



WORLD WEALTH & INCOME
THE SOURCE FOR DATABASE
GLOBAL INEQUALITY DATA

Indian income inequality dynamics, 1922-2014: From British Raj to Billionaire Raj?

Lucas Chancel

PARIS SCHOOL OF ECONOMICS & IDDRI

Thomas Piketty

EHESS & PARIS SCHOOL OF ECONOMICS

1. Introduction

2. Methodology & data

Combination of historical and latest tax data, household surveys and national accounts in a systematic manner.

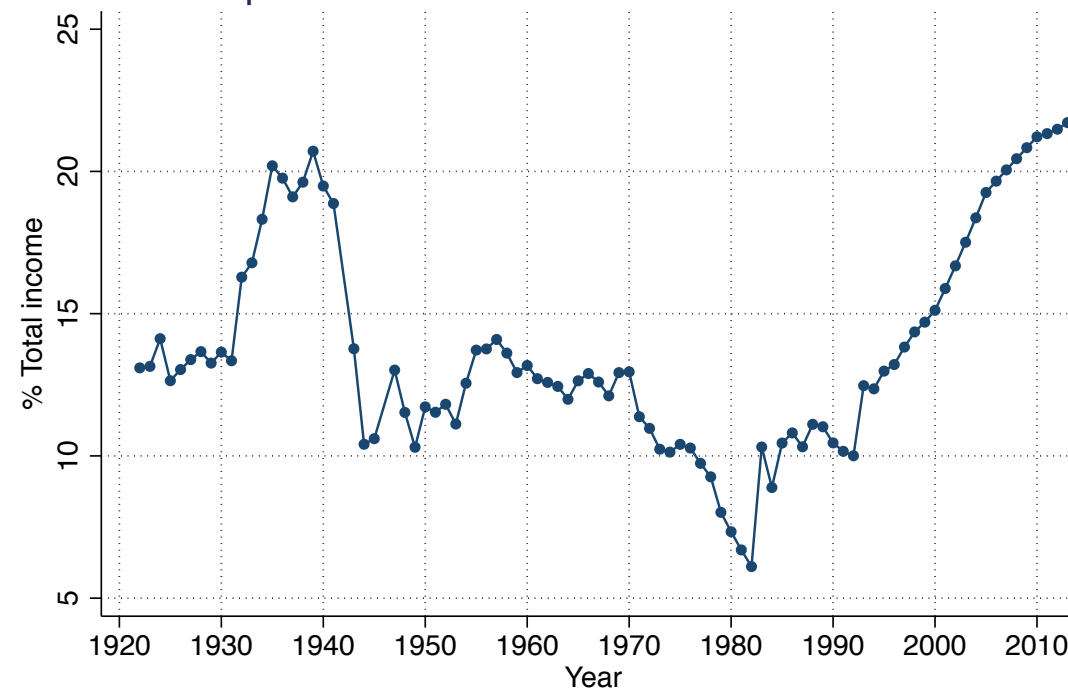
3. Results

Top 1% national income share in 2014 back to its historical high (22%) in benchmark scenario. Since 1980, top 0.1% captured more total growth than bottom 50% (12% vs. 11%).

4. Discussion

Results consistent with economic policy shifts over last decades. Need for release of tax tabulations of 2000s.

Top 1 % income share in India : 1922 - 2014



Per adult pretax national income. Systematic combination of tax, survey and national accounts data. Benchmark scenario displayed (A0B1C1D1).

Source: Authors' computations using tax and survey data and national accounts.

Introduction

- Important transformations of the Indian economy since 2000s (pursuit of deregulation/privatization initiated in the mid-1980s).
- Little available data to assess the distributional impacts of growth. Some evidence of growing inequality:
 - Banerjee and Piketty (2005) show decreasing inequality 1940-1980 followed by an increase, but series stop due to lack of data.
 - NSSO consumption data suggests consumption inequality increased since 1980s, but misreporting at the top, and no income inequality.
 - Anand & Thampi (2017) document a sharp rise on wealth inequality since 1990.
- We seek to reconstruct (cautiously and critically) income inequality series from bottom to top.

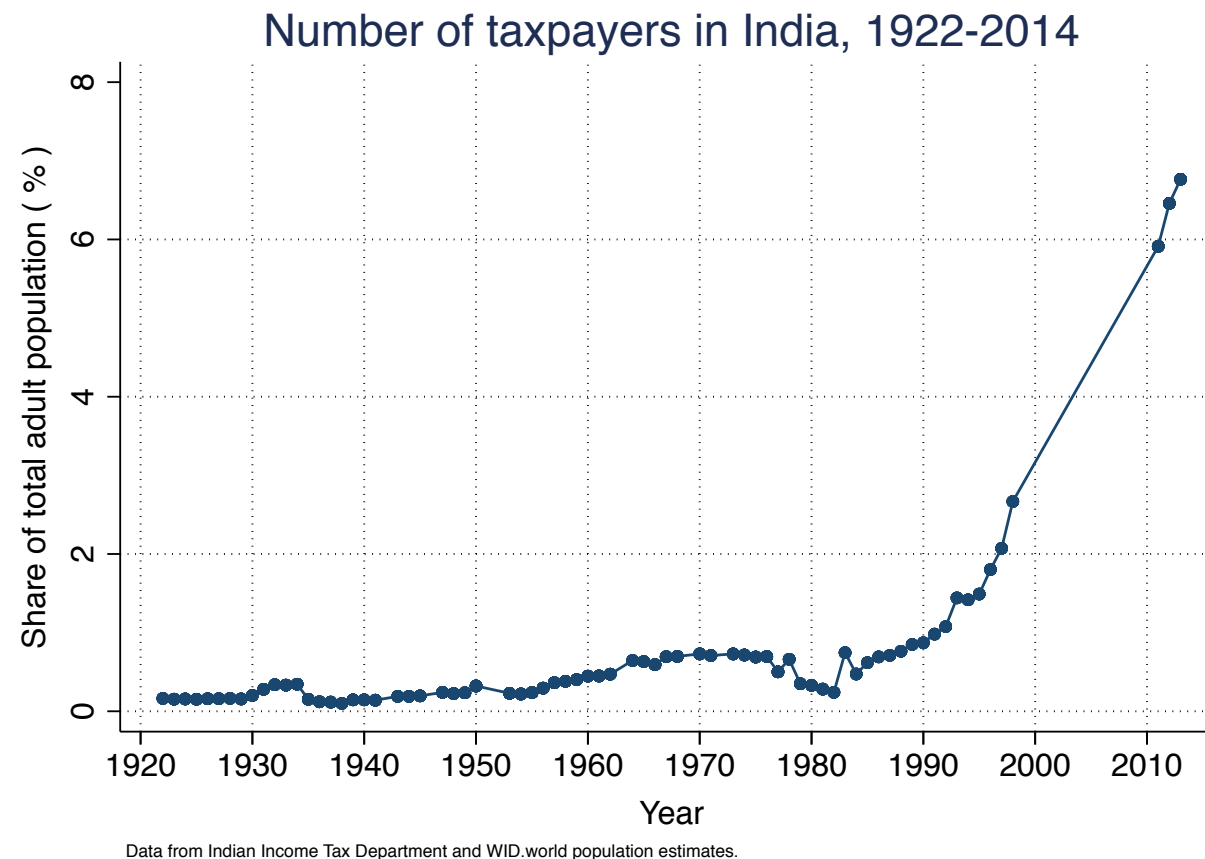
Methodology & data sources

Tax data

Tax data available from 1922-1923 to 1998-99. In 2016, the government released data for recent period (2011-12 to 2013-14).

NB: strong increase in number of Indian tax filers over recent decades, in line with evolution in France & USA during interwar period (10-15%) or post WWII (>50%) (Piketty, 2001; Piketty and Saez, 2003).

Figure 4 - Evolution of the proportion of income-tax taxpayers in India



Source: Authors' computations using data from Indian Income Tax Department and UN population data.

