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Political and institutional environment and privatization prices

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Abstract We study the link between the political and institutional context and privatization sales prices. The latter serves as a measure for assessing the extent to which privatization goals have been met. Whereas this link has been studied theoretically, there are very few, if any, empirical papers on this relationship. We use data from 308 privatizations around the world and apply a cross-country approach, including instrumental variables. We find that while the overall political regime does not matter much for prices, the political processes beyond the basic regime do matter. Institutional context also produces a significant impact on prices. Both results are robust to changes in specification.

Keywords Privatization · Institutions · Governance · Prices · Politics

JEL Classification G32 · H10 · J45

1 Introduction

Despite twenty years of massive privatization around the world, empirical studies on the determinants of privatization prices are rather limited. This lack in the literature is remarkable since prices provide a means of comparing across firms and constitute an outcome measure for assessing the extent to which privatization goals were met by the government. In fact, the existing literature on privatization prices has focused on one single issue when analyzing prices as outcomes, that of restructuring before privatization. Not only does restructuring involve reducing total indebtedness of the state-owned enterprise, but it also involves selling

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off or closing down unproductive divisions of a state-owned enterprise, reconfiguring the company's manufacturing process, changing suppliers and customers, and most painful of all, laying off redundant workers. Critics argue that poor restructuring is a key concern before privatization. In the case of Mexico, López-de-Silanes (1997) shows that the optimal policy seems to be to refrain as much as possible from engaging in restructuring. Some of the most popular measures, such as debt absorption, do not increase net prices, while measures such as the establishment of investment and efficiency programs actually reduce net prices. Also, Chong and López-de-Silanes (2004) find that labor retrenchment has little impact on privatization prices and argue that this may be due to adverse selection in the process of laying off workers before privatization. They provide further evidence of this by using firm re-hires after privatization as a proxy for the quality of the retrenchment program. Chong and Galdo (2005) find that in the case of telecoms while most measures have no bearing on privatization prices, the presence of a regulatory agency prior to privatization does impact prices, especially if it was set up well before the sale. Furthermore, Arin and Okten (2003) find that restructuring prior to privatization decreases the privatization price. However, this is not due poor restructuring- rather the last minute intervention by the state is regarded as a bad signal by the potential buyers.

Firm restructuring, however, does not exist in a vacuum. The political and institutional context matters and can have a crucial bearing on privatization outcome variables, such as sales prices. As obvious as this may sound, and despite some recent theoretical research on the subject, the only empirical research that studies the link between political processes, governance, and privatization prices is extremely limited. This paper tries to fill this void. In fact, the previous theoretical research has already identified some likely political links. For example, Biais and Perotti (2002) analyze politically motivated privatization design in a bipartisan environment where politicians lack commitment power. They found that when the median class a priori takes into account redistributive policies, strategic privatization programs that allocate the median class enough shares can induce a voting shift away from left-wing parties whose policy would reduce the value of shareholdings. The authors suggest that it could be in the interest of rightwing or "market-friendly" politicians in office to under price a state-owned enterprise in order to modify the preferences of the population in terms of redistribution and therefore increase their probability of being re-elected. Under pricing can be used as a signaling device to show a willingness to bear most of the redistribution costs associated with subsequent interference in the firm (Perotti 1995).

In fact, sometimes governments need to offer concessions to overcome political obstacles to privatization. They need to convince investors that they are willing to relinquish control and that they value the economic benefits of privatization more than immediate proceeds, since powerful interest groups seek favorable terms for themselves in return for dropping their opposition to privatizations and investors are uncertain about the government's degree of commitment to market-friendly policies. After all, politicians seek to provide services in-house because they derive political benefit, such as support from public-sector unions and the ability to undertake political projects, among other things (López-de-Silanes 1997). They seek to win the support—or at least avoid the active opposition—of these unions, which are the major beneficiaries of in-house provisions. This political context comes from a voter preference for lower taxes, which leads to lower public budgets and makes in-house provision less affordable. Similarly, clean government laws reduce the political benefits of in-house provision, since they restrict politicians' freedom of action and make restructuring before privatization and privatization itself more likely (López-de-Silanes et al. 1997). Alternatively, politicians may have strong incentives to create obscure and arbitrary privatization mechanisms that allow them to extract higher rents for themselves or their constituencies.

Among the scarce evidence on the impact of the politics of the privatization process on post-privatization outcomes we have Perotti and van Oijen (2001), who investigate whether privatization in emerging economies has a significant indirect effect on local stock market development through the resolution of political risk. They argue that a sustained privatization program represents a major political test which gradually resolves uncertainty over political commitment to a market-oriented policy as well as to regulatory and private property rights and present evidence suggesting that progress in privatization is correlated with improvements in perceived political risk and that these improvements are significantly larger in privatizing countries than in non-privatizing countries, indicating that the resolution of such risk is endogenous to the privatization process. Their analysis further shows that changes in political risk in general tend to have a strong effect on local stock market development and excess returns in emerging economies, suggesting that political risk is a priced factor. Also, they conclude that the resolution of political risk resulting from successful privatization has been an important source for the rapid growth of stock markets in emerging economies.[1]

