Government Transfers and Political Support

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Web Appendix

APPENDIX A: ADDITIONAL FIGURES AND TABLES

Table A1: Human development and democracy in Uruguay and selected countries

	UNDP *Human Development Report 2007*				*The Economist* Intelligence Unit democracy index				
	Human development index	GDP per capita (PPP)	Life expectancy	Gross school enrolment rate	Democracy	Rank	Electoral process	Functioning of government	Political culture
Uruguay	0.852	9,962	75.9	88.9	Full	27	10.00	8.21	6.88
USA	0.951	41,890	77.9	93.3	Full	17	8.75	7.86	8.75
Argentina	0.869	14,280	74.8	89.7	Flawed	54	8.75	5.00	5.63
Brazil	0.800	8,402	71.7	87.5	Flawed	42	9.58	7.86	5.63
Chile	0.867	12,027	78.3	82.9	Flawed	30	9.58	8.93	6.25
Colombia	0.791	7,304	72.3	75.1	Flawed	67	9.17	4.36	4.38
Mexico	0.829	10,751	75.6	75.6	Flawed	53	8.75	6.07	5.00
Venezuela	0.792	6,632	73.2	75.5	Hybrid	93	7.00	3.64	5.00

Notes. Source: UNDP (2007) and The Economist Intelligence Unit (2007).

## Table A2: Description of categorical attitude variables

Variable	Range of values	Question wording (translated from Spanish by the authors)
Supports current government	1 to 3	Compared to previous government is the current government: 1: worse, 2: same, 3: better?
Positive opinion about *PANES*	1 to 5	At a general level how do you feel with respect to *PANES*: 1: very bad, 2: bad, 3: neither good nor bad, 4: good, 5: very good?
Positive opinion about *PE*	1 to 6	At a general level what did you think of the *PANES*/*PE*: 1: very bad, 2: bad, 3: decent, 4: neither good nor bad, 5: good, 6: very good?
Confidence in: President, Minister of Social Development, local councils, political parties, Social Security administration, Parliament	1 to 3	How much confidence do you have in __: 1 little, 2: some, 3: much?
Relative to last year, are social differences higher?	1 to 3	Relative to two years ago, do you think that social differences in Uruguay are: 1: lower, 2: the same, 3: higher?
Assessment of current household / country situation	1 to 5	What is the current situation of your household / the country: 1: very bad, 2: bad, 3: neither bad nor good, 4: good, 5: very good?
Expectation of future household / country situation next year	1 to 5	Next year, do you expect that the situation of your household/ the country will: 1:

worsen very much, 2: worsen, 3: be the same, 4: improve, 5: improve very much?

|		
National pride	1 to 4	How proud are you of being Uruguayan: 1: not at all, 2: little, 3: somewhat, 4: very?
Interest in politics	1 to 4	How interested are you in politics: 1: not at all, 2: not very, 3: somewhat, 4: very?
Hard work pays off in life	1 to 5	Do you believe that through hard work a poor person can make a lot of money: 1: Very much in disagreement, 2: in disagreement, 3: neither in agreement nor in disagreement, 4: in agreement, 5: very much in agreement

