Natural resources, electoral behaviour and social spending in Latin America

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Overview

- Background
- The model
- Data
- Empirical approach
- Results
- Concluding remarks

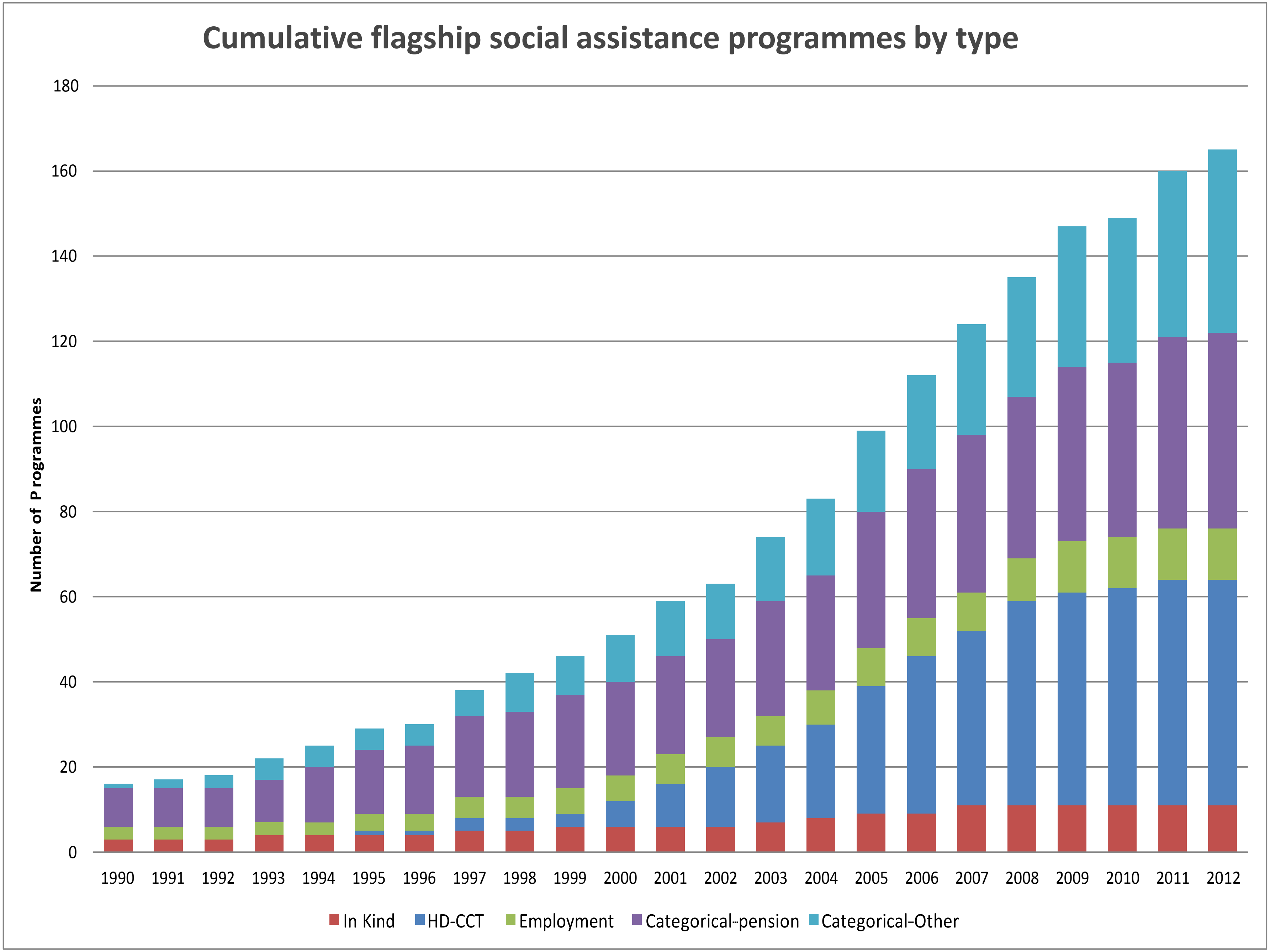
Background

- Latin America witnessed an important democratization process since the late 1980s and early 1990s (end of Cold War) that saw many countries in region moving from **military dictatorships** (Bolivia, Chile, Argentina, Brazil, Paraguay, Uruguay) and **authoritarian regimes** (Mexico and Central America) towards more competitive political systems

