

A New Approach for Top Income Shares: Mexico Since the 1990's

Raymundo M. Campos-Vazquez

Emmanuel Chavez

Gerardo Esquivel

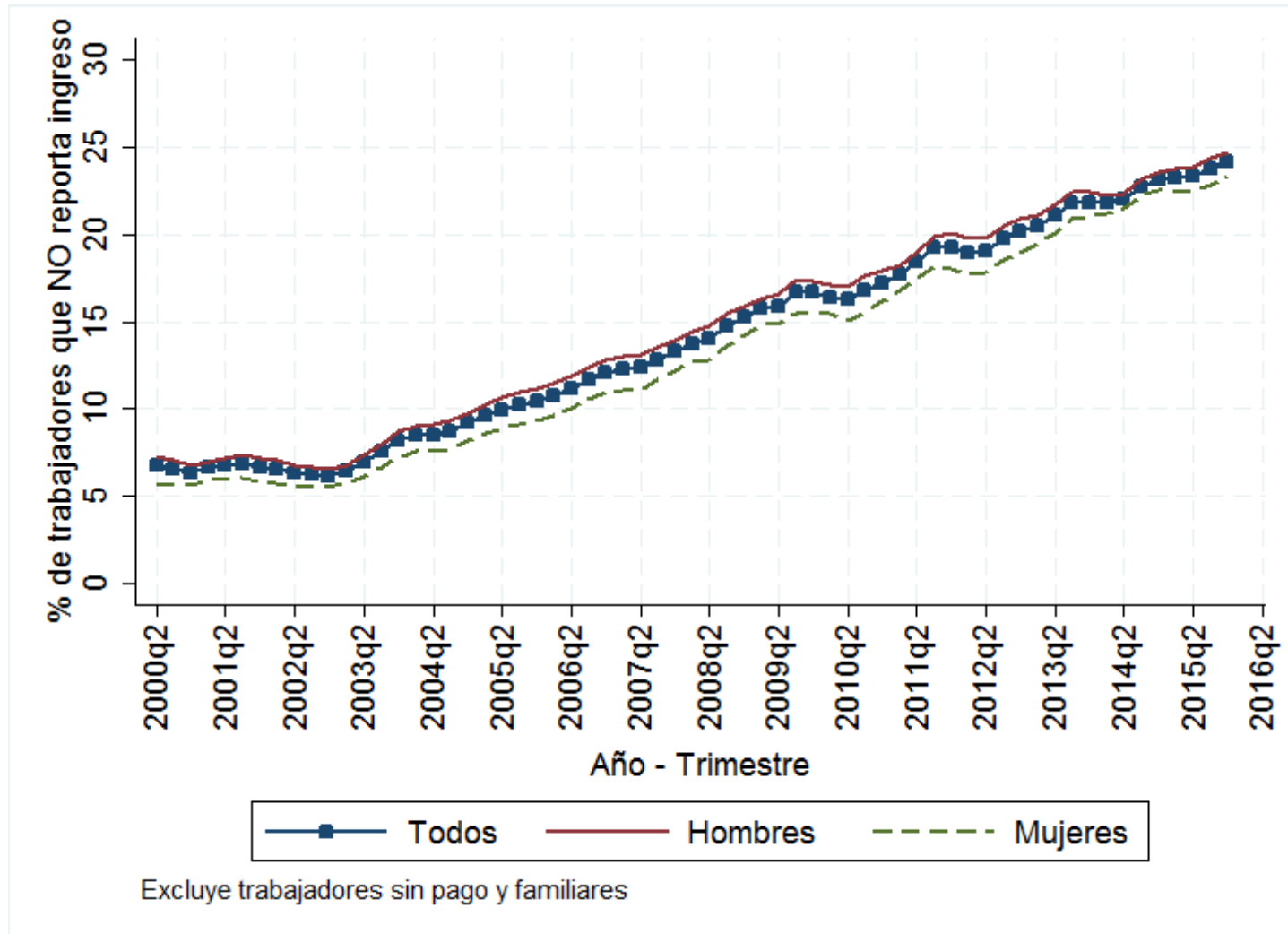
Motivation

- The most widely measure of inequality is the gini coefficient.
- The gini coefficient cannot tell us why inequality is high. Do elites capture an important share of total income?
- However, top income shares are typically calculated using tax return data.
- Most developing countries do not have open access to such data
- Moreover, if there is substantial tax evasion even with such data it is possible not to capture the “true” income share at the top.