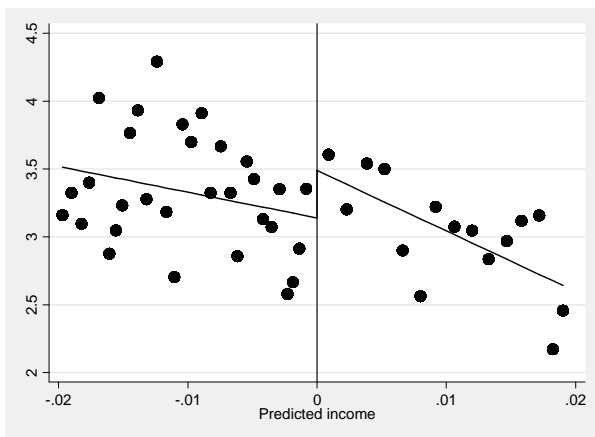# Figure A1*:* Program eligibility and baseline (2005) characteristics
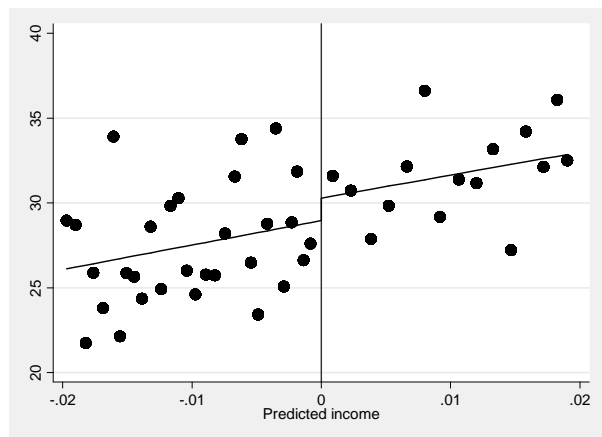
Panel A: Log per-capita income
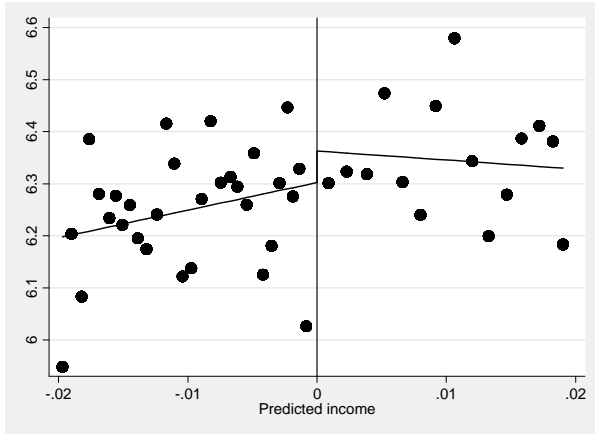
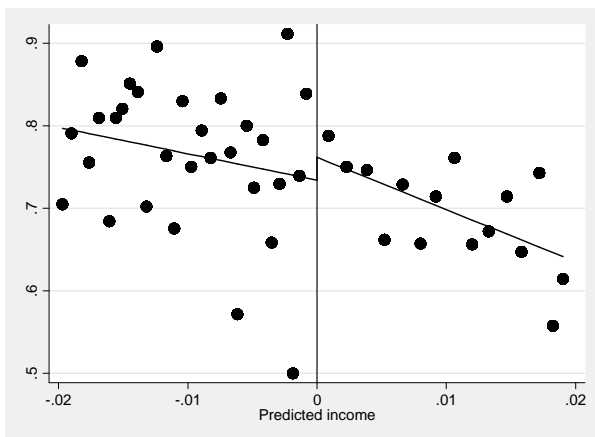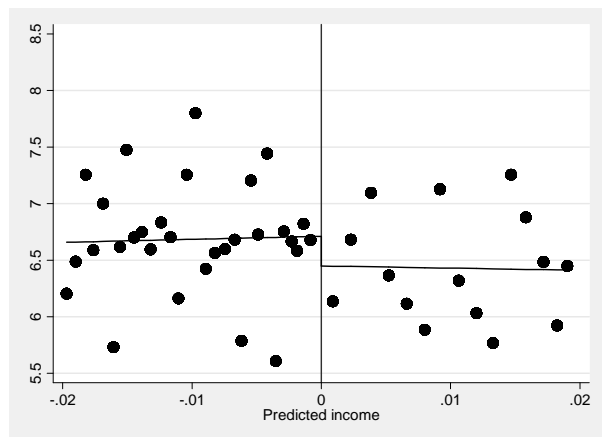Panel B: Household average years of education
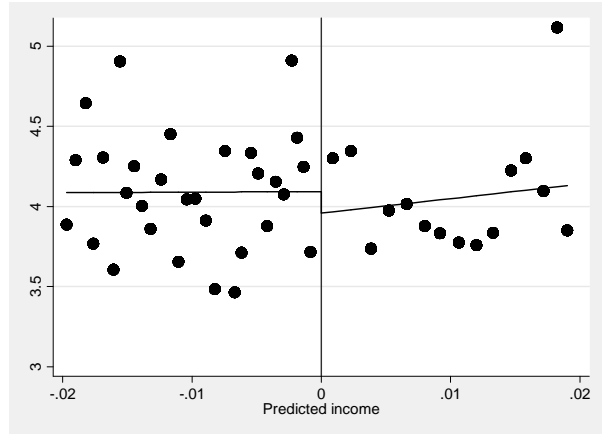
Panel C: Household size