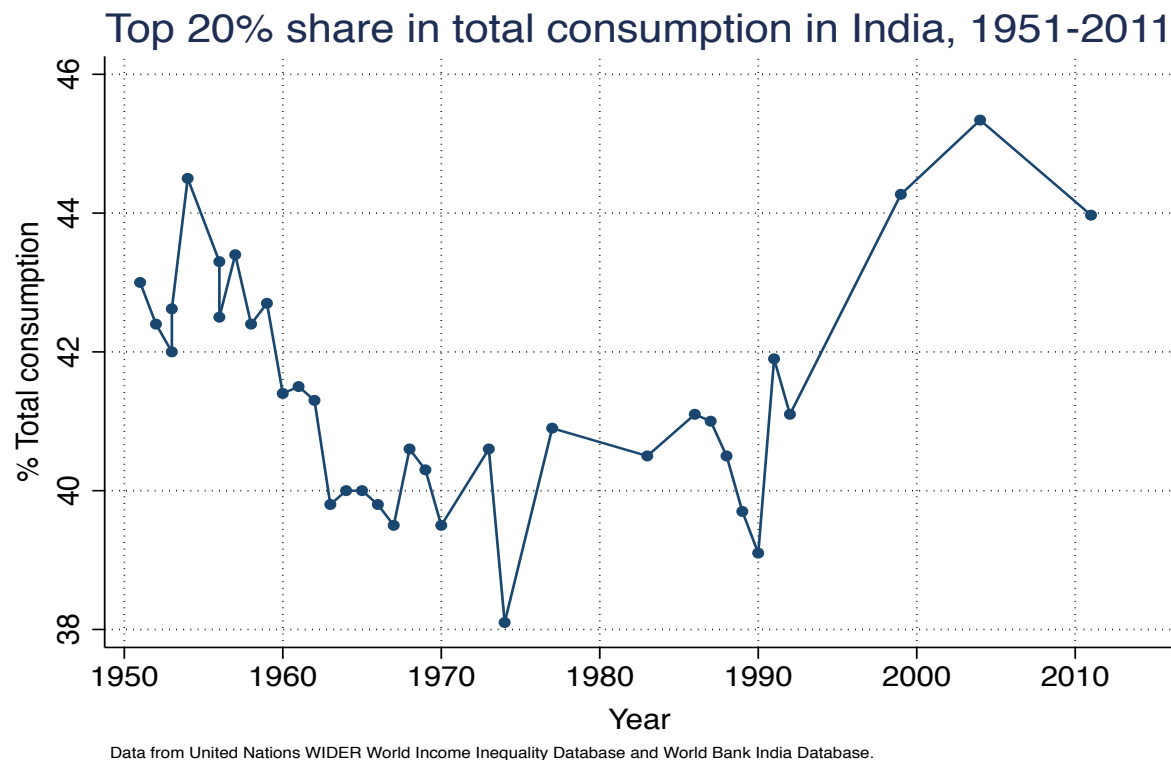
NSSO consumption data

1951-2011 data, obtained directly from NSSO or indirectly via the World Bank India Database (Ozler et al. 1996). We use Universal Reference Period (longest time span).

IHDS/ICPSR income and consumption survey

2005 and 2011-12 surveys include income and consumption: used to infer income from consumption in NSSO.

Figure 2 - Top 20% consumption share from NSSO surveys



Source: Authors' computations using data from United Nations WIDER Income Inequality Database and World Bank India Database (based upon NSSO surveys)

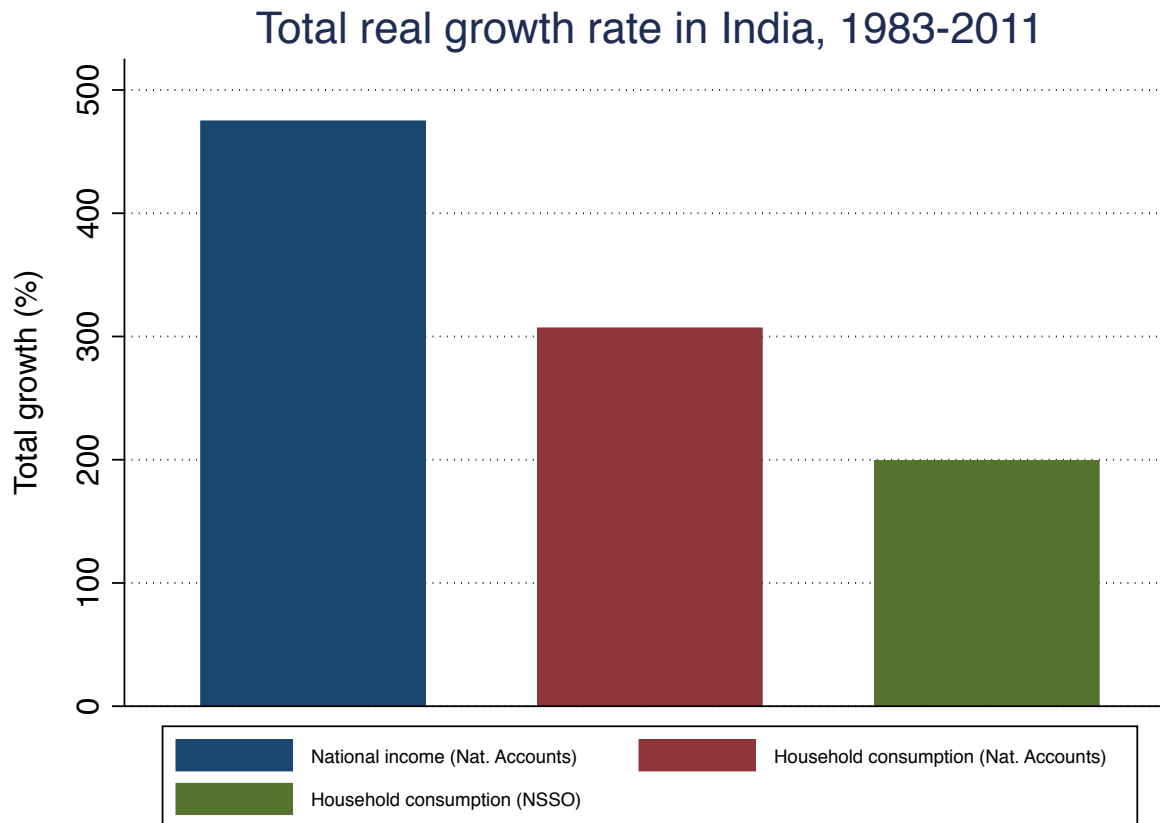
National accounts data

Well documented NSSO / NA growth mismatch (see for e.g. Deaton and Kozel, 2005).

Over 1983-2011: 200% growth in HH consumption in NSSO, 300% in NA and 480% income growth in NA.

→ We explain a fraction of the gap with top incomes, but not all of it.

Figure 5 - Cumulated growth rates according to NAS and NSSO



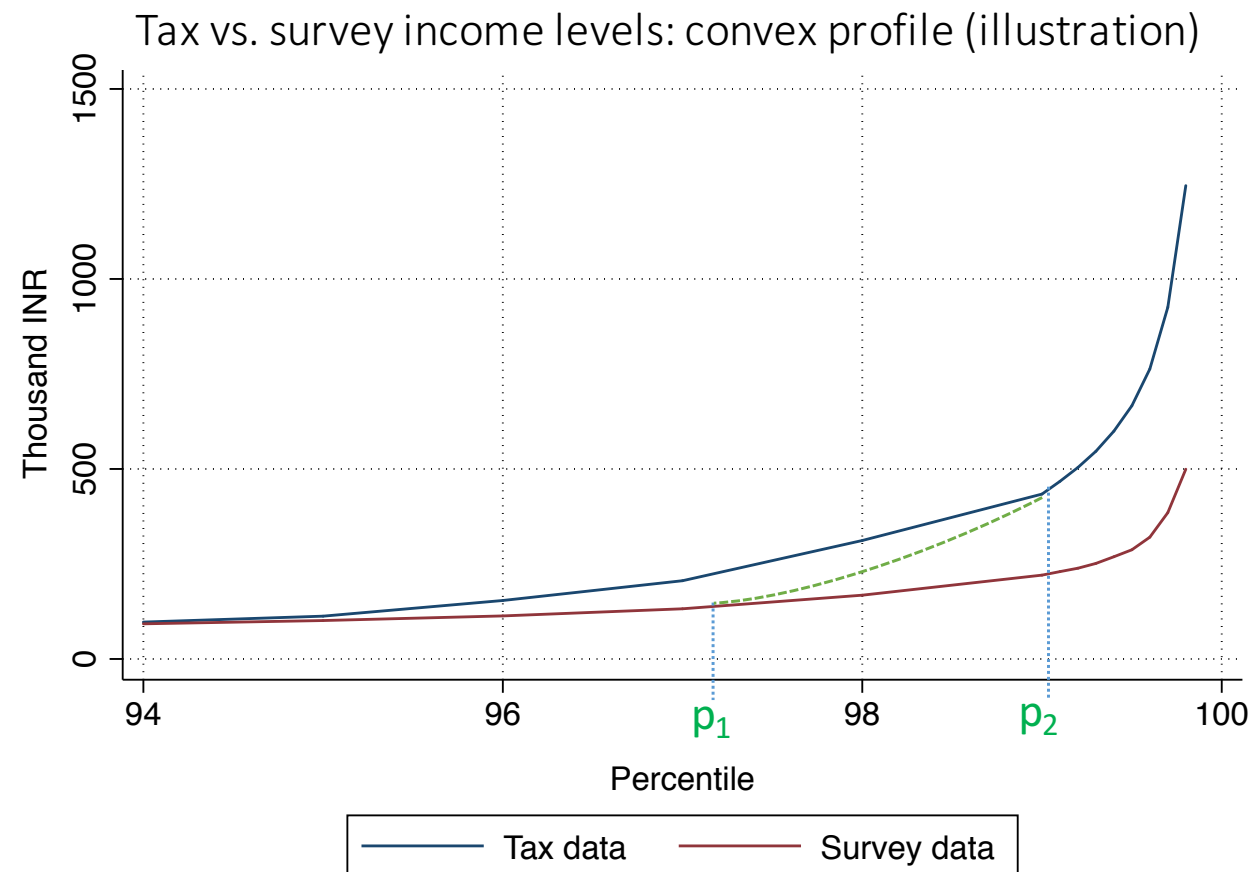
Source: Authors' computations using national accounts and NSSO data.

