

Empirical Evidence on Satisfaction with Privatization in Latin America

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Since the 1980s, privatization of formerly state-owned firms has been extensively implemented by governments across Latin America. Despite the fact that most evaluations of the process fail to find significant adverse efficiency and welfare effects, there has been a strong surge in public discontent with such policy in the region. This paper performs a systematic empirical analysis of the determinants of such dissatisfaction, using survey data from Latinobarometro covering 17 countries over the period 1998-2008, complemented by country level data on macroeconomic, political, and institutional aspects as well as data on privatization. Dissatisfaction appears to respond to absolute and relative welfare effects, and we find a robust U-shaped effect in term of education and income levels, with individuals in the middle of such distributions being more critical with the outcome of privatizations.

JEL Classification: L33, D83

Since the 1980s, privatization of formerly state-owned firms has been extensively implemented by governments across Latin America, with infrastructure sectors (water, transport, energy and telecommunications) generating most of the proceeds (See Bortolotti and Siniscalco, 2004, Chapter 2). As a matter of fact, the World Bank's Private Participation in Infrastructure database shows that for the period 1990 to 2004, Latin America and the Caribbean has been the leading region in the world in terms of number of projects (1062 of a total

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We are grateful to Paulina Beato for having initiated this research and the Inter-American Development Bank for its financial support. We thank Jim de Melo and three anonymous referees, Tim Besley, Thierry Magnac, Stephane Saussier, Federico Weinschelbaum, Anne Yvrande and seminar participants at Toulouse, Paris 1, San Andres-Buenos Aires and EBRD, London for useful comments. The usual disclaimer applies.

of 2976) and investment figures (US\$ 392 bn. of a total of US\$ 871 bn.).¹ At the country level, five Latin American countries feature in the top ten ranking by number of projects (Brazil, Argentina, Mexico, Chile and Colombia), and three in terms of aggregate investment (Brazil, Argentina, Mexico). Within the region itself, there are also significant variations across countries, from the very active ones like Bolivia, Peru, Brazil, Argentina and El Salvador in which accumulated proceeds as of 1999 ranged between 8 and 20% of GDP, to laggards like Uruguay, Paraguay, Costa Rica and Ecuador, in which virtually no privatization took place (Lora and Panizza, 2002).

Given the scale of the privatization wave, evaluating this process has become an important challenge both for practitioners and scholars. A number of researchers have undertaken this difficult task focusing on several important aspects of the process, including its macroeconomic impact, firm- and sector-level efficiency, employment, specific social outcomes like health, income distribution, poverty and welfare. To date, most studies found neutral to positive effects, with the possible exception of specific cases of price increase and layoffs in privatized firms.² However, since the beginning of the 2000s, opinion surveys from Latin America have revealed a profound and growing dissatisfaction with privatization, a situation that has already created a backlash against this policy, including popular protests, riots and governments in some countries making or being elected on pledges for a return to state-provided public services.³ Understanding this contrast between the generally positive economic evaluations and the striking evolution of negative public opinions on the privatization process therefore constitutes quite of a challenge both for policy-makers and researchers.

The objective of this paper is to perform a systematic empirical analysis of the causes of public discontent with privatization in Latin America, using over 130,000 survey data observations from Latinobarometro covering 17 countries over the period 1998-2008, complemented by country level data on macroeconomic, political, and institutional aspects as well as data on the extent of privatization. The joint use of those two sources of data is necessary because the causes of public discontent are expected to be linked both to individual aspects (income, asset holdings, employment and social status, education, beliefs) and to “environmental” factors (size of the privatized sectors, economic cycle, institutional quality). We unveil the mechanisms behind the observed determinants found to be significant. More precisely, we ask to which extent the growing dissatisfaction simply results from a standard assessment of the effect of privatization on a combination of individual and group level welfare.

1. Note, however, that these investment figures must be taken with some caution, as they represent commitments rather than actual spending.

2. We briefly review this literature in Section 2 below. See Martimort and Straub (2009) for a more detailed discussion and references.

3. The cases of Argentina and Bolivia are in order.

We provide evidence on how the expressed level of dissatisfaction differs by level of income, education and along other socioeconomic divides, and argue that it partly reflects relative income considerations.⁴ In a nutshell, we find that dissatisfaction can be explained by a mix of individual characteristics that point to categories of individuals who have suffered or benefited less than others from privatizations. In particular, the effect of education, socioeconomic variables and assets variables signal a rather robust U-shaped effect in term of education and income levels, with individuals in the middle of such distributions being more critical with the outcome of privatizations. While the nature of our data does not allow us to systematically distinguish pure welfare effects from relative income concerns, which could for instance be linked to an unequal distribution of gains across social classes, we indicate in the discussion of the results why and when it is likely that both aspects are at play.⁵

A similar mix of absolute and relative income effects helps understand the outcome in terms of employment status, with public sector employees, unemployed and home workers categories corresponding to lower satisfaction levels, and private sector employees and, to some extent, students to higher approval rates. Indeed, a combination of direct welfare losses for some categories (public sector employees, unemployed) and informational effects (to the extent for example that privatization signals a shift toward more competitive job market practices) for others, seems relevant.

Finally, beliefs may also matter. Indeed, the respondents' assessments of privatization is strongly correlated with their views on the economic situation, their political preferences and the level of trust in society. Individuals forming more pessimistic evaluations of the economic situation are also less satisfied with privatizations, but so are those placing themselves more to the left of the political spectrum and having more pronounced preferences for democracy and a lower level of trust in others. We document these patterns but stop short of performing a full-fledged econometric analysis of these issues due to data limitations.

The paper is organized as follows. Section 2 offers an overview of existing evaluations of the privatization process in Latin America and then reviews contributions that have addressed, directly or indirectly, the issue of dissatisfaction with privatizations. Section 3 presents the data we are using. Section 4 introduces the basic econometric models, including estimations on individual data,

4. Individual answers may rely on anything from purely selfish considerations to completely altruistic ones, as well as capture, among others, fairness concerns, concerns for one's (or one's group) relative position in society, and experienced vs. revealed utility that is sensitive to the timing of economic effects (e.g., see Senik (2004), Ravallion and Lokshin (2001) and Kahneman and Thaler (1991)). Note that the use of subjective survey data raises issues relative to the interpretation of individual answers (Clark et al. (2005), Ravallion and Lokshin (2000) and Bertrand and Mullainathan (2001)). These issues are discussed in the body of the paper.

5. See Hopkins and Kornienko (2004) for a theoretical approach to this issue, and Senik (2004) for empirical evidence using Russian data.

aggregate data and pseudo panel fixed effects and presents the results. Section 5 summarizes the main lessons from the analysis and concludes.

I. LITERATURE REVIEW

As mentioned above, the first wave of evaluations of the privatization process reached mostly positive conclusions regarding the impact on output and efficiency, while stressing that negative redistributive effects, when presents, were limited. First, a large majority of the studies focusing on efficiency found improvements in financial and operating performance. [Chong and López-de-Silanes \(2004\)](#) document improvements in profitability (net income to sales, operating income to sales), in operating efficiency (cost per unit, sales to assets and sales to employee ratio), and in output in 7 countries (Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru). They also show that there was significant labor retrenchment in privatized firms in most countries, with the median country experiencing a 24% cutback and values up to 50 and 60% in the case of Peru and Mexico respectively. This evolution has in general been accompanied by increased investments and extensions in service coverage. [Andres et al. \(2007\)](#) review the impact of privatization for 181 firms in 3 sectors (telecommunications, electricity distribution, water and sewerage) across 15 countries in Latin America, controlling for pre-privatization and transition-period trends. Again, the conclusion is that there were improvements in operating performance and productivity, mostly because of the important reduction in the workforce, a tendency to price increases, improvements in quality indicators such as distributional losses in water and electricity and percentage of incomplete calls in telecoms, but no significant impacts on output and coverage.⁶

From a macroeconomic point of view, the combination of incoming sales proceeds and the reduction in transfers to public firms generally strengthened the fiscal position of governments ([Davis, Ossowski, Richardson and Barnett, 2000](#)). Some countries, like Argentina and Mexico, used part of the privatization proceeds to withdraw a portion of domestic and foreign debt to cover pension costs ([Kikeri and Nellis, 2002](#)). Finally, tax proceeds also increased, as newly privatized firms generated substantial profits ([Estache, Guasch and Trujillo, 2003](#)).