This paper uses net prices, typically defined as the net privatization price, after the costs of privatization and restructuring are deducted, divided by the dollar value of the firms' assets. In fact, in most countries, the price paid was a crucial motivation in selecting winners for almost all privatized state-owned enterprises (López-de-Silanes 1997). Furthermore, whereas economists have generally endorsed the goal of maximizing revenues Bolton and Roland (1992) show that a policy of maximizing net sales revenue is likely to be consistent with a policy of maximizing social welfare since the proceeds from the sale can be used to subsidize employment, investment, a social safety net and other public goods.[2]

The privatization database employed in this paper is from Chong and López-de-Silanes (2004). It was constructed by randomly selecting 400 international firms privatized between 1982 and 2000. They obtained pre- and post-privatization data by sending a detailed questionnaire to the CEOs of privatized firms and accessing privatization files. They corroborated the answers with several public sources and data for these firms coming from international financial agencies and privatization ministries. The result is a comprehensive crosscountry database with firm characteristics and restructuring policies before privatization. This paper complements the Chong and López-de-Silanes database with well-known and widely employed data on governance and political processes, such as Kaufmann et al. (2003), Beck et al. (2001) and others. In particular, the variable of interest, which we term "governance", is defined as the simple average of five sub-measures that try to capture the institutional and political context of the country. The particular sub-measures employed are voice, political instability, government effectiveness, regulatory environment, corruption and rule of law (Kaufmann et al. 2003). While these data are subjective, they are widely used in the empirical literature and are highly correlated with other commonly used institutional data, such as ICRG.[3]

The paper is organized as follows. The next section describes the data and discusses the empirical methodology. Section 3 examines whether the political and governance contexts have an impact on privatization prices and test on whether such results hold when potential

[1] Two more empirical studies that link politics and privatization outcomes are Bel and Trillas (2005) and Bortolotti et al. (2003).

[2] It has been claimed that governments pursue multiple objectives with privatization, both political and economic other than maximization of proceeds. Among these, it has been mentioned issues of transfer control, pricing of offers and allocation of shares. Still, we follow López-de-Silanes (1997) and implicitly assume revenues maximization as the crucial objective function.

[3] In fact we also employ the ICRG data as a robustness check. Results do not differ.

endogeneity is taken into account. Section 4 provides robustness results. Section 5 summarizes and concludes.

2 Data and basic methodology

Two main datasets were used to analyze the political and institutional determinants of privatization prices: one assembled by Chong and López-de-Silanes (2004) and another constructed by Beck et al. (2001). The first is a random sample of privatization processes, consisting of 308 observations from a list of 1,500 privatization processes throughout the world for the period 1982–2000, drawn from the World Bank Privatization database and Privatisation International. The authors collected information on pre-privatization firm characteristics like sales, assets, profits, liabilities and sector of origin and the main features of the privatization process: net prices received by the government, the sale mechanism used to divest the firm, percentage of shares sold and the extent to which foreign participation is allowed. These data are augmented with country-level data that combine political and institutional variables, particularly the Database of Political Institutions (DPI) constructed by Beck et al. (2001), but also the wellknown Polity V database (Jaggers and Moore 1995) and a variable on political constraints constructed by Henisz (2000). As for the governance variable, data from Kaufmann et al. (2003) is primarily used, but the robustness of the results is checked with data from International Country Risk Guide (2005) and BERI (Knack and Keefer 1995).

The key dependent variable is the privatization sales price from Chong and López-de-Silanes (2004). They define this variable as the amount that accrues to the government after all privatization and streamlining costs are taken into account, including government commitments, special clauses, and other adjustments that are made to the sales contract at the time of the sale. After all the relevant costs of privatization are considered, the net transaction price is often very different from the price announced in the sales contract. This number is adjusted by the percentage of company shares sold and divided by the average net sales during the three years prior to privatization. The real value of the resulting number as of December 2000 is the dependent variable employed, which is labeled "Net Privatization Price/Sales".[4] While this measure closely follows the corresponding privatization price measure used in the seminal paper by López-de-Silanes (1997), data limitation impede our efforts to replicate his "Privatization Q" measure, which also includes the firms' total assets and total liabilities in the price formula. However, in the empirical section, regressions include a dummy variable to control for net liabilities.[5]

The Database on Political Institutions (Beck et al. 2001) is a large cross-country database that covers 177 countries from 1975 to 2000. It includes information about elections, electoral rules, type of political systems, party composition, the extent of military influence on the government, checks and balances and political stability. The main advantage of

[4]This variable may also be labeled as the "P/S value" as it reflects share price divided by sales per share.

