Poverty and the Political Economy of Public Education Spending: Evidence from Brazil

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Appendix

(For Online Publication)

1 Brazilian municipalities analysis

Variables used in the regressions

- **Dependent variable** (drawn from the Brazilian Superior Electoral Court database, *TSE*)
  - *Incumbent party reelected* (dummy)
- **Municipality public finance data** (drawn from Ministry of the Economy - *Ministerio da Fazenda/STN* database)
  - *Log of municipality budget*: log of the yearly average level of municipality budget during each term (each yearly variable is in year 2000 prices).
  - *Log of municipal public education spending* : log of the yearly average level of municipal education spending between during each term (each yearly variable is in year 2000 prices).
- **City-level census data** (drawn from 2000 Brazilian census - *IBGE* database)
  - *Log of median income* (year 2000 prices).
- **Characteristics of the incumbent party and incumbent mayor** (drawn from the Brazilian Superior Electoral Court database, *TSE*)
  - *Dummy on whether the current incumbent party was reelected in the previous elections.*
  - *Party dummies.*
  - *Mayors' characteristics: age, schooling level, married dummy, gender.*

2 Main Experiment: Information Shocks and Update of Priors about the Government's Priorities

An important assumption in our analysis is that information shocks reporting increases (decreases) in one type of spending update upwards (downwards) individuals' original perceptions (or priors) about the changes that occurred in that type of spending during the period under consideration. More than that, we would want the shocks to affect individuals' perceptions of the priorities of the state government administration throughout its term as a whole. Specifically, we would want individuals exposed to the *More education, less cash* information shock to associate more the state government administration under consideration with improvements in public education and less with increases in cash transfers, when compared to individuals not exposed to any information shock.

To specifically address these issues in detail, we conducted in 2011 a follow-up survey with 500 subjects.* Those subjects were not a subset of the sample originally interviewed in the main survey. However, both samples were drawn from the same overall population using the same sampling strategy. Yet, one might worry about whether they are in fact comparable. Reassuringly, our evidence suggests that the samples are indeed very similar. The first two columns of Appendix Table A.2 compare the means of the variables measured in the original and follow-up surveys. Only one variable (age) has significantly different means in the two samples. The similarity of the two samples is also true for variables that relate to respondents' perceptions of the functioning of the state government during the 2007-2010 term (such as respondents' perceptions of whether there is more diversion of funds in education spending than in cash transfer spending). To further address the extent to which the samples are comparable, we reproduce the two tables (Appendix Tables A.4 and A.7) for which the dependent variables are present in both surveys, now adding a dummy on whether the respondent was interviewed in the follow-up survey. In both tables, the coefficient on that dummy is always statistically and economically insignificant (results available upon request).

The follow-up survey had two randomized treatment groups: a "control group" (again not

*For a copy of one of the versions of the questionnaire used in the follow-up survey and its English version, see the Supplemental Appendix.

exposed to any information shock on changes in public spending) and an information shocks group (exposed sequentially to the three pieces of information composing the three information shocks from the original survey).[†] They were first exposed to the *More education* information shock, then to the *Less cash* part of the *More education, less cash* information shock, and finally to the *More cash* information shock.[‡]

The survey asked all subjects the following question: *Which one did you think was a bigger priority of the state government throughout the 2007-2010 term? Improving public education or increasing cash transfers?*. In the control group, without any information shocks, 31.7% of subjects indicated improving public education. In the information shock group, after being exposed to the two pieces of information forming the *More education, less cash* information shock (and before being exposed to the *More cash* information shock), 95.2% of subjects reported public education improvements to be a bigger priority of the government administration throughout its term. This means that the pieces of information contained together in the *More education, less cash* information shock in the original survey make respondents associate the government more with improving public education and less with increasing cash transfers.

Since we are interested in measuring how information shocks change respondents' rating of the local government by quartile of income, it is important to also establish how people's priors about the government's priorities are shifted by the shocks at different levels of income. It is reassuring to know that respondents from different income quartiles had similar priors about the priorities, and that the update of priors is also very similar across quartiles. The share of respondents whose priors (i.e., based on the answers from the group that received no information shock) were that the bigger priority was improving public education is 32% in quartile 1, 18% in quartile 2, 34% in quartile 3, and 30% in quartile 4. The increase in these shares after receiving the information shock is of 65 p.p. in quartile 1, 73 p.p in quartile 2, 61 p.p. in quartile 3, and 64 p.p. in quartile 4. It is also important to note that we cannot reject tests of equality of those numbers for all pairwise

[†]The last two columns of Appendix Table A.2 compare the means of the variables in the follow-up survey separately for the control (no information shocks) and treatment groups. With no exceptions, the means are not significantly different in the two groups. This indicates that the randomization was successful.

[‡]All subjects exposed to the shocks reported that they did not previously know the information given to them. For 95.2% of subjects, cash transfers spending was reported to be part of the *Social assistance* category, whereas for only 0.4% of them cash transfers was indicated to be part of the *Public education* category.

comparisons across quartiles, both in the control group (i.e., for the beliefs without the information shocks), and for the treatment effects on priors' updates.[§]

3 Main Experiment: Additional Analyses

We now present extensions of the main analysis of the results of experiment #1.

3.1 The effect of income and the effect of schooling

In our survey, we do not explicitly elicit individuals' beliefs about returns to schooling, but we can have a sense of the importance of individuals' schooling separately from that of income in explaining our findings, by adding interaction terms between the level of schooling of the respondents and each of the treatment indicators. The results are reported in Appendix Table A.6. Our main findings are maintained when we add the additional terms, and the level of schooling of the respondents does not seem to significantly affect the treatment effects. This suggests that household income might be more important than personal education in explaining our findings.[¶]

3.2 Additional interaction effects

To further assess the validity of our findings, we present additional linear interaction effects in Appendix Table A.8.

[§]Respondents in the information shock group were also asked to indicate, after receiving the first two information shocks, which state government administration they believe was responsible for the changes in spending described to them. They were asked to choose between the administration in office between 2003 and 2006 and the one in office between 2007 and 2010. The latter is the one that subjects were asked to rate in the main survey after receiving the shocks. For 97.1% of subjects, the administration in office between 2007 and 2010 was responsible for the changes in spending contained in the information shocks.