In terms of the social and welfare impact of privatization, [Galiani, Gertler and Schargrodsky \(2003\)](#) is one of the first paper providing convincing evidence of a positive impact of privatization on social indicators, in this case health. It shows that infant mortality from waterborne diseases declined by 8%

6. Other contributions include [La Porta and López-de-Silanes \(1999\)](#), [Megginson and Netter \(2001\)](#), and [Kikeri and Nellis \(2002\)](#). This last paper reports that significant labor reductions are mainly observed in the sub-group of non-competitive firms, while competitive sectors have in general managed to maintain aggregate employment to its previous level.

in Argentinean localities, which privatized water services and by as much as 26% in the poorest areas.

McKenzie and Mookherjee (2003) is a systematic effort to evaluate the effect of privatization programs on social indicators like employment, income distribution, poverty and some aggregate welfare measure, by expenditure per capita deciles and by country/sector. It summarizes the results from 4 countries (Argentina, Bolivia, Mexico and Nicaragua) for which detailed studies have been carried out. Overall, the paper shows positive evolutions in all these dimensions and little evidence of negative effects on poverty or income distribution, thanks in particular to the extension in service coverage that in some cases compensated price increases. The exceptions are employment, with cut-backs within the privatized industries ranging from 30 to 75%. This is not surprising, as overstaffing is a well-known feature of many Latin American public firms, but comes with the qualification that the layoffs were small in relation to the total labor force (7 to 9% in Nicaragua, 2% in Argentina, 1% in Mexico, 0.13% in Bolivia). As for prices, there is mixed evidence with prices going down in about half of the cases.

Given these stylized facts, a number of explanations have already been put forward in the policy literature to understand the current dissatisfaction trend with privatizations in Latin America. We may classify these contributions into four categories:

- **Welfare considerations:** A first line of research has tried to assess the impact of privatizations on prices, quality of the services and employment, on the welfare of different groups and therefore on the evolution of satisfaction. Given the conclusions summarized above showing that such effects were mostly positive, this raises the question of whether some negative effects of privatization were not picked by these studies. In this respect, some partial evidence can be found regarding deteriorating quality, or improvements in quality which did not compensate for price increases, in particular when price cap regulation was used (McKenzie and Mookherjee, 2003, Estache, Guasch and Trujillo, 2003, Nellis, Menezes and Lucas, 2004). Job losses and the deteriorating quality of working conditions (longer hours worked, lower job security and social benefits) are other important channels through which real welfare losses might have materialized for some subsets of the population (McKenzie and Mookherjee, 2003, López-Calva and Rosellón, 2002).
- **Macroeconomic landscape:** The impact of the business cycle, including the possible disruptive effect of large macroeconomics shocks, devaluations, etc., has sometimes been deemed responsible for the waning support for pro-market reforms (e.g. by Lora and Panizza, 2002, and Panizza and Yañez, 2005). However, the direct impact of privatizations on the business cycle remains unclear, with opinions ranging from those attributing the rise in economic instability to privatizations, to more

positive ones considering that they contributed to limit the effect of external shocks. It is therefore difficult to assess whether the correlation between the fall in economic activity and dissatisfaction with privatizations is due to a direct negative welfare impact, to a gap between actual and expected performances, or to a change in beliefs somehow linked to the evolution of the overall economic situation. Answering this question would require making assumptions on the macroeconomic effects of privatizations and on the structure of errors in individual judgments that are bound to be speculative.

- **Political economy:** Another trend of the literature has tried to link the negative appraisal of privatization to distributional concerns. The basic idea is that, although privatization might come with efficiency gains, the effects of projects renegotiations and cancellation (Guasch, Laffont and Straub, 2008), corruption, and the lack of transparency of the process introduce distributional concerns among groups. Martimort and Straub (2009) offer a theory of how the degree of corruption that prevails in a society responds to changes in the ownership structure of public service providers. Privatization, even though it fosters investments in infrastructure, might also open the door to more corruption. The public dissatisfaction towards privatization is then crucially affected by changes in the degree and pattern of corruption, as the public perception and awareness are modified when corruption changes in nature. Indeed, corrupt activities mainly consist of siphoning public budgets under public ownership whereas they amount to raising regulated prices under private ownership. Martimort and Straub (2009)'s model thus helps understand the fact that popular dissatisfaction with the process is especially high among middle class consumers, who bear the bulk of the cost generated by corrupt deals after privatizations, and therefore perceive themselves as the big losers in the allocation of efficiency gains. This interpretation is in line with Shirley (2005) and Nellis and Shirley (2005), who argue that citizens' discontent in many cases stems from the perception of an unfair distribution of gains, biased in favor of elites.

In an empirical paper using only three waves of the Latinobarometro surveys, Checchi et al. (2009) find that disagreement with privatization is most likely when the respondent is poor, privatization was massive and quick, involved a high proportion of public services as water and electricity, and in countries where there is high inequality of income. A robust non-linear relationship between socioeconomic status and dissatisfaction with privatization suggests that middle-to-low income households, with a median level of nine years of education, perceive to have suffered from privatization. This result is again broadly consistent with recent empirical research in Latin America that points to distributional concerns in the implementation of privatization policy because the consequences of the corresponding changes in tariffs were not adequately addressed by policy-makers and regulators.

- **Beliefs:** However, it must be noticed that the findings in these papers may also be consistent with an alternative story in which an increase in the perception of corruption, or more generally of some unfair distribution of the gains from privatizations, may undermine trust in market reforms and induce a shift in beliefs, as conjectured for example by [Di Tella and MacCulloch \(2009\)](#), who argue that observing corruption causes people to become more left-wing. Indeed, recent contributions have highlighted the crucial role of beliefs in the expression of opinions on policy or social issues, both at the theoretical and at the empirical level.⁷ Using an interesting natural experiment in Argentina, [Di Tella, Galiani and Schargrodsky \(2007\)](#) show for instance that a simple change in land tenure status can induce important changes in individual pro-market beliefs, even in the absence of any significant welfare change. It has been an open question to determine whether the rise in discontent with privatization in Latin America was due to a more general shift in beliefs against free-market policies, to some type of “reform fatigue” that would alter the support for what is perceived to be a liberal policy agenda, or to the fact that results from this policy did not match the expectations of certain categories of agents.⁸

In the case of privatization, [Earle and al. \(2003\)](#) show that the privatization policy design in the Czech Republic in the 1990s was instrumental in shifting popular beliefs in the usefulness of this policy. Indeed, individual directly involved in the process through both restitution and voucher programs were much more supportive and displayed higher faith in market reforms. [Di Tella et al. \(2008\)](#) show that beliefs about the benefits of water privatization in Argentina in the 1990s were strongly affected by negative government propaganda, but that this effect was conditional on not having gained access to water in the process.

With respect to this general literature, our paper makes several original contributions. First of all, the analysis builds on a much larger data set spanning opinions in the region from 1998 to 2008. This allows us to obtain more robust results, in particular using a pseudo panel technique to address the issue of anchoring effects that are known to weaken results drawn from subjective surveys.

Second, we relate the empirical results to a number of new underlying theoretical explanations. For example, as in [Checchi et al. \(2009\)](#), we find a U-shaped relationship between education or income and the level of dissatisfaction. We argue that they reflect both the perception of direct welfare effects but also important relative income considerations among different social groups as modeled in [Martimort and Straub \(2009\)](#). We also enrich the description of the role of the socioeconomic status, by suggesting that privatization has distinct signaling effects depending on individuals’ employment status, with private employees being especially sensitive to the pro-competitive message

7. [Piketty \(1995\)](#), [Di Tella and McCulloch \(2005\)](#), [Benabou and Tirole \(2006\)](#).

8. [Panizza and Yañez \(2005\)](#), [Lora and Olivera \(2005\)](#).

privatization conveys. Similarly, while we do find some effect of the business cycle as in [Panizza and Yañez \(2005\)](#), we also show that dissatisfaction with privatizations cannot simply be explained by a reaction to deteriorating economic conditions. Indeed, we find very different results when looking at opinions about the country economic situation for example.

II. DATA

Latinobarometro provides a series of yearly household surveys since 1995. Each year, a representative panel of individuals is asked a list of questions. Individuals are not re-interviewed every year and the data are more like a rotating representative panel. The data used here cover the period 1998 to 2008, except 1999 when the survey was not carried out, with coverage rising to 17 Latin American countries after 1996. For each country, there are approximately between 600 and more than 1000 respondents. This means a total of up to 130,000 observations, across 17 countries and 10 years.