- The **'politisation' of poverty** became a feature of political processes, with civil society more actively demanding a change in the 'status quo'

- Over the past two decades, **social assistance has emerged as a new welfare paradigm in the fight against poverty and vulnerability**. Nearly 900 million people worldwide currently receive income support from SA, 25% of which live in Latin America

- **Government spending on the social sectors (education, health and social assistance) increased substantially in LA**, from 9.5% of GDP in 1990s to 14% in the first decade of the 2000s



Cumulative flagship social assistance programmes by type
Number of P rogrammes
180
160
140
120
100
80
60
40
20
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
In Kind
HD-CCT
Employment
Categorical-pension
Categorical-Other

Background

- Understanding the underlying mechanisms that drive redistribution decisions of NRR is critical for the development trajectories of resource-rich countries

- **The use of tax revenues is subject to stronger pressures than non-tax revenues**, especially when non-tax revenues are determined by a windfall of NRR.

- Collier and Venables (2010) and Collier (2010) suggest that **the reduction in accountability for the incumbent that results from the abundance of NNR leads to rent-seeking behaviour and patronage**

- **Social spending, as a form of redistribution, can thus be a profitable tool to accomplish the political objectives of opportunistic incumbents**

Background

- While in the 1960s, 1970s and early 1980s, **Latin American authoritarian regimes used NRR to subsidise the import-substitution industrialisation model** (Ross, 1999), **since the 2000s NRR have been used, at least partly, to expand social policies**

- This coincided with **favourable macroeconomic conditions**, and a **democratization process** that favoured redistribution via social spending
  - In Bolivia, for instance, Evo Morales' government introduced in 2007 *Renta Dignidad,* a non-contributory old-age pension scheme. Before 2007, 90% of <65 year old population was unprotected to life cycle contingencies. By decree, it has been funded with a 30% tax on revenues from hydrocarbons = 1.1% of the country s GDP

- **NRR allow the incumbent to bypass the interdependent preference problem**, insofar levying taxes on high income HHs is not a key element in the delivery of income transfers to the poor (Currie and Gahvari, 2008)

Background

- Robinson (2010) and Caselli and Cunningham (2009) show that a **windfall of NRR leads to higher incentives for the incumbent to remain in power but it also lowers the probability of survival** as it results in higher political competition

- Recent literature from Latin America and South East Asia **(short term experimental and quasi-experimental research designs)** seem to suggest that cash transfers have been politically profitable insofar they are associated with significant increases in electoral participation and favourable outcomes for the incumbent in Brazil (Zucco 2009), Mexico (De La O, 2013), Colombia (Baez et al., 2012), Indonesia (Julia et al., 2014), and the Philippines (Labonne, 2013)

- The microeconomic evidence on the subject remains contested both on methodological and theoretical grounds (Imai, King and Velazco 2017; and Filipovich, Niño-Zarazúa and Santillan, forthcoming)

Background

- Incumbents in resource-rich countries could decide to redistribute via direct taxation (with a high political cost) or skip accountability and opposition in the redistribution of income by allocating non-tax revenues from natural resources to social spending

- **How do natural resource rents affect social spending decisions, and how these decisions influence the 'electoral returns' to the incumbent?**

Model: NRR and electoral behaviour

- We develop a model here left- and right-win politicians interact with liberal and conservative voters in a two periods framework

- In the first period, politicians signal their tax policy, while in the second period, the winning incumbent does not have the same redistributive incentives as in the first period. Thus, a **tax policy stand may be modified by the presence of NRR that does not affect voters disposable income**

- Voters' characteristics are given by (w, δ) in which wealth, w, varies in the range $[\underline{w}, \overline{w}]$. The parameter δ is defined by two political ideologies: δ_c for conservatives that reject redistribution via direct taxes and δ_l for liberals who have higher preferences for taxes and redistribution.