Mexican context

- In 2012, 46 % in poverty and 10 % in extreme poverty (CONEVAL 2012)
- The four richest individuals in Mexico could hire 3 million workers at the minimum wage using only the annual return of their assets (Esquivel 2015)
- Using household surveys, labor and total income inequality have been declining in Mexico since the mid 1990s (Lopez-Calva and Lustig, 2010)
- Household surveys do not capture the very rich or the ones that are captured underestimate their income

% Workers not reporting income



What we do

- We follow the contribution by Lakner and Milanovic (2013)
- They estimate household consumption at the top of the distribution using data from household surveys and inflate consumption of these households with data on consumption registered in national accounts.
- We inflate total income using national accounts.
- We follow the top income methodology by Alvaredo (2010), Atkinson and Piketty (2007, 2010).

Methodology (1)

1. Household surveys: Income from all individuals (including zeros). We calculate average income by decile for each available year (1992-2014).
2. Income control: We follow closely the top income literature to estimate net income from national accounts. It is the denominator used to calculate top income shares. Households' net income is 60.8 percent of GDP for period 2003-2012.
3. Population control: Individuals 20+ years old.
4. Residual income: We obtain the “residual income” by subtracting total income in household surveys from the income control (household disposable income from national accounts).

Key question: How much of this residual income should be imputed to the top income distribution?

Methodology (2)

5. Pareto distribution

$$1 - F(y) = \left(\frac{k}{y}\right)^\alpha \text{ for } k > 0, \alpha > 1$$

α is the Pareto coefficient

The key insight of the Pareto distribution is that the ratio of mean income over the income threshold y does not depend on y and it is equal to $\frac{\alpha}{\alpha-1}$ (see Atkinson, Piketty and Saez, 2011), which is called the inverted Pareto coeff.

Using our method, we can estimate the Pareto coefficient: $\frac{S_{10}}{S_{20}} = \left(\frac{H_{10}}{H_{20}}\right)^{\frac{\alpha-1}{\alpha}}$

Where S is the share of income after imputing residual income, and H is the % of individuals.

Once α is know, we can interpolate to higher fractiles, $S_{top} = S_{10} \times \left(\frac{H_{top}}{H_{10}}\right)^{\frac{\hat{\alpha}-1}{\hat{\alpha}}}$.