[¶]One might also be concerned that the same information shock might be perceived differently by people with different levels of cognitive ability, and that cognitive ability is correlated with income. In particular, low-income and high-income individuals might perceive differently the relative importance of 9% when assessing the meaning of a "9 %-increase" in a type of spending. However, this would imply that the treatment effects would be either amplified or reduced for poor respondents, but not *reversed*. A related concern regards whether respondents with different levels of cognitive abilities make different inferences about the competence of the local government in spending resources efficiently, after they receive an information shock revealing a tradeoff in public spending. To address these issues, the regressions in Appendix Table A.6 are useful, since schooling could be seen as proxy for cognitive ability. Finally, in Appendix Table A.7, which is discussed in the next subsection, we observe that receiving the *More education, less cash* information shock does not affect respondents' perceptions of the relative levels of diversion of funds in public education *versus* cash transfer spending. Moreover, the effects of the information shock on such perceptions do not seem to vary according to the level of income of the respondents; if we add interaction terms between the information shock and different measures of income, the coefficients are highly insignificant, both statistically and economically (results available upon request).

- Perception of amount actually spent on public education versus cash transfers for every R$ 100 allocated to each category of expenditure

A source of concern in interpreting our results could be if low-income subjects believed that there is more diversion of funds in public education than in cash transfers spending by the local government. In this case, our findings would not be capturing differences in preferences between the two types of spending but instead differences in the perception that one type is more likely to yield gains than the other. Our second experiment shuts down this concern by design, since tutoring the perceived probability that tutoring will provided does not vary with the size of the cash transfer. We can also use the data from the first experiment to suggest that perception of actual spending is not a likely source of concern. We first show, in Appendix Table A.7, that poorer people are not more likely to believe that there is more diversion of funds in public education than in cash transfer spending. If anything, poorer people are less likely to believe so.

In addition to that, in Appendix Table A.8, we interact our treatment dummies with an indicator on whether the respondent believes that there is more diversion of funds in public education than in cash transfers spending. As shown in that table, the negative effect (in terms of assessment of the local government) of the *More education, less cash* information shock is stronger for those who think that there is more diversion of funds in public education spending. However, even for those who think that there is more diversion of funds in cash transfers spending, the information shock would have a positive effect for high-income subjects and a negative effect for low-income individuals.

- Children attending public school

An additional source of concern would arise if low-income subjects were not the beneficiaries of public education spending. That does not seem to be the case: the mean level of household income of families with children attending public school is R$ 1,436, significantly lower (at 1%) than the mean level of household income of families with children attending private school, R$ 5,376.

As an additional check, we also interact our treatment dummies with an indicator on whether the respondent has children attending public school. We would expect subjects who have children

in public school to react more positively to that information shock, because they are more likely to benefit directly from increased public education spending. As shown in Appendix Table A.8, the effect of the *More education, less cash* treatment is not significantly different for those with children attending public school, although the sign of the interaction coefficient is indeed positive.

- Beneficiaries of the local conditional cash transfer program

We also analyze how our treatment effects vary according to the whether or not the respondent is a beneficiary of the local conditional cash transfer (CCT) program (called *Bolsa Escola, Vida Melhor*).[‖] In our sample, about 11% of the respondents reported to be current beneficiaries of the program. As shown in Appendix Table A.8, the negative effect (in terms of assessment of the local government) of the *More education, less cash* information shock is significantly stronger for beneficiaries of the CCT program. However, even if we restrict the attention to the non-beneficiaries of the program, the information would have a positive effect for high-income subjects and a negative and effect for low-income individuals. The results from this last set of interactions also suggest that on average respondents seem to associate increases in cash transfer spending as more spending for the current beneficiaries of cash transfer programs, rather than expanding the programs to new beneficiaries.

To further assess our argument, in the follow-up survey, we asked the respondents that reported to be beneficiaries of the local CCT program how they would spend the additional money if the local government increased by R$ 20 (about US$ 12) the amount they receive as transfers. Six options were given to them. The results are as follows: 17.1% reported that they would use the extra money to help pay their bills; 26.8% reported that they would use it to improve their family's standard of consumption/standard of living; 21.9% reported they would use it to pay debts; 19.5% reported that they would spend it to improve the quality of nutrition of their family; 4.9% reported that they would spend it to improve their children's education; and 9.8% reported they would spend it other, unspecified, ways.

[‖] In the program, families with per capita household incomes below a certain threshold receive cash transfers conditional upon school attendance of their children.

Appendix Figures and Tables

Figure A.1: **Share of children aged 7 to 14 enrolled in public schools by quintile of the household per capita income distribution**. Source: 2011 Brazilian National Household Survey (PNAD)

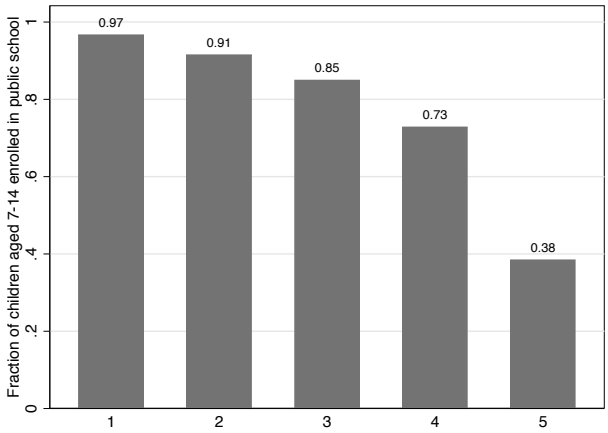


Figure A.2: **Survey Experiment – Treatment effects of the *More education, less cash* information shock by quartiles of the household income distribution.** With 95% confidence interval. Treatment effects estimated without controls (clustering by surveyor).

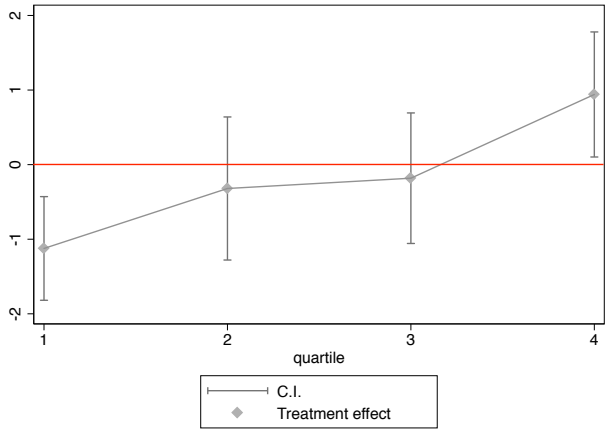


Figure A.3: **Survey Experiment – Treatment effects of the *More education* information shock by quartiles of the household income distribution.** With 95% confidence interval. Treatment effects estimated without controls (clustering by surveyor).