The survey includes one question about the level of satisfaction with services that have been privatized. It was asked each year (with some variations) between 1998 and 2008, but does not differentiate by sectors. There is a question differentiating by sectors, but it was only asked in 1995 and 1998. We use the only question that has sufficient intertemporal coverage (1998 to 2008, except 2004). It asks respondents to indicate whether they strongly agree / agree / disagree / strongly disagree with the statement that privatizations have been beneficial to the country.

Additionally, the survey contains a full set of individual characteristics: demographics, assets, access to public services. It also contains answers to a host of subjective questions capturing individual opinions on several aspects like democracy, institutions, laws, politics, citizen participation, public policies, poverty, other socioeconomic subjects, international relations and general values. However, because there have been frequent changes in the layout of the survey, many of these questions are not available across a sufficient number of time periods and cannot be exploited empirically.

The Latinobarometro data from successive years were stacked together and then merged with country level data for the period 1998 to 2008 from a variety of sources. This includes data from the World Bank PPI database on the amount of privatization proceeds by country and sectors, aggregate governance Indicators from the Political Risk Service's International Country Risk Guide, democracy and autocracy indicators from the Polity 4 database, and generic country level data from the World Bank World Development Indicators. Details about the sources and descriptive statistics are in the Appendix.

III. ECONOMETRIC MODELS AND EMPIRICAL RESULTS

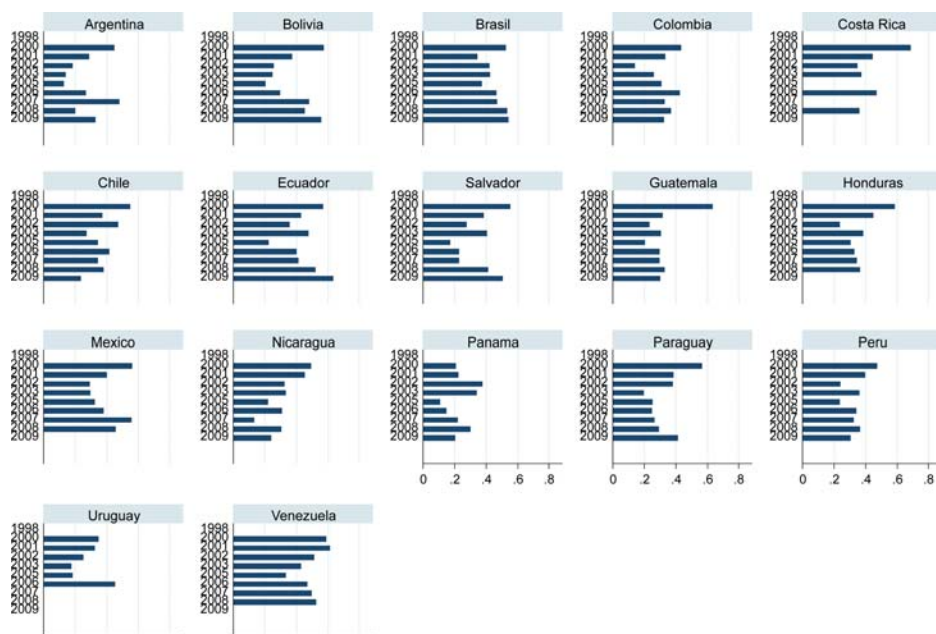
Figure 1 represents the evolution of the percentage of respondents in each country that (strongly) agree with the fact that privatizations have been beneficial to the country.

The graph confirms the sharp decrease of the average satisfaction with privatization from 1998 to 2005 with a peak of dissatisfaction around the years 2002-2003. Some countries, such as Bolivia, Ecuador, El Salvador, Mexico, Paraguay and Venezuela, exhibit a U-shaped pattern, with satisfaction increasing again in 2007-2008.

On the other hand, during the 1998-2008 period, our privatization proceeds variable shows that the proceeds decreased gradually from 1998 to 2003, before peaking up again after that, although not reaching the level of the 1990s. The main drivers of this U-shaped evolution were Brazil, Columbia, Mexico among others. On the other hand, Argentina, Guatemala and Peru show a peak at the end of the 1990s but did not register new privatizations subsequently, while the reverse pattern holds for Ecuador, which registered important proceeds in 2008. Interestingly, this global evolution therefore exhibits a negative correlation with that of satisfaction.

In what follows, we use different methods to test the determinants of satisfaction or dissatisfaction with privatization, given the household survey data

FIGURE 1. The Evolution of Satisfaction



available and the aggregate country-year information, starting with simple individual data.

Methodology and Results Using the Individual Data

Denoting by y_{ict} the opinion about privatization of individual i in country c and year t , and X_{ict} the vector of his characteristics, γ_{ct} a country-year fixed effect representing the fixed component across individuals that affects the opinion about privatization in country c and year t (as for example the average influence of a media campaign), and ϵ_{ict} an unobserved individual deviation of individual opinion on privatization, we assume that the individual opinion is determined by the following equation:

$$y_{ict} = X'_{ict}\beta + \gamma_{ct} + \epsilon_{ict}. \quad (1)$$

Without loss of generality, we can also assume that y_{ct} is determined by observed country-year characteristics S_{ct} and unobserved ones η_{ct} such that

$$\gamma_{ct} = S'_{ct}\delta + \eta_{ct}.$$

Then we can also re-write

$$y_{ict} = X'_{ict}\beta + S'_{ct}\delta + \eta_{ct} + \epsilon_{ict}. \quad (2)$$

The individual survey opinion about privatization allows us to estimate the model at the individual level and thus identify the parameters β and γ_{ct} from the first specification or β and δ from the second one after assuming that $E(\eta_{ct}|X_{ict}, S_{ct}) = 0$, in addition to the first necessary assumption $E(\epsilon_{ict}|X_{ict}, S_{ct}) = 0$. If this assumption cannot be made, then one can estimate the first specification and then, after estimating the country-year fixed effects γ_{ct} , regress these effects on characteristics S_{ct} of the country and period with only $E(\eta_{ct}|S_{ct}) = 0$. In what follows, we present the results from both approaches.

Table 1 presents the estimation of model (2) on individual data. The dependent variable is equal to 1 if the individual either agrees or strongly agrees with the fact that privatizations have been beneficial to the country and 0 if he/she either disagrees or strongly disagrees. Assuming that the error term is normally distributed, one can estimate such discrete choice model by maximum likelihood using the usual probit model. The list of individual characteristics X_{ict} , includes demographics (sex, age, marital status, education and occupation), wealth characteristics captured by asset ownership (TV, fridge, computer, washing-machine, car, secondary house, tenancy status), and access to basic services (drinking water, hot water, sewerage).⁹ The country level

9. Telephone access could also be added to the list, but this variable is not available for 2005. Estimations not shown here show that it is not significant when included.

TABLE 1. Probit estimations with individual data

Probit	(1)	(2)	(3)	(4)	(5)
<i>Demographics</i>					
Sex	-0.0330*** (0.00928)	-0.0351*** (0.00933)	-0.0349*** (0.00951)	-0.0351*** (0.00954)	-0.0226* (0.0121)
Age	-0.00255*** (0.000408)	-0.00280*** (0.000396)	-0.00272*** (0.000430)	-0.00271*** (0.000431)	-0.00196*** (0.000524)
Couple	-0.0241** (0.0100)	-0.0307*** (0.0102)	-0.0195* (0.0106)	-0.0196* (0.0106)	-0.0207 (0.0132)
Education respondent	-0.0672*** (0.0203)	-0.0794*** (0.0148)	-0.0701*** (0.0199)	-0.0693*** (0.0200)	-0.0812*** (0.0230)
Education respondent (sq)	0.00889*** (0.00222)	0.00950*** (0.00172)	0.00912*** (0.00220)	0.00899*** (0.00220)	0.0102*** (0.00254)
<i>Employment status</i>					
Public sect. employee	-0.0783*** (0.0160)	-0.0667*** (0.0157)	-0.0825*** (0.0168)	-0.0830*** (0.0168)	-0.116*** (0.0194)
Private sect. employee	0.0215 (0.0138)	0.0209 (0.0132)	0.0165 (0.0138)	0.0162 (0.0138)	0.0166 (0.0159)
Unemployed	-0.0714*** (0.0179)	-0.0421** (0.0169)	-0.0563*** (0.0184)	-0.0550*** (0.0180)	-0.0672*** (0.0228)
Retired	0.0374 (0.0238)	0.0455** (0.0229)	0.0414* (0.0246)	0.0413* (0.0246)	0.00135 (0.0286)
At home	0.0191 (0.0141)	0.0177 (0.0136)	0.0181 (0.0145)	0.0181 (0.0145)	0.00900 (0.0188)
Student	-0.0286 (0.0187)	-0.0447** (0.0181)	-0.0290 (0.0194)	-0.0281 (0.0194)	-0.0724*** (0.0224)
<i>Asset ownership</i>					
Tv	-0.0235 (0.0233)	-0.0310 (0.0195)	-0.0147 (0.0231)	-0.0156 (0.0230)	-0.0144 (0.0318)
Fridge	0.00826 (0.0184)	0.00606 (0.0174)	0.00374 (0.0205)	0.00212 (0.0204)	0.00414 (0.0271)