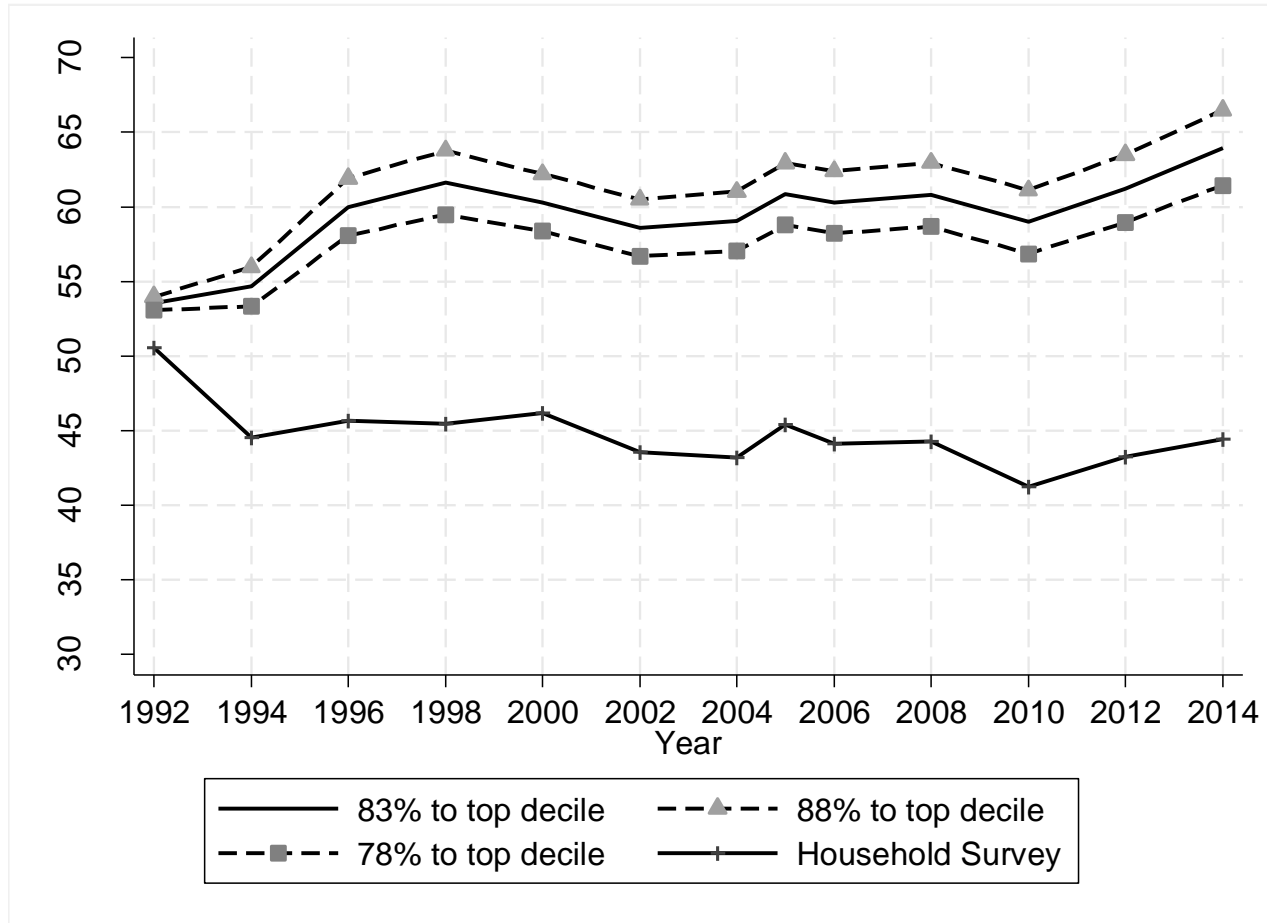
Review of methodology

1. From household surveys, calculate the average income by decile and for the whole distribution using population that is 20 years and older.
2. From national accounts, calculate the household disposable income. In most countries, this number is fairly close to 60% of GDP.
3. From population statistics, calculate population 20 years and older. Assign evenly the population to each decile.
4. Obtain total income by multiplying average income (from household survey data) times population 20 years and older. The residual income is the difference between the household disposable income (from national accounts) and total income from household surveys.
5. Assign a share of residual income to the top decile and the rest to the ninth decile.
6. Using the new shares in the top and ninth deciles, calculate the Pareto coefficient of the income distribution.
7. Using the Pareto coefficient and the new shares, calculate income shares in other fractiles of the distribution.

What is the right share of the residual?