[5]In general, the price measure we use is the best possible measure that our data allowed. Two possible alternative price measures are (i) share price/earnings per share, and (ii) share price/value of assets per share. These could not be constructed for lack of sufficient data, particularly for developing countries. Furthermore, around half the sample has negative profits prior to privatization. Following López-de-Silanes (1997), we also compute a price measure that assumes that the government's objective includes investment objectives and shares granted to workers. We use a small sub-sample for which data is available (28 observations) and find a statistically significant correlation of 0.97 with the measure we use in this research. This is slightly higher than the correlation found by López-de-Silanes (0.95).

this dataset is that almost all of its variables are objectively measured as opposed to other widely used sources, which tend to be subjective. In particular, we focus on electoral competitiveness issues because the policy choices of politicians are likely to be influenced by the likelihood that those choices will lead to their replacement. In fact, this feature has been considered as an important potential political determinant of privatization prices (Chong and Galdo 2005). The database of political institutions classifies political competitiveness using a seven-category scale according to the number of parties that could and did compete in the last executive and legislative elections. This index is increasing on the level of competitiveness and goes from one in cases where there are no executive or legislative to 7 where multiple parties are legal and compete in the elections and the largest party received less than 75% of the vote. Since both the legislative and executive competitiveness indices are highly correlated in our sample (0.85), they were combined to create one single variable called *Electoral Competitiveness*, which takes a value of 1 if the country achieves the highest value on either the executive or legislative competitiveness index, or 0 otherwise.[6] The other variables from the Database on Political Institutions included in this paper are *Allhouse*, which is a dummy variable that takes a value of 1 if the Executive's party controls all relevant houses, and 0 otherwise. This variable is intended to capture the relative strength of government in the legislature. *Fraud* indicates whether the outcome of the last executive and/or legislative elections was disrupted due to the presence of electoral fraud or candidate intimidation; *Right* is a dummy variable that takes the value of one if the Chief Executive belongs to a right-wing party, and zero otherwise. Finally, *Political Cohesion* is a variable originally proposed by Roubini and Sachs (1989). It goes from zero for one-party majority parliamentary government or a presidential government with the same party in the majority in the executive and legislative branch, to three for minority parliamentary governments.

Additionally, data on political interaction were derived from two different sources. The first is from Henisz (2000), who derives a measure of political constraints from a simple spatial model of political interaction that incorporates information on the number of independent branches of government with veto power and the distribution of preferences across and within those branches. The other data source is the relatively well-known Polity V dataset (Jaggers and Moore 1995). In particular, we use the variable *Institutionalized Democracy*, which is an annual index based on three categories that try to account for different characteristics of a democracy: (i) executive recruitment (of the Chief Executive), (ii) responsiveness or independence of executive authority, and (iii) extent of political competition or opposition. The first measures the extent of institutionalization of executive transfers, the competitiveness of executive selection in terms of electoral systems and the openness of executive recruitment. The second category reflects the extent to which preferences of third parties are taken into account in the decision-making process of the head of the government. It measures the extent to which the Executive is dependent on a cabinet, and the magnitude to which decision rules constrain the actions of the Executive. The third category reflects the extent to which the political system enables non-elite to influence political elite and focuses on both the degree of institutionalization of political participation and the extent of government restriction on political competition. Based on these categories, an index of democracy was constructed. It goes from 0 to 10, with higher scores representing higher degrees of democracy.

In terms of the institutional country-level explanatory variables, we used the well-known governance indicators developed by Kaufmann et al. (2003). From a large set of sources

[6] As for 90% of the observations in our sample both the indices of legislative and executive competitiveness took a value of 6 or higher.

combining both large opinion surveys and measures based on polls of experts, the authors define governance using six clusters of variables: (i) Voice and Accountability, (ii) Political Instability and Violence, (iii) Government Effectiveness, (iv) Regulatory Burden, (v) Rule of Law and (vi) Corruption. Using an unobserved components model that expresses observed data as a linear function of unobserved governance plus a disturbance term capturing perception errors and/or sample variation in each indicator, the authors aggregate the governance indicators into each one of the six clusters described above. As an aggregate measure we use the simple average of these indicators for each country. The main disadvantage of this variable is its lack of temporal coverage, as it has only been calculated since 1996, and not in a yearly basis. Thus, we use the value of the governance indicator closest to the year that privatization took place. Given the fact that the intertemporal correlation of the measures is rather high, the fact that in some instances we are not able to match the privatization year with the year of the governance indicator is of relatively little concern[7] the scores range from −2.5 to 2.5, the higher the score, the better the institutional indicator.

Following López-de-Silanes (1997) and Chong and López-de-Silanes (2004) we estimate the following reduced form equation:

$$P_{ij} = f(X_{ij}, M_j, G_j) \tag{1}$$

which formalizes the link between the net privatization price of firm i in country j, P_{ij} with respect to a vector of firm privatization characteristics (X_{ij}), a set of macroeconomic controls and political regime characteristics (M_j), and a governance measure (G_j). In particular, X_{ij} includes a dummy variable that takes the value of one when the three-year average of net total liabilities is greater than zero prior to privatization; four economic sector dummies;[8] a dummy variable for the method used to sell the firm that takes the value of one for public offerings and 0 for other methods such as private direct sales, secondary offers, joint ventures, and purchases by employees; the percentage of shares sold; a foreign participation dummy; a dummy that accounts for protests, strikes or picketing up to three years prior to the privatization; and the number of years that have passed between the year of privatization of firm i and the start of a privatization program in its respective country. We use this latter variable as a proxy for reputation and specific knowledge that a government acquires during the privatization program.[9] On the other hand, the vector M_j includes legal origin dummies (English Common Law, French Civil Law and Socialist Law); the average fiscal deficit as percentage of gross domestic product; and the gross domestic product growth rate