(Continued)

TABLE 1. Continued

Probit	(1)	(2)	(3)	(4)	(5)
Computer	0.0435** (0.0175)	0.0590*** (0.0148)	0.0409** (0.0170)	0.0416** (0.0170)	0.0399** (0.0187)
Wash	0.0577*** (0.0168)	0.0576*** (0.0145)	0.0547*** (0.0160)	0.0539*** (0.0160)	0.0640*** (0.0181)
Car	0.0801*** (0.0110)	0.0715*** (0.0101)	0.0857*** (0.0110)	0.0855*** (0.0111)	0.0765*** (0.0126)
Secondary house	0.0550*** (0.0137)	0.0578*** (0.0130)	0.0546*** (0.0137)	0.0549*** (0.0137)	0.0586*** (0.0163)
Home owner	0.00948 (0.0122)	0.0158 (0.0115)	0.00962 (0.0120)	0.00952 (0.0121)	−0.00462 (0.0138)
<i>Access to services</i>					
Drinking water	−0.0687*** (0.0217)	−0.0465** (0.0192)	−0.0610*** (0.0223)	−0.0602*** (0.0224)	−0.0777*** (0.0266)
Hot water	0.0628*** (0.0202)	0.0527*** (0.0147)	0.0545*** (0.0184)	0.0559*** (0.0182)	0.0604*** (0.0195)
sewerage system	−0.0282* (0.0162)	−0.0419*** (0.0158)	−0.0342** (0.0170)	−0.0347** (0.0170)	−0.00761 (0.0190)
<i>Country level var.</i>					
GNI per capita			0.00645 (0.0245)	0.00521 (0.0245)	−0.00637 (0.0299)
GDP growth − 1			0.0170** (0.00675)	0.0169** (0.00684)	0.0153** (0.00667)
Privat. proceeds (10 ⁶)			1.394e + 06 (5.014e + 06)	−298,878 (6.543e + 06)	1.466e + 06 (5.674e + 06)
Corruption			0.0604 (0.0419)	0.0614 (0.0424)	0.0574 (0.0437)
Bureaucratic quality				0.123 (0.246)	
Democracy index				−0.00293*** (0.00101)	

Opinions variables

Better situation					-0.0908*** (0.0122)
Future situation					-0.0870*** (0.0118)
Left/right					0.0244*** (0.00388)
Law confidence					-0.144*** (0.00869)
Trust					0.115*** (0.0165)
Democracy preference					-0.0257** (0.0128)
Country fixed effects	Yes	No	Yes	Yes	Yes
Country – Year fixed effects	No	Yes	No	No	No
Observations	130,914	130,914	122,134	122,134	73,754

Robust standard errors in parentheses (clustered at the country level). Coefficients significant at 10%: *; 5%: **; 1%: ***.

Variables coding. Dependent variable: 1 if individual either agrees or strongly agrees with fact that privatizations have been beneficial to the country, 0 if he/she either disagrees or strongly disagrees. Demographics: sex (0 = man, 1 = women); age (years); couple (0 = living in couple, 1 = single); education of respondent (1 = illiterate; 2 = basic incomplete; 3 = basic complete; 4 = secondary, medium, technical incomplete; 5 = Secondary, medium, technical complete; 6 = superior incomplete; 7 = superior complete). Employment status (reference category is independent workers): public sector employee/private sector employee/unemployed/retired/at home/student (1 = yes, 0 = no). Asset ownership: tv/fridge/computer/wash machine/car/secondary house/home owner (1 = yes, 0 = no). Access to services: drinking water/hot water/sewerage system (1 = yes, 0 = no) Country level variables: GNI per capita (in US\$); GDP growth – 1 (lagged growth in %); privatization proceeds (accumulated proceeds as a % of GDP); corruption (PRS ICRG index, ranges from 0 (not corrupt) to 6 (highly corrupt)); Inflation – 1 (lagged inflation in %); bureaucratic quality (PRS ICRG index, ranges from 0 (low quality) to 4 (high quality)); democracy index (0–10 scale, from less to more democratic); Unemployment – 1 (lagged unemployment in %). Opinions variables: better situation (1 = better, 2 = equal, 3 = worse); future situation (1 = better, 2 = equal, 3 = worse); left/right (ranges from 0 (extreme left) to 10 (extreme right)); law confidence (1 = very high, 2 = high, 3 = low, 4 = very low); trust (1 = yes, 0 = no); democracy preference (–1 = prefers authoritarian regime, 0 = indifferent, 1 = prefers democracy).

characteristics S_{ct} are related to the macroeconomic environment¹⁰ (income per capita, lagged GDP growth), governance (corruption, quality of the bureaucracy), the political environment (a democracy index) and the level of privatization proceeds. Finally, we also introduce individual opinion variables on several aspects, including how people place themselves on a left-right political spectrum, trust in the law, in other members of society, and assessments of the present and future economic situation, both at the personal and collective levels. Standard errors are clustered at the country-year level.

To summarize, Table 1 shows that women are less satisfied by privatizations as well as older people, people living in couple, public sector employees, unemployed and students (although this last variable is not systematically significant). Moreover, there is a *U*-shaped relationship between the degree of satisfaction and the level of education, meaning that the less satisfied with privatizations are those with medium education.¹¹ Actually, the effect of the education level and its square imply that it is decreasing up to the education level 3 to 3.5, which is just below the average of the distribution in the sample and corresponds to complete basic education (primary school) or slightly above.¹²

Table 1 also shows that being richer, in the sense of holding certain assets (computer, washing-machine, car, secondary house), corresponds to a higher level of satisfaction with privatizations. These categories make up 17, 48, 30, and 12% of the sample respectively, and can be interpreted as representative of the top end in terms of income. A similar result holds for people having access to hot water (43% of the sample). On the other hand, individuals who report not having access to drinking water and sewerage systems appear to be more satisfied on average than the rest of the population. This is a relatively small subset (10 and 25%), likely to capture the bottom of the income distribution, i.e., individuals who might have gained, or expect to gain access to public services through privatizations.

When opinion variables are introduced in column 4, they also appear to be correlated with satisfaction about privatizations. For example, the more they are to the left in terms of political preferences, and the less they trust other people in society, the less individuals are satisfied with privatizations, while a higher level of trust in the judicial system corresponds to higher satisfaction. Moreover, the more people perceive that the situation of the country has deteriorated, and the more pessimistic they are about the future of the country, the

10. Lagged values are relevant since the surveys are typically carried out around the middle of the year.

11. A similar pattern emerges when using the socioeconomic level of the respondent, ranging from 1 to 5, as evaluated by the person carrying out the survey. This indicates that the less satisfied with privatizations are the “middle class” people, with a reversal point around 3.5 (the average of this level in the sample is 2.8 and the median is 3). We do not include this variable systematically in our estimations, however, because it is missing for 2002.

12. Note that this is a fairly low level by international standard.

less satisfied they are as well. Note however that, although most of these results make intuitive sense, the inclusion of such opinion variables on the right-hand side of the estimations is the source of specific econometric problems that make the interpretation of the results difficult. We discuss this issue in Section 3 below.

Finally, one can look at the effect of country level variables on satisfaction. First of all, the level of income per capita is consistently positive, although not significant. Looking at the effect of the economic cycle, higher growth in the year before the interview has a significant and positive effect on satisfaction with privatizations, with each additional point implying around 1.6% higher satisfaction. The effect of the amount of accumulated proceeds from privatizations is positive but statistically insignificant, so if anything it seems to be the case that individuals like privatization more in years in which their countries have increased their proceeds from privatizing more than the average across countries.

Concerning corruption and the quality of the bureaucracy, the results show that the more corruption there is in the country and the lower the quality of the bureaucracy, the lower is the overall satisfaction with privatizations.¹³ However, both variables fail to be statistically significant. The index of democracy, on the other hand, is negative and significant, suggesting that dissatisfaction is stronger in more democratic environments.