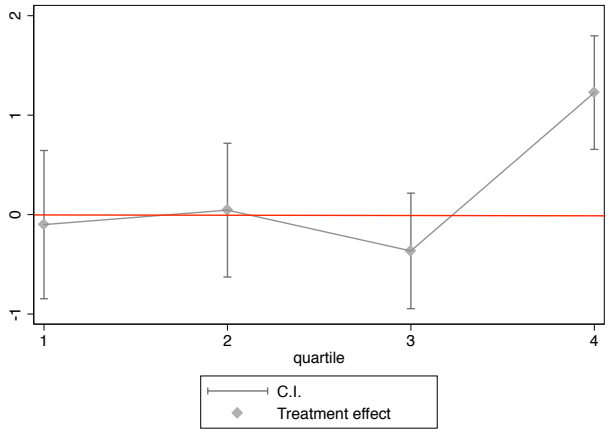


Figure A.4: **Survey Experiment – Treatment effects of the *More cash* information shock by quartiles of the household income distribution.** With 95% confidence interval. Treatment effects estimated without controls (clustering by surveyor).

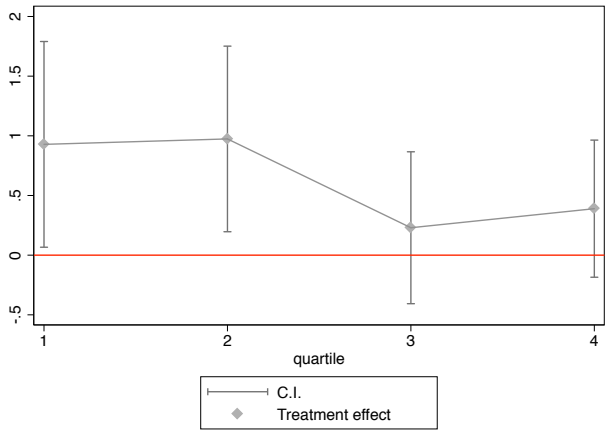
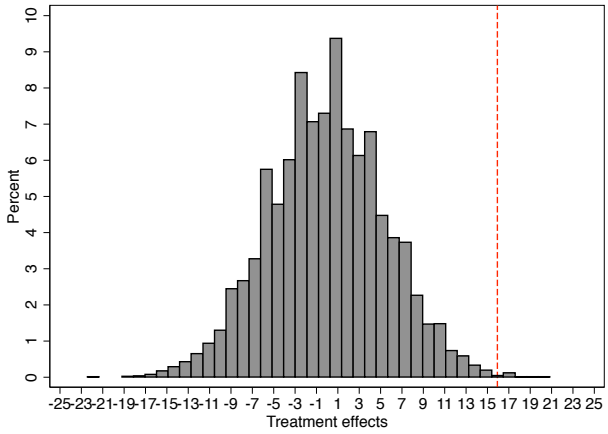


Figure A.5: **Permutation tests for *High income* treatment effects** - 10,000 replications



Notes: The dashed line corresponds to the treatment effects estimated in the paper. We randomly assign "treatment" status to parents in each group of interest, 10,000 times, and calculate a distribution of "treatment effects" based on the random assignment. We then compare the size of the treatment effects we find (using the actual treatment assignment) to the distribution of "treatment effects" when treatment is randomly assigned.

Table A.1: **Summary statistics - Brazilian municipalities analysis**

Panel A: 2004 elections			
Variable	Obs	Mean	Std. Dev.
Municipal characteristics (all prices in year 2000 R$)			
Log of yearly average of total municipal spending during 2001-2004 term	4972	15.63	0.99
Log of yearly average of municipal education spending during 2001-2004 term	4732	14.43	0.99
Municipality median monthly income in 2000	5379	99.33	56.59
Mayors' characteristics:			
Male dummy	5431	0.94	0.23
Married dummy	5432	0.83	0.38
Age	5430	47.73	9.43
Schooling: Reads and writes	5432	0.02	0.14
Schooling: Incomplete primary	5432	0.13	0.34
Schooling: Complete primary	5432	0.10	0.30
Schooling: Incomplete secondary	5432	0.05	0.22
Schooling: Complete secondary	5432	0.23	0.42
Schooling: Incomplete tertiary	5432	0.07	0.25
Schooling: Complete tertiary	5432	0.38	0.49

Panel B: 2008 elections			
Variable	Obs	Mean	Std. Dev.
Municipal characteristics (all prices in year 2000 R$)			
Log of yearly average of total municipal spending during 2005-2008 term	4559	15.97	1.01
Log of yearly average of municipal education spending during 2005-2008 term	4549	14.72	1.05
Municipality median monthly income in 2000 (year 2000 R$)	5379	99.33	56.59
Mayors' characteristics:			
Male dummy	5394	0.93	0.26
Married dummy	5432	0.80	0.40
Age	5426	47.39	9.69
Schooling: Reads and writes	5395	0.02	0.13
Schooling: Incomplete primary	5395	0.12	0.32
Schooling: Complete primary	5395	0.07	0.26
Schooling: Incomplete secondary	5395	0.04	0.20
Schooling: Complete secondary	5395	0.26	0.44
Schooling: Incomplete tertiary	5395	0.07	0.25
Schooling: Complete tertiary	5395	0.41	0.49

See Appendix 1 for a description of all variables.