- Information on w is public, while information on δ is private

Model: NRR and electoral behaviour

- Left- and right-wing candidates are denoted by (w_L, δ_j) and (w_R, δ_k), respectively, for which, $w_L < w_R$.

- Conservative voters will bear the brunt of redistribution via direct taxes more than liberal voters, while none will be affected by redistribution via NRR

- The redistribution policy is given by a linear income tax function

$$T = \beta \cdot sst, t - (1-\beta) \cdot sst$$

where ***t* is a constant marginal tax rate**, $0 \leq t \leq 1$

***sst* is the per-capita social spending transfer** financed by nrr that are function of exogenous competitive commodity prices, p^e , i.e.

$sst = sst(nrr(p^e)$, with $nrr' > 0$ and $nrr'' < 0$.

Model: NRR and electoral behaviour

- **The incumbent can use $\boldsymbol{nrr}$ to reduce the tax burden on voters due to increases in social spending,** with the parameter $0 < \beta < 1$. Conservative candidates will choose βs close to zero while liberal candidates will choose βs levels close to 1

- The government budget constraint is thus given by $\beta \cdot sst = [t - (1-\beta)sst] \cdot \mu$, where μ is mean income

- **Voters utility is given** by:

$$V_{ij}(t - (1-\beta)sst) = \theta\Big[c\Big((1-t)w + t\mu; \beta \cdot sst\Big)\Big] - \frac{1}{2}\Big[[t - [(1-\beta)sst]\mu] - \delta_j\mu\Big]^2$$

where $c(\cdot)$ is **private consumption** and θ is **a parameter indicating the extent to which voters value consumption over tax policy.**

The second term indicates **a quadratic preference for the tax policy according the political orientation**

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Model: NRR and electoral behaviour

- We obtain the preferred tax policy by differentiating voters utility as follows:

$$[t-(1-\beta)\cdot sst]^{*}=\delta_j-\theta\beta\cdot sst'+\frac{\theta(\mu-w_i)}{\mu^2}$$

The preferred tax policy will be decreasing to the marginal rate of the per capita transfer that is funded by NRR, ceteris paribus the external prices.

There are two elements in the model that can explain **how redistribution of NRR can modify voting behaviour.**

1) **the preference of the incumbent towards redistribution ($\boldsymbol{\beta}$)** can affect voting behaviour via reducing the tax burden on income and wealth

2) **NRR, which depend on natural endowments and exogenous prices, can influence incumbent's decisions on redistribution via social spending and ultimately affect voting behaviour**. Note that high exogenous prices will have a negative effect on tax policy

Empirical approach

Since our theoretical approach predicts that social spending is used to alter voting behaviour, our interest is to generate evidence that this behaviour is facilitated by the availability of NNR

Since electoral returns to the incumbent can be determined by social spending and social spending can increase the demand for non-tax revenues while non-tax revenues from NRR can boost social spending with effects on voting behaviour, we resort to FE and IV estimators in a three-stage equation system.

$$percent_{it} = \beta_1 sst_{it} + \beta_2 X_{it} + u_i + v_{it}$$
$$sst_{it} = \alpha_1 natres_{it} + \alpha_2 X_{it} + u_i + v_{it}$$
$$natres_{it} = \delta_1 price_t + \delta_2 netx_{it} + \delta_3 X_{it} + u_i + v_{it}$$

where $\boldsymbol{percent_{it}}$, is the voting share obtained by the president in country *i* in period t, $\boldsymbol{sst_{it}}$ denotes the endogenous social spending in % of GDP, $\boldsymbol{natres_{it}}$ measures NRR in % of GDP and $\boldsymbol{price_{i}}$ and $\boldsymbol{netx_{it}}$ are prices of natural resources and a dummy variable indicating whether the country is a net NR exporter to proxy natural endowments, which both serve as our Instruments.