Panel D: Household average age
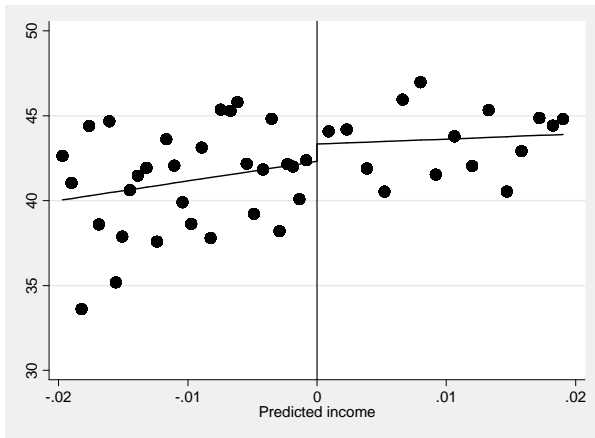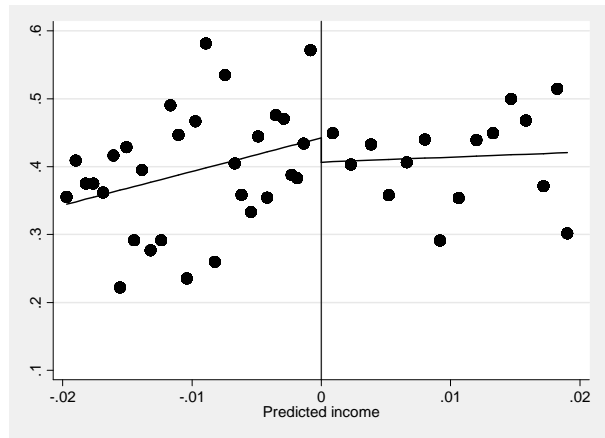

Panel E: Respondent is female

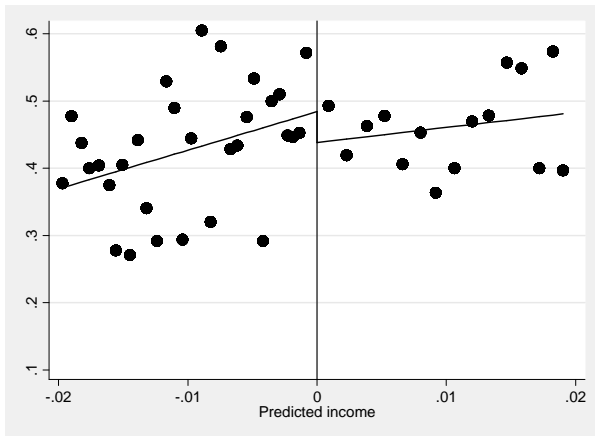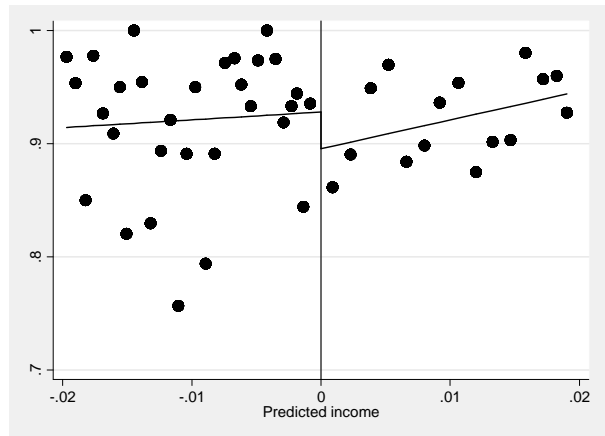Panel F: Respondent years of education