- **Step 1 - Estimate fiscal incomes:** Method similar to Banerjee Piketty (2005) except we use Generalized Pareto Interpolation (Blanchet et al. 2016) --> more precise estimates, relaxing strict pareto assumption at the top.
- **Step 2 - Estimate survey incomes :** We observe survey consumption distribution over time, as well as consumption-income ratios for each percentile in IHDS data. We use it to infer income from NSSO for each percentile group. For income groups with reported income < consumption, 3 alternative strategies followed.

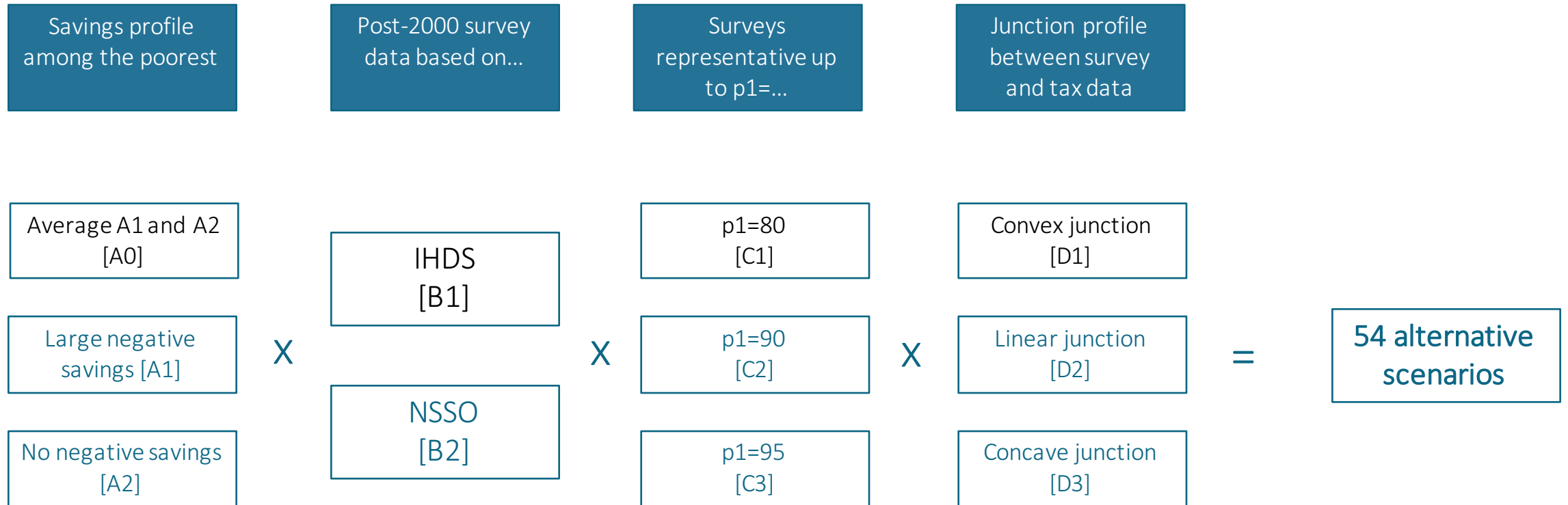
Step 3 - Interpolate fiscal income for missing years: We use 2005 IHDS to compute percentile level growth rates between 1999 and 2005 and 2005 and 2011.

Step 4 - Combine tax and survey data: We assume that surveys are reliable from $p=0$ to p_1 and tax data reliable from p_2 to the top of the distribution. Assume different possible values for p_1 , p_2 given by the number of tax filers.

Between p_1 and p_2 : different possible profiles (linear, concave, convex) with little impact on results.