Estimations in column 2 include country-year fixed effects, and are strictly similar to those in column 1. Moreover, when year fixed effects are introduced as well, results not shown here to save space show that both the results on individual variables and on country-level aspects remain unchanged. Note that the (country-specific) time trend shows that satisfaction decreased significantly over the period.¹⁴

One important concern might be that answers to the privatization question in fact capture some general discontent with economic policies or the state of the economy for example. To discard this possibility, we run similar estimations with alternative answers to opinion questions as the dependent variable. Results available from the authors show that other opinion variables do not exhibit the same correlations than the level of satisfaction with privatization. For example, using the opinion about the country economic situation as

13. Note that for institutional variables a higher score corresponds to less corruption and to a better bureaucracy.

14. Assuming again normally distributed error terms, one can estimate model (2) using an ordered probit estimation when the dependent variable is the ordered response about whether privatizations have been beneficial, from disagree strongly (=1) to agree strongly (=4). The results, available from the authors, confirm most of the findings of the probit model. It is interesting to get the same results with either one model or the other because it shows the robustness of the findings. In principle, the ordered probit model is more efficient than the probit model, which uses less information about the respondents opinion on privatization, but the probit model is also more robust to misclassification of respondents between *agree* and *very agree* or *disagree* and *very disagree*.

the dependent variable in (2), we do not find the same effects of asset ownership or education variables.

Another important aspect is the possibility that opinions on privatization may be correlated with the government position on that policy, and that changes of political ideology of the government may have an impact on these opinions. For example, [Di Tella et al. \(2008\)](#) have shown that some group of the population may alter their judgement on privatization as a result of government propaganda. Country fixed effects would capture such effects as long as no fundamental ideological change occurs during our period of study. On the other hand, a political change, for example from a pro-privatization government to one that is openly opposed to such a policy, may induce a surge in anti-privatization opinions, and this in turn may be stronger for some specific groups. Particularly relevant here is the surge of leftist governments across Latin America in the last 10 to 15 years. This movement, which is often considered to have started with Chavéz accession to power in Venezuela at the beginning of 1999, is considered to include the elections of Evo Morales in Bolivia, Rafael Correa in Ecuador, and Daniel Ortega in Nicaragua, all in 2006, and to a lesser extent of Luiz Inácio Lula da Silva, in Brazil in 2002, Nestor Kirchner in Argentina in 2003, Tabaré Vázquez in Uruguay in 2005, and Fernando Lugo in Paraguay in 2008.

For the period 1998–2008 included in our data, the governments of Chavéz in Venezuela in 1999 and Kirchner in Argentina in 2003 can be considered to have embodied significant changes in the official discourse towards privatization policy, and in both cases these elections were the result of a serious political and economic crisis in which the anti-liberal sentiments were already very high, leading us back to 1998 or before in the case of Venezuela, and around 2000–2001 for Argentina. Additionally, in Bolivia, Ecuador and Nicaragua, [Figure 1](#) shows that contrary to what the ideology story seems to suggest, satisfaction actually increased after 2006. This leaves us with relatively few significant within-country change in our sample. In any case, the use of country fixed-effects is capturing any effect on opinions that would stem from the (unchanging) political orientation of the government, while country-year fixed effects take care of within country changes.

[Table 2](#) presents some further specifications using individual data. First of all, in column 1, we interact employment categories with the education level. Most of the effects of employment categories now appear to concentrate on higher education categories.

In column 2, we interact the main individual variables of interest with a dummy that discriminates between richer countries (Argentina, Brazil, Costa Rica, Chile, Mexico, Panama, Uruguay, Venezuela) and poorer ones (Bolivia, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, Peru). Results on the interacted variables are represented side by side. In terms of education, the U-shaped effect is preserved in both subsamples, although its statistical significance is stronger for poorer countries.

TABLE 2. Probit estimations with individual data

	(6)	(7)	
		Interaction with country wealth	
Probit		Poor	Rich
<i>Demographics</i>			
Sex	−0.0325*** (0.00932)	−0.0346*** (0.00920)	
Age	−0.00258*** (0.000410)	−0.00275*** (0.000415)	
Couple	−0.0229** (0.0101)	−0.0219** (0.0102)	
Education respondent	−0.0633*** (0.0207)	−0.0845*** (0.0277)	−0.0466** (0.0237)
Education respondent (sq)	0.00903*** (0.00224)	0.0114*** (0.00306)	0.00594** (0.00268)
<i>Employment status</i>			
Public sect. employee	0.0598 (0.0454)	−0.0296*** (0.00948)	
Private sect. employee	−0.0730** (0.0351)	0.0212*** (0.00783)	
Unemployed	0.00697 (0.0437)	−0.0204** (0.0104)	
Retired	0.0509 (0.0416)	−0.00348 (0.0103)	
At home	0.0730** (0.0310)	−0.0156** (0.00748)	
Student	0.105* (0.0621)	−0.0279** (0.0124)	
<i>Asset ownership</i>			
Tv	−0.0237 (0.0233)	−0.0229 (0.0255)	−0.0570 (0.0487)
Fridge	0.00802 (0.0184)	0.0363* (0.0206)	−0.0826** (0.0388)
Computer	0.0413** (0.0175)	0.0215 (0.0203)	0.0317 (0.0241)
Wash	0.0573*** (0.0169)	0.127*** (0.0203)	0.00452 (0.0198)
Car	0.0792*** (0.0110)	0.0921*** (0.0171)	0.0857*** (0.0132)
Secondary house	0.0551*** (0.0137)	0.0120 (0.0199)	0.0901*** (0.0182)
Home owner	0.00913 (0.0122)	0.00901 (0.0166)	0.0137 (0.0176)
<i>Access to services</i>			
Drinking water	−0.0682*** (0.0216)	−0.0529** (0.0252)	−0.105** (0.0408)
Hot water	−.0625*** (0.0202)	0.0936*** (0.0292)	0.0470* (0.0253)

(Continued)

TABLE 2. Continued

Probit	(6)	(7)	
		Interaction with country wealth	
		Poor	Rich
sewerage system	−0.0285* (0.0162)	−0.0460** (0.0213)	−0.00331 (0.0240)
<i>Country level var.</i>	(6)	(7)	
GNI per capita		0.0532* (0.0295)	0.0154 (0.0175)
<i>Employment status interacted with education</i>			
Public sect. employee × educ	−0.0296*** (0.00948)		
Private sect. employee × educ	0.0212*** (0.00783)		
Unemployed × educ	−0.0204** (0.0104)		
Retired × educ	−0.00348 (0.0103)		
At home × educ	−0.0156** (0.00748)		
Student × educ	−0.0279** (0.0124)		
Country fixed effects	Yes	Yes	
Year fixed effects	No	No	
Observations	130,914	129,171	

Robust standard errors in parentheses (clustered at the country level). Coefficients significant at 10%: *; 5%: **; 1%: ***. Variables coding: See Table 1.

The reversal point is around 3.2 for poorer countries and 3.4 for richer ones, which corresponds to the fact that average education is also higher in the second group of countries (3.91 vs. 3.74; see Table A1).

Some variation also appears for asset categories, a fact that can be related to the differences in asset distribution in the two groups of countries. For example, the washing machine variable is only significant in the poorer countries subsample, consistently with the fact that it is indeed a luxury in these countries (average ownership is 24%), but much less in the group of richer ones (average ownership 70%), while secondary house is only significant in the rich countries sample. Similarly, fridge ownership is less discriminating in richer countries (90% ownership) than in poorer ones (69%), and as a consequence, results from the first category differ from those in Table 1. On the other hand, car ownership remains a luxury across the region (average ownership 24 and 35% in poorer and richer countries respectively), and the results for this variable are consistent across both subsamples.

As mentioned above, in these specifications, the validity of the results from country-level variables rests on the assumption that unobserved country-year characteristics are not systematically correlated with observed individual and aggregate aspects. Alternatively, one can estimate model (1) and then regress the resulting country-year effects on country-level variables.

Figure 2 presents the distribution of the γ_{ct} across countries and years. These are estimated from the model in column (1) of Table 1, where no country-level variables are introduced. They represent the country-year effects on satisfaction that cannot be explained by individual characteristics of respondents in Latinobarometro. There are variations across years within a given country but also between countries. Indeed, for most countries, Figure 2 confirms the fact that average satisfaction has decreased between 1998 and 2008 and also show that discontent was the highest around 2003 and started to decrease in 2005. For some countries like Brazil or Ecuador this average country level satisfaction catches up with the late 90's level during 2006-2008.