Panel G: Respondent age

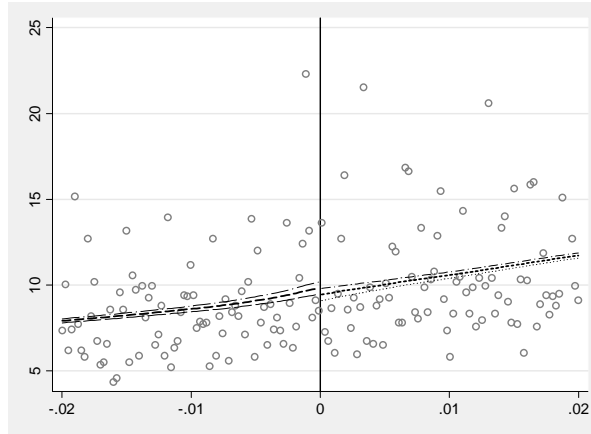Panel H: Non response (2007)

Panel I: Non response (2008)

Panel J: Voted Last Elections

Notes. The graphs report the average value of a number of pre treatment characteristics as a function of the standardized score. See Table 2 in the text for the analogous regression results.

Figure A2: Distribution of the standardized *PANES* eligibility score

Notes. The graph reports the density of the standardized eligibility score for the universe of applicant households in the neighborhood of the discontinuity point (following McCrary 2008a).

APPENDIX B: *PANES* PROGRAM COMPONENTS

The table below presents the probability of ever having received each separate component of the *PANES* program as reported by respondents in the first follow-up survey (2007). Data refer only to households who report having participated in *PANES* at some point. The first row reports the probability of ever having received the main cash transfer (*ingreso ciudadano*), the central element of the program, consisting of a monthly transfer independent of household size initially set at UY$1,360 per month, equivalent to half the monthly minimum wage, and later adjusted upward in nominal terms for inflation. Households in the treatment group received the monthly income provided they were not involved in public works employment (*trabajo por Uruguay*), which paid a monthly salary of UY$2,720 in lieu of the cash transfer. Participation in this employment scheme was voluntary and, among households who applied for jobs, participants

were selected by lottery. Nearly all eligible households declared having received the cash transfer at some point during the program while only a minority (17.6 percent) benefited from public works employment, as shown in row 3.

Row 2 reports the proportion of households receiving the food card (*tarjeta alimentaria*). This was the second central element of *PANES* and covered households with children under age 18 and pregnant women. This was an in-kind transfer that operated through an electronic debit card, whose monthly value varied between UY$300 and US$800 depending on household demographic composition. Purchases could be made in authorized stores. The program covered around 71 percent of eligible households while participation among ineligibles was close to zero.

Around 16 percent of eligible households reported having participated in training and educational activities (*rutas de salida*) intended to foster social "inclusion" by strengthening work habits, promoting knowledge of individual rights and strengthening social ties. These were programs of six months duration implemented by NGOs, neighborhood commissions, and political and trade union organizations for groups of up to 25 participants. While participation for beneficiary households was compulsory in principle, no formal criterion was established regarding which member of the household had to participate, or the content of the training, and row 4 shows clearly that the aim of universal training was far from being achieved.