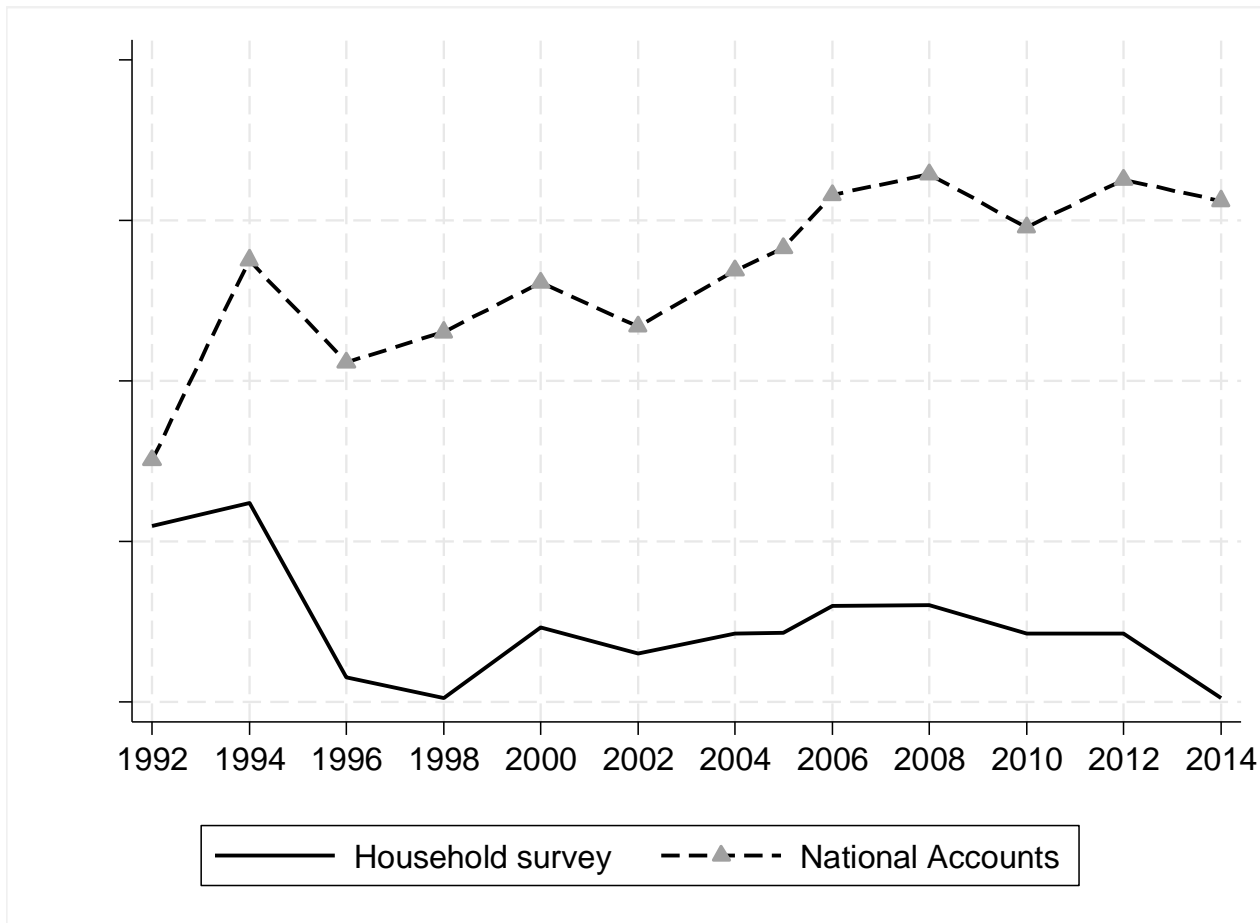
- Lakner and Milanovic (2013) assign the full residual to the top decile.
- The most reliable manner to construct these scenarios is to take other countries as reference.
- In Latin America, top income shares have been calculated for Chile, Colombia and Uruguay using tax return data.
- As these countries also have available household surveys, we can calculate the share of residual income we need to impute to the top decile as to mimic the top 1 percent income share observed in tax return data.
- Our aim is to find the share of residual income that should be assigned to the top decile to obtain the same top 1% income share that is obtained in those countries using tax return data.
- The share of the residual that has to be assigned to the top decile in order to get the same top 1 percent income share using tax returns is 100% for Chile, 88% for Colombia, and 61% for Uruguay.
- In our base line scenario, we assign 83% of the residual (the average of the aforementioned shares) to the top decile.