Table 3 shows the regression of these country-year fixed effects on country level variables. The country-year effects on satisfaction that cannot be explained by the individual characteristics of the respondents are positively correlated with lagged growth, and negatively with proceeds from privatization. The statistically significant results for lagged GDP growth indicate that the economic cycle seems to be key in explaining residual country-year effects,

FIGURE 2. Unexplained country-year effects (probit model)

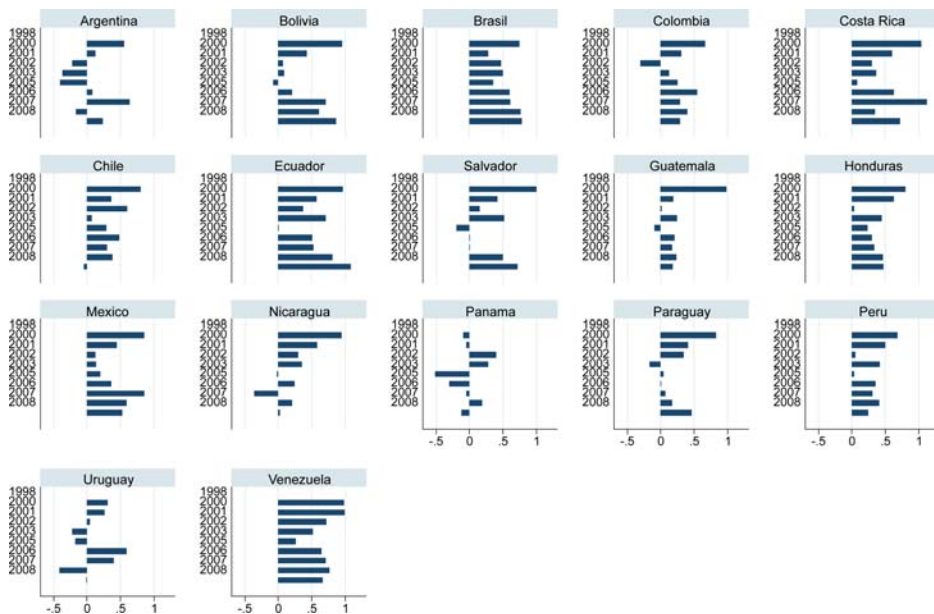


TABLE 3. Regression of country-year effects on country level variables

OLS	(1)	(2)
GNI per capita	−7.26e-05 (0.0114)	0.000540 (0.0128)
GDP growth -1	0.0981*** (0.0313)	0.0897*** (0.0334)
Privat. proceeds (10 ⁶)	−8.095e*** (1.843e + 06)	−8.685e*** (2.037e + 06)
Corruption	0.0270 (0.0454)	0.0239 (0.0516)
Bureaucratic quality		0.0208 (0.0657)
Democracy index		−0.0148 (0.00951)
Constant	0.0677 (0.172)	0.183 (0.197)
Observations	142	142
R-squared	0.162	0.172

Robust standard errors in parentheses. Coefficients significant at 10%: *; 5%: **; 1%: ***. Variables coding: See Table 1.

while satisfaction seems higher in countries that privatized less. Other variables fail to be significant.

Pseudo-Panel Method and Results

The disadvantage of the previous model is that it does not take into account unobserved individual preferences. A specific instance of that problem is the so-called “anchoring effect”, which implies that individuals may be using different satisfaction scales and provide different answers to characterize the same level of satisfaction.¹⁵ The lack of follow-up data on individuals prevents for example the implementation of panel data models where one could take into account unobserved individual fixed effects. However, one can construct a “pseudo panel” using the observed characteristics of respondents to try to overcome such issues and test the robustness of previous results (see [Deaton, 1985](#), or [Attanasio and Weber, 1995](#), for the use of such method also called “synthetic” panel).

Let us define an “average” individual representative of a set of characteristics Z such that we can define K types based on these observed $Z : i \in k$ if $h(Z_i) = k$ where h is a function mapping individual with characteristics Z into a type space.

If the true model is

$$y_{ict} = X'_{ict}\beta + \theta_i + \gamma_{ct} + \varepsilon_{ict},$$

15. See [Bertrand and Mullainathan \(2001\)](#) and [Senik \(2004\)](#).

where θ_i is an unobserved individual fixed effect, then this model cannot be identified because each household is observed only once.

However, if we assume that $\theta_i = \theta_{h(Z_i)} = \tilde{\theta}_k$ and define $y_{kct} = \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} y_{ict}$, then

$$\begin{aligned} y_{kct} &= \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} y_{ict}, \\ &= \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} X'_{ict} \beta + \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} \theta_i + \gamma_{ct} \\ &\quad + \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} \varepsilon_{ict} \\ &= X'_{kct} \beta + \tilde{\theta}_k + \gamma_{ct} + \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} \varepsilon_{ict} \text{ if } X \subset Z, \\ &= X'_{kct} \beta + \tilde{\theta}_k + \gamma_{ct} + \xi_{kct}, \end{aligned}$$

where $\xi_{kct} = \frac{1}{\#\{i/h(Z_i)=k\}} \sum_{i/h(Z_i)=k} \varepsilon_{ict}$.

Then, one can identify β using the regression

$$y_{kct} = X'_{kct} \beta + \tilde{\theta}_k + \gamma_{ct} + \xi_{kct}, \quad (3)$$

where y_{kct} is the average response of type k individuals and $\tilde{\theta}_k$ is the unobserved type k fixed effect.

Table 4 presents the results of such estimation where the variables Z used to create the pseudo panel are the country, the region within the country, the age category and gender. It yields up to 2,640 pseudo individuals, for a total of up to 13,041 observations across the 9 rounds of survey and 17 countries. As a robustness check, we investigated alternative definitions of pseudo individuals, taking for example birthday cohorts instead of age groups (in addition to country, region, and gender). The results with this alternative definition, not shown here to save space, do not exhibit major differences. As a matter of facts, both ways of constructing the pseudo panel are feasible but with obviously different interpretations. In the case where we use age cohorts instead of birth cohorts, the interpretation is similar as the one that can be done with education cohorts (Deaton, 1985). But both definitions have some interesting interpretation. In the case where the pseudo panel is defined using birth year cohorts, it assumes that unobserved characteristics that affect satisfaction are specific to the set of people born during the same years (or that their deviation to the cohort-specific mean is uncorrelated with other observable variables) so that the time evolution of satisfaction is concomitant with their aging but

TABLE 4. Pseudo panel fixed effects

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
<i>Demographics</i>					
Couple	-0.0246 (0.0288)	-0.0236 (0.0288)	-0.00787 (0.0311)	-0.00783 (0.0311)	-0.0302 (0.0346)
Education respondent	-0.0620** (0.0302)	-0.0562* (0.0323)	-0.0845** (0.0329)	-0.0855*** (0.0329)	-0.118*** (0.0371)
Education respondent (sq)	0.00797** (0.00382)	0.00829** (0.00403)	0.0102** (0.00408)	0.0104** (0.00409)	0.0139*** (0.00453)
<i>Employment status</i>					
Public sect. employee	0.0348 (0.0507)	0.108 (0.121)	0.0280 (0.0530)	0.0303 (0.0530)	0.0330 (0.0621)
Private sect. employee	0.0516 (0.0359)	0.0495 (0.0749)	0.0510 (0.0384)	0.0519 (0.0384)	0.000854 (0.0434)
Unemployed	-0.0220 (0.0592)	-0.0593 (0.119)	-0.0209 (0.0596)	-0.0247 (0.0596)	-0.0207 (0.0668)
Retired	-0.0204 (0.0634)	0.0390 (0.122)	-0.0376 (0.0670)	-0.0378 (0.0670)	-0.0337 (0.0843)
At home	-0.00450 (0.0310)	0.0488 (0.0656)	-0.00387 (0.0337)	-0.00671 (0.0337)	-0.00639 (0.0385)
Student	0.0523 (0.0676)	0.220 (0.170)	0.0208 (0.0691)	0.0155 (0.0693)	-0.103 (0.0808)
<i>Asset ownership</i>					
Tv	-0.0320 (0.0397)	-0.0338 (0.0398)	-0.00874 (0.0427)	-0.00614 (0.0427)	0.0135 (0.0488)
Fridge	0.0565* (0.0334)	0.0559* (0.0334)	0.0383 (0.0356)	0.0378 (0.0356)	0.0404 (0.0421)
Computer	0.0355 (0.0376)	0.0329 (0.0376)	0.0444 (0.0390)	0.0437 (0.0390)	0.0617 (0.0423)
Wash	0.0145 (0.0340)	0.0149 (0.0340)	-0.00782 (0.0364)	-0.00435 (0.0364)	-0.0321 (0.0382)
Car	-0.000776	-0.00132	0.0199	0.0221	-0.00400