For simplicity the remaining components of the *PANES* program are collected into an "other" category in the last row of the table. This category includes: regularization of beneficiaries' connection to public utilities networks (water and electricity) for a nominal fee, in-kind transfers of building materials for home improvements; health care including free dental and eye care (e.g., cataract surgery performed in Cuba) and prostheses; micro-finance loans and technical assistance for small entrepreneurial activities; and temporary accommodation for

homeless households. Overall, around 13 percent of beneficiary households reported having received at least one of these additional components. Additional government programs that affected both *PANES* beneficiary and non beneficiary households included additional school teachers in disadvantaged neighborhoods (*maestros comunitarios*) and public health investments.

Table B1: Self-reported *PANES* take-up among beneficiaries, by component (percent)

1.	Citizen Income	96.7
2.	Food card	70.9
3.	Public works employment	17.6
4.	Education and training	16.0
5.	Other components	12.7

APPENDIX C: VOTER LEARNING ABOUT POLITICIAN PREFERENCES: A MODEL AND CALIBRATION

The goal of this subsection is to calibrate parameter values in a standard political economy model to assess whether it provides a reasonable fit to the *PANES* data. The attraction of this approach is that, although transfer levels fell in 2008 for former *PANES* beneficiaries, earlier transfers (from 2005-2007) may leave a legacy of greater government support if voters only partially updated their beliefs about future transfers downwards after the introduction of the *PE*.

The framework we develop, which is related to Drazen and Eslava (2006), assumes asymmetric information between voters and politicians, with imperfect knowledge of politicians' true redistributive preferences across population subgroups, i.e., those of different social classes, different regions, by gender, education, and disability, etc. Politician campaign promises are a

form of cheap talk in the absence of a binding commitment technology, leaving room for uncertainty about these preferences, and thus noisy priors before the *FA* came into power. Voters then learn about politician preferences by observing the targeting of their social group in actual government programs, and update beliefs about politician redistributive preferences according to a standard Bayesian approach. Note that we refer to politician and political party preferences interchangeably in what follows. We leave an extension of this model that distinguishes between individual politician versus party preferences to future research.

The assumption that voters have poor information about the *PANES* targeting criteria is also critical in what follows. Individuals fully informed about the *PANES* targeting rule, who also knew their own predicted income score lay just to the right of the eligibility score threshold, should rationally deduce that their chance of receiving a future government program is effectively the same as a household located just to the left of the threshold. This would lead expected future transfers to be equal for both groups of households, and thus no meaningful difference in incumbent political support looking forward. However, these assumptions about voters' program knowledge seem unrealistic in this context. In the case of *PANES*, the opacity of the program targeting rule, which was not publicly released until the end of the program, means that the observed targeting of the program delivers only an imperfect signal about government preferences. This is true even for households, like those in our analysis, who lie near the program eligibility score threshold (for whom the program inclusion criteria might appear particularly unclear). Note that households were never provided with their predicted income score (the variable used internally for program assignment) and thus do not even know whether they were "close" to the threshold or not. It is also unrealistic for them to derive the formula on their own

through personal observation (of themselves and other households in their social circle, say) given the many different household factors that entered into the predicted income model.

We begin by describing politicians' preferences in the model. The government in power has true preferences over net transfers to socio-demographic subgroup i denoted γ_i. The transfers to each group in an actual government transfer program in period t, g_{it}, yields a noisy signal of this underlying preference parameter: $g_{it} = \gamma_i + \mu_{it}$ where voters' prior belief on the preference parameter is distributed $\gamma_{i0} \sim N(\gamma_i, \sigma_0^2)$, and $\mu_{it} \sim N(0, 1)$. The assumption that $1/\sigma_0 < 1$ implies that prior beliefs are less informative than actual policies in capturing true politician preferences, perhaps due to the cheap talk problem alluded to above.

