since 1979.

Real pre-tax income of bottom 50%, by age group

Real values are obtained by using the national income deflator and expressed in $2014. Income is divided equally among spouses.
At the bottom, only retirees’ pre-tax income is growing

Real pre-tax income of bottom 50%, by age group

Source: Appendix Tables II-B7 and II-B7b.
Even after transfers, 0 growth in working-age bottom 50% income since 79

Real post-tax income of bottom 50%, by age group

Average income in constant 2014 $

Source: Appendix Tables II-C7 and II-C7b.
The fall of the bottom 50% mirrors the rise of the top 1%

Pre-tax national income share: top 1% vs. bottom 50%

Source: Appendix Table II-B1
1980: Top 1% income = 27 \times \text{bottom 50}

2014: Top 1% income = 81 \times \text{bottom 50}

Real average pre-tax income of bottom 50% and top 1% adults

1980: Top 1% = $428,000

1980: Bottom 50% = $16,000

2014: Top 1% = $1,305,000

2014: Bottom 50% = $16,200

Source: Appendix Tables II-B7 and II-B10
## Changes in standards of living in the United States since 1946

<table>
<thead>
<tr>
<th>Income group</th>
<th>Pre-tax income growth</th>
<th>Post-tax income growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Population</td>
<td>61%</td>
<td>95%</td>
</tr>
<tr>
<td>Bottom 50%</td>
<td>1%</td>
<td>102%</td>
</tr>
<tr>
<td>Middle 40%</td>
<td>42%</td>
<td>105%</td>
</tr>
<tr>
<td>Top 10%</td>
<td>121%</td>
<td>79%</td>
</tr>
<tr>
<td>Top 1%</td>
<td>205%</td>
<td>47%</td>
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<tr>
<td>Top 0.1%</td>
<td>321%</td>
<td>54%</td>
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<tr>
<td>Top 0.01%</td>
<td>454%</td>
<td>75%</td>
</tr>
<tr>
<td>Top 0.001%</td>
<td>636%</td>
<td>57%</td>
</tr>
</tbody>
</table>
Gender inequality and its effect on individual-level inequality
When assigning each spouse her own labor income, inequality has increased less.
This is due to the decline in the inequality of labor income between genders.

Source: Appendix Table II-F1.
Part of the decline in gender inequality owes to rising female labor force particip.
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.
At the median, no growth for working-age men over half a century

Median pre-tax labor income:
working-age men vs. working-age women

Source: Appendix Table II-B13.
Decomposing inequality: Labor vs. capital
Capital is making a comeback in the US

The share of capital in pre-tax income

Macro capital share in national income
Capital is making a comeback at the top

The share of capital in pre-tax income

Source: Appendix Table II-B2d.
Since the 1990s, top 1% rises because of capital income

Pre-tax capital income of top 1% adult income earners

- Housing rents
- Noncorporate profits
- Interest
- Income from equity
- Interest and dividends paid to pension plans

Source: Appendix Table II-B2b
Labor income concentration has stopped rising since the late 1990s

Pre-tax labor income of top 1% adult income earners

Compensation of employees

Labor component of mixed income

Source: Appendix Table II-B2b.
The top became younger in the 1980s and 1990s, since the 2000s is growing older.

Average age by pre-tax income group

Source: Appendix Table II-F2.
Decomposing inequality: the role of taxes and transfers
The macro rate of tax rose until the 1960s and has been constant since then.

Source: Appendix Table II-G1.
Tax progressivity has declined since the 1960s

Average tax rates by pre-tax income group

Source: Appendix Table II-G1.
Taxes have increased for the bottom 50% because of payroll taxes
Taxes have fallen at the top because of the decline of corporate and estate taxes.

Source: Appendix Table II-G2
Individualized transfers have increased since the 1960s.
More transfers go to the middle class than to bottom 50%
More transfers go to the middle class than to bottom 50%, even incl. Social Security

Average individualized transfer by post-tax income group (including Social Security)

% of average national income

Source: Appendix Table II-G4b.
Comparison with fiscal incomes
Bottom 90% has grown more than in tax data

Bottom 90% income growth: Pre-tax income vs. fiscal income

- National income per adult
- Bottom 90% fiscal income per tax unit (Piketty-Saez)
- Bottom 90% pre-tax income per adult

Source: Appendix Table II-B3 and Piketty and Saez (2003, updated to 2014)
Without fringe benefits, 0 growth for bottom 90% since 1970s

Average pre-tax income of the bottom 90%

Source: Appendix Table II-B2e
Conclusion
Combining tax, survey, and national accounts data

The DINA agenda:

Construct new series on the distribution pre- and post-tax income consistent with macro totals

Hope will be adopted by govt agencies down the road

Results for the United States:

Collapse of working-age bottom 50% pre-tax income, 0 growth post transfer

Boom of top-end inequality since late 1990s due to capital

Spectacular gender gap at the top, not shrinking anymore

Gov. has offset only small fraction of the ↑ in pre-tax inequality, due to ↓ in tax progressivity & limited transfers to bottom 50%
Supplementary Slides
Average real income growth: national accounts vs. survey vs. fiscal data (1946 = 100)

- National income per adult
- CPS income per household (CPI)
- Fiscal income per tax unit (CPI)

Source: Appendix Table A0 and Census Bureau.
Three culprits: inflation, fewer marriages, rising non-taxable income

Average real income growth: national accounts vs. fiscal data
(1946 = 100)

- National income per adult
- Fiscal income per adult (national income deflator)
- Fiscal income per tax unit (national income deflator)
- Fiscal income per tax unit (CPI)

Source: Appendix Table A0.
Top 1% income share: pre-tax vs. post-tax

Source: Appendix Tables II-B1 and II-C1
For bottom 50% elderly, all the growth comes from health transfers

Post-tax income of the bottom 50% of elderly Americans (65+)

Source: Appendix Table II-C7c.
Still a lot of inequality between genders, especially for older workers

Average labor income of all men aged 20-64 / all women aged 20-64, by age group

Source: Appendix Table F1.
Capital is making a comeback in the US: robust to assuming fixed return on capital

The share of capital in pre-tax income, assuming constant 5% return on capital

- Top 0.1%
- Top 1%
- Top 10%
- All (macro capital share in national income)
Top-end inequality is high and growing at all ages

Source: Appendix Table II-B11b.
Transfers have softened blow to the middle-class during Great Recession

Real income of the middle 40%: the role of transfers

Post-tax income

Transfers

Post-tax income excluding transfers

Average income in constant 2014 dollars

Source: Appendix Table II-C3b.
Pre-tax national income inequality has risen less than fiscal income inequality.
Part of the difference owes to income missing from tax returns in 1950s-1970s

Top 10% income share: fiscal income vs. pre-tax income

Source: Appendix Tables II-B9 and Piketty and Saez (2003, updated to 2014)
Rest of the difference owes to adults vs. tax units

Top 10% income share: tax units vs. equal-split adults

Source: Appendix Tables II-B1 and II-D1.
Bottom 50% income with different treatment of education spending

Real post-tax income of bottom 50%: Different allocation of education spending

Average income in constant 2014 $

Source: Appendix Tables II-C3d.