Top Income shares vs HH



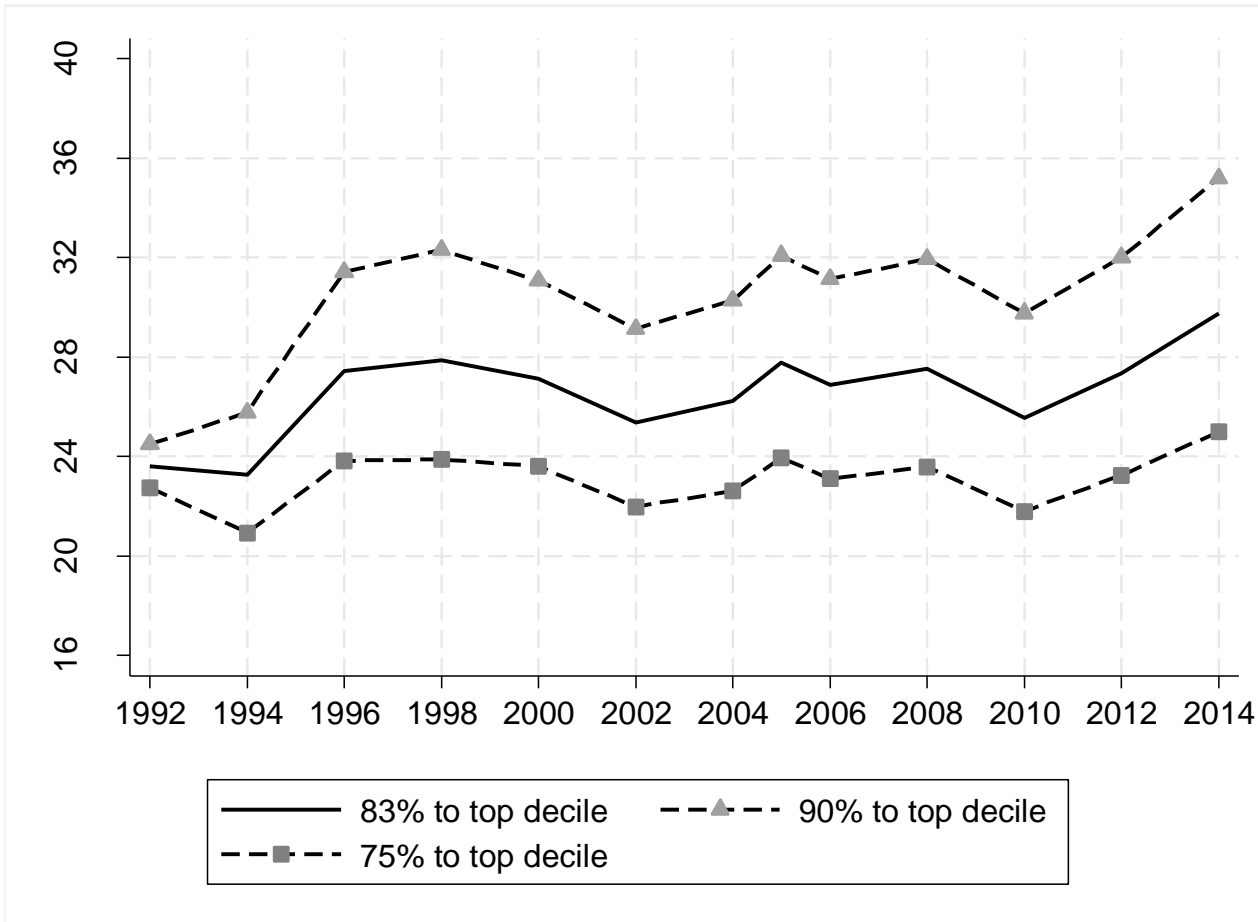
- Imputing residual income to the top, increases inequality.
- There is divergence of top income shares using imputation vs observed.
- The gap is increasing.

