

What policies and interventions have been strongly associated with changes in in-country income inequality?

A systematic review

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Search strategy

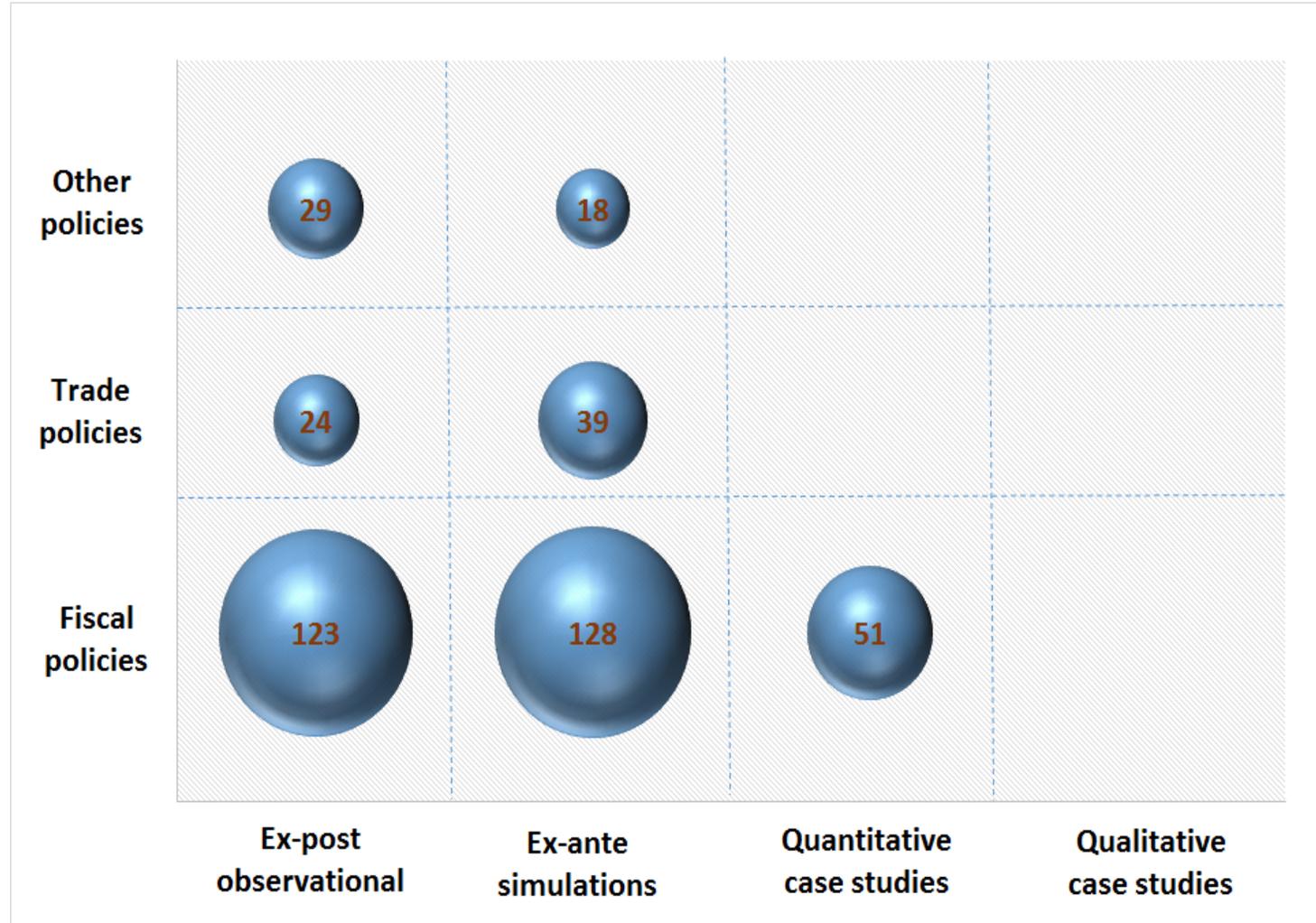
A Policy	B Income	C Inequality
Polic* Intervention* Program* Instrument* Tool* Reform* Legislation* Govern*	Income* Expenditure*	*Equal* *Distribut* Disparit* Differen* Gap* *Equit* Share* Ratio* Gini

Notes: * is included as a truncation symbol to capture automatically conjugated forms of each word; thus *equal* captures "inequality" as well as "inequalities"; *distribut* captures "distribution" as well as "redistribution".

Our search terms are combined using the basic formula A + (B W/n C)

Stage I (mapping): how much evidence is out there?

Number of studies identified, by type of policy and study design



Stage II (synthesis): does government spending affect income inequality?

- In our colloquium paper, we present a meta-regression analysis of the results from a **sub-set** of studies in our review: econometric studies looking at the effects of government spending on income inequality at the national level.