Table A.2: **Means of observables in the original survey, the follow-up survey, and in the control and treatment groups of the follow-up survey**

	Original survey	Follow-up survey	No-shock group	Info. shocks group
	N=2003	N=500	N=250	N=250
Male respondent	0.502	0.510	0.504	0.516
	[0.500]	[0.500]	[0.501]	[0.501]
Age	37.026	34.745***	34.766	34.724
	[12.767]	[13.739]	[13.777]	[13.729]
Years of schooling	9.476	9.78	9.712	9.848
	[4.035]	[3.732]	[3.733]	[3.737]
Single	0.461	0.478	0.468	0.488
	[0.499]	[0.500]	[0.500]	[0.501]
Married	0.426	0.438	0.440	0.436
	[0.495]	[0.497]	[0.497]	[0.497]
Divorced	0.052	0.064	0.072	0.056
	[0.223]	[0.245]	[0.259]	[0.230]
Personal income	1640.442	1700.704	1647.220	1754.187
	[2355.173]	[2430.96]	[2593.117]	[2261.828]
Household income	2799.135	2960.613	2932.395	2989.422
	[3962.914]	[3620.504]	[3982.486]	[3219.519]
Number of children	1.737	1.817	1.923	1.711
	[1.736]	[1.502]	[1.532]	[1.466]
Has a child in public school?	0.352	0.340	0.336	0.344
	[.478]	[0.474]	[0.473]	[.476]
Education priority over cash transfers	0.843	0.826	0.824	0.827
	[0.364]	[0.380]	[.382]	[0.379]
More diversion in education spending	0.343	0.317	0.338	0.297
	[0.475]	[0.466]	[.474]	[0.458]

We display the means across treatments of the covariates used in the main regressions. We perform t-tests of equality in means, comparing the means of each variable in the original and follow-up samples (columns 1 and 2) and in the control and treatment groups of the follow-up survey (columns 3 and 4). Standard deviations in brackets. *** 1% significant difference (for the mean in the follow-up survey when compared to the mean in the original survey). We converted personal and household income measures in the follow-up survey to August 2009 Reais using the Brazilian official inflation index (IPCA).

Table A.3: **Summary statistics and balance of observables – Survey experiment**

	Control	More education	More education, less cash	More cash	p-value of test (1)=(2)=(3)=(4)
	(1)	(2)	(3)	(4)	
	N=501	N=504	N=497	N=501	
Male respondent	0.492	0.501	0.519	0.495	0.83
	[0.500]	[0.500]	[0.500]	[0.500]	
Age	36.732	37.396	36.293	37.672	0.33
	[12.471]	[13.000]	[12.556]	[13.023]	
Years of schooling	9.506	9.347	9.430	9.618	0.74
	[4.100]	[4.069]	[4.013]	[3.962]	
Single	0.465	0.446	0.451	0.483	0.65
	[0.499]	[0.446]	[0.451]	[0.483]	
Married	0.397	0.452	0.457	0.399	0.09
	[0.490]	[0.499]	[0.499]	[0.490]	
Divorced	0.068	0.044	0.046	0.052	0.37
	[0.252]	[0.205]	[0.211]	[0.222]	
Personal income	1572.848	1594.168	1737.778	1655.317	0.76
	[2099.589]	[2113.016]	[2834.269]	[2288.894]	
Household income	2723.119	2872.905	2758.789	2842.269	0.94
	[2723.119]	[2872.905]	[2758.789]	[2842.269]	
Number of children	1.737	1.827	1.636	1.746	0.38
	[1.699]	[1.827]	[1.636]	[1.746]	
Child in public school?	0.375	0.359	0.340	0.333	0.5
	[0.485]	[0.480]	[0.474]	[0.472]	

We display the means across treatments of the covariates used in the main regressions. We perform F-tests of equality in means across all four groups. Standard deviations in brackets.

Table A.4: **What is more important for the government to achieve: improving public education or increasing cash transfers? (OLS regressions)**

Dependent variable - dummy variable: *improving public education is more important than increasing cash transfers*			
	[1]	[2]	[3]
Log household income	0.084***		
	[0.011]		
Log personal income		0.076***	
		[0.011]	
Quartile 2 of household income			0.163***
			[0.031]
Quartile 3 of household income			0.261***
			[0.036]
Quartile 4 of household income			0.254***
			[0.033]
Years of schooling	0.005**	0.006**	0.004**
	[0.002]	[0.002]	[0.002]
Male indicator	0.019	0.011	0.007
	[0.021]	[0.019]	[0.020]
Age	0.006*	0.004	0.007**
	[0.003]	[0.003]	[0.003]
More education treatment dummy	0.000	0.000	-0.002
	[0.014]	[0.016]	[0.012]
More education, less cash treatment dummy	0.018	0.010	0.022
	[0.016]	[0.017]	[0.015]
More cash treatment dummy	0.026	0.022	0.023
	[0.018]	[0.019]	[0.018]
Number of children	-0.008	-0.008	-0.006
	[0.008]	[0.007]	[0.008]
Child in public school dummy	0.003	0.003	-0.013
	[0.021]	[0.021]	[0.022]
Beneficiary of local CCT program dummy	-0.070	-0.082**	-0.057
	[0.042]	[0.037]	[0.042]
More diversion in education spending dummy	-0.058***	-0.057***	-0.051***
	[0.016]	[0.015]	[0.016]
Observations	1632	1632	1632
R-squared	0.18	0.17	0.20
Mean of dependent variable (Last column refers to mean in quartile 1)	0.832	0.832	0.617

Robust standard errors (clustered by surveyor) in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Additional controls: marital status dummies, age squared, district and surveyor fixed effects (all columns); zero household income and missing household income dummies (column 1); zero personal income and missing personal income dummies (column 2); missing household income dummy (columns 3 and 4).

Table A.5: **Information shocks and rating of the local government (0-10 grade). (OLS regressions with no additional covariates)**

	Used measure of income:			
Dependent variable: *0-10 grade given to state government*	Log of household income [1]	Log of personal income [2]	Dummy: quartile 1 of household income [3]	Dummy: household income below median [4]
More education treatment dummy	-4.927**	-4.532**	0.422*	0.588**
	[1.649]	[1.832]	[0.232]	[0.242]
More education, less cash treatment dummy	-6.497***	-8.172 ***	0.245	0.528**
	[1.087]	[1.783]	[0.242]	[0.226]
More cash treatment dummy	2.567*	3.937**	0.435*	0.231
	[1.307]	[1.749]	[0.219]	[0.242]
Log household income	0.179			
	[0.207]			
Log personal income		-0.012		
		[0.235]		
Quartile 1 of household income			-0.041	
			[0.423]	
Household income below median				-0.542*
				[0.305]
More education*measure of income	0.702***	0.674**	-0.523	-0.653**
	[0.224]	[0.260]	[0.469]	[0.266]
More education, less cash*measure of income	0.864***	1.118***	-1.368***	-1.286***
	[0.128]	[0.242]	[0.361]	[0.272]
More cash*measure of income	-0.275	-0.469	0.494	0.675
	[0.162]	[0.241]	[0.439]	[0.401]
Observations	1,998	1,998	1,998	1,998
R-squared	0.066	0.052	0.030	0.049
Mean of dependent variable in control group			5.734	

Robust standard errors (clustered by surveyor) in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%
Additional controls: zero household income and missing household income dummies (column 1); zero personal income and missing personal income dummies (column 2); missing household income dummy (columns 3 and 4).