Bayesian updating by voters implies that voters' expected future transfer after t signals from actual government programs is:

(C1) $$E_t[g_{i,t+1}] = \gamma_{i0}\left(\frac{1/\sigma_0^2}{1/\sigma_0^2 + t}\right) + \left(\sum_{s=1}^{t}\frac{g_{is}}{t}\right)\left(\frac{t}{1/\sigma_0^2 + t}\right)$$

where $E_t[g_{i,t+1}]$ captures expected future transfers at time $t+1$. Given the uncertainty in government targeting criteria and preferences, and voters' only partial information on program design, we assume below that voters use the transfer they personally receive as the signal of government redistributive preferences towards people "like them". Thus while voters are perfectly rational and use standard Bayesian updating, we assume they are operating in an environment with limited information on politician intentions and program implementation.

Expected voter utility from supporting a particular political party is a function of many factors, including voter ideology and a range of time-varying policies beyond transfers. In particular, voter expected utility from supporting the *Frente Amplio* is:

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(C2) $\qquad V_{FA,it} = \pi_{FA,t} + bE_t[g_{i,t+1}] - \varepsilon_{it}$,

where overall population support for the *FA* in period t is captured by $\pi_{FA,t}$, the impact of future

expected transfers targeted to group *i* is $bE_t[g_{i,t+1}]$, and ε_{it} denotes an idiosyncratic determinant of

individual support for the *FA*, for instance from individual political ideology or other life

circumstances, and is assumed to be distributed extreme value to allow for the use of the logit

model. For simplicity, expected utility from supporting the opposition in period *t* is $V_{OP,it} = \pi_{OP,t}$.

We assume individuals vote sincerely, and also sincerely express their voting intentions

on our surveys, convenient assumptions in political economy empirical work. Voter *i* supports

the *FA* when $V_{FA,it} > V_{OP,it}$, or equivalently $a_t + bE_t[g_{i,t+1}] > \varepsilon_{it}$, where $a_t = \pi_{FA,t} - \pi_{OP,t}$. The logit

solution, where the probability of supporting the *FA* government (opposition) is $P_{FA,it}$ ($P_{OP,it}$), is:

(C3) $\qquad \ln(P_{FA,it} / P_{OP,it}) = a_t + bE_t[g_{i,t+1}]$

The empirical calibration is straightforward. We consider three time periods, where *t=0*

corresponds to the pre *PANES* period, *t=1* corresponds to the 2007 survey round (when *PANES*

was still ongoing) and *t=2* is the 2008 follow-up (when *PANES* had already ended). Households

are assumed to receive *i.i.d.* signals about future government transfers in periods *t=1* and *t=2*.

These differ across *PANES* and *PE* program beneficiaries, with the average household transfer at

US$89.50 for *PANES* beneficiaries in *t=1* and zero for non beneficiaries (Table C1), and the

average *PE* transfer is at US$67.00 in *t=2* for both the former *PANES* beneficiaries and non

beneficiaries now enrolled in *PE* (and zero for those not in *PE*), although some former *PANES*

beneficiaries also continue to receive a food card valued at US$19.50 per month. For simplicity,

we assume that all beneficiary households receive the usual cash transfer (US$70.00) plus a food

card corresponding to having two children, of value US$19.50 per month, although results are essentially unchanged with different assumptions.

The quasi-experimental variation in the *PANES* transfer allows us to identify the parameter *b* by comparing *FA* support between *PANES* beneficiaries and non beneficiaries in 2007. The model laid out above implies that this difference in *FA* support is driven by differences in the transfers they expect to receive in the future, which is in turn determined by their past transfer experiences. Further assumptions are needed to pin down these expectations about future transfers and calibrate the model, most importantly on voters' prior beliefs at *t=0* about the transfer they would receive from the *FA* and on the precision of this prior. We assume that both *PANES* beneficiaries and non beneficiaries held a common prior on the government's redistributive preferences towards them, which is reasonable given the similarity of their observed characteristics and the quasi-random assignment of the program near the threshold, and we set this transfer level γ_{i0} to 50 percent of the actual *PANES* transfer, or US$44.75, although results do not depend on this assumption. We also assume that the prior precision is $1/\sigma_0^2 = 0.5$ as our leading case, and discuss robustness to a wider range of precisions, from 0.1 to 0.9. Model parameters are identified based on differences between program beneficiaries and non beneficiaries, and thus to the extent that the prior on transfer levels is the same across the two groups, its precise level is essentially irrelevant for the purposes of the calibration.