X_{it} is a vector of socioeconomic and political factors, while u_i and v_{it} are country-level fixed effects and idiosyncratic error terms, respectively.

We estimate $\boldsymbol{\beta}'$s, $\boldsymbol{\alpha}'$s and $\boldsymbol{\delta}'$s *simultaneously* by three stage least squares

Data

Variable and sources	Description (period 1990-2010)
Variables from ECLAC	
Social spending as % of GDP	Total social government spending on health and education services, housing, social security and social assistance
Natural resources production as % of GDP	Total value of the extraction of natural resources (oil, minerals and metals) as percentage of the GDP.
GDP per capita	Real GDP per capita in US $.
Population	Population to proxy market size
Tax revenues by central government as % of the GDP	Total tax revenues by central governments as percentage of the GDP.
Net natural resources exporter	Dummy variable indicating whether the country is a net natural resources exporter in the corresponding year to account for the level of natural endowments.

Data

Variables from IMF	
Oil, minerals and metal prices	This variable results from a principal component analysis that summarises the variation of natural resources prices on international markets. It includes prices of crude oil, coal, natural gas, aluminium, copper, iron, lead, nickel, steel, tin, zinc, gold, platinum and silver
Variables from World Bank's Database of Political Institutions	
Voting share in last presidential election	Percentage of votes obtained by the president in the last election. It Includes re-elected presidents. If elections were not held in the year in question, this variable takes the value corresponding to the last election.
Years in office	Number of years of the chief executive of the country that has been in office.
Party orientation of the incumbent	Categorical variable indicating: 1 right; 2 center; 3 left. Right are conservative parties; left are socialists, communists or social democratic; center are parties with centrist orientation.
Legislative elections in the year in question	Dummy variable indicating whether there were legislative elections in the year in question.
Executive election in the year in question	Dummy variable indicating whether there were executive elections in the year in question.

Summary statistics

- **Social spending as % of the GDP averaged 11.4% among 18 Latin American countries over the period 1990-2009**
  - Some countries **spent as much as 20% of GDP on social sectors** (Argentina, Brazil, Uruguay and Costa Rica) **Other countries allocated just about 3% of GDP to social sectors** (Central American countries)

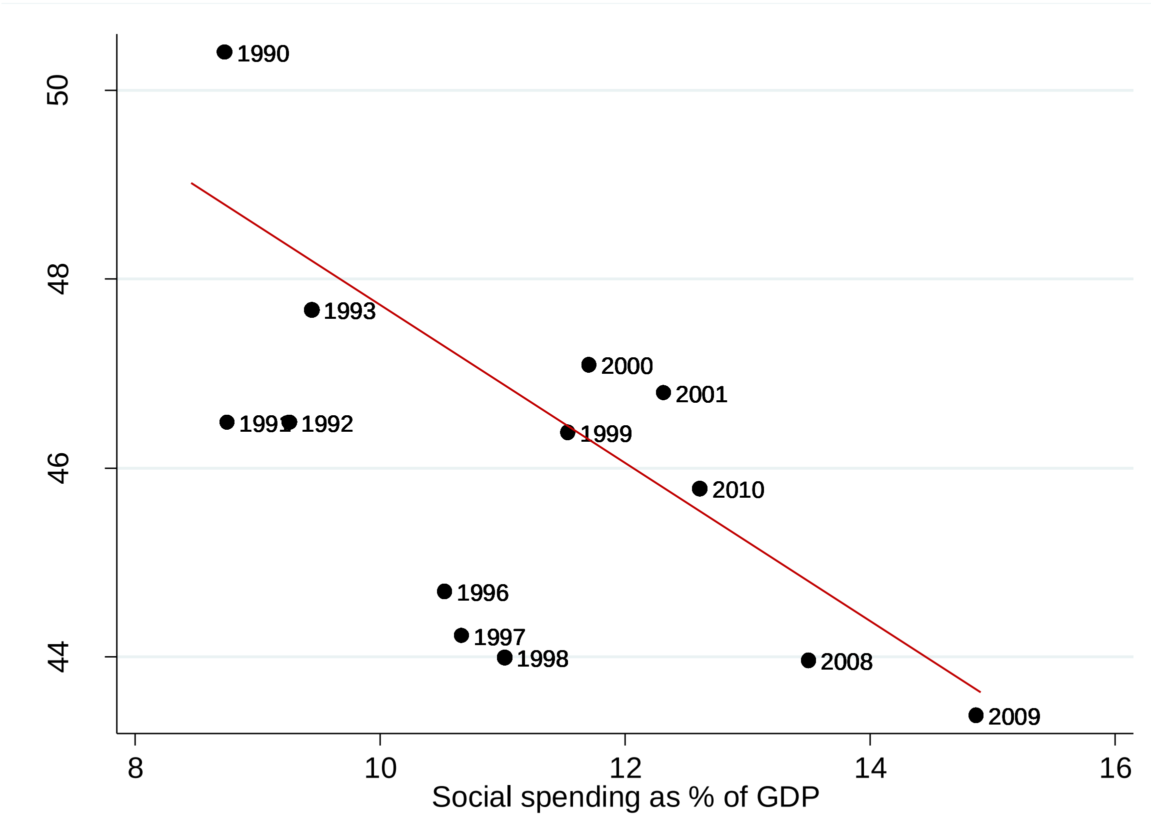
- **Production of natural resources averaged 4% as share of GDP**
  - Some countries (e.g. Venezuela) observed production in the order of 30% in the mid-2000s.