Average individual income (2010 MXN)



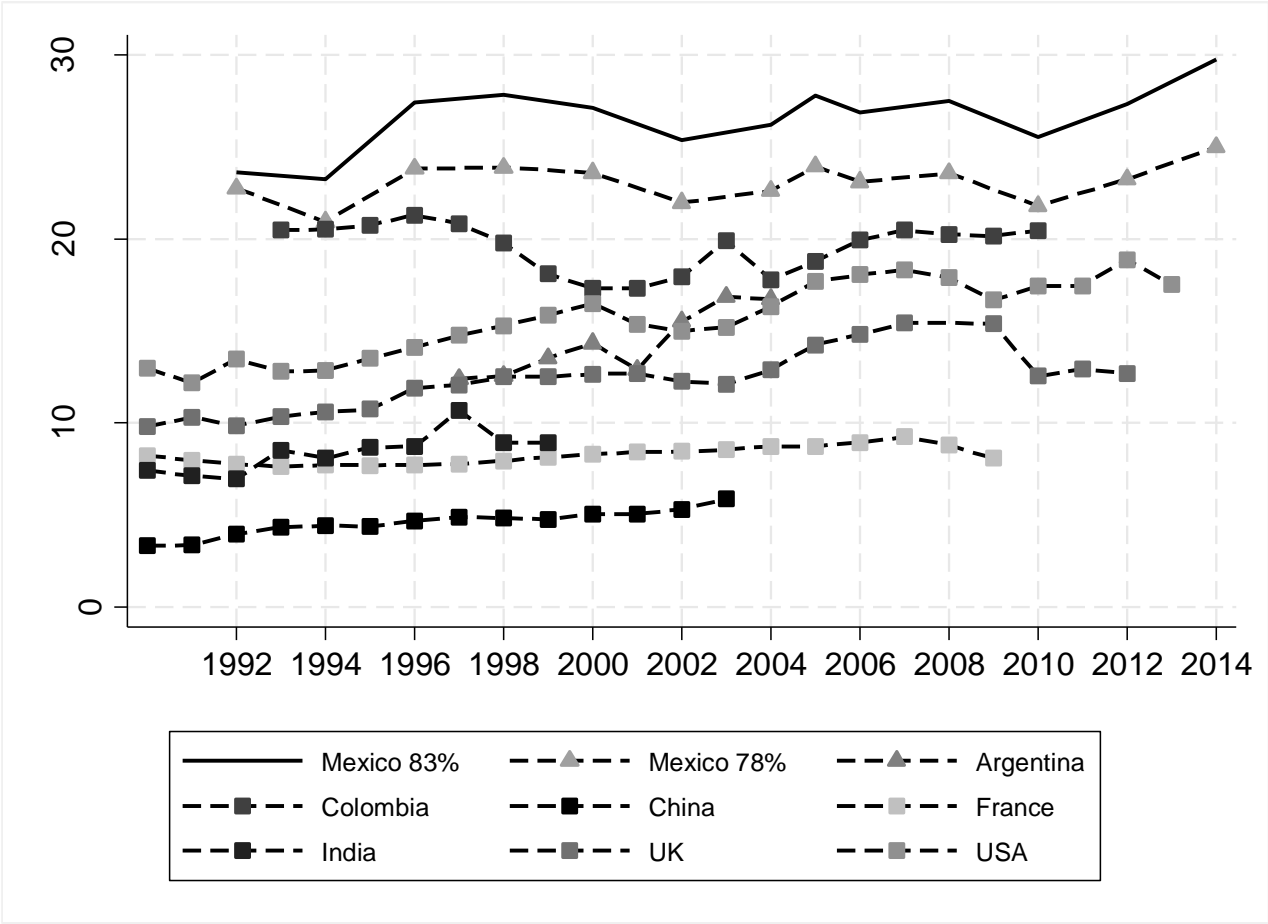
- In national accounts, we do not observe a decline in income as in HH.
- Increasing gap

