

# Campaign externalities, programmatic spending and voting preferences in rural Mexico

The case of Progres-Oportunidades-Prospera program

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# Background

Political effects of social policy have been the focus of a considerable scholarly work. Concerns about the pervasive effects of **vote buying**, **clientelistic tactics** and **discretionary government spending** have been widely studied (Arndt 2013, Giger 2011, Jones et al. 2012).

The literature highlights their detrimental effects on **state capacity** (Geddes 1996, Grzymala-Busse 2008); **the efficient allocation of public goods** (Adsera et al. 2003, Robinson Verdier 2013); **corruption and accountability** (Ades Di Tella 1999, Brinkerhoff Goldsmith 2004, Kurer 1993), and **the building blocks of democracy** (Fukuyama 2015).

Closer to our study is the literature that focuses on how, and under what conditions, social policy generates an electoral advantage to the incumbent, especially in contexts where democratic institutions are still evolving.

**Conditional cash transfer programs** (CCTs) have become one of the most important antipoverty policy innovations over the last two decades. They provide income support to poor households in exchange for investments in the education, health, and nutrition of their children. The idea is that by investing in human capital, CCTs can contribute to breaking the intergenerational transmissions of poverty.

# Objective

In this paper we focus on what is widely regarded as one of the pioneer CCTs, the Mexican Progresa-Oportunidades-Prospera (POP) program.

POP was introduced in 1997 by the PRI (Zedillo) administration under the name **Progresa**, and then renamed as **Oportunidades** in 2002 after the victory of the conservative PAN (Fox) candidate. The program currently operates under the name **Prospera**, which it acquired after the PRI (Peña Nieto) won the Presidential election of 2012

From POP's very beginning, a major concern was to prevent the program from being exploited for electoral purposes, which is not surprising given Mexico's tradition of clientelistic one-party rule.

Accordingly, the program was rigorously targeted via a **census-based marginality or 'social gap' index and proxy-means tests**. Further, it is implemented by a dedicated agency under direct control by the Executive branch. Finally, the allocated budget to the program is approved by Congress every year, which means that opposition parties keep a certain degree of control and influence.

# Objective

A very scant literature on the electoral impact of CCTs (and POP in particular) has focused on a short-term window of analysis, and generally yielded mixed results, with some studies finding evidence of an 'electoral bonus' (De La O 2015, Cornelius 2002, Diaz-Cayeros et al. 2012, Rodríguez Chamussy 2015), while others dispute these findings (Green 2005; Imai et al. 2016).

In this paper we ask **whether the incumbent in charged with POP's implementation have benefited electorally from it; and if so, how they might have done so, and to what extent.**

To give an answer, we exploit the exogenous variation in the program expansion and the targeting criteria used by POP to compute difference-in-differences (DD) estimators in vote shares for the three major parties (PAN, PRI, PRD).

We also exploit the exogenous rule of households' eligibility to treatment, which relies on a marginality index, to derive a threshold point to adopt a Regression Discontinuity (RD) design.

# Results in a nutshell

Our results are at first sight puzzling.

We find no significant effect for any party in the 2000 and 2012 Presidential elections, but for the highly competitive 2006 Presidential election, we find a significant **negative** 'net' effect for the incumbent PAN; a significant **positive** effect for the main contender PRD; and no significant effect for the PRI.

We offer a rationalisation of these findings in terms of **ex-ante expectations** and **behaviour towards risk** among those at the 'subsistence' threshold, and **information externalities** from an unprecedented massive electoral campaign that affected treatment and especially control localities, as plausible mechanisms underpinning our results.

# Literature Review

In the specific context of CCTs, a scant literature reports mix results with regard to their electoral impacts.

**A first generation** of studies have relied on exit polls and opinion surveys to study the electoral impacts of CCTs. For example, Zucco (2013) in Brazil, Cornelius (2004), Diaz-Cayeros et al. (Forthcoming) in Mexico find that overall, CCTs produce an incumbency advantage.

This generation of studies offer rich and detail accounts of vote-buying tactics used by incumbents to exercise their electoral advantage; however, major concerns remain latent about their **internal and external validity**:

- ▶ Pre-election exit polls and post-election public opinion surveys suffer from **non-response bias**, as those who do not respond can be systematically correlated with outcome measures.
- ▶ Equally important—and often overlooked in the literature—is the fact that opinion surveys suffer from **sample selection bias**, as they are not designed to cover representative samples of the poor.