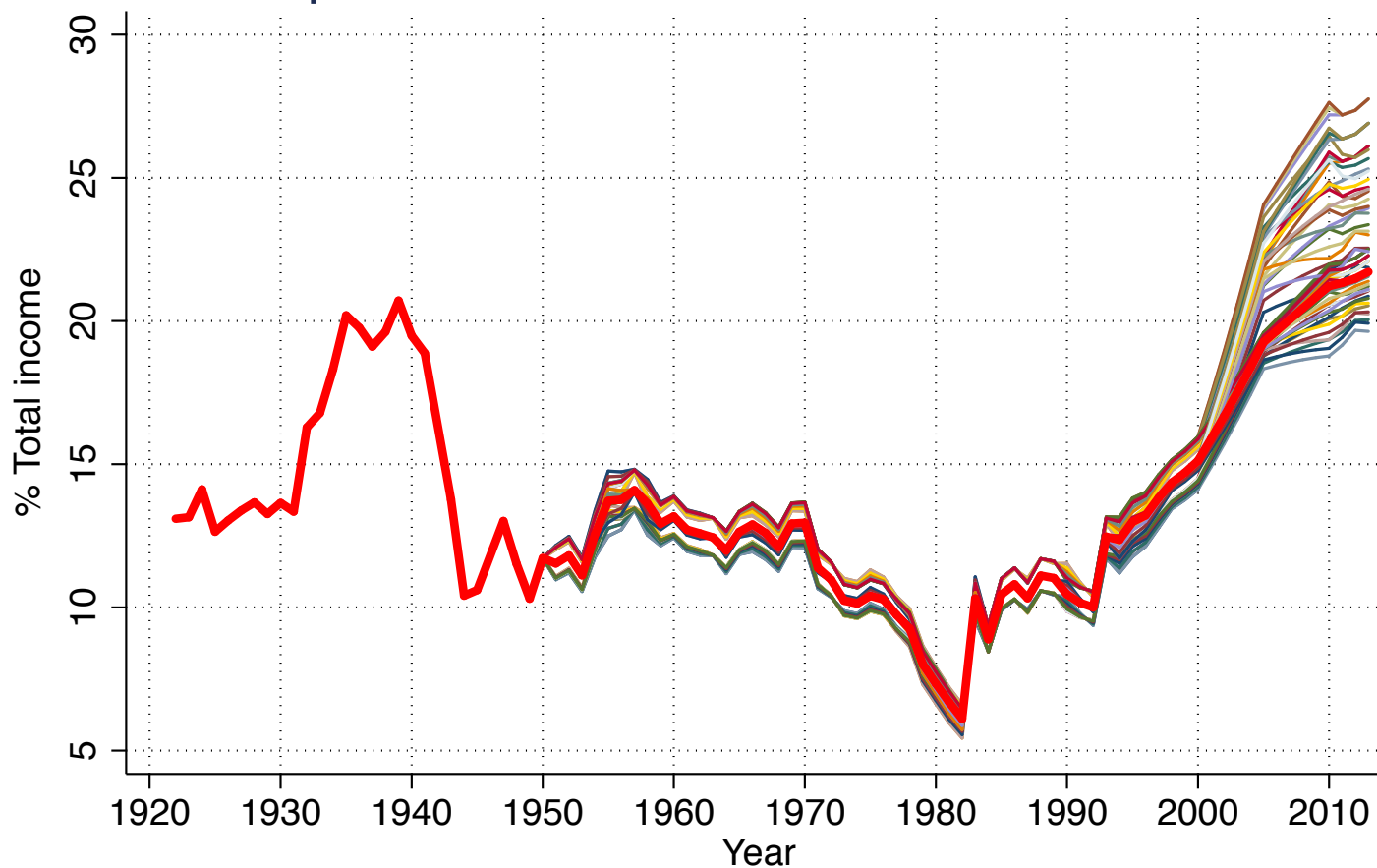


In total, we define 54 alternative strategies



Results

Top 1 % income share in India : 1922 - 2014



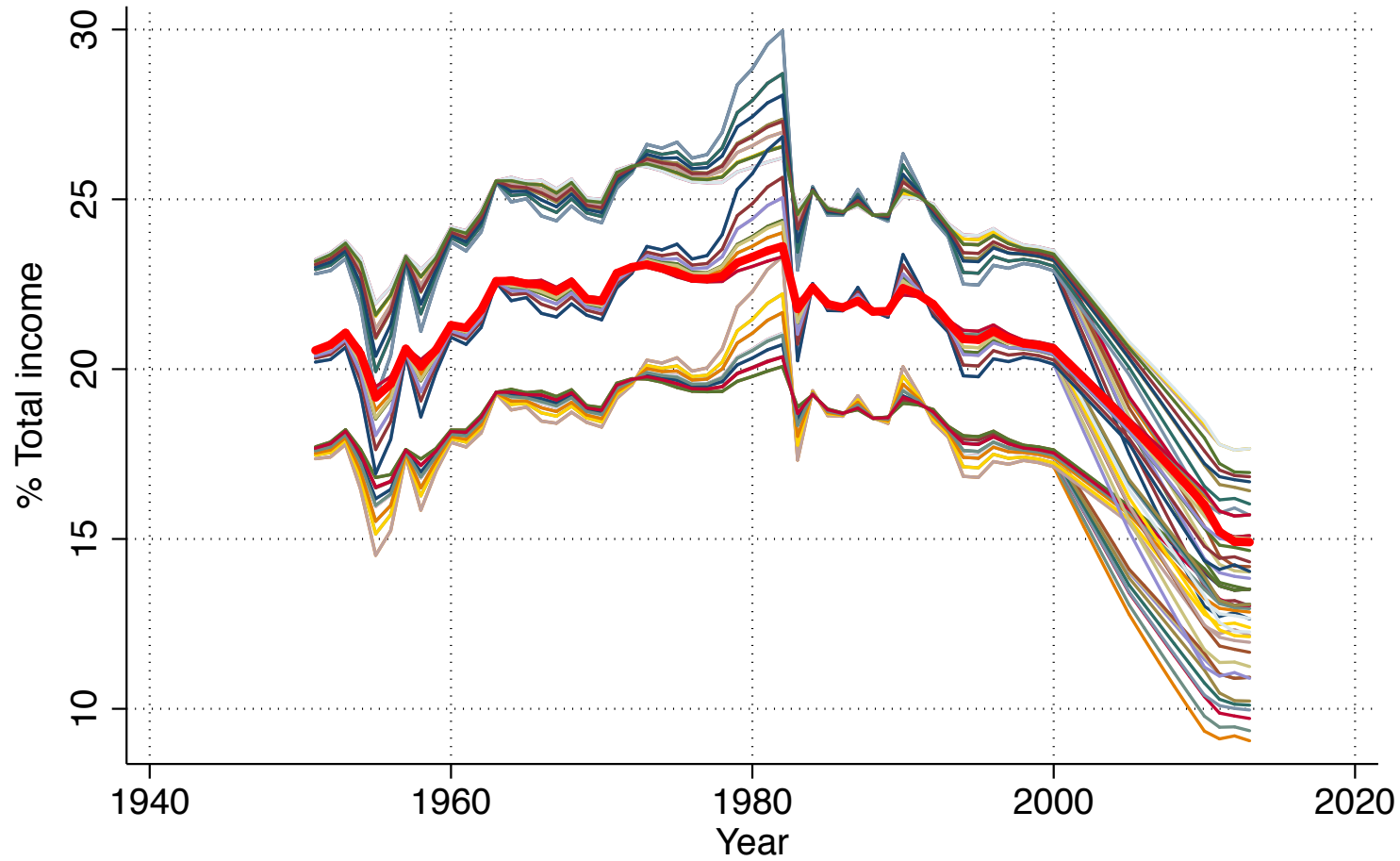
Per adult pretax national income. Systematic combination of tax, survey and national accounts data. All scenarios displayed. Thick red line corresponds to the benchmark scenario (A0B1C1D1).

Source: Authors' computations using tax and survey data and national accounts.

Decrease in bottom share robust across all scenarios

Appendix 15 - Bottom 50% income shares across 54 scenarios

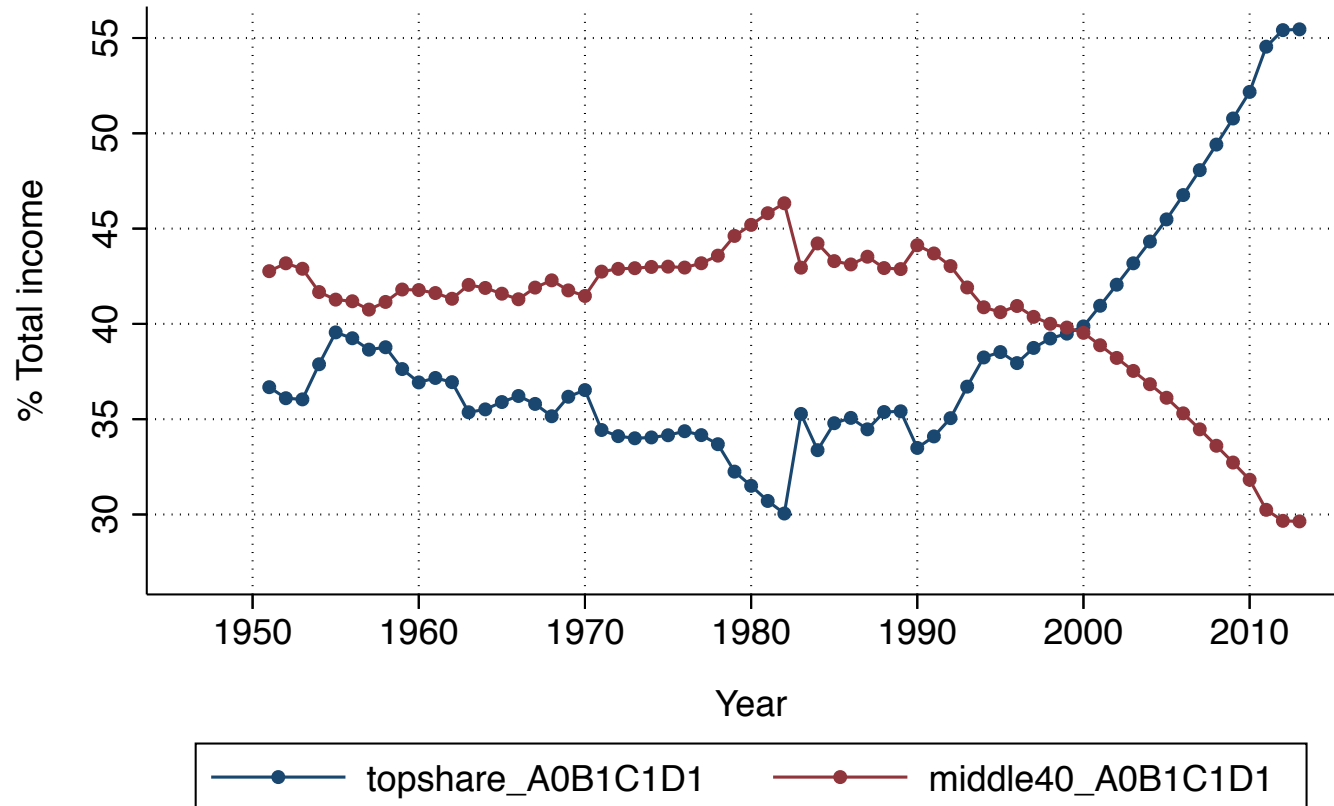
Bottom 50 % income share in India : 1951 - 2014



Per adult pretax national income. All scenarios displayed.
Thick red line corresponds to the benchmark (A0B1C1D1).

The top 10% and the middle 40% inverted their relative positions

Top 10 % vs. Middle 40 % income shares in India 1951-2014



Per adult pretax national income. Systematic combination of tax, survey and national accounts data. Benchmark scenario displayed (A0B1C1D)

Source: Authors' computations using tax and survey data and national accounts.