- These studies all include regressions of the form:

$$I_{it} = \beta_0 + \beta_1 X_{it} + \beta_k Z_{itk} + \varepsilon_{it}$$

I is a measure of income inequality

X is a measure of government spending

Z is a vector of other explanatory variables

e is an error term.

- We identified **87 studies** of this type, containing **987 estimates** of the effect of a measure of government spending on a measure of income inequality.

Theory and existing evidence

- It is widely argued that government spending on **transfers** (e.g. social pensions, cash transfers) can reduce inequality in household **disposable** income, but the effect depends crucially on how well transfers are targeted (Chu et al 2000, Goni et al 2011, Lustig 2015)
- It is also argued that government spending on **health and education** can reduce inequality in household **market** income, although again depending on targeting and possibly with a long time-lag (e.g. Tanzi 1974, Alesina 1998, Chu et al 2000, Davoodi et al 2003)
- The **financing** of spending (e.g. taxation or inflation) can also affect income inequality
- There is also a possibility of **reverse causation**: countries with higher levels of inequality may engage in more redistributive activity, for political economy reasons (Meltzer and Richard 1981, Alesina and Rodrik 1994, Persson and Tabellini 1994).
- The results from the econometric literature are **inconclusive**: e.g. Dollar and Kraay (2002), Dollar et al (2013) vs. Martinez Vazquez et al (2012), Claus et al (2012)

MRA approach

- Following Abdullah, Doucouliagos and Manning (2013), we estimate a regression of the form:

$$r_{ij} = \beta_1 + \sum \beta_k Z_{ki} + \beta_0 SE_{ij} + \varepsilon_{ij}$$

r is the partial correlation coefficient (PCC)

SE is the standard error of the PCC

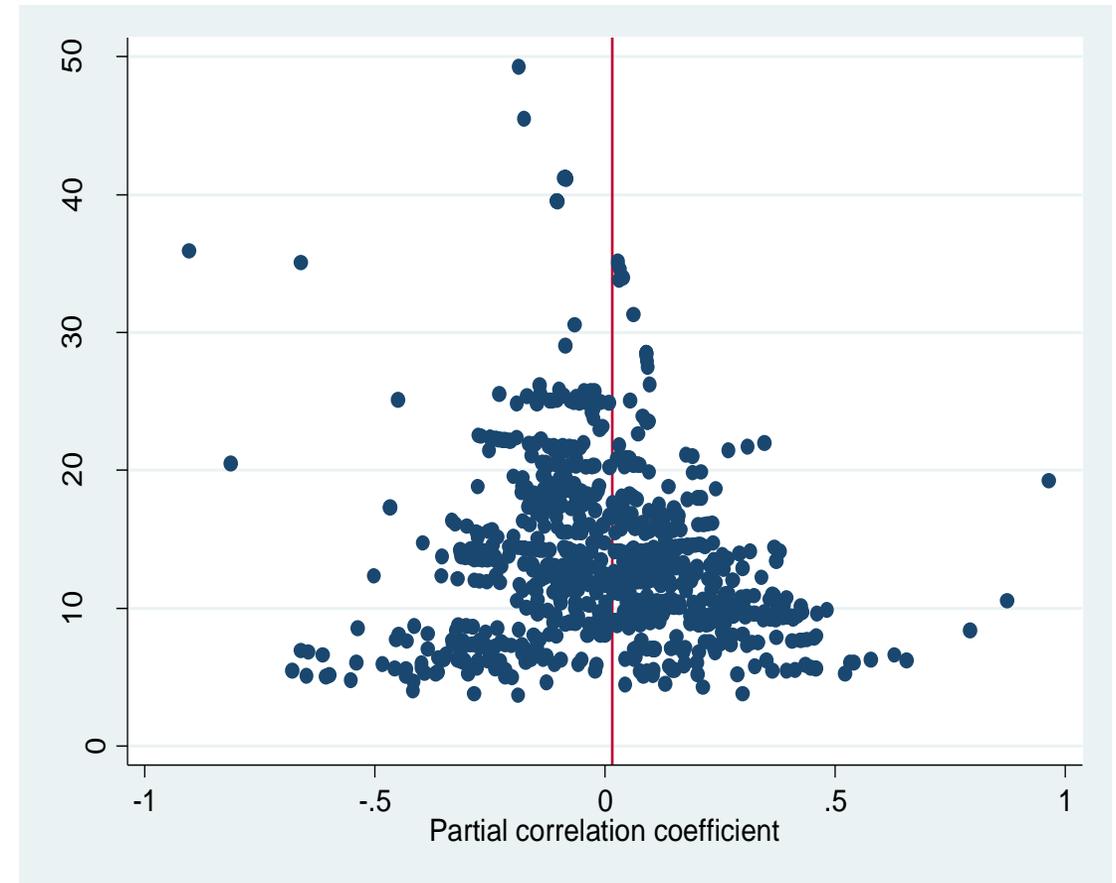
Z is a vector of moderator variables

- We rely mainly on WLS with cluster-adjusted standard errors, plus robustness checks for different weighting approaches and use of Fisher z transformations
- We also run regressions with and without outliers, and perform both pooled and sub-group analysis (e.g. for different types of spending)