[7] This occurs in less than 12% of our sample. Furthermore, our results remain practically the same if we use the 1996 or 1998 value of the governance variable, instead of the closest year match. As robustness check we also use data from International Country Risk Guide (ICRG). In particular, we use the value of the index for the year in which each firm was privatized. The index is the simple average of five components: (i) perception of corruption in the government, (ii) rule of law, (iii) risk of expropriation, (iv) likelihood of repudiation of contracts by the government and (v) quality of bureaucracy. A higher value on each of the components and therefore in the aggregate rating indicates a higher degree of governance. Our findings do not change and are not presented here for the sake of economy. These results are available upon request.

[8] We considered the following economic sectors: (i) mining (metallic minerals and nonmetallic minerals); (ii) manufacturing (canned fish and seafood; sugar mills; tobacco products; beverages; textiles, clothing and leather; wood; paper and printing; heavy machinery; transportation equipment); (iii) services (hotels and restaurants; land and sea transportation; communications; and recreation); and (iv) others (land; unclassified firms).

[9] As Bel and Trillas (2005) and Perotti and van Oijen (2001) note, sustained privatization programs represent a major political test that gradually resolves uncertainty over political commitment to market-oriented policies as well as to regulatory and private property rights.

up to three years before privatization. M_j also includes a broad battery of variables related with the political regime and the political process of the country, for instance, we consider an index of democracy, the political orientation of the executive, the number of seats that the party of the chief executive has on the legislative, and several others. Also, G_j represents a measure of governance based on a core of five variables that measure broad dimensions of governance. Finally, all regressions include sector dummies, regional dummies, a partial privatization dummy, and firm size dummies.[10] Table 1 provides definitions of all the variables used in this paper. Similarly, Table 2 provides summary statistics.

3 Findings

Table 3 shows simple pairwise correlations among our variables of interest and net privatization prices. While the degree of correlation of prices and political variables does not appear to be very high, the corresponding signs are consistent with the idea that better institutions and political processes do yield higher privatization prices. Moreover, the link is statistically significant at 5% or better in most cases.[11]

Along the same lines, Table 4 provides test of means and test of medians between political and governance variables and privatization prices. In particular, we divide the sample of firms into two groups according to whether the variable of interest equals one in case it is a dummy variable. When the variable of interest is a continuous variable we divide the sample in two groups depending on whether the median of the variable of interest is above or below the sample average. We test whether the mean and median of our key variable of interest, net privatization price divided by sales differs across these groups. Not surprisingly, we find statistically significant differences on net privatization prices which appears to be linked to the political context. In fact, in almost all the cases we find that political and institutional variables matter as more electoral competition, more political cohesion, less electoral fraud, better governance and, in general, more democratic values are linked with higher net privatization prices.[12] As encouraging as these results are they are, at most, suggestive of a relevant link between political context and privatization prices. Since there are no additional controls included in these tests they can hardly be construed as definitive evidence.

Table 5 presents the results of our basic heteroscedasticity-corrected ordinary least squares regression. We find that governance and political variables do have a bearing on net privatization prices. In fact, most of the political context variables considered from Beck et al. (2001) yield the expected sign and are statistically significant at 5% or better. As shown in column 1, the only exception is the variable *Right* which yields weak statistical significance. Furthermore, this variable loses statistical significance when including a democracy variable, as shown in column 3 on the same table. Interestingly, while this latter variable is not statistically significant, all the other political context variables do remain so. Additionally, when using the aggregate governance measure from Kaufmann et al. (2003) we find that the link between governance and privatization prices appears to be economically

[10] Sectoral dummies are based on two-digit CIIU classification; regional dummies are Latin America, Africa, and Industrial Countries, firm-size dummy accounts for large firms, defined as on the top two-thirds above the median in terms of sales.

[11] The exceptions are the variables Allhouse and Political Constraints, whose correlation with privatization prices is statistically significant at 10%, only.

[12] The variable political constraints are the only one that did not yield statistical significance for changes in means or medians in privatization prices.