Shining India? Arguably not for the bottom 50%

Figure 1a - National income growth in India: full population vs. bottom 50% income group, 1951-2014

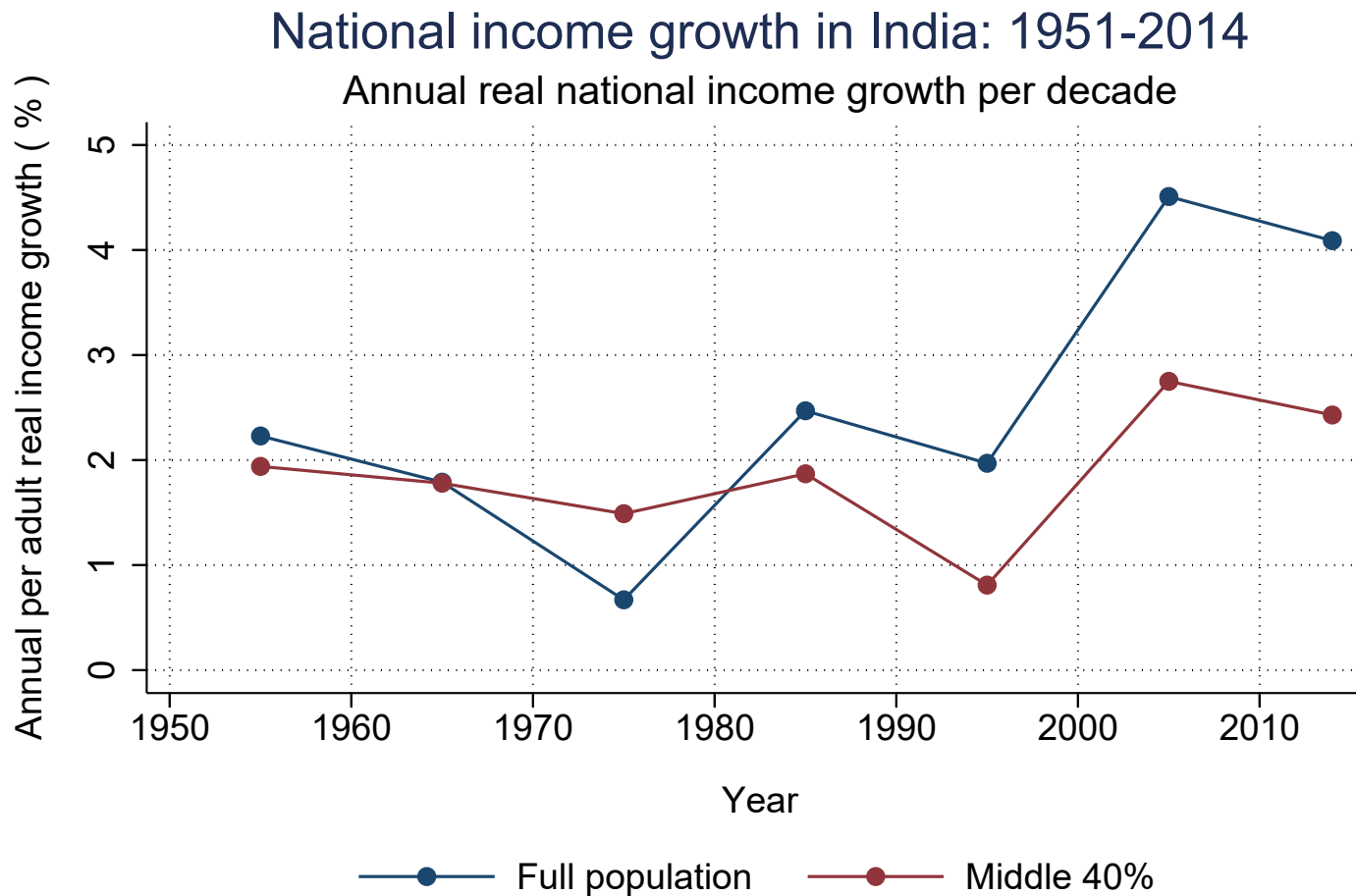


Key: Average annual per adult real income growth rate from 1970 to 1979 is 0.67%.
 Estimates combine survey, fiscal and national accounts data.

Source: Authors' computations using tax and survey data and national accounts.

Shining India? Arguably not for the middle 40% either

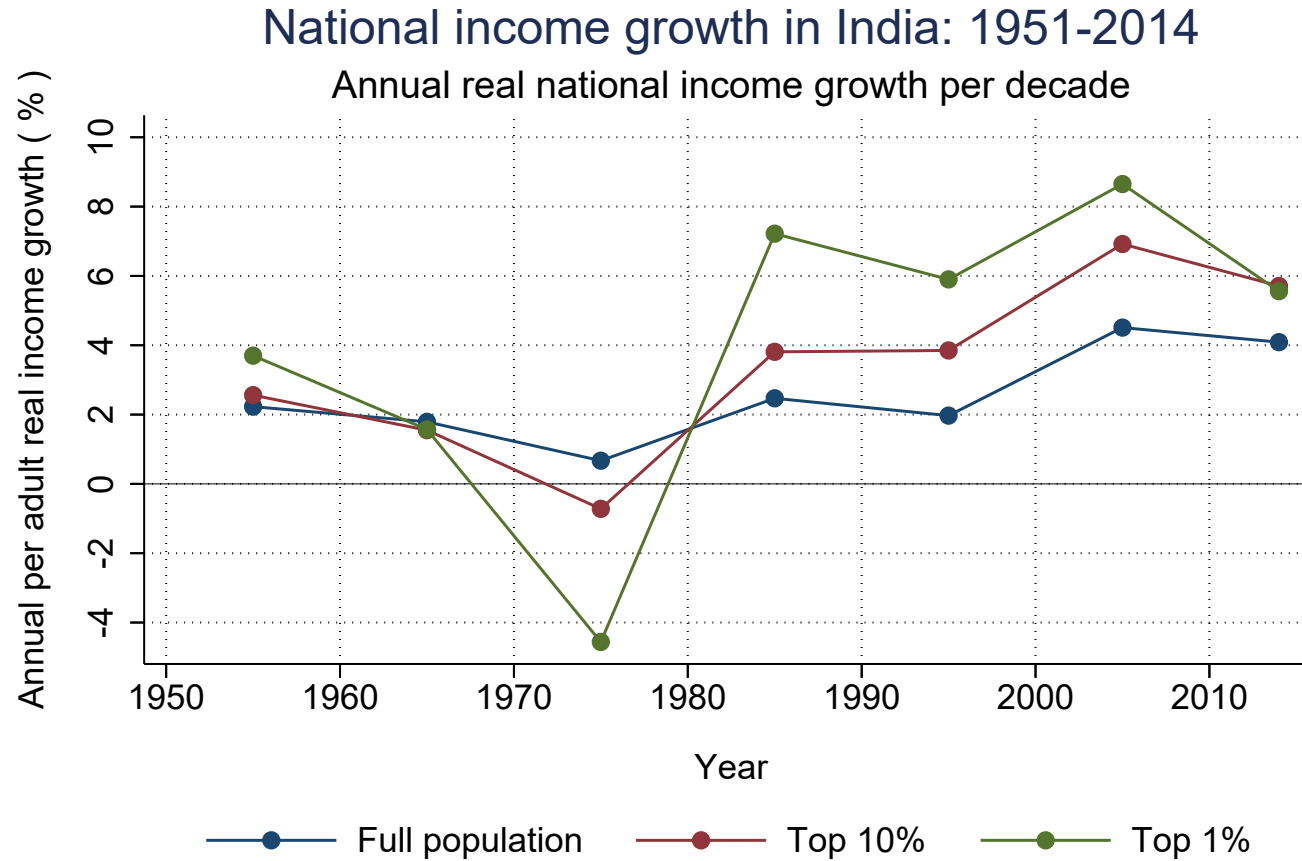
Figure 1b - National income growth in India: full population vs. middle 40% income group, 1951-2014



Key: Average annual per adult real income growth rate from 1970 to 1979 is 0.67%.
 Estimates combine survey, fiscal and national accounts data.

Shining India? Mostly for the top groups.

Figure 1c - National income growth in India: full population vs. top 1% and top 10% income groups, 1951-2014



Key: Average annual per adult real income growth rate from 1970 to 1979 is 0.67%. Estimates combine survey, fiscal and national accounts data.