Table A.6: **Information shocks and assessment of the local government, adding interaction terms between treatment dummies and respondents' schooling levels (OLS regressions)**

	Used measure of income:			
Dependent variable:	Log of household	Log of personal	Dummy: quartile 1 of	Dummy: household
0-10 grade given to state government	income	income	household income	income below median
	[1]	[2]	[3]	[4]
More education treatment dummy	-4.398**	-4.141**	0.850	1.139
	[1.461]**	[1.693]**	[0.786]	[0.729]
More education, less cash treatment dummy	-5.315***	-7.296***	-0.709	-0.340
	[1.241]***	[1.638]***	[0.951]	[0.811]
More cash treatment dummy	3.604**	4.868***	0.652	0.254
	[1.386]**	[1.524]***	[0.667]	[0.690]
Log household income	0.120			
	[0.210]			
Log personal income		-0.117		
		[0.249]		
Quartile 1 of household income			-0.039	
			[0.459]	
Household income below median				-0.551*
				[0.281]*
More education×measure of income	0.756***	0.7167**	-0.568	-0.698**
	[0.214]***	[0.259]**	[0.474]	[0.244]**
More education, less cash×measure of income	0.625***	0.925***	-0.872	-0.934**
	[0.198]***	[0.253]***	[0.586]	[0.350]**
More cash×measure of income	-0.422**	-0.620**	0.656	0.829*
	[0.180]**	[0.206]**	[0.461]	[0.410]*
Years of schooling	0.029	0.039	0.030	0.021
	[0.055]	[0.055]	[0.055]	[0.054]
More education×Years of schooling	-0.099	-0.075	-0.044	-0.056
	[0.063]	[0.063]	[0.069]	[0.064]
More education, less cash×Years of schooling	0.067	0.057	0.094	0.081
	[0.071]	[0.065]	[0.075]	[0.065]
More cash×Years of schooling	0.010	0.018	-0.021	-0.004
	[0.049]	[0.055]	[0.051]	[0.050]
Male indicator	-0.150	-0.159	-0.136	-0.176
	[0.157]	[0.160]	[0.154]	[0.153]
Age	-0.053*	-0.041	-0.043	-0.050
	[0.029]*	[0.032]	[0.030]	[0.030]
Number of children	-0.004	-0.017	-0.005	-0.005
	[0.059]	[0.059]	[0.063]	[0.059]
Child in public school dummy	0.263	0.221	0.192	0.231
	[0.177]	[0.161]	[0.156]	[0.166]
Beneficiary of local CCT program dummy	0.605**	0.529	0.486	0.551
	[0.217]**	[0.196]**	[0.215]**	[0.220]**
More diversion in education spending dummy	0.172	0.197	0.221	0.195
	[0.138]	[0.145]	[0.145]	[0.141]
Observations	1,875	1,875	1,875	1,875
R-squared	0.11	0.11	0.09	0.10
Mean of dependent variable in control group			5.734	

Robust standard errors (clustered by surveyor) in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Additional controls: marital status dummies, age squared, district and surveyor fixed effects, dummy equal to one if respondent believes cash transfers are not part of social assistance spending (all columns); zero household income and missing household income dummies, and their interactions with treatment dummies (column 1); zero personal income and missing personal income dummies, and their interactions with treatment dummies (column 2); missing household income dummy and its interaction with treatment dummies (columns 3 and 4).

Table A.7: **In which category of spending do you believe there is more diversion of funds: public education or cash transfers? (OLS regressions)**

Dependent variable - dummy variable: *there is more diversion of funds in public education than in cash transfer spending*			
	[1]	[2]	[3]
Log household income	0.037***		
	[0.011]		
Log personal income		0.006	
		[0.007]	
Quartile 2 of household income			-0.010
			[0.030]
Quartile 3 of household income			0.011
			[0.035]
Quartile 4 of household income			0.092***
			[0.022]
Years of schooling	-0.007***	-0.006**	-0.007***
	[0.002]	[0.002]	[0.002]
Male dummy	-0.011	-0.013	-0.008
	[0.015]	[0.015]	[0.016]
Age	-0.003	-0.003	-0.003
	[0.005]	[0.004]	[0.005]
More education treatment dummy	0.036	0.036	0.036
	[0.032]	[0.031]	[0.032]
More education, less cash treatment dummy	0.003	0.002	0.002
	[0.031]	[0.032]	[0.032]
More cash treatment dummy	0.013	0.012	0.015
	[0.028]	[0.027]	[0.028]
Number of children	0.001	0.001	0.000
	[0.011]	[0.011]	[0.011]
Child in public school dummy	-0.017	-0.021	-0.012
	[0.028]	[0.028]	[0.025]
Beneficiary of local CCT program dummy	0.144***	0.136***	0.140***
	[0.034]	[0.033]	[0.034]
Observations	1,875	1,875	1,875
R-squared	0.17	0.17	0.17
Mean of dependent variable (Last column refers to mean in quartile 1)	0.343	0.343	0.333

Robust standard errors (clustered by surveyor) in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Additional controls: marital status dummies, age squared, district and surveyor fixed effects (all columns); zero household income and missing household income dummies (column 1); zero personal income and missing personal income dummies (column 2); missing household income dummy (column 3). The dependent variable is a dummy variable equal to one if the subject responded that his/her perception of the amount actually spent in improving public education for every R$100 allocated by the local government to public education spending is less than his/her perception of the amount actually spent in increasing cash transfers for every R$100 allocated by the local government to cash transfer spending.