Table 1 Variable definition

Variable	Description
Firm Characteristics	
Net privatization price/sales	The net real value of the nominal price of sale in US dollars after all privatization and restructuring costs are taken into account adjusted by the percentage of company shares sold, and divided by total sales before privatization.
Sales	The net real value of the three-year average of firm sales before privatization denominated in US dollars.
Net total liabilities	Dummy variable equal to 1 if net total liabilities are greater than zero up to three years prior to privatization, and 0 otherwise.
Privatization Characteristics	
Foreign participation	Dummy variable equal to 1 if foreign participation was allowed in the privatization process, and 0 otherwise.
Share sold	Percentage of firm's shares sold in privatization.
Public Offer	Dummy variable equal to 1 if the firm is sold through a Public Offer, and 0 otherwise (if the sale method is direct (non competitive) sale, purchase by the employees, joint venture or secondary offer)
Union strikes	Dummy variable equal to 1 if firm has union or if there were any protest, picketing or strikes in the three years prior to privatization, and zero otherwise.
Duration	Is defined as the number of years between the start of privatization of a given firm and the initial year of privatization in the country. The initial year of the privatization program is taken from www.privatizationlink.com, OECD, and Perotti and van Oijen (2001)
Leading agent bank	Dummy variable equal to 1 if leading agent bank organized privatization process. Leading agent bank is defined as bank that organized most privatizations in the country at the time of our research. Agent banks are in charge of obtaining information on the state-owned enterprise, suggest restructuring measures, and organize the sale itself.
Ministry of Finance or Economy	Dummy variable equal to 1 if the ministry of finance or economy was responsible for that company, and 0 otherwise.
Political affiliation of unions	Dummy variable equal to 1 if political affiliation of union is the same as the political party linked with the ruling government at the time of privatization, and 0 otherwise.
Country-level Variables	
Gross Domestic Product	Gross Domestic Product (US$ PPP) in logs. Average of the three years prior privatization (World Bank 2001).
Inflation	Average rate of inflation in the country three years prior privatization (World Bank 2001).
Openness	Average sum of exports and imports of goods and services measured as a share of gross domestic product three years prior to privatization (World Bank 2001).
OECD	Dummy equal to 1 if the country is an OECD country, 0 otherwise.
GDP Growth	Average rate of GDP growth of the country three years prior privatization (World Bank 2001).
Fiscal deficit	Average fiscal deficit as a percentage of gross domestic product three years prior to privatization (World Bank 2001).
Gini	Gini coefficient (Deininger and Squire 1996)

Table 1 (*Continued*)

Variable	Description
Law origin	Legal origin of the country from which company is geographically based upon. Five possible legal origins considered: English common law; French civil code; German commercial code; Scandinavian commercial code; and Socialist laws (La Porta et al. 1998).
ICRG Index	Simple average of the following component variables: repudiation of contracts, corruption, rule of law, expropriation, and bureaucratic quality. It goes from zero to ten. The higher the number the better the index.
BERI Index	Simple average of the following component variables: enforcement of contracts, degree of nationalization, and bureaucracy. It goes from zero to ten, the higher the better.
Freedom House	Simple average of civil rights index and political rights index (1 = high degree of civil liberties; 7 = virtually no freedom)
Civil Liberties Index	Civil liberties index measures the degree of freedom of expression and belief, the right to associate and organize and the respect of human rights. Political index measures degree of political freedom and also goes from 1 to 7.
Governance	Simple average of Voice, Political Instability, Government Effectiveness, Regulatory, Corruption and Rule of Law from Kaufmann et al. (2003).
Right	Dummy variable that takes the value of 1 if the Chief Executive belongs to a Right-Wing party, 0 otherwise
Fraud	Dummy variable that takes the value of 1 if vote fraud or candidate intimidation were serious enough to affect the outcome of the last elections, 0 otherwise
Political Cohesion	Index of Political Cohesion based on Roubini and Sachs (1989). Range: 0–3. (0 = One party majority parliamentary government or presidential government with the same party in the majority in the executive and legislative branch; 3 = Minority parliamentary government)
Allhouse	Dummy variable that takes the value of 1 if the party of the executive controls all relevant houses, 0 otherwise

relevant and statistically significant at 1% or higher in all the regressions, too.[13] In short, it appears that both political environment and institutional variables prove important factors behind the cross-country differences in net privatization prices.

For the most part, the corresponding coefficients of the variables that capture firm characteristics also yield the expected results, as shown in both columns 1 and 3 on the same table. For instance, in the case of net total liabilities, the coefficient is negative although it is not statistically significant. This may reflect the fact that new owners do not consider past financial performance an accurate measure of the future profitability of the firm as it does not fully reflect expected future profits (Arin and Okten 2003). On the other hand we find that increasing the percentage of shares sold reduces privatization net prices. A 10% increase in the percentage shares sold translates into a 1.5% reduction of the price evaluated at the mean. This finding appears to go against the conventional wisdom as one might expect a

[13] We obtain very similar results when using the component variables of this governance index, as well as with similar measures of governance and institutions, such as ICRG and BERI (Knack and Keefer 1995). This is expected as the simple correlation among measures and within sub-components is very high; thus, for the sake of economy we are not reporting these findings but we would be happy to provide them upon request.