# Literature Review

**A second generation** of studies have relied on field experiments (e.g. Galiani et al.(2017) in Honduras, Cruz et al.(2016) in the Philippines), and 'ancillary' experiments, notably by De La O (2013) in Mexico, to examine the electoral impact of CCTs.

This generation of studies offer interesting insights into issues of **reciprocity**, **information asymmetries** between incumbents and voters and the **intensity of program exposure**.

A recent study by Imai et al.(2016) has contested the results of De La O (2013) after finding that the results vanished once they corrected for coding and matching errors incurred when merging the experimental data of Progresa with election data.

# Literature Review

There are also methodological problems in the second generation of studies, including the ones on Mexico:

- ▶ While the experimental data used by De la O (2013) and Imai et al.(2016) was successful in removing observed and unobserved heterogeneity correlated with program treatment and 'specific' welfare outcomes, it is unclear to us why we should expect that **unobserved heterogeneity and spillovers** were also removed, especially when these are associated with **campaign externalities**, which affect voter preferences in both treatment and control localities.
- ▶ Furthermore, since POP experimental data were collected in only 503 localities (320 treatment localities and 186 controls) in 7 out of the 32 states of Mexico, **it was not representative at national and subnational levels** and thus cannot capture, accurately, the distribution of political preferences across the rural poor. This questions the **external validity** of findings and limits the possibility of theoretical generalisations.



# Literature Review

More recently, a **third generation** of studies have adopted quasi-experimental designs to measure the causal effects of CCTs (e.g. Green (2005) in Mexico, Baez et al.(2012) in Colombia, Manacorda et al.(2011) in Uruguay, Curto-Grau (2017) in Spain).

One advantage of the third generation of studies is their **strong external validity**. They exploit the exogenous variation in program implementation and use **census data and administrative records** that are representative at national and subnational levels.

However, concerns about the identification of the causal mechanisms remain latent.

The present study belongs, in methodological terms, to this third generation of studies.

# Context and Intervention

Mexico's Progresa was launched in August 1997, almost two years after the country experienced one of the most difficult political and economic crises in more than five decades.

- ▶ First, on 1 January 1994, the uprising of the **Zapatista Army of National Liberation (EZLN)** in Chiapas, the very same day NAFTA came into force.
- ▶ Second, **the assassinations of two leading political figures** in the country -the Presidential candidate of the PRI on 23 March 1994, and the secretary-general of PRI on 28 September-, generated political uncertainty, which together with fundamental macroeconomic disequilibria, contributed to trigger the **Peso crisis of December 1994**.
- ▶ The setback of 7% in real GDP in 1995 had a devastating effect on household welfare, pushing the headcount index from 21.2% just before the crisis in 1994 to 37.4% in 1996 (with **more than 16 million people falling into poverty** in such short period).

## Context and Intervention

It was in this context of rising poverty and economic and political uncertainty that POP was introduced. **With its multidimensional approach towards tackling intergenerational transmissions of poverty**, POP was revolutionary from start:

- ▶ It provides cash transfers every two months to households in poverty to support food consumption, together with nutritional supplements to young children aged four months to two years, and pregnant and lactating women. **The cash transfer is conditional upon regular medical check-ups, attendance to group meetings, and school attendance of children in school age.**
- ▶ POP also provides a school grant per child enrolled in primary and secondary education that grows with school progression to compensate the **increasing opportunity cost of schooling** and is **higher for girls** to incentivize their enrolment in post-primary education.

# Context and Intervention

Relevant for our study are the following design features of POP:

- ▶ **It focuses on the poor. It follows a rigorous targeting method in two steps:** First, it adopts a 'spatial' selection procedure that identifies poor localities using a census-based **marginality index**. The second step involves **categorical criteria** and a **proxy means tests** using survey and census data, that identified those living below an absolute poverty line.
- ▶ POP was introduced under **programmatic principles** whereby the identification and selection of eligible households was made based on operating rules approved by the lower house of Congress, and implemented by a centrally-run federal agency.
- ▶ Operating rules prohibits the incumbent government to scale up the program six months prior to election time.