Table A.8: **Information shocks and assessment of the local government - Additional interaction effects (OLS regressions)**

	Used measure of income:			
Dependent variable:	Log of household	Log of personal	Dummy: quartile 1 of	Dummy: household
0-10 grade given to state government	income	income	household income	income below median
	[1]	[2]	[3]	[4]
More education treatment dummy	-4.219*	-3.707	0.413	0.496
	[1.956]	[2.154]	[0.378]	[0.354]
More education, less cash treatment dummy	-4.677**	-6.543***	0.429	0.652*
	[1.767]	[2.124]	[0.327]	[0.304]
More cash treatment dummy	3.561**	4.945**	0.408*	0.196
	[1.453]	[1.733]	[0.226]	[0.267]
Log household income	0.220			
	[0.193]			
Log personal income		-0.079		
		[0.238]		
Quartile 1 of household income			-0.080	
			[0.411]	
Household income below median				-0.613**
				[0.280]
More educ×measure of income	0.594**	0.551*	-0.360	-0.470*
	[0.243]	[0.286]	[0.438]	[0.262]
More educ, less cash×measure of income	0.646***	0.915***	-0.876	-0.954**
	[0.201]	[0.272]	[0.524]	[0.389]
More cash×measure of income	-0.402**	-0.599**	0.662	0.833**
	[0.178]	[0.235]	[0.428]	[0.368]
More diversion in education spending dummy	0.329	0.379*	0.348	0.329
	[0.191]	[0.200]	[0.203]	[0.203]
More education, less cash×more diversion in educ.	-0.381	-0.359	-0.304	-0.366
	[0.279]	[0.276]	[0.287]	[0.284]
Child in public school dummy	-0.044	-0.049	-0.021	-0.023
	[0.384]	[0.354]	[0.347]	[0.347]
More education, less cash×child in public school	0.380	0.375	0.116	0.258
	[0.432]	[0.379]	[0.362]	[0.419]
Beneficiary of local CCT program dummy	1.318**	1.251**	1.310**	1.384**
	[0.490]	[0.518]	[0.503]	[0.500]
More education, less cash×CCT recipient	-1.663*	-1.628*	-1.810*	-1.797**
	[0.768]	[0.783]	[0.841]	[0.813]
Observations	1,875	1,875	1,875	1,875
R-squared	0.11	0.11	0.09	0.1
Mean of dependent variable in control group			5.734	

Robust standard errors (clustered by surveyor) in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Additional controls: marital status dummies, age squared, district and surveyor fixed effects, dummy equal to one if respondent believes cash transfers are not part of social assistance spending (all columns), years of schooling, male dummy, age, number of children, zero household income and missing household income dummies, and their interactions with treatment dummies (column 1), zero personal income and missing personal income dummies, and their interactions with treatment dummies (column 2), missing household income dummy and its interaction with treatment dummies (columns 3 and 4), interaction of *More education* treatment dummy and of *More cash* treatment dummy with *More diversion in education spending* dummy, with *Child in public school* dummy, with and *Beneficiary of local CCT program* dummy.

Table A.9: **Summary statistics and balance of observables – Revealed preference experiment**

	Low income treatment N=39	High income treatment N=41	p-value of test of equality
Child's grade in school	4.28	4.24	0.7
	[0.46]	[0.43]	
Child's age	11.62	11.83	0.17
	[0.59]	[0.77]	
Male child dummy	0.59	0.46	0.26
	[0.5]	[0.5]	
Parent's age	33.33	35.07	0.26
	[6.75]	[6.94]	
Male parent dummy	0.38	0.44	0.63
	[0.49]	[0.5]	
Parent's years of schooling	6.56	6.32	0.73
	[0.53]	[0.47]	
# of children in the HH	3.05	2.95	0.76
	[1.39]	[1.53]	
# of days of classed missed last 2 months	1.87	1.63	0.7
	[2.85]	[2.61]	
# of grades child has failed	0.31	0.32	0.94
	[0.52]	[0.52]	
CCT beneficiary dummy	0.92	0.85	0.33
	[0.27]	[0.36]	
Log HH income	6.73	6.71	0.78
	[0.35]	[0.37]	
Employed parent	0.59	0.71	0.28
	[0.5]	[0.46]	
Catholic parent	0.51	0.51	0.99
	[0.51]	[0.51]	
Protestant parent	0.44	0.41	0.85
	[0.5]	[0.5]	
Married parent	0.56	0.51	0.65
	[0.5]	[0.51]	
Single parent	0.38	0.27	0.27
	[0.49]	[0.45]	
Separated parent	0.03	0.15	0.06
	[0.16]	[0.36]	
Divorced parent	0.03	0.07	0.34
	[0.16]	[0.26]	
Black parent	0.26	0.32	0.55
	[0.44]	[0.47]	
White parent	0.13	0.07	0.86
	[0.34]	[0.26]	
Mixed race parent	0.59	0.61	0.42
	[0.5]	[0.49]	

We present the sample means and standard deviations (in brackets) of observables. We perform t-tests of equality in means in the two treatment conditions.

Table A.10: ***High income* treatment effects on WTP for school tutoring** - OLS regressions

Dependent variable: WTP for tutoring			
	[1]	[2]	[3]
High income treatment dummy	15.929***	16.196***	15.335***
	[2.909]	[2.909]	[2.794]
High stakes dummy		-0.067	0.122
		[2.763]	[3.095]
Log of HH income		40.653***	41.076***
		[5.714]	[6.218]
Individual and household covariates	No	Yes	Yes
Surveyor dummies	No	No	Yes
Observations	80	80	80
R-squared	0.107	0.660	0.689
Mean of dep. variable in *Low income* group		23.461	

Robust standard errors (clustered by surveyor) in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. The specification in column 2 includes the following covariates: male indicator (parent and child), age (parent and child), employed parent indicator, religion dummies, parent's marital status dummies, schooling (parent and child), number of children in the household, dummy on whether the household has been receiving conditional cash transfers from the government, parent's race dummies, number of days the child missed class in the last two months, number of grades the child has already failed. In column 3, we additionally includes surveyor dummies.

4 Experimental Documentation

We enclose here an English version of the questionnaires used by the surveyors for the *More education, less cash* treatment and the follow-up survey (experiment #1), and for the *Low income* treatment group with 25% stakes (experiment #2) Then we we enclose a picture of the implementation of experiment #2 and a picture of a tutoring session.

TRANSLATED VERSION OF QUESTIONNAIRE 2
(*MORE EDUCATION, LESS CASH* INFORMATION SHOCK)

Opinion Survey
Questionnaire 2

Name of surveyor: _____Date: _____ Time of interview:_____
Good morning! Good afternoon! My name is…. I am a surveyor. We are doing a survey with the population of the Federal District.