	(0.0331)	(0.0331)	(0.0347)	(0.0347)	(0.0386)
Secondary house	0.104**	0.105**	0.0964**	0.0984**	0.0862*
	(0.0426)	(0.0425)	(0.0444)	(0.0444)	(0.0513)
Home owner	0.0332	0.0334	0.0284	0.0274	0.0220
	(0.0278)	(0.0278)	(0.0297)	(0.0297)	(0.0340)
<i>Access to services</i>					
Drinking water	-0.0377	-0.0391	-0.0508	-0.0495	-0.0544
	(0.0342)	(0.0341)	(0.0383)	(0.0383)	(0.0443)
Hot water	-0.0282	-0.0290	-0.0433	-0.0462	-0.0178
	(0.0285)	(0.0286)	(0.0301)	(0.0301)	(0.0324)
sewerage system	-0.0810***	-0.0807***	-0.0950***	-0.0930***	-0.0938***
	(0.0258)	(0.0258)	(0.0275)	(0.0275)	(0.0304)
<i>Country level var.</i>					
GNI per capita			0.0129*	0.0120*	0.0221***
			(0.00693)	(0.00696)	(0.00756)
GDP growth -1			0.00182	0.00183	-0.00146
			(0.00185)	(0.00185)	(0.00188)
Privat. proceeds			3.400***	4.932***	3.731***
			(1.180)	(1.391)	(1.219)
Corruption			0.0191*	0.0146	-0.00110
			(0.0110)	(0.0113)	(0.0114)
Bureaucratic quality				-0.293***	
				(0.0694)	
Democracy index				-0.000833	
				(0.000558)	
<i>Opinions variables</i>					
Better situation					-0.106***
					(0.0190)
Future situation					-0.0689***
					(0.0188)
Left/right					0.0114**
					(0.00465)

(Continued)

TABLE 4. Continued

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Law confidence					−0.110*** (0.0161)
Trust					0.0843*** (0.0285)
Democracy preference					−0.0278 (0.0179)
<i>Employment status interacted with education</i>					
Public sect. employee × educ	−0.0191 (0.0265)				
Private sect. employee × educ	−0.00154 (0.0192)				
Unemployed × educ	0.0105 (0.0302)				
Retired × educ	−0.0200 (0.0321)				
At home × educ	−0.0189 (0.0189)				
Student × educ	−0.0371 (0.0326)				
Year Dummies	yes	yes	yes	yes	yes
Observations	13,041	13,041	11,372	11,372	9,187
Number of identi	2,640	2,640	2,304	2,304	2,263
R-squared	0.062	0.062	0.058	0.059	0.108

Robust standard errors in parentheses (clustered at the country level). Coefficients significant at 10%: *; 5%: **; 1%: ***. Variables coding: See Table 1.

Pseudo-panel defining variables: country, region, age, sex.

not attributable to differences in life cycle experiences since they all have lived during the same years at each survey round. However, in the case of pseudo panels based on age, we assume that the unobservable characteristics that affect satisfaction are specific to the age group so that the time evolution of satisfaction of these age groups is concomitant with their change of cohort but not attributable to differences in aging. The two ways to construct pseudo panels are thus difficult to disentangle but our results do not change qualitatively, which seems to prove their robustness.

Once the pseudo panel has been created, one can use fixed effects linear regression to estimate (3) and asymptotic consistency is obtained as the number of pseudo units goes to infinity (Deaton, 1985). Year dummies are also included.

Table 4 confirms some of the previous insights. As for the effect of education, we note that the *U*-shaped relationship between satisfaction and the education level is preserved, meaning that the less satisfied with privatizations are the people with medium education. Contrary to the individual data estimations, employment variables, as well as the interactions of these employment categories with the level of education, are not significant and their inclusion does not modify the direct effects. The most likely explanation is that the spatial distribution of jobs implies a correlation with the regions used to define the pseudo-panel. As a result, fixed effects pick up the variations along these dimensions.¹⁶

As for country-level variables, income per capita and privatization proceeds are now positive and significant, as well as corruption in column 3. Again, satisfaction appears to increase more in years in which specific groups see their country have increased their income per capita and their proceeds from privatizing more than the average across countries. Finally, looking at assets ownership and services, we again observe that being rich in the sense of owning a secondary house implies more satisfaction.

In terms of access to services, the result on people not having access to sewerage services being more satisfied is also maintained. With this pseudo panel and fixed effects, we may now interpret the results on access to sewerage services as being driven by changes within identifying groups. It means that groups that saw their average level of access increase more than the average across all groups are more dissatisfied. If anything this result seems consistent with the previous interpretation that the (low-)middle class is more dissatisfied.

Finally, results on opinion variables are also broadly stable, with in particular people with weaker preferences for democracy and lower levels of trust in others being more dissatisfied. A first look at a range of questions included in the Latinobarometro survey shows that the evolution of opinions on the

16. As a matter of fact, a previous version of this paper (Bonnet et al., 2005) found significant effects of employment variables using a pseudo-panel that did not include regions as a determinant.

TABLE 5. Pseudo panel fixed effects

Correlation Opinion variables with opinion on Privatization	
Current country situation	−0.1371*
Better country situation than before	−0.1014*
Future country situation	−0.1007*
Law confidence	−0.1333*
Trust	0.0476*
Preference for Democracy	−0.0063*
Left/right position	0.0563*

* Pairwise correlation significant at the 5% level

benefits of privatizations is closely paralleled by the evolution of some other beliefs. Table 5 shows the correlation between the yearly country-level average opinions on privatization and other opinion variables.¹⁷ The evolution of these opinions in the period under study shows that at the time respondents in Latin America expressed growing negative perceptions of privatization, they also increasingly perceived the economic situation of their country to be bad, worse than 12 months ago, and they were also increasingly thinking this situation would worsen.

As signaled in Section 3, note that when estimations similar to those discussed previously are run with these alternative opinions as dependent variables, a number of different results are found, meaning that these opinions, although correlated, have distinct informational contents.

Overall, there seem to be a strong co-movement of opinion variables. This is especially true for what we will call “superficial” opinions, i.e., those on short-term aspects, and a bit less so for “deep” beliefs like the overall level of trust in others, the preference for democracy or the situation on a left to right political spectrum. Finally, trust in the judicial system is to some extent a mix of deep beliefs and more superficial opinions: although we would expect the level of trust in such institution to be to some extent beyond purely cyclical considerations, it is also conceivable that it may be subject to strong short-term fluctuations following for example some widely publicized scandal in a given country.

The main problem is that the inclusion on the right-hand side of the estimations of additional opinion variables might induce an endogeneity bias to the extent that both these variables and the opinion on privatizations are correlated with some individual or group unobserved effects. Unobserved effects would only be controlled for by the country dummies, as well as the fixed effects in the pseudo panel setting, if they are time invariant. Year fixed effects

17. The first four lines in this table show the correlation between the rate of approval of privatizations and the percentage of respondents that think that the country situation is bad/worse than 12 months ago/likely to worsen and that the judicial system is not trustworthy. Hence, the negative correlations mean that more pessimistic respondents on these aspects are less happy with privatizations.

may take care of some time varying unobserved effects, but only if these are common across countries and individuals. Any residual time varying individual unobserved effects would still induce a correlation between opinion variables and the error term. Moreover, this endogeneity bias might also affect the coefficients and standard errors of the other right-hand side variables included in the estimations, such as the demographics, if, as is very likely, these variables are correlated with the opinion variables through the unobserved individual or group effects. Results on these variables must therefore be taken with caution.

IV. DISCUSSION AND CONCLUSION

We have performed a systematic empirical analysis of the determinants of public discontent with privatizations in Latin America, using survey data from Latinobarometro covering 17 countries over the period 1998-2008, complemented by country level data on macroeconomic, political, and institutional aspects as well as data on the extent of privatizations. The strong surge in dissatisfaction in the region since the end of the 1990s appears to respond first to a mix of absolute and relative welfare effects. Specific categories that are likely to have suffered directly from privatizations, such as unemployed and public sector employees, do indeed express more dissatisfaction. As for relative effects, the fact that the extreme of the distribution in terms of income or education are less dissatisfied is consistent with the middle class expressing concerns about an unequal distribution of efficiency gains among the population, as put forward in previous contributions on the subject.