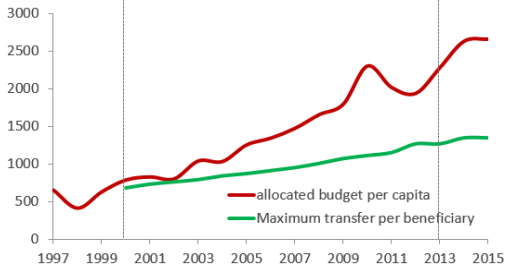
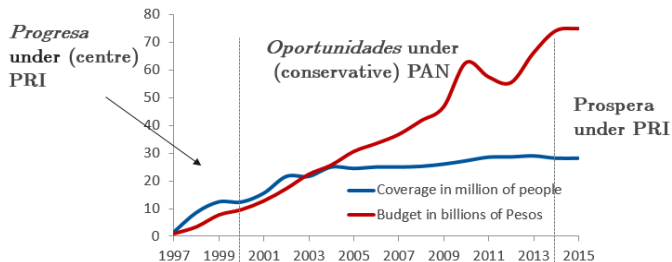
# Context and Intervention

In 1997, **POP** covered **300,700 households in 6,344 rural municipalities**.

With the victory of Vicente Fox (PAN) in the 2000, POP expanded considerably:

- ▶ In 2002 Progresa was replaced with Oportunidades. The new program expanded its coverage to include **urban areas**, where PAN had strong holds.
- ▶ A new component, *Young People with Opportunities*, was added as an incentive device for young people to complete high school. It consisted of saving accounts for graduates, under the condition that they completed their studies before turning 22.
- ▶ In 2005, *70 y Mas* was introduced, a non-contributory pension, in clear response to the pension scheme that **Andrés Manuel López Obrador** (PRD), the main contender in the 2006 presidential election, had established earlier in Mexico City.
- ▶ By the end of 2015, **POP had nation-wide coverage, providing support to 28.2 million people living in poverty, or about 22% of Mexico's population**

# The evolution of POP



Expansion of POP and political regimes in Mexico (1997-2015)

## Context and Intervention

The shift from clientelistic to programmatic social policy should be seen in the context of increasing political competition and a democratisation process that began in the 1980s

- ▶ During the July 1997 congressional and gubernatorial elections, **the ruling PRI lost majority of the lower house of Congress.**
- ▶ The debacle of the hegemonic PRI began in 1996 with an unprecedented legal reform to the electoral system that included changes in the Mexican Constitution and the federal election law, and which introduced **penalties to electoral fraud, vote-buying practices**, and for the first time, **provided campaign funds and free media time to political parties.**

Vote shares (%) in Presidential elections

Party	1994	2000	2006	2012
PRI	<b>48.69</b>	36.11	22.26	<b>38.21</b>
PAN	25.92	<b>42.52</b>	<b>35.89</b>	25.41
PRD	16.59	16.64	35.31	31.59

# Theoretical considerations

## A Decision Rule Approach to Vote under POP

- The central theoretical choice we make is to ignore all the strategic issues associated with voting ('paradox of voting') and just put forward a simple 'voting rule' criterion for how the very poor voters cast their ballots
- The central idea is that each voter  $i$  will associate an (income) lottery  $L_i(v_i, \mathbf{x}_i)$  with each value of her vote  $v_i$ , with  $v \in \{PRI, PAN, PRD\}$ , and  $\mathbf{x}$  indicating factors that influence the form of the lottery (e.g., party affiliation of municipal authorities, parties' identities of the front-runner and the runner-up in national polls, program membership, voter's party affiliation or ideological preferences, etc.).



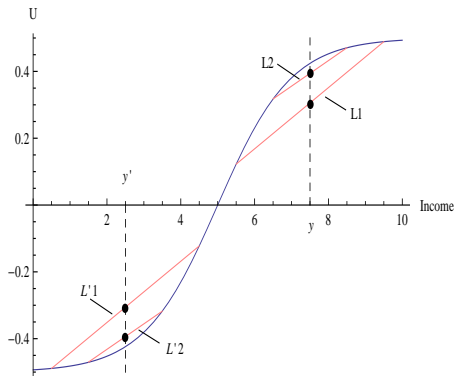
# Theoretical considerations

Risk-aversion just above, and risk-happiness just below, a subsistence threshold

We follow a two-part intuition regarding the behaviour towards risk of the very poor, and which underlies the central argument of this paper:

- ▶ The first part is commonly emphasised: **A voter who hovers *just above* a poverty line will display extreme risk-aversion**, reflecting his/her concern to avoid falling below that threshold.
- ▶ The second part is less emphasised: **A very poor voter hovering *just below* the poverty line will display extreme risk-seeking behaviour** if confronted with a lottery that offers him/her even a small chance of overcoming the subsistence barrier.