First part: Information about respondent:

Complete name of respondent: _____
Respondent's phone numbers: _____
Complete address: _____

A. City of residence of interviewee: _____
B. Sex: 1( ) Male 2( ) Female
C. Age: _____
D. What is your level of schooling?
    1. Illiterate
    2. Just reads and writes
    3. Incomplete primary
    4. Complete primary
    5. Incomplete secondary
    6. Complete secondary
    7. Incomplete undergraduate
    8. Complete undergraduate
    0. Does not know/no answer
E. What is your marital status?
    1. Single
    2. Married
    3. Separated/Divorced
    4. Widow(er)
    5. Does not know/no answer
F. Could you tell me your monthly personal income? _____ In R$
    1. Does not earn personal income
    2. Does not know/no answer
G. Could you tell me your monthly family income? (Your household income) _____In R$
    1. Does not earn personal income
    2. Does not know/no answer
H. Could you tell me your exact schooling level?
    0. None

1. First grade/primary
2. Second grade/primary
3. Third grade/primary
4. Fourth grade/primary
5. Fifth grade/primary
6. Sixth grade/primary
7. Seventh grade/primary
8. Eight grade/primary
9. First grade/secondary
10. Second grade/secondary
11. Third grade/secondary
12. Incomplete undergraduate
13. Complete undergraduate
14. Post-graduate
99. Does not know/no answer

Second part:

1. How many children do you have?
   99. Does not know/no answer
2. How many of them go to school?
   99. Does not know/no answer
3. How many of them study at a public school?
   99. Does not know/no answer
4. Does your family receive conditional cash transfers from the Government of the Federal District? (*Renda Minha ou Bolsa-Escola, Vida Melhor* program)
   1. Yes
   2. No
   3. Does not know/no answer
5. If the respondent answered "yes" to the question above, please continue with the next two questions. If not, skip both and go directly to question 7 (and mark "0" on the next two questions).
   Would you switch from your transfer (*Renda Minha ou Bolsa-Escola, Vida Melhor*) to a transfer of equal amount, but which were paid independently of your child attending school?
   1. Yes
   2. No
   0.
6. Would you switch from your transfer (*Renda Minha ou Bolsa-Escola, Vida Melhor*) to a transfer that paid R$ more, but which were paid independently of your child attending school?
   1. Yes
   2. No
   0.
7. Which of the following categories of public spending do you believe cash transfer spending is part of?
   1. Public education

2. Social assistance
3. Other category/categories
4. Does not know/no answer

8. Did you know that, compared to 2006, the state (Arruda) government increased in 2007 the share of total public expenditures allocated to public education by 9% but reduced the share allocated to social assistance by 9%?
    1. Yes
    2. No
9. From 0 to 10, what grade would you give to the Arruda government until now? ____
    99. Does not know/no answer
10. *In the next two questions, in case the respondent says he/she does not know the answer or does not want to answer the question, please mark "0".*
    What is more important for the state government to achieve? (Please choose one of them)
    1. Improve public education
    2. Increase cash transfers
    0.
11. Which of the following two numbers do you believe to be greater?
    1. The amount actually spent in improving public education for every R$ 100 allocated by the local government to public education spending
    2. The amount actually spent in increasing cash transfers for every R$ 100 allocated by the local government to cash transfer spending.
    0.

Thank you for your participation!

TRANSLATED VERSION OF QUESTIONNAIRE 2 FROM FOLLOW-UP SURVEY
(INFORMATION SHOCKS TREATMENT GROUP)
(QUESTIONS IN BOLD WERE NOT ASKED IN THE CONTROL GROUP)

Opinion Survey
Questionnaire 2

Name of surveyor: _____Date: _____ Time of interview:_____
Good morning! Good afternoon! My name is…. I am a surveyor. We are doing a survey with the population of the Federal District.

First part: Information about respondent:

A. Administrative region of residence of interviewee:_____
B. Sex: 1( ) Male 2( ) Female
C. Age: _____
D. What is your level of schooling?
    1. Illiterate
    2. Just reads and writes
    3. Incomplete primary
    4. Complete primary
    5. Incomplete secondary
    6. Complete secondary
    7. Incomplete undergraduate
    8. Complete undergraduate
    0. Does not know/no answer
E. What is your marital status?
    1. Single
    2. Married
    3. Separated/Divorced
    4. Widow(er)
    5. Does not know/no answer
F. Could you tell me your monthly personal income? _____ In R$
    1. Does not earn personal income
    2. Does not know/no answer
G. Could you tell me your monthly family income? (Your household income) _____In R$
    1. Does not earn personal income
    2. Does not know/no answer
H. Could you tell me your exact schooling level?
    0. None
    1. First grade/primary
    2. Second grade/primary
    3. Third grade/primary
    4. Fourth grade/primary
    5. Fifth grade/primary

6. Sixth grade/primary
7. Seventh grade/primary
8. Eight grade/primary
9. First grade/secondary
10. Second grade/secondary
11. Third grade/secondary
12. Incomplete undergraduate
13. Complete undergraduate
14. Post-graduate
99. Does not know/no answer

Second part:

1. How many children do you have?
   99. Does not know/no answer
2. How many of them go to school?
   99. Does not know/no answer
3. How many of them study at a public school?
   99. Does not know/no answer
4. Does your family receive conditional cash transfers from the Government of the Federal District? (*Bolsa-Escola* program)
   1. Yes
   2. No
   3. Does not know/no answer
5. If the respondent answered "yes" to the question above (4), please continue with the next questions. If not, go directly to question 6 (and mark "99" on question 5).
   If the Distrito Federal government (GDF) increased the your monthly transfer by R$ 20, which one of these would be your priority to spend the additional amount?
   1. Help pay your family bills
   2. Improve the standard of consumption/standard of living of your family
   3. Pay debts
   4. Improve the nutrition of your family
   5. Invest in the improvement of your child's education
   6. Other forms of spending
6. Which of the following categories of public spending do you believe cash transfer spending is part of?
   1. Public education
   2. Social assistance
   3. Other category/categories
   4. Does not know/no answer
7. **Did you know that, compared to 2006, the state (Arruda) government increased in 2007 the share of total public expenditures allocated to public education by 9%?**
   1. **Yes**
   2. **No**
8. **Before I had read that information, had you ever thought that the increase in the share of total public expenditures allocated to public education during the**

period described above in the Arruda government had been of 9% or more than 9%?