To summarize in more details the insights from both individual data and pseudo-panel estimations, we get the following picture with respect to traits and environmental features that fuel dissatisfaction with privatizations. Women, older individuals and people living in couple are more dissatisfied. As for employment status, dissatisfaction is more important among public employees, unemployed and home workers, while private sector employees, above an average level of education, and students, below an average education level, appear positively correlated with satisfaction. The first category is likely to capture the discontent from public employees who are under the threat of being laid off or of seeing their job characteristics modified as the result of the privatization process.¹⁸ Indeed, a number of studies show that there were substantial job losses in privatized firms and, despite the fact that these cuts were generally small when compared to the total workforce and tended to be partially reversed in the medium run, they also mention serious workers' concerns about the quality of their new jobs, including the obligation to work longer hours and a degradation of health and social security benefits. This is compounded by the well known fact that in many Latin American countries, public firms have been used for patronage purpose by successive governments, with

18. Unfortunately, the surveys do not provide information on this aspect.

the result that many public employees had relatively non-demanding jobs with benefits that largely exceeded what was available to the population at large.

The dissatisfaction expressed by unemployed individuals could be related both to these job losses, in case they were among the victims, and to worries about the conditions of possible future employment. Finally, students may also be expressing preoccupations with the evolution of the labor market. In general, it seems likely that the change in jobs characteristics induced by the privatization of some big firms is taken by these categories of individuals, that are or will soon be looking for a job, as a signal that the labor market and the reward structure has become more competitive. In other words, the evaluation of privatization in this case seems to be affected by people's beliefs about what to expect from the economic situation rather than by actual welfare changes directly induced by the policy.¹⁹

Discontent is more pronounced among people with an intermediate level of education or with intermediate socioeconomic levels, who can be interpreted as being middle class individuals. One potential explanation is the one proposed by [Martimort and Straub \(2009\)](#), who argue that the middle class perceives itself as being the main loser in the distribution of efficiency gains, partly because of instances of corruption that have pushed up the price for public services.

In terms of assets, it appears that ownership of what can be considered as "luxury" assets in a developing country context (computer, secondary house, and to a lesser extent car and washing machine) corresponds to higher satisfaction with privatization. So is access to hot water. At the other extreme, not having access to drinking water or sewerage systems, a proxy for being in the poorer part of the population, is also associated with greater satisfaction. Both facts can again be related to the inverse U-shaped effect in terms of education and wealth, with higher level of dissatisfaction in the middle of the distribution. The top part of the distribution, corresponds to people that may actually have benefited from the change in the pattern of corruption mentioned above, which went from affecting rich taxpayers, through the soft budget constraint of the State, to falling mostly on service consumers through regulated prices. Moreover, they may also have benefited from the elimination of cross-subsidies that followed the privatization of key services like telecommunications and water. At the other end, very poor people, located in rural communities or less developed urban areas previously unconnected to the networks, are likely to have gained access to electricity, telecommunication or water after the change in ownership.²⁰ This may explain their more positive evaluation of the benefits of privatizations. Note that some asset ownership effects are

19. Another category of belief that could matter here is happiness. Unfortunately, we do not have exploitable information on that aspect.

20. This is consistent with the evidence from [McKenzie and Mookherjee \(2003\)](#) discussed above, showing that these categories often experienced substantial welfare gains.

weakened by the introduction of fixed effects in the pseudo-panel estimations. Again, one can conjecture that ideological effects, likely to be stronger among middle class, urban groups, are now captured by fixed effects.

At the aggregate level, dissatisfaction appears to thrive in the context of poorer countries experiencing a difficult macroeconomic situation. As a matter of fact, the negative time trend between 1998 and 2008 (despite a slight reversal in 2005), seems to capture mainly the effect of low economic growth.

A number of policy implications can be derived from these results. First of all, dealing with actual or perceived fairness issues in the implementation of privatization programs appears crucial. This means first that structuring the programs and their articulation with the institutional environment to minimize the risks and suspicions of corruption should be a priority for governments willing to convince their population of the opportunity of privatization. Additionally, more transparency in the way potential efficiency gains are allocated following the move to private operators is likely to alleviate negative evaluations by the public.

The fact that dissatisfaction peaks among the middle class also calls for specific policies towards categories of households that often lose from the privatization process, as they already had access to services at lower prices. Giving them a stake in these privatizations, as was done in some transition countries, may be a first step towards that goal.

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APPENDIX

Data construction

Sources of data:

- Latinobarometro surveys 1998–2008
- Political risk variables (Bureaucracy quality, Corruption) from the International Country Risk Guide, 1984–2008.
- World Bank Privatization Database, transactions by country, region or sector, by year 1988–2008 <http://rru.worldbank.org/Privatization/> (last consulted, May 23rd, 2011. This site provides information on more than 10,000 privatization transactions of at least US\$1 million in developing countries from 1988 to 2008.
- World Development Indicators, World Bank, 1960–2008.
- Democracy index from the Polity IV project (codes the authority characteristics of states in the world system for purposes of comparative, quantitative analysis). The Democracy indicator is an additive eleven-point scale (0–10) taking into account the competitiveness of executive recruitment, the openness of executive recruitment, the constraints on chief executive, and the competitiveness of political participation.

Descriptive statistics

TABLE A1. Individual characteristics and opinions

Individual variables	All countries		Poor countries		Rich countries	
	Mean	Median	Mean	Median	Mean	Median
Individual characteristics						
Sex (0 = woman, 1 = man)	0.49	0	0.50	0	0.48	0
Age (years)	38.75	36	37.48	35	40.02	37
Couple (1 = living in couple, 0 = single)	0.57	1	0.57	1	0.57	1
Education level (1–9)	3.82	4	3.74	4	3.91	4
TV (0 = no, 1 = yes)	0.88	1	0.82	1	0.92	1
Fridge (0 = no, 1 = yes)	0.81	1	0.69	1	0.90	1

(Continued)

TABLE A1. Continued

Individual variables	All countries		Poor countries		Rich countries	
	Mean	Median	Mean	Median	Mean	Median
Wash (0 = no, 1 = yes)	0.48	0	0.24	0	0.70	1
Car (0 = no, 1 = yes)	0.30	0	0.24	0	0.35	0
Secondary house (0 = no, 1 = yes)	0.12	0	0.11	0	0.12	0
Home owner (0 = no, 1 = yes)	0.74	1	0.72	1	0.74	1
Drink water (0 = no, 1 = yes)	0.90	1	0.86	1	0.92	1
Hot water (0 = no, 1 = yes)	0.43	0	0.25	0	0.59	1
Sewerage system (0 = no, 1 = yes)	0.75	1	0.69	1	0.79	1
Opinion variables						
Better situation (1 = better, 2 = same, 3 = worse)	2.30	2	2.35	2	2.26	2
Future situation (1 = better, 2 = same, 3 = worse)	2.08	2	2.14	2	2.02	2
Left Right (0-10 from left to right)	5.46	5	5.56	5	5.36	5
Law confidence*	2.91	3	2.99	3	2.83	3
Trust (0 = no, 1 = yes)	0.19	0	0.18	0	0.19	0
Democracy preference (-1 = no, 0 = same, 1 = yes)	0.44	1	0.39	1	0.49	1

* (1 = very high, 2 = high, 3 = low, 4 = very low)

TABLE A2 Employment status and opinion on privatization

Employment status	Percentage
Employment status = 1 (self employed)	29.5 %
Employment status = 2 (public sector employee)	8.9 %
Employment status = 3 (private sector wage laborer)	17.2 %
Employment status = 4 (temporarily unemployed)	6.8 %
Employment status = 5 (retired)	7.0 %
Employment status = 6 (at home)	21.5 %
Employment status = 7 (student)	9.1 %
Whether privatization has been beneficial	
agree strongly	8.64 %
agree	26.74 %
disagree	40.04 %
disagree strongly	24.58 %

TABLE A3. Country level variables

Country level variables	Mean	Median	Std. Dev.	Min	Max
Political risk variables					
Bureaucracy quality	1.87	2	0.673	0.16	3
Corruption	3.35	3	1.079	1	5.83
Other country level variables					
GNI per capita	5296.1	4885	2387.75	1640	12460
GDP growth (%)	3.31	3.56	3.69	-11.03	17.32
Proceeds from privatizations (per year in 1000 \$ US)	675.87	145.5	1355.31	0	9457
Democracy index	7.505	8	1.82	2	10