Table 2 Summary statistics

	Obs	Mean	Median	Std. Dev.	Min	Max
Firm Characteristics						
Net privatization prices/sales	308	0.587	0.609	3.228	0.000	1.367
Sales	308	1.415	0.140	3.167	0.001	21.991
Net total liabilities	308	0.432	0.000	0.496	0.000	1.000
Privatization Characteristics						
Foreign participation	308	0.682	1.000	0.467	0.000	1.000
Shares sold	308	0.509	0.506	0.282	0.010	1.000
Public offering	308	0.688	1.000	0.463	0.000	1.000
Union strikes	308	0.474	0.000	0.500	0.000	1.000
Duration	272	4.643	5.000	3.317	0.000	19.000
Country-Specific Variables						
Gross Domestic Product	308	25.398	25.452	1.851	19.45	28.856
Inflation	308	109.88	11.485	292.7	0.618	1667.2
GDP Growth	308	3.028	2.726	3.811	−11.14	21.320
Fiscal deficit	308	−2.580	−2.279	3.475	−14.00	13.629
Gini	308	38.85	38.000	10.84	18.10	65.500
Latin America	308	0.328	0.000	0.470	0.000	1.000
Asia	308	0.078	0.000	0.268	0.000	1.000
Africa and Middle East	308	0.208	0.000	0.406	0.000	1.000
Developed Countries	308	0.250	0.000	0.434	0.000	1.000
Transition Economies	308	0.136	0.000	0.344	0.000	1.000
OECD	308	0.253	0.000	0.436	0.000	1.000
English common law	308	0.253	0.000	0.436	0.000	1.000
French commercial code	308	0.500	0.500	0.501	0.000	1.000
Socialist/communist laws	308	0.110	0.000	0.314	0.000	1.000
Governance	293	0.347	0.150	0.685	−1.357	1.719
Right	267	0.431	0.000	0.496	0.000	1.000
Fraud	263	0.129	0.000	0.336	0.000	1.000
Political Cohesion	260	0.776	1.000	0.849	0.000	3.000
Allhouse	258	0.554	1.000	0.498	0.000	1.000

positive sign for the percentage of shares privatized, as ownership concentration is desirable from the point of view of potential buyers. Another surprising result is that our public offering dummy yields a positive sign which is statistically significant at conventional levels. Interestingly, the previous privatization literature (Boubakri et al. 2005) find a positive link between high ownership concentration and firm performance.

Consistent with previous work by López-de-Silanes (1997) and Dewenter and Malatesta (1997), we find that increasing competition in the sale of the firm, both by allowing foreign participation and through the use of public offers instead of private sales reduces the scope for collusion and therefore generates a positive and statistically significant impact on net privatization prices. Furthermore, allowing foreigners to participate in the privatization and using public offers as the method to sell the firm increase net privatization by 15 and 13% respectively.

Table 3 Correlation between political and institutional variables

	Privatization prices	Governance	Right	Fraud	Allhouse	Democracy	Political constraints
Governance	0.334	1					
Right	0.159	0.215	1				
Fraud	−0.354	−0.306	−0.119	1			
Allhouse	−0.157	−0.227	−0.088	0.343	1		
Democracy	0.338	0.590	0.305	−0.405	−0.460	1	
Political constraints	0.238	0.344	0.293	−0.363	−0.341	0.582	1
Gastil	−0.376	−0.745	−0.307	0.544	0.386	−0.805	−0.581

Table 4 Tests of means and medians between political process and privatization prices

Dummy variables	Variable of Interest = 1	Variable of Interest = 0	t-statistic for change in means	z-statistic for change in medians
Right	0.677	0.570	2.955	2.782
Electoral Fraud	0.366	0.655	−5.595	−5.508
Allhouse	0.560	0.678	3.195	3.201
Continuous variables	Above median	Below median	t-statistic for change in means	z-statistic for change in medians
Political Cohesion	0.865	0.576	5.924	5.146
Democracy	0.617	0.520	2.468	2.543
Political Constraints	0.586	0.589	−0.079	−0.036
Gastil	0.499	0.703	−5.794	−5.437
Governance	0.659	0.509	4.184	4.211

Regarding our set of country level variables, when using ordinary least squares, we find a negative and significant effect of past fiscal deficits as percentage of gross domestic product on net privatization prices. As Bortolotti et al. (2003) point out, financially distressed governments face considerable pressures to speed up privatization in order to balance their finances, providing incentives for underpricing. Our results suggest that indeed, governments facing financial difficulties are forced to forgone substantial privatization revenues relative to more solvent countries, everything else equal. Additionally, we do not find a robust result concerning the law origin variables as their corresponding coefficients present very high standard errors. Surprisingly we find that in our sample, French Civil Law legal systems are associated with higher privatization prices, a fact that seems counter-intuitive given the lower protection they provide to investors relative to English Common Law legal systems (La Porta et al. 1998). Finally, we find a very small economic significance and a marginally statistically significant effect of GDP growth on privatization prices in the ordinary least squares cases. Finally, we find that the presence of unions or strikes before privatization has a statistically significant impact on privatization prices, which is not sur-