1. **Yes**
2. **No**

9. **Did you know that, compared to 2006, the state (Arruda) government reduced in 2007 the share of total public expenditures allocated to social assistance by 9%?**
    1. **Yes**
    2. **No**
10. **Before I had read that information, had you ever thought that the reduction in the share of total public expenditures allocated to social assistance during the period described above in the Arruda government had been of 9% or more than 9%?**
    1. **Yes**
    2. **No**
11. Which one did you think was a bigger priority of the Arruda government throughout its tenure (2007-2010)?
    1. Improving public education
    2. Increasing cash transfers
12. **Which state government administration do you think was responsible for the spending changes described above? (Please choose one of the two options below).**
    1. **The Arruda administration**
    2. **The state government administration prior to Arruda's**
13. *In the next two questions, in case the respondent says he/she does not know the answer or does not want to answer the question, please mark "0".*
    What is more important for the state government to achieve? (Please choose one of them)
    1. Improve public education
    2. Increase cash transfers
    0.
14. Which of the following two numbers do you believe was greater during Arruda's administration? (Please choose one of the two options below)
    1. The amount actually spent in improving public education for every R$ 100 allocated by the Arruda government administration to public education spending
    2. The amount actually spent in increasing cash transfers for every R$ 100 allocated by the Arruda government administration to cash transfer spending.
    0.
15. **Did you know that compared to the first year in the previous state government, the Arruda state government increased in its first year the share of total public expenditures allocated to social assistance from 1.3% to 3.1%?**
    1. **Yes**
    2. **No**
16. **Before I had read that information, had you ever thought that the increase in the share of total public expenditures allocated to social assistance during the period described right above in the Arruda government had been equal or greater than the one I just read to you?**

1. **Yes**
2. **No**

Thank you for your participation!

ENGLISH VERSION OF THE QUESTIONNAIRE
(*LOW INCOME* TREATMENT AND LOWER STAKES VERSION)

Welcome
Thank you for participating in our study.
This study is conducted in cooperation between a researcher from the University of California, Los Angeles, and ANDI (News Agency for Children's Rights).
We will ask you questions.
Please do not talk to anyone besides the researchers. We also ask you to turn off your cell phone.
We will have to ask you to leave in case you do not accept these rules.
Thank you for showing up.

Today it will be asked that you answer a few questions. Your participation will last for about 20 minutes. If you have any questions, please raise your hand and one of our researchers will help you.
Your participation is purely voluntary, and you may leave anytime you wish, without any penalties.
I have read the description of this study, my doubts have been cleared, and I want to participate.

Questions about this study should be directed to Leonardo Bursztyn, bursztyn@ucla.edu.

Name of surveyor:

What is your name?

Thanks for participating. We will now offer you the chance to earn different types of benefits.

1. **The first benefit is a monthly payment to you and your family for the next two months (November and December 2012). Nothing is required to receive the money.**

2. **The second benefit will depend on what you choose next. We will offer you 17 choices between more money payments and free, after-school tutoring for your child, both for the next two months as well. We will ask you to tell what you prefer for every one of these 17 questions. We will explain the details when we present you with the choices.**

It is important to know that there will be a raffle. 25% of the participants that receive these offers will be randomly selected and will receive the benefits for November and December 2012. If you are one of the winners, you will receive the first benefit (the monthly payment) for the two months. As for the second benefit, we will randomly choose one of the 17 questions and you will receive for the two months what you chose for it. Therefore, it is best for you to tell what you really prefer because there is a chance you will get it.

First benefit:
The first benefit is a payment of R$10 to you, once this month, and once next month.

Second benefit:

If you could choose a type of second benefit for your family to receive until the end of this year, what would be your preference for each of one the choices below?

As we mentioned before, there will be a raffle. 25% of the families will be randomly selected and we will randomly choose one of the questions and you will receive for November and December 2012 what you chose for it. Therefore, it is best for you to tell what you really prefer because there is a chance you will get it.

Math and Portuguese

(1)
(a) Receive R$10 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive, for free, three weekly hours of tutoring provided by a college student to help your child in school. The tutoring is for Math and Portuguese. The times of the sessions would be arranged between your family and the tutor.

(2)
(a) Receive R$15 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(3)
(a) Receive R$20 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(4)
(a) Receive R$25 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(5)
(a) Receive R$30 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(6)
(a) Receive R$35 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(7)
(a) Receive R$40 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(8)
(a) Receive R$45 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(9)
(a) Receive R$50 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(10)
(a) Receive R$55 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(11)
(a) Receive R$60 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(12)
(a) Receive R$65 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(13)
(a) Receive R$70 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school

(14)
(a) Receive R$75 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(15)
(a) Receive R$80 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(16)
(a) Receive R$85 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

(17)
(a) Receive R$90 per month without any requirement, or
(b) Receive R$10 per month without any requirement, and also your child will receive for free three weekly hours of tutoring provided by a college student to help your child in school.

Personal information:

Are you separated, married, divorced, or single?
-Separated
-Married
-Divorced
-Single

What is your family's total level of income?

What is your gender?
-Male
-Female

How old are you?

What is your religion?
-Catholic
-Protestant
-Spiritualistic
-Other: _____
-None

Are you employed?

-Yes
-No

What is your education level?
-None
-First grade (primary)
-Second grade (primary)
-Third grade (primary)
-Fourth grade (primary)
-Fifth grade (primary)
-Sixth grade (primary)
-Seventh grade (primary)
-Eighth grade (primary)
-First grade (secondary)
-Second grade (secondary)
-Third grade (secondary)
-College – incomplete
-College – complete

What is your race?
-Black
-White
-Mixed race
-Native

How many children do you have?

For how many of them does your family receive government aid to attend school?

What is your child's gender?
-Male
-Female

What is your child's age?

What school grade is your child attending?
-Third
-Fourth

How many days of class did your child miss in the last two months?

Has your child failed any grade?
-Yes
-No

If yes, how many?

How much do you think your child's (monthly) salary would be if he/she finished high school?

Figure A.6: **Picture from the implementation**

Figure A.7: **Picture of a tutoring session**