# Dual risk behaviour and the politics of POP



- ▶ We consider two pairs of lotteries, each pair indexed by the same numeral, with 'ex-ante' income higher in the non-primed lottery in the pair ( $y$ ) than in the primed one ( $y'$ )
- ▶ **The black dot indicates the expected value of the corresponding lottery.** Both primed lotteries,  $L'1$  and  $L'2$ , (as well as the non-primed lotteries,  $L1$  and  $L2$ ) yield the same expected income but have different variances, with 1 having a higher variance than 2.
- ▶ The relevant point for our analysis is that **the ranking of the two primed (resp., non-primed) lotteries is reversed for the lower 'ex-ante' income voter compared to the higher 'ex ante' income voter.** This reversal results from the poor voter just above POP's eligibility threshold being risk-averse, while the poorer voter with ex-ante income below that threshold being risk-seeking.

# Empirical strategy

We exploit the targeting criteria of POP, and as exogenous variation the expansion of the program to compute difference-in-differences (DD) estimators.

The DD estimator takes the form:

$$DD = (y_{AT} - y_{AC}) - (y_{BT} - y_{BC}),$$

where  $y_{AT}$  measures the outcome of interest for the treatment group after POP,  $y_{AC}$  measures the outcome variable for the control group after POP,  $y_{BT}$  captures the outcome for the treatment group before POP and  $y_{BC}$  measures the outcome for the control before POP.

# Empirical strategy

To control for observed characteristics that can influence vote preferences, we estimate the following equation:

$$y = \alpha + \beta T_i + \gamma t_i + \delta(T_i * t_i) + \sigma X + u_i,$$

where  $y$  measures vote shares for leading political parties, and voter turnout,  $X$  and  $\sigma$  are a vector of observed characteristics and its parameter, respectively.  $\alpha$  is the constant term,  $\beta$  captures treatment group-specific effects to account for average differences between treatment and control localities,  $\gamma$  measures the time trend, common to treatment and control localities, and  $\delta$  is the DD estimator, measuring the net effect of POP, and  $u$  is the error term.

# Empirical strategy

Since **the roll-out process of POP was not random**, there may be significant differences in observed characteristics between treatment and control localities that make the assumption of parallel trends questionable.

In order to correct for this source of bias, **we adopt a semi-parametric approach** proposed by Abadie (2005), which provides unbiased ATT estimates if in pretreatment, the outcomes in the two groups had a common trend, conditional upon the vector of covariates  $X$ . The SDD estimators are obtained as follows:

- ▶ **We first estimated the probability that the localities belong to the treatment group conditional upon a vector of covariates  $X$** , equivalent to the propensity score  $P(T = 1|X)$ .
- ▶ **We then estimates SDD after re-weighting the sample according to the propensity score**, so that the control localities with greater propensity score have greater weight.

# Balanced covariance matrix across treatment and control localities. Sample 2000

	Original Sample			Reweighted Sample		
	T	C	SD	T	C	SD
Logarithm of population size	5.34	4.78	70.80 *	5.34	5.35	-0.90
% between 6 and 14 years	26.17	25.35	15.30 *	26.17	26.22	-1.14
% older than 15 years	56.34	56.20	1.78	56.34	56.11	3.34
% illiterate older than 15 years	29.91	30.95	-5.95	29.91	30.52	-3.93
% between 6 and 14 years who can not read or write	26.12	31.47	-27.16 *	0.26	0.27	-3.01
% aged 5 or older speaking an indigenous language	22.40	22.57	-0.44	22.40	24.38	-5.20
% of dwellings with piped water	34.77	27.93	18.08 *	34.77	35.66	-2.29
% of dwellings with electricity	60.54	42.63	43.19 *	60.54	61.85	-3.26
% of dwellings with sewer system	10.33	10.21	0.57	10.33	11.06	-3.55
Marginality index	0.42	0.60	-25.44 *	0.42	0.44	-2.97
Distance to the municipal head (Km)	21.38	31.97	-31.54 *	21.38	20.86	1.77
North	9.90	17.87	-23.21 *	9.90	6.55	12.21 *
North-Central	21.03	11.23	26.89 *	21.03	19.41	4.04
Center	3.75	1.85	11.50 *	3.75	3.90	-0.80
South-Central	27.36	14.55	31.88 *	27.36	29.07	-3.80
South-South East	37.96	54.50	-33.63 *	37.96	41.07	-6.37
% loc. where PRI won in 1994	84.27	82.04	5.96	84.27	83.70	1.55
% loc. where PAN won in 1994	1.71	2.06	-2.53	1.71	2.21	-3.58
% loc. where PRI and PAN were in the first two positions	36.06	36.18	-0.26	36.06	35.88	0.37
% loc. where PAN and PRD were in the first two positions	0.15	0.32	-3.62	0.15	0.06	2.70
% loc. where PRI and PRD were in the first two positions	62.10	61.46	1.31	62.10	61.85	0.52