The top 0.1% Indians captured more growth than the bottom 50% since 1980

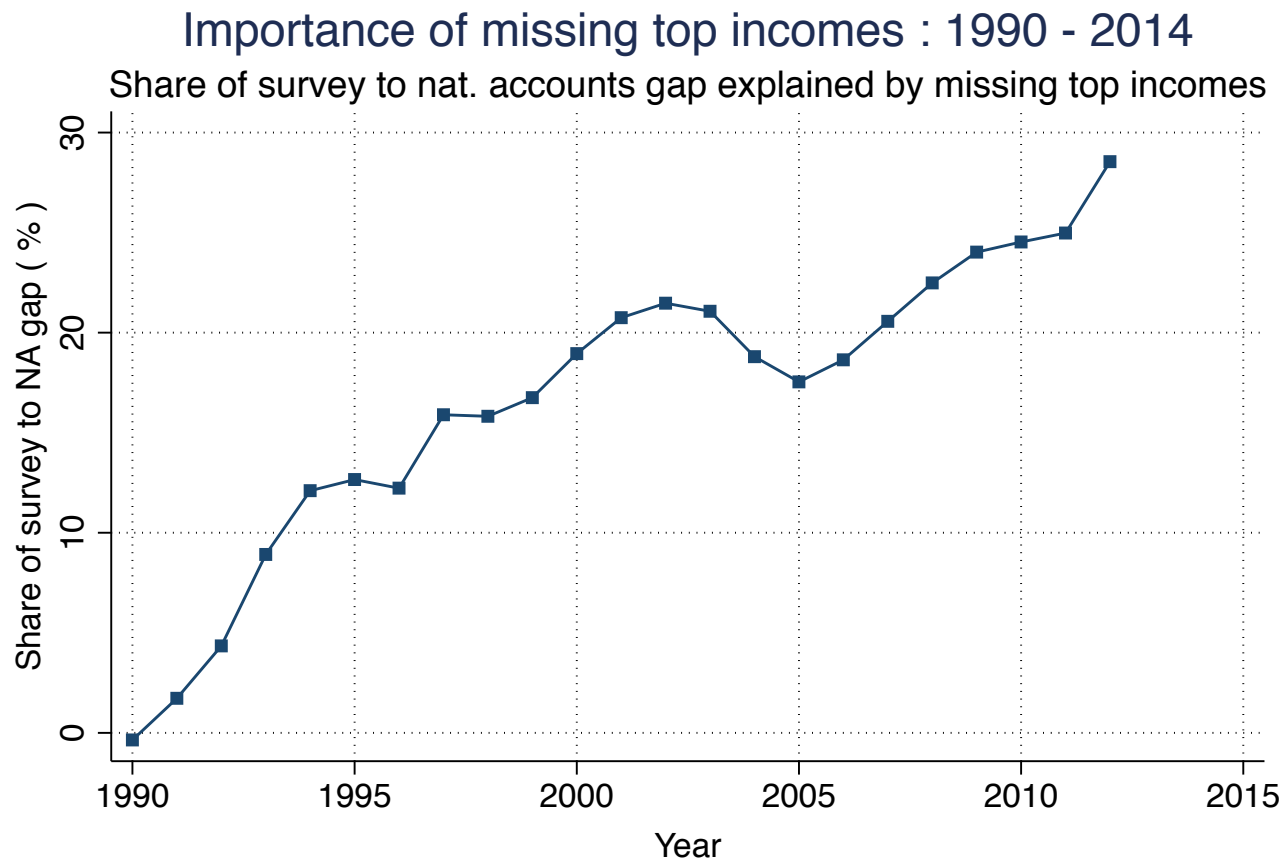
Figure 12 - Share of total national growth captured by different income groups, 1980-2014

Income group (distribution of per-adult pre-tax national income)	India	China	France	USA
<i>Total</i>	100%	100%	100%	100%
Bottom 50%	11%	13 %	17 %	1 %
Middle 40%	23%	43 %	42 %	33 %
Next 9%	37%	29 %	20 %	32 %
Top 1%	29%	15 %	21 %	34 %
Top 0.1%	12%	6 %	12 %	18 %
Top 0.01%	6%	3 %	6 %	9 %
Top 0.001%	3%	1 %	2 %	4 %

Distribution of pre-tax income among adults. Estimates combine survey, fiscal and national accounts data.

Source: Authors' computations using tax and survey data and national accounts.

Figure 17 - Importance of missing top incomes

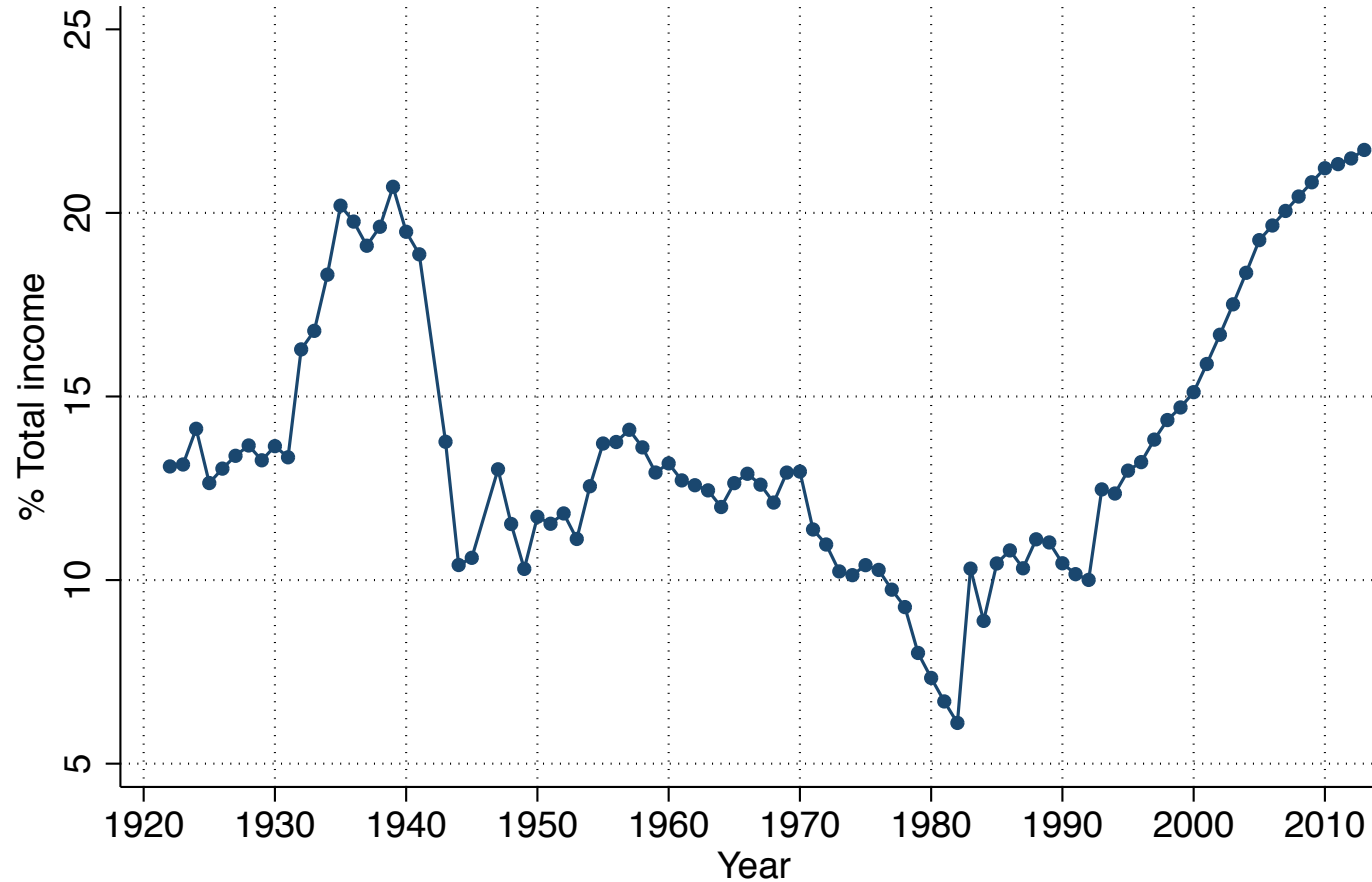


Key: the absence of top earners in survey data can explain up to 29% of the observed gap between survey and national accounts data in 2013-2014

Source: Authors' computations using tax and survey data and national accounts.

Discussion

Top 1 % income share in India : 1922 - 2014



Per adult pretax national income. Systematic combination of tax, survey and national accounts data. Benchmark scenario displayed (A0B1C1D1).