- **46% of countries were net exporters**
  - Some countries have **never** been net exporters (Central America, Uruguay)
  - Some countries have **always** been net exporters (Argentina, Chile, Colombia, Ecuador, Mexico, Peru and Venezuela)
  - Other countries **switched** from being net exporters to net importers and vice versa (Brazil and Dominican Republic)

- **In terms of political orientation, Latin American governments are classified as**:
  - 48% left-wing (socialists, communists and social democrats)
  - 12% right-wing (conservative parties)
  - 40% centre (moderate parties)

Basic correlates

Negative correlation between votes obtained by the president in last election and social spending as % of the GDP



The negative relationship may reflect the fact that presidents with low popularity would tend to allocate more resources to social spending

In this case the incumbent might be responding in a way to alter voting preferences

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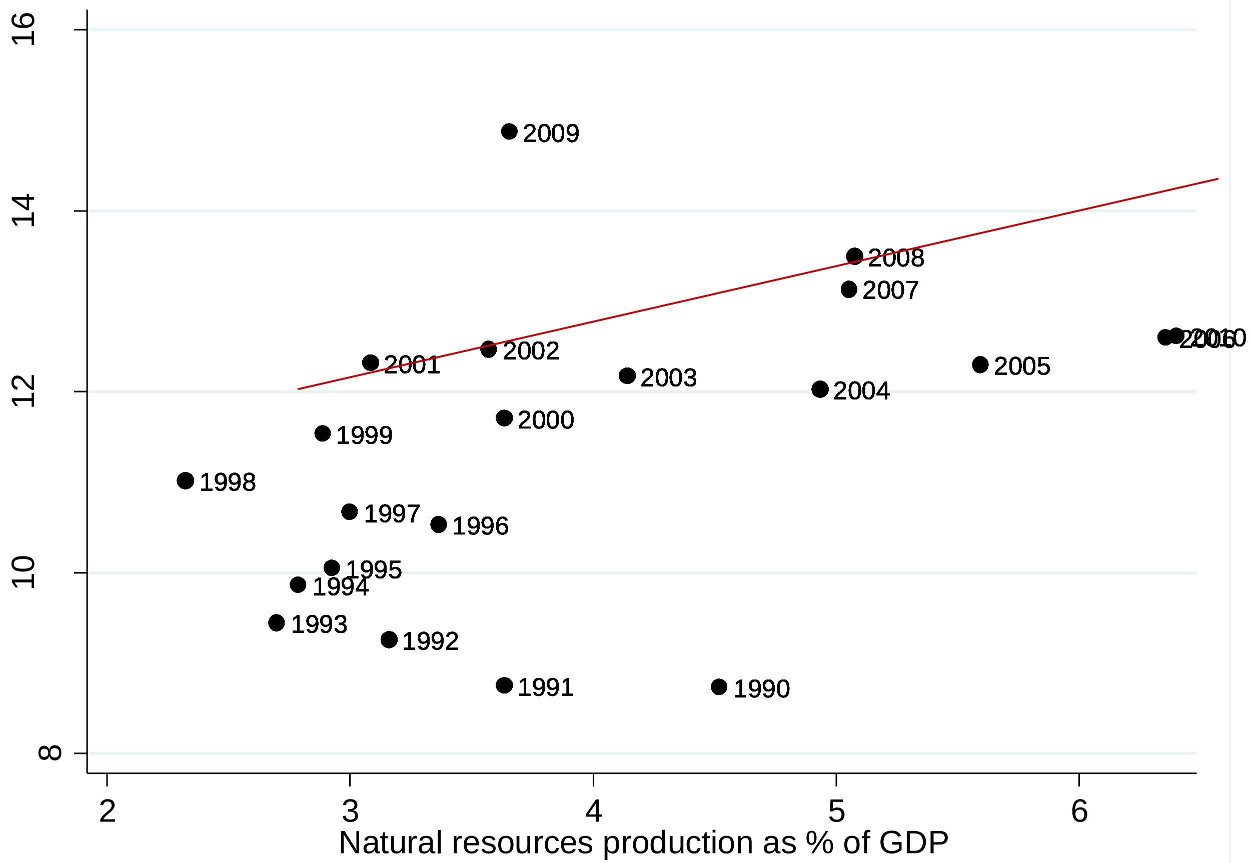
Basic correlates

Averages of social spending and production of natural resources as % of the GDP



We observe a cluster of **low social spending and natural resource production in the 1990s** and then a **positive trend dominated by higher commodity prices in the 2000s**

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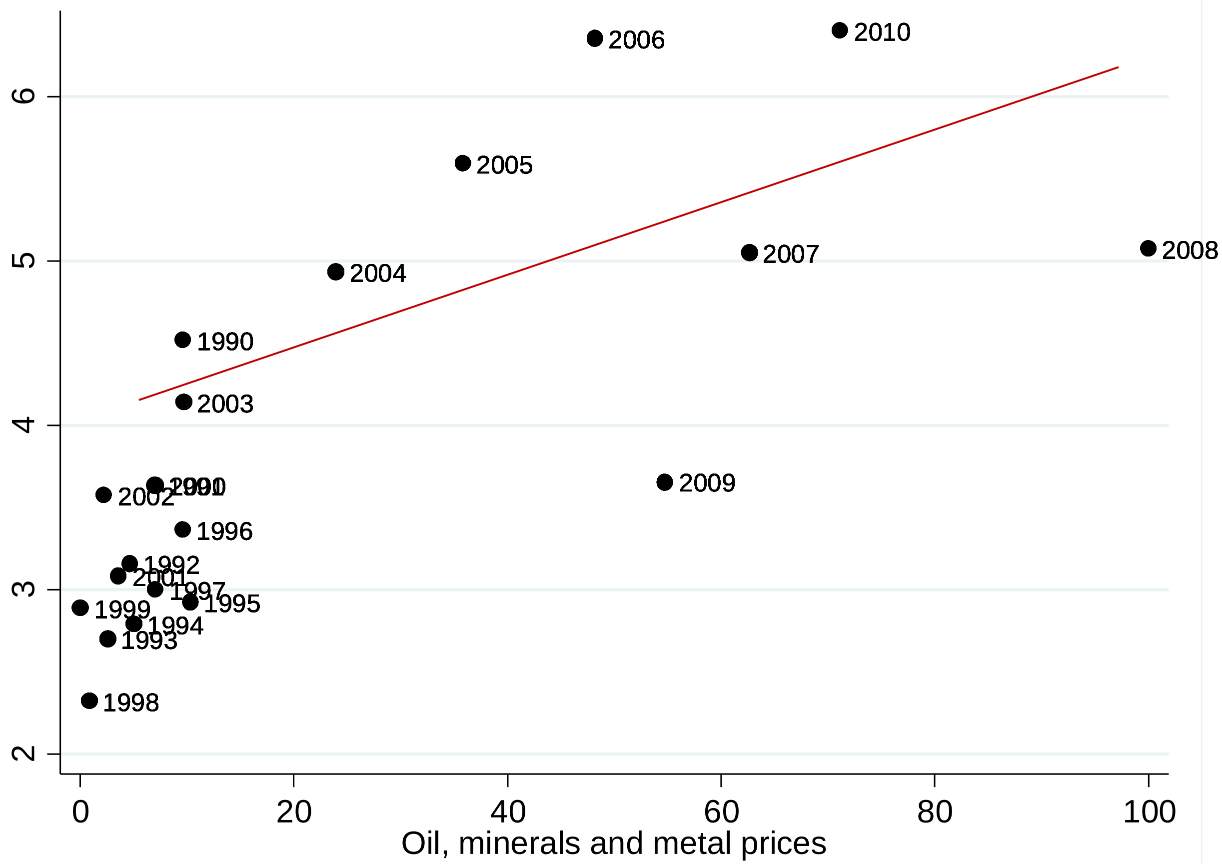
Basic correlates