Top 1% Income Share

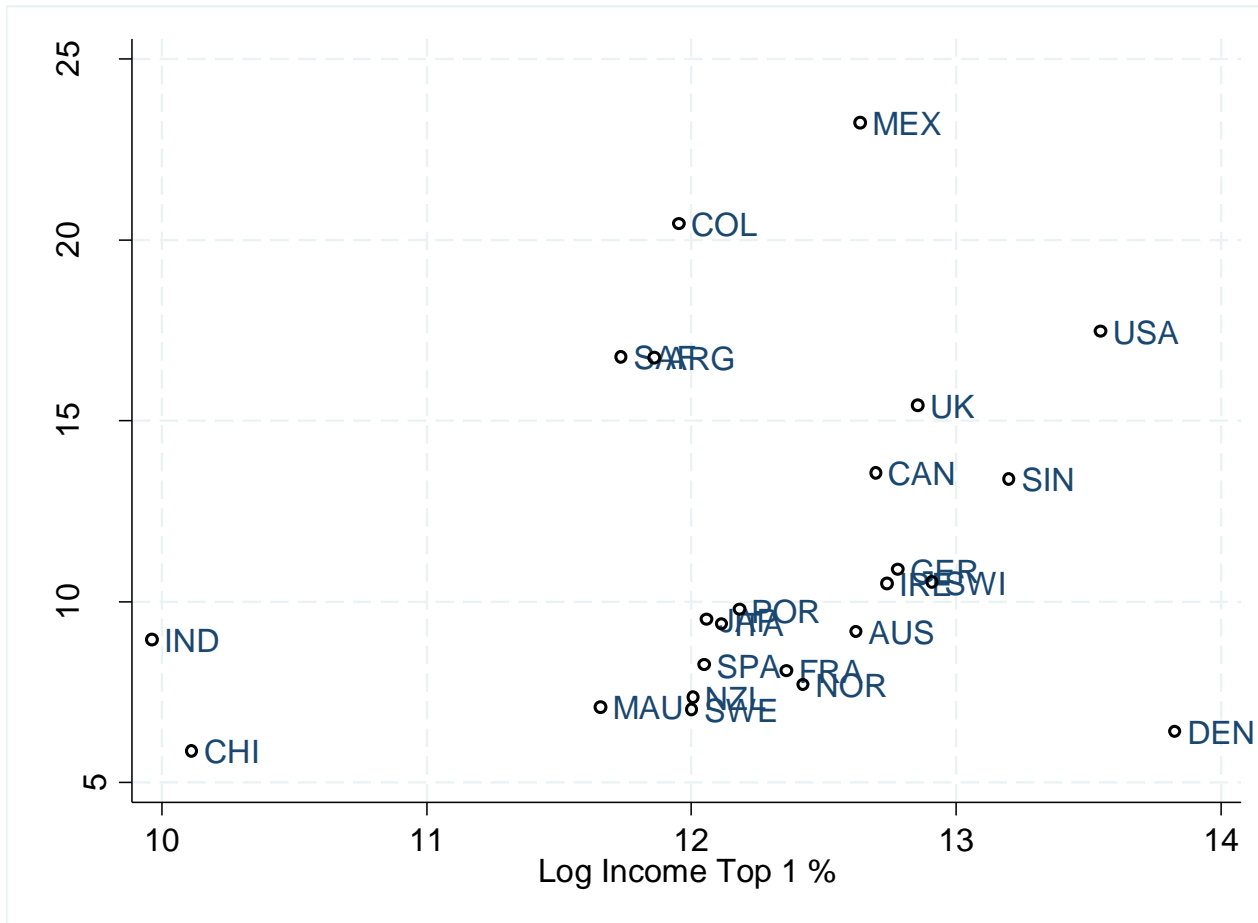


- The top 1% income share has been increasing

International Comparison



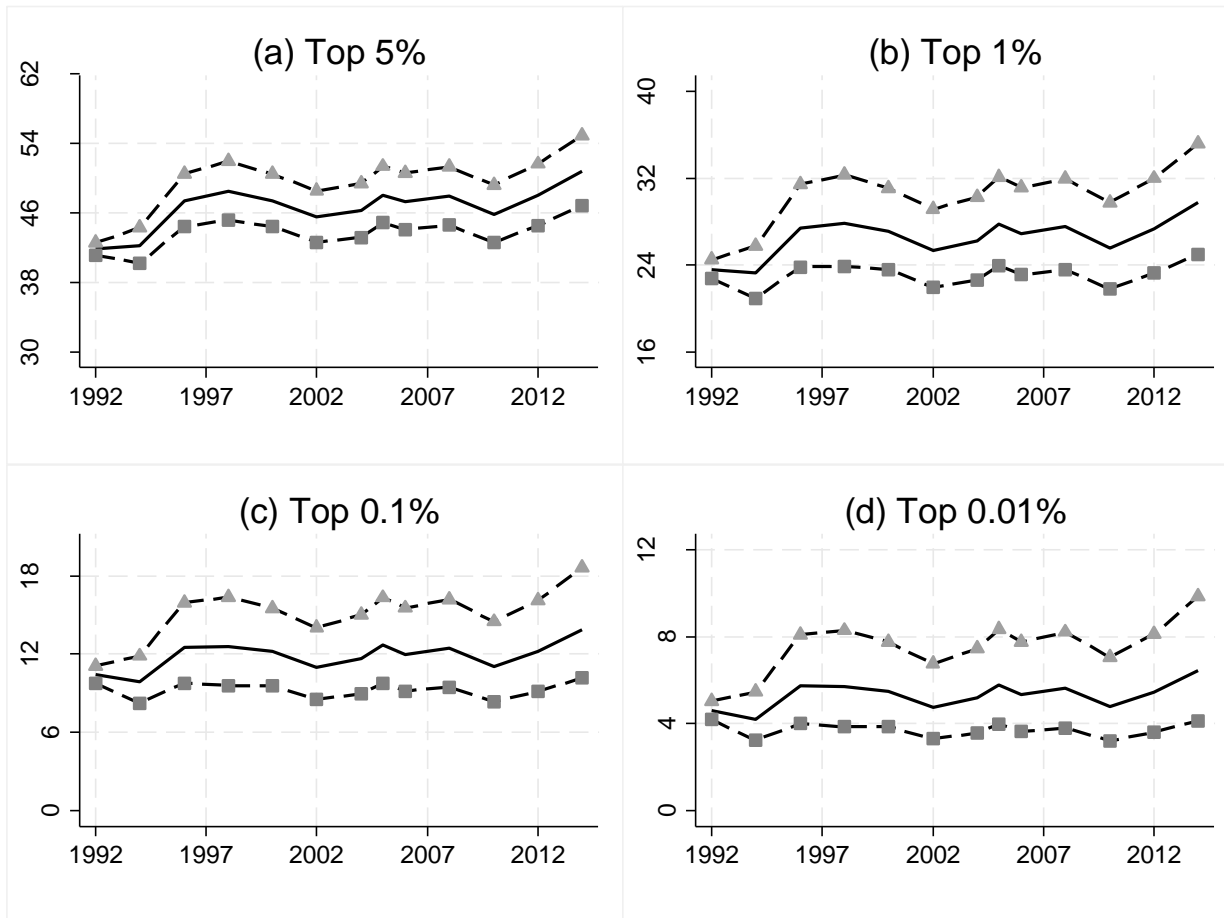
International comparison



2010 USD PPP

- Mexico has the highest top 1% income share recorded
- In terms of mean income is higher than some developed countries like SPA, NOR, FRA, and similar to CAN, UK.

Additional results



Mean Income in 2012 (2010 PPP USD)

	78% to top decile	83% to top decile	88% to top decile
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Panel A - Top Income Shares			
Top 10%	96,171	99,860	103,550
Top 5%	145,344	156,709	168,502
Top 2%	250,892	284,313	320,727
Top 1%	379,175	446,167	521,906
Top 0.1%	1,494,976	1,993,434	2,630,483
Top 0.01%	5,894,258	8,906,485	13,300,000
Panel B - Shares Within Shares			
90-95	46,998	43,012	38,597
95-98	74,978	71,640	67,019
98-99	122,610	122,459	119,548
99-99.9	255,197	274,248	287,619
99.9-99.99	1,006,167	1,225,317	1,449,645
99.99-100	5,894,258	8,906,485	13,300,000

Factor PPP es igual a aprox. 8 MXP/USD.

Conclusions

- We find that, contrary to what household surveys indicate, income shares of top earners in Mexico have increased in the last decades.
- This finding has serious implications for public policy issues, ranging from redistributive policies to taxation of top incomes.
- Traditional measures of inequality and mean income need to be contrasted with national account measures.