Table 5 Net privatization prices and political context

Variables	OLS (1)	IV (2)	OLS (3)	IV (4)
Net total liabilities	−0.029	−0.016	−0.028	−0.018
	(0.81)	(0.57)	(0.80)	(0.60)
Shares sold	−0.005	0.014	−0.005	0.011
	(5.29)***	(2.20)**	(5.46)***	(2.95)*
Foreign participation	0.088	0.025	0.087	0.020
	(2.62)**	(0.15)	(2.61)***	(0.10)
Public offering	0.101	−0.490	0.105	−0.492
	(2.69)***	(1.29)	(2.72)***	(1.15)
Fiscal deficit	−0.016	−0.007	−0.015	−0.007
	(2.37)**	(1.52)	(2.39)***	(1.26)
GDP Growth	0.008	0.015	0.009	0.015
	(1.85)*	(3.25)***	(1.67)*	(3.18)***
English common law	−0.031	0.026	−0.022	0.027
	(0.35)	(0.39)	(0.22)	(0.41)
French civil law	0.129	0.170	0.121	0.173
	(1.81)*	(2.56)**	(1.79)*	(2.68)***
Socialist law	−0.033	0.044	−0.035	0.043
	(0.55)	(0.57)	(0.50)	(0.56)
Union strikes	−0.131	−0.104	−0.0126	−0.100
	(2.56)**	(2.03)**	(2.41)**	(1.90)*
Governance	0.054	0.124	0.058	0.117
	(2.69)***	(4.34)***	(2.62)**	(3.53)**
Right	0.051	0.053	0.053	0.054
	(1.84)*	(1.55)	(1.55)	(1.49)
Fraud	−0.179	−0.174	−0.176	−0.181
	(3.11)***	(3.71)***	(3.14)***	(3.63)***
Allhouse	0.077	0.097	0.076	0.102
	(2.28)**	(2.52)**	(2.38)***	(2.64)***
Political Cohesion	0.063	0.096	0.062	0.086
	(3.19)***	(2.35)**	(3.37)***	(2.37)**
Democracy			0.009	0.000
			(1.62)	(0.02)
Constant	0.310	0.258	0.468	0.279
	(4.17)***	(1.35)	(4.55)***	(1.40)
Sector dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Observations	239	239	239	239
R-squared	0.59	0.63	0.51	0.53
Wald Test on Political Vars	5.29	18.24	5.14	19.18
p-value	(0.000)	(0.000)	(0.000)	(0.000)
F-statistic	14.51	19.88	13.29	21.97
Prob > F	(0.000)	(0.000)	(0.000)	(0.000)

t-statistics are in parenthesis. *** Significant at 1%; ** Significant at 5%; * Significant at 10%

prising and is consistent with previous research on downsizing prior to privatization (Chong and López-de-Silanes 2004).[14]

A problem with the empirical results above is that they do not take into account potential endogeneity issues. Governments try to restructure state-owned enterprises before the sale in order to raise the privatization price but the negative sign may be simply a reflection that the firms in the worst shape are needing restructuring. For instance, if the unobservable characteristics of a firm are positively correlated with the presence of strong unions, the government may be particularly interested in dismantling such unions. In fact, some of the surprising results found with ordinary least squares may be due to endogeneity issues. This may be the case of our public offering proxy as well as our shares sold control. Following López-de-Silanes (1997) we apply a two-step instrumental variables approach. We estimate a non-linear reduced-form equation that describes the probability that a particular variable, such as firm restructuring, for instance will be implemented.[15] The instruments used are classified in two groups: firm-level determinants and macroeconomic-level determinants. The firm-level variables included are: (i) a dummy variable to reflect whether a leading agent bank organized privatization, (ii) the involvement of the Ministry of Finance or Economy before privatization, (iii) the political affiliation of unions, (iv) whether the country was undertaking a structural reform during the privatization of the firm, and (v) sectoral dummies. The macroeconomic variables considered are: (i) the average GDP growth rate in the three years prior to privatization, (ii) the legal origin of the country, and (iii) the average degree of openness in the three years prior to privatization.[16] As required by this procedure, none of these variables is statistically significant when included in the price equation. Also the F-statistic for the excluded instruments is statistically significant at 1% in all cases.[17] Columns 2 and 4 in Table 5 present our basic findings when correcting for endogeneity using the above method. The results in the category privatization and firm characteristics are similar to the non-instrumented results above. In particular, we find that, again, all the political context variables but the measure "right" are statistically significant and yield the expected sign. As in the ordinary least squares case, the democracy variable is not statistically significant when including these set of political environment measures. Similarly, as before, the governance measure employed is also statistically significant.[18] The most important difference with respect to our ordinary least squares results is in the "percentage of shares sold" variable which changes sign, from negative to positive, but remains statistically significant. Interestingly, this result is now more consistent with the conventional wisdom as ownership concentration may be seen in a positive perspective. Another interesting result is related with our public offering variable which also changes sign, from positive to negative,

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[14] We also test a proxy for reputation which yields a very small and insignificant effect on prices. The presence of a governance variable in the regressions of Table 5 may be already capturing most of the effect that the credibility of the government and its privatization program has on net prices. This is consistent with the fact that the correlation between political and institutional variables tends to be very high (Knack and Keefer 1995).

[15] These variables are *excluded instruments*, as they are not included in the privatization price equation. These instruments have very low statistical power when included directly in the price equation, but they are highly correlated with the labor restructuring actions of the firm, as shown by applying F-statistics to test for the joint hypothesis that they are all equal to zero (López-de-Silanes 1997).