Production of natural resources and the prices principal component



We find that **low commodity prices are related to low production averages in the 1990s** whereas **high commodity prices in the 2000s seem to have boosted countries' production**

If there is a relationship between social spending and natural resource rents, **we suspect commodity prices to be the mediating factor in that relationship**

Results

Voting share obtained by president	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Social spending as % of GDP	-1.369**	-1.827	-0.425	-0.770	-1.002	-1.495***	-1.653**
	(0.580)	(1.913)	(0.413)	(0.590)	(0.765)	(0.561)	(0.715)
NR production as % of GDP	3.330**	-0.902*	0.919***	1.001***	0.769**	0.940***	0.842**
	(1.685)	(0.462)	(0.126)	(0.343)	(0.306)	(0.341)	(0.332)
Instruments							
NR prices	0.028**		0.042***	0.074***	0.081***	0.073***	0.078***
	(0.014)		(0.004)	(0.011)	(0.012)	(0.011)	(0.012)
Net NR exporter		-1.497**	-0.118	-0.091	-0.541	-0.113	-0.518
		(0.608)	(0.420)	(0.499)	(0.563)	(0.533)	(0.594)
Observations	356	356	356	356	356	356	356
R-squared	0.502	0.429	0.384	0.402	0.420	0.497	0.498
Number of countries	18	18	18	18	18	18	18
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls							
Socioeconomic controls	Yes	Yes	No	No	Yes	No	Yes
Political controls	Yes	Yes	No	No	No	Yes	Yes
Time trends	Yes	Yes	No	Yes	Yes	Yes	Yes
Sargan-Hansen p-value	0.000	0.000	0.074	0.184	0.786	0.181	0.274

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Conclusions

- Our results seem to confirm the hypothesis that **the availability of natural resources has facilitated the redistribution of government revenues through social spending that would have otherwise not been possible in Latin America**

- Our results show **a negative effect of social spending on electoral gains for incumbents**

  - This may reflect **Caselli-Cunningham hypothesis**, that **under competitive political systems, a windfall of NRR provide incumbent governments with incentives to increasing social spending with the aim of political gains but it also lowers their probability of survival** due to an increased political competition

- Latin American countries were able to reduce poverty and inequality in the past 15 years partly through the implementation of social policies. These dynamics would have not been possible without the abundance of NRR and favourable macroeconomic conditions

- However, the recent deterioration of international commodity prices has weakened the fiscal space of LA countries, and brought to light the urgency of introducing broader and progressive tax reforms to ensure the sustainability of social spending. **Ironically, by affecting incumbents behaviour, NNR may have been delaying such important structural reforms**

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