To apply the binary logit framework, we group together voters who are indifferent between the *FA* and opposition with opposition supporters (although the results are similar if the indifferent are shifted to the *FA* camp, not shown). This yields a level of predicted support for the *FA* among beneficiaries in 2007 of 0.843 and among non beneficiates of 0.639 (Table C1), i.e. a difference in the log odds ratio of 1.101. Calibrating the model in the case of $1/\sigma_0^2 = 0.5$,

we find that at $t=1$, *PANES* households expect a transfer of US\$61.58 in the next period while

non *PANES* households expect a transfer of US\$14.91, so a difference of US\$46.67. This yields

a parameter estimate of $b = 0.024$ (=1.101/46.67, see Table C1). At time $t=2$, we use this

estimate of b and the actual level of support among non *PANES* beneficiaries in 2008 (57.4

percent) to pin down a_2, and thus to predict *FA* support in 2008 among former *PANES*

beneficiaries. As shown in the bottom row of Table C1, predicted *FA* support is 74.4 percent

using a prior precision of $1/\sigma_0{}^2 = 0.5$, and ranges from 72.5 percent (with precision $1/\sigma_0{}^2 = 0.1$)

to 75.7 percent ($1/\sigma_0{}^2 = 0.9$). These are very similar to the actual *FA* support of 74.6 percent

reported among former *PANES* beneficiaries in the 2008 survey.

Table C1: Voter Learning Model Calibration Results

	FA support	------------ Expected transfer (US$) -----------		
Panel A:	(actual)	$1/\sigma_0^2 = 0.5$	$1/\sigma_0^2 = 0.1$	$1/\sigma_0^2 = 0.9$
PANES beneficiaries, in 2007 (t=1)	0.843	61.6	67.7	58.0
PANES non beneficiaries, in 2007 (t=1)	0.639	14.9	4.1	21.2
Former *PANES* beneficiaries, in 2008 (t=2)	0.746	56.0	58.1	54.4
Former *PANES* non beneficiaries, in 2008 (t=2)	0.574	23.7	19.7	26.6

		-------------Parameter estimates -------------		
Panel B:		$1/\sigma_0^2 = 0.5$	$1/\sigma_0^2 = 0.1$	$1/\sigma_0^2 = 0.9$
Parameter estimates for:				
B		0.024	0.017	0.030
a_1		0.216	0.500	-0.067
a_2		-0.265	-0.045	-0.503

	FA support	-------- Predicted FA support (model) --------		
Panel C:	(actual)	$1/\sigma_0^2 = 0.5$	$1/\sigma_0^2 = 0.1$	$1/\sigma_0^2 = 0.9$
FA support in 2008 (t=2), former *PANES* beneficiaries:	0.746	0.744	0.725	0.757

Notes. The table reports actual and predicted support for the *Frente Amplio* based on the model of Bayesian learning presented in appendix C. The calibration exercise assumes monthly transfer amounts for *PANES* households of US$89.50 in 2007, and US$86.50 in 2008 among *PE* recipients (and zero for non *PE* recipients). For *PANES* non beneficiaries, these values are US$0 in 2007 and US$67.00 in 2008 among *PE* recipients (and zero for non *PE* recipients). The latter is less than $86.50 since they had not yet received the food card. The prior belief on future transfers at time *t=0* is assumed to be half the transfer actually received by *PANES* households at *t*=1. The precision of the prior is denoted by $1/\sigma_0^2$.