Notes: Constructed by the authors. Sample of localities that in 1995 were classified as having high and very high marginality level and having population sizes between 50 and 2,499 inhabitants. T indicates treatment group. C indicates control group. SD indicates the standardized mean difference. The reweighted sample follows [Abadie \(2005\)](#) method. \* Absolute value of the standardized mean above 10%.

# Balanced covariance matrix across treatment and control localities. Sample 2006

	Original Sample			Reweighted Sample		
	T	C	SD	T	C	SD
Logarithm of population size	5.02	4.77	31.03 *	5.02	5.02	0.22
% females	49.84	49.43	8.93	49.84	49.90	-1.30
% aged 5 or older speaking an indigenous language	20.90	26.36	-14.64 *	20.90	20.37	1.49
% of dwellings without property	22.40	26.34	-18.19 *	22.40	22.14	1.23
% of dwellings with dirt floor	2.97	3.99	-22.93 *	2.97	3.00	-0.73
% of dwellings with one room	13.20	16.69	-21.34 *	13.20	13.16	0.34
% of dwellings that use firewood as a source of energy for cooking	76.74	77.39	-2.20	76.74	75.64	3.78
% of dwellings with sanitary service	50.45	48.62	5.65	50.45	49.83	1.95
% with own housing	89.44	85.81	19.60 *	89.44	89.33	0.74
% of dwellings with radio	67.04	63.70	16.43 *	67.04	67.11	-0.38
% of dwellings with tv	44.41	40.18	12.93 *	44.41	45.06	-2.00
% of dwellings with video	7.07	5.40	17.33 *	7.07	7.05	0.17
% of dwellings with fridge	22.42	17.56	19.51 *	22.42	22.82	-1.55
% of dwellings with washing machine	10.71	8.60	12.60 *	10.71	10.93	-1.31
Marginality Index	0.31	0.52	-25.25 *	0.31	0.31	0.31
Logarithm of average number of person per room	0.99	1.05	-16.67 *	0.99	0.99	-0.15
Distance to the municipal head (Km)	25.79	29.47	-10.56 *	25.79	25.79	0.01
% loc. where PRI won	70.70	69.80	1.98	70.70	70.12	1.29
% loc. where PAN won	14.49	15.79	-3.64	14.49	15.52	-2.89
% loc. where PRI and PAN were in the first two positions	36.09	35.31	1.64	36.09	36.45	-0.76
% loc. where PAN and PRD were in the first two positions	0.79	1.00	-2.24	0.79	0.66	1.54
% loc. where PRI and PRD were in the first two positions	48.99	48.14	1.71	48.99	47.67	2.64

# Data

We use nationally representative data from the following sources:

- ▶ INEGI: Census data for the years 1995, 2000, 2005 y 2010.
- ▶ POP: Administrative records
- ▶ CONAPO: Marginality index
- ▶ INE: Results of presidential elections for the years 1994, 2000, 2006 y 2012.

We faced a similar problem to De la O (2013) and Imai et al. (2016) in merging various data sources. We resorted to digital maps and GPS coordinates and matching algorithms that improve substantially the matching of data from multiple sources



## Some relevant descriptive statistics

**We were able to match 37,198 treatment and control rural localities**, which represents about 20 percent of the total in Mexico.

**POP covered 65% of households living in treated localities**, although the program's influence may have gone well beyond the treated population. [Villa and Niño-Zarazúa \(2014\)](#) have found that about half of the rural population was 'transient' poor, moving in and out of poverty between 2000 and 2012, whereas only 11% were consistently non-poor.

**POP makes a significant income contribution to the rural**, ranging from 40% of household labour income in 2000 to nearly 47% in 2012

# Results from Presidential elections 2000-2012

- ▶ After controlling for observed heterogeneity, the effect of POP on vote share for the incumbent vanished
- ▶ Voter turnout increased by 1.96 percentage points in treated localities, which represents a 2.8%  $\Delta$  with respect to control localities prior to the start of the program.