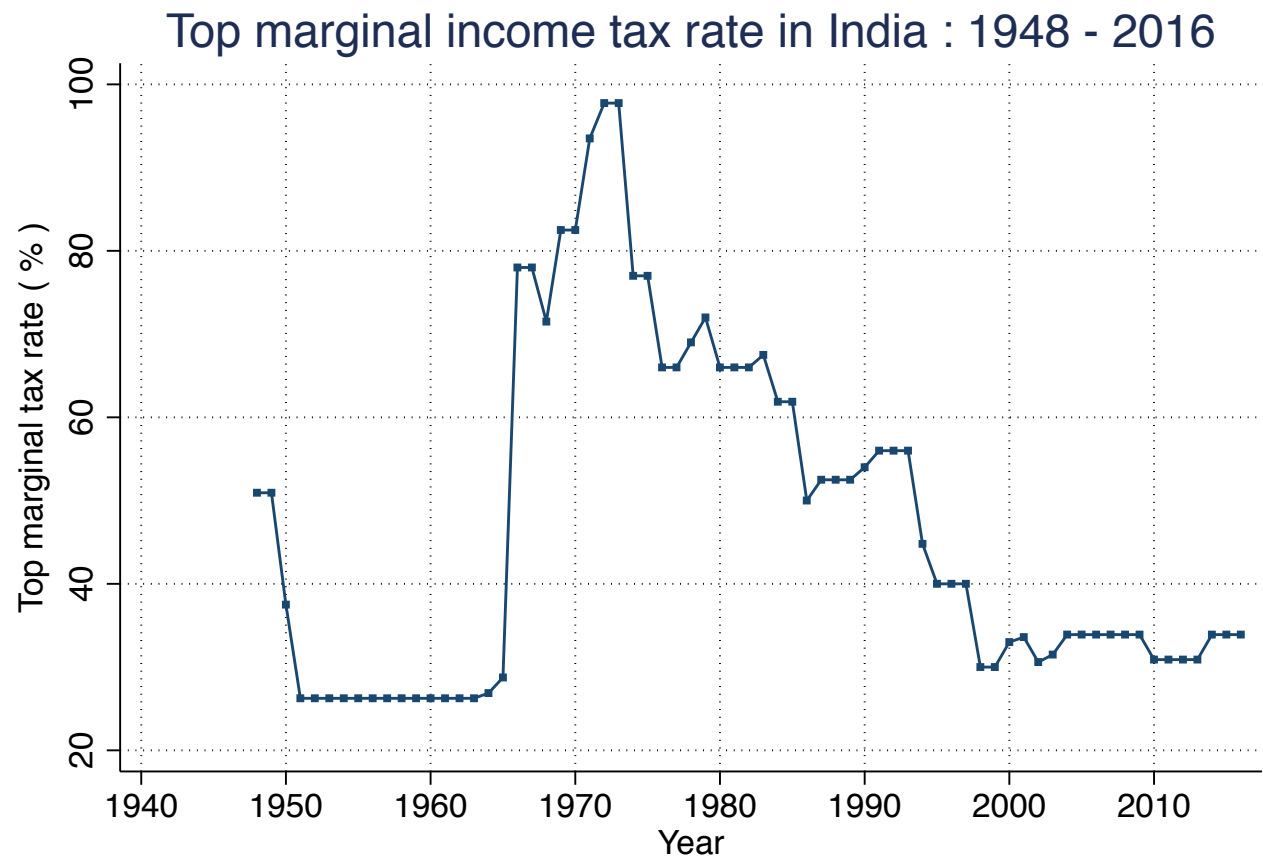
Source: Authors' computations using tax and survey data and national accounts.

- **1920-1940s: high income inequality, low growth**
 - Decrease in agricultural yield per capita vs. increase in large industries' output (see Alvaredo et al. 2017).
 - Institutional changes led to increased influence of Indian political/economic elite

- **1940-1980s: income inequality reduction in low growth context**
 - Nationalizations, strong sectorial regulation and explicit objective to limit power of the elite
 - High tax progressivity

- **1980s-now: income inequality increase in relatively high growth context**
 - Liberalization, opening, reduction in tax progressivity
 - NB: Shining India arguably a top 10% phenomenon, not middle 40% nor bottom 50%.

Figure 18 - Top marginal income tax rate in India, 1948-2016



Source: Government of India – Personal Income Tax Rates and Slabs. Note top marginal tax includes super income tax.

Source: Authors' computations using Government of India data.

- Benchmark scenario: income inequality at a historical high, top 1% share equal to 22% national income. Since 1980, top 0.1% captured more growth than bottom 50%.
- Results appear to be robust to a range of alternative assumptions addressing large data limitations.
- Results do not tell about other forms of inequality (caste, gender, power, etc.), but are a necessary for a sound understanding these other forms.
- More democratic transparency on income and wealth statistics is needed to allow informed democratic debate on inequality.

Thank you for your attention

Get all our data on [WID.world](https://wid.world)

Additional slides

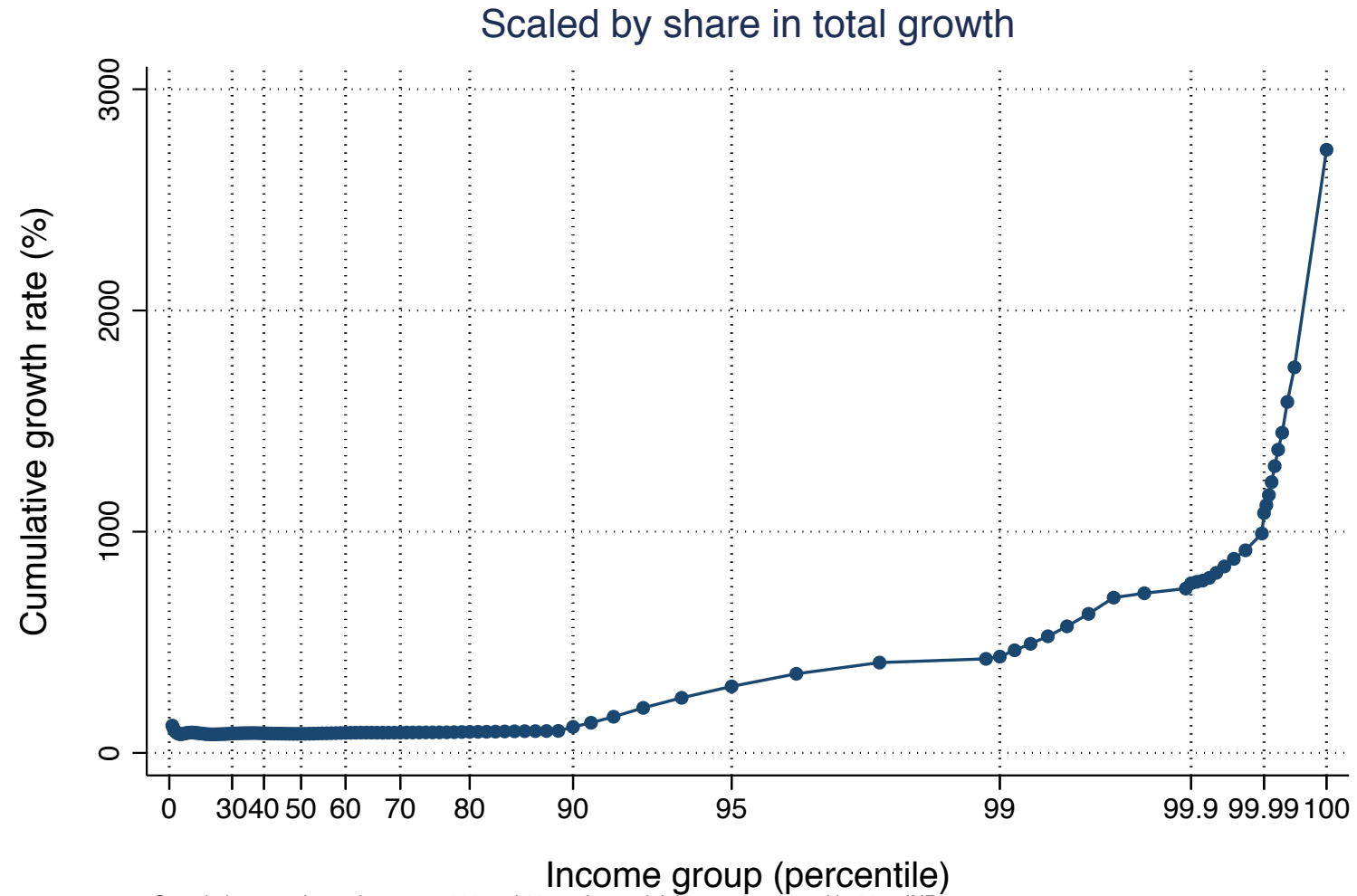
Figure 14 - Income inequality in India, 2014

Income group <small>(distribution of per-adult pre-tax national income)</small>	Number of adults	Income threshold	Average income	Comparison to average (ratio)
Average	778 380 224	0 INR	142 550 INR	1
Bottom 50%	389 190 112	0 INR	43 734 INR	0.3
Middle 40%	389 190 112	63 419 INR	86 841 INR	0.6
Top 10%	77 838 024	191 713 INR	772 621 INR	5
<i>incl. Top 1%</i>	7 783 802	1 226 689 INR	3 093 335 INR	22
<i>incl. Top 0.1%</i>	778 380	4 303 757 INR	12 287 814 INR	86
<i>incl. Top 0.01%</i>	77 838	17 042 120 INR	54 596 666 INR	383
<i>incl. Top 0.001%</i>	7 784	70 223 784 INR	266 561 728 INR	1870

Distribution of pre-tax income among adults. Estimates combine survey, fiscal and national accounts data.