Description of the sample

Number of studies	87
Number of estimates	987
Distribution of results	
Positive	521
Of which statistically significant	243
Negative	466
Of which statistically significant	180

Funnel plot



Moderator variables (I)

Variable name	Variable description
<i>Inequality measure</i>	
Gini	BD=1: Gini coefficient (used as the base)
Income Share Bottom	BD=1: Income share of the bottom quintile
Income Share Top	BD=1: Income share of the top quintile
Income Share Other	BD=1: Income share other (e.g. income ratios, average income of the poorest quintile)
Income Inequality Other	BD=1: Other inequality measures (e.g. Theil, Atkinson)
<i>Government spending measure</i>	
Total spending	BD=1: Total spending (used as the base)
Health spending	BD=1: Health spending
Education spending	BD=1: Education government spending
Health & education spending	BD=1: Health & education spending
Social welfare spending	BD=1: Social welfare spending
Military spending	BD=1: Military spending
Housing spending	BD=1: Housing spending
General social spending	BD=1: General social spending
Consumption spending	BD=1: Government spending (consumption)
Other	BD=1: Government spending (not specified/other)

Moderator variables (II)

<i>Country composition</i>	
Sub-Saharan Africa (SSA)	BD=1: Countries in Sub-Saharan Africa included in samples
Latin America (LAC)	BD=1: Countries in Latin America included in samples
South Asia (SA)	BD=1: Countries in South Asia included in samples
Developed	BD=1: Developed countries included in samples
<i>Data</i>	
OLS	BD=1: OLS estimator used
Year data	Average year of data used in each study minus average year data of the sample
<i>Other explanatory variables</i>	
Tax	BD=1: Tax included as explanatory variable
Trade	BD=1: Trade included as explanatory variable
Education	BD=1: Education variables included as explanatory variable
Inflation	BD=1: Inflation included as explanatory variable
Population	BD=1: Population included as explanatory variable
Governance	BD=1: Governance variables included as explanatory variable
<i>Publication</i>	
Standard error	Standard error of the partial correlation coefficient
Unpublished	BD=1: Study is unpublished

Notes: * BD means binary dummy with a value of 1 if condition is fulfilled and zero otherwise.

MRA results (I): publication bias?

- We find evidence of publication bias

	(1) FAT PET WLS	(2) WLS	(3) WLS general	(4) WLS specific	(5) Robust
Standard error	1.778*** (0.530)	1.532*** (0.482)	1.496** (0.724)	1.748*** (0.482)	0.433** (0.169)
Constant	-0.134*** (0.034)	-0.130*** (0.033)	-0.119 (0.080)	-0.158*** (0.033)	-0.016 (0.026)
<i>N</i>	987	987	974	987	974
<i>R</i> ²	0.076	0.125	0.298	0.198	0.399

- It appears that negative estimates of the relationship between government spending and inequality are being *under*-reported in the literature

Results (II): significant moderator variables

- The estimated effect of government spending on inequality appears to depend on both the control variables and estimation method used

	(3)	(4)	(5)
	WLS general	WLS specific	Robust
Taxation	-0.059 (0.053)	-0.079** (0.038)	-0.032 (0.027)
Inflation	-0.067** (0.028)	-	-0.052*** (0.012)
Governance	0.077** (0.036)	0.088** (0.034)	0.084*** (0.012)
OLS	-0.097** (0.041)	-0.124*** (0.033)	-0.101*** (0.016)
<i>N</i>	974	987	974
<i>R</i> ²	0.298	0.198	0.399

- The measure of inequality also makes a difference, as does the type of spending

Results (III): does spending affect inequality?

- We address this question by choosing a particular combination of moderator variables, setting SE=0 and calculating the predicted value of r
- The results suggest the answer depends on the type of spending and on the inequality measure

	Gini	Income share bottom	Income share top	Other income share measure	Other inequality measure
Total spending	0.330***	0.335**	0.223**	0.202*	0.270***
Education spending	0.079	0.072	0.037	-0.074	.
Social spending	-0.099	-0.484*	-0.506*	.	.
Consumption spending	-0.496***	-0.340***	-0.430***	-0.120	.

Discussion, limitations, implications

- What might be driving publication bias in this case?
- How to control for the quality of studies (risk of bias)?
- Evidence for OECD countries not included in our study
- Priorities for future research? Are there major gaps in the literature?