## Impact of POP on party vote share and voter turnout

### Results from 2000 presidential election

	PRI	PAN	PRD	Voter turnout	PRI-PAN
DD	-2.097 *** (0.312)	-0.399 * (0.226)	2.549 *** (0.250)	2.798 *** (0.255)	-1.698 *** (0.472)
DD w/c	0.093 (0.556)	-1.306 *** (0.502)	1.250 *** (0.435)	2.788 *** (0.603)	1.399 (0.969)
SDD	0.598 (1.071)	-1.350 (1.025)	0.910 (0.594)	1.965 *** (1.001)	1.948 (1.932)
RD	4.158 (16.688)	10.356 (17.006)	-7.536 (15.962)	1.650 (11.096)	6.6229 (23.602)

# Results from Presidential elections 2000-2012

- We find that the average effect of POP on vote shares for the incumbent PAN is consistently negative, with a magnitude of -1.2 percentage points, equivalent to a 5.7%  $\nabla$  with respect to control group localities.

Impact of POP on party vote share and voter turnout					
Results from 2006 presidential election					
	PRI	PAN	PRD	Voter turnout	PAN-PRD
DD	-0.203 (0.448)	-1.213 *** (0.413)	1.314 *** (0.429)	0.539 (0.348)	-2.526 *** (0.719)
DD w/c	0.724 (0.572)	-2.425 *** (0.709)	1.801 *** (0.668)	0.955 (0.645)	-4.225 *** (1.256)
<b>SDD</b>	0.065 (0.443)	-1.196 *** (0.429)	0.993 ** (0.435)	1.024 *** (0.350)	-2.189 *** (0.745)
Results from 2012 presidential election					
	PRI	PAN	PRD	Voter turnout	PAN-PRI
DD	-1.626 * (0.857)	0.860 (0.720)	1.440 ** (0.715)	-0.765 (0.666)	2.487 * (1.405)
DD w/c	-2.461 *** (0.880)	1.765 *** (0.683)	1.182 * (0.686)	0.211 (0.592)	4.226 *** (1.414)
<b>SDD</b>	-2.338 (2.518)	1.853 (2.430)	0.361 (1.024)	0.515 (1.738)	4.191 (4.813)

# Discussion

- ▶ We argue that the 'negative' results for the incumbent PAN in 2006 is the outcome of ex-ante voter expectations about prospective treatment in a context of **campaign externalities**.
- ▶ Transition matrices of vote shares received by the main political parties in the 2006 presidential election show that **PAN gained more votes from PRI and PRD in NPOP localities than in POP ones**, while **PRD gained more votes from PRI in POP localities than in NPOP ones**.
- ▶ Evidence indicate that voters in NPOP (poorer) localities opted for the risky but promising choice, the incumbent PAN, while those in POP communities opted for more conventional ('safer') options, PRI or PRD.

# Discussion

- ▶ Our results seem to be consistent with our theoretical prediction.
- ▶ **The 2000 election offered an ‘obvious’ choice, namely, PRI.** Faced with a safe choice, risk attitudes do not make a difference, hence there is no apparent difference in vote swings between POP and NPOP localities.
- ▶ **In 2006, PRI was the ‘conservative’ choice in rural poor communities, while voting for PAN required very much a leap of faith.** Voters in poorer NPOP control communities were more willing to take that risk than voters in POP communities.
- ▶ **By 2012, all three parties had declared their support for POP. In a way, POP was not ‘on the table’ in that election.** Moreover, while PRI was not the incumbent, it was still the local power-broker in rural communities, and was in the eyes of voters, clearly committed to POP, and the clear front runner and the safe choice.

# Conclusions

- ▶ The promise by the incumbent PAN to distribute POP in control localities, which was executed via **campaigns externalities** seem to be one of the mechanisms explaining our results.
- ▶ In the presence of such externalities, any exercise comparing treated with control localities will just yield a **net electoral effect**, i.e., a direct programme effect minus the indirect effect from externalities. **Without controlling for this mediating factor, we cannot claim the identification of a 'full' causal relationship.**
- ▶ Our results highlight the **potential risks of electoral exploitation of social policies, even in contexts in which programmes operate under clear programmatic principles.** They also underscores the importance of **informing citizens about their rights and entitlements in ways that are widely disseminated across the population.**