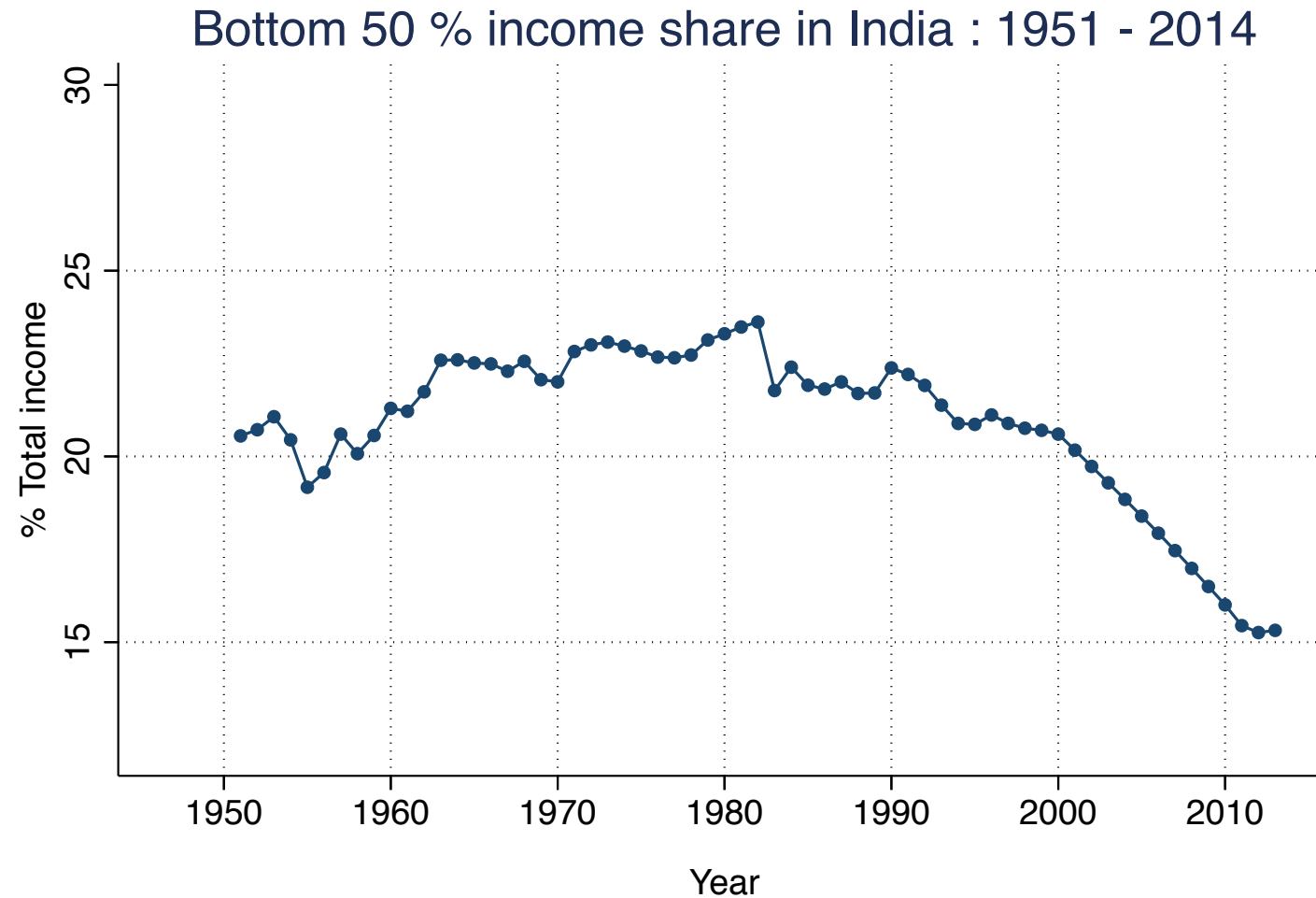
Source: Authors' computations using tax and survey data and national accounts

Figure 13 - Total growth rate by percentile - 1980-2014



Cumulative growth rate between 1980 and 2014 of per adult income measured in 2015 INR.
Key: Incomes within percentile p99p99.1 (bottom 10% of the top 1% of global earners) grew at 435% between 1980 and 2013-14.
The top 1% captured 29% of total growth (x-axis).

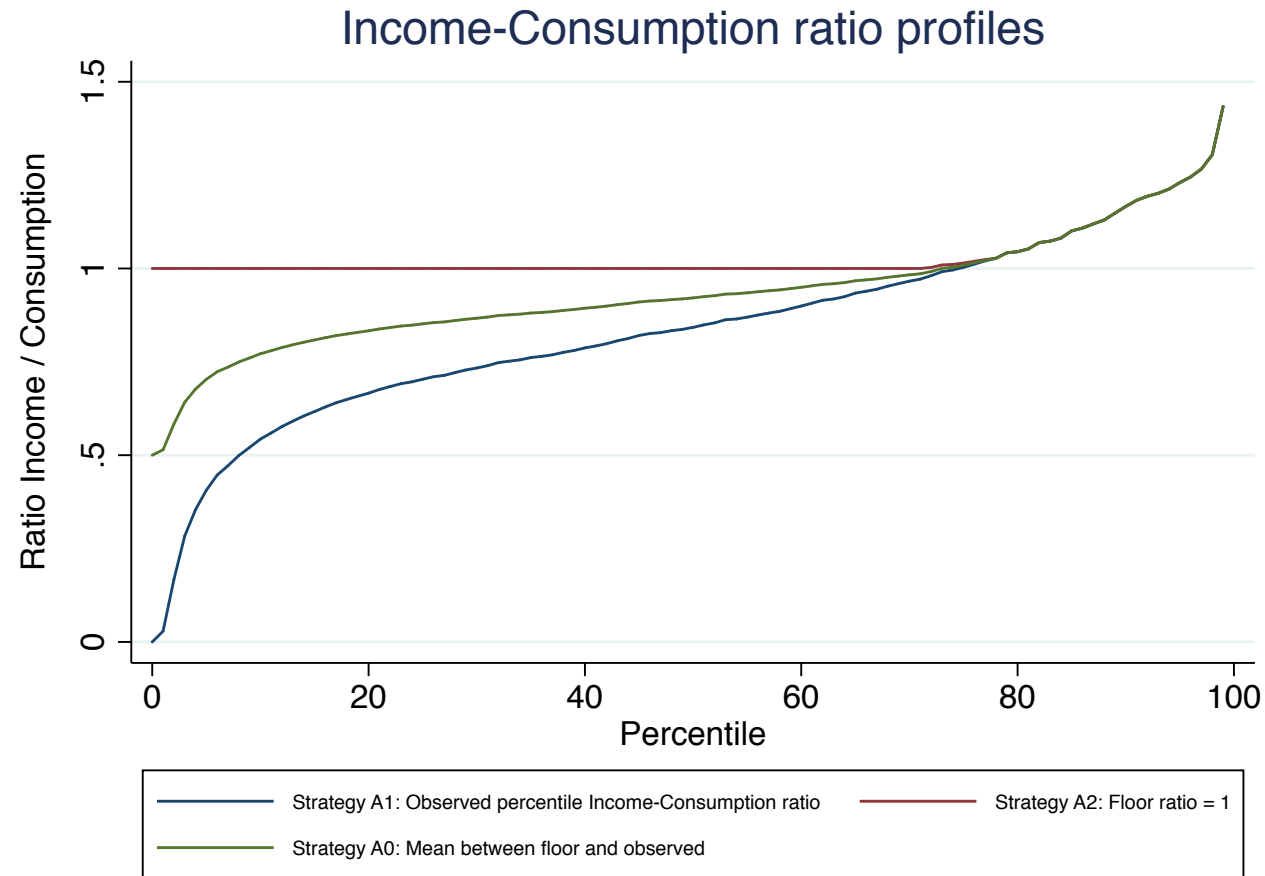
Figure 10 - Bottom 50% income share: 1951-2014



Per adult pretax national income. Systematic combination of tax, survey and national accounts data. Benchmark scenario displayed (A0B1C1D1).

Source: Authors' computations using tax and survey data and national accounts.

Appendix 4 - Income-Consumption ratio profiles



Source: Authors' computations using IHDS data

Note: Savings profile 1 corresponds to observed IHDS ratios, savings profile 2 corresponds to observed ratios, constrained to be superior to 1 and profile 3 to the mean between profile 1 and profile 1 when the observed ratios are inferior to 1.