[16] In general, these variables closely correspond with the micro and macro variables employed in the first-stage privatization price regressions in López-de-Silanes (1997).

[17] Because of space considerations, the first stage for the other labor restructuring measures and for the firm labor conditions are not presented. We would be happy to provide them upon request.

[18] The results do not change when employing other institutional data instead.

Table 6 Political context and net privatization prices

	OLS	IV	OLS	IV
Political Constraints	−0.006	−0.113	−0.005	−0.114
	(0.06)	(1.13)	(0.05)	(1.23)
Gastil Index	−0.023	−0.035	−0.024	−0.038
	(1.35)	(1.87)**	(1.34)	(1.66)*
Political Durability	0.002	0.003	0.004	0.003
	(0.01)	(0.02)	(1.26)	(0.04)
Controls:				
Political Environment	No	No	Yes	Yes
Governance	Yes	Yes	Yes	Yes
Sector Dummies	Yes	Yes	Yes	Yes

t-statistics are in parenthesis. *** Significant at 1%; ** Significant at 5%; * Significant at 10%

although is not statistically significant at conventional levels. As mentioned above, in terms of sign though, this result is consistent with the existing literature (Boubakri et al. 2005).

Table 6 shows our findings when testing other common political measures used in the literature. As in the case of the democracy variable from Polity V used in our benchmark specifications in Table 5, we find that for the most part broad political measures do not have an impact on privatization prices. Both the measure of political constraints (Henisz 2000), and a broad measure of political durability (Jaggers and Moore 1995) yield the expected signs but with little statistical significance. The exception is the democracy variable based on the Gastil Index (Freedom House 2005) which in the instrumental variable case yields statistically significant coefficients at the 10% level at least. The findings above are not surprising as all the regressions include both a governance measure (Kaufmann et al. 2003). Interestingly, these results stand regardless of whether the same set of more detailed measures of political environment used in Table 5 is included or not. Essentially, it appears that most of the effect on prices is being captured by the measures that reflect the political process within the country rather than by the nominal denomination of the political regime or the broad political environment and by the institutional measure. In fact, the political environment variables "right", "allhouse" and "political cohesion" yield the expected sign and are statistically significant at 5% or higher. Similar to the findings in Table 5, the variable "fraud" is the only one not statistically significant. Furthermore, the governance measure is always statistically significant at 5% or higher in all the regressions shown in Table 6 which is similar to the findings of our benchmark findings in Table 5. This is consistent with the fact that the correlation between governance measures and political measures is rather high and may explain the statistical insignificance of the broad political variables.[19]

Interestingly, the results the overall political regime does not matter much for prices, whereas the political processes beyond the basic regime do matter are consistent with previous research that shows that regime duration is a relevant determinant of economic performance as only duration of a regime will ensure that particular political processes take hold in the sociopolitical structure of a country as it will help build reputation (Clague et al. 1996;

[19] Given the similarities with the regressions in Table 5, the coefficients and standard errors of these variables have not been included in Table 6. We would be happy to provide this information upon request.

Table 7 Regime duration and net privatization prices

Variables	OLS (1)	IV (2)	OLS (3)	IV (4)
Net total liabilities	−0.045	−0.024	−0.045	−0.023
	(1.29)	(0.70)	(1.35)	(0.80)
Shares sold	−0.004	0.007	−0.004	0.007
	(3.83)***	(1.39)	(4.39)***	(1.40)
Foreign participation	0.111	0.444	0.116	0.443
	(2.76)***	(2.28)**	(2.71)***	(2.30)***
Public offering	0.098	−0.217	0.096	−0.219
	(2.82)***	(1.01)	(2.83)***	(1.07)
Fiscal deficit	−0.021	−0.008	−0.022	−0.009
	(1.98)**	(1.19)	(1.99)***	(1.26)
GDP Growth	0.001	0.005	−0.000	0.004
	(0.20)	(1.16)	(0.20)	(0.15)
English common law	−0.039	−0.022	−0.039	−0.023
	(0.87)	(0.13)	(0.87)	(0.14)
French civil law	0.024	0.085	0.024	0.090
	(1.17)	(1.08)	(1.27)	(1.02)
Socialist law	0.019	0.067	0.020	0.067
	(0.93)	(0.82)	(0.98)	(0.83)
Union strikes	−0.118	−0.162	−0.116	−0.164
	(2.51)**	(3.64)***	(2.36)***	(3.66)***
Governance	0.081	0.140	0.082	0.139
	(3.96)***	(3.33)***	(3.40)***	(3.43)***
Democracy	0.009	0.001	0.008	0.001
	(1.24)	(0.19)	(1.27)	(0.18)
Democracy*Duration			0.001	0.002
			(2.88)***	(3.08)***
Duration	0.126	0.298	0.126	0.297
	(2.09)**	(1.63)*	(2.09)**	(1.88)**
Constant	0.246	0.132	0.242	0.133
	(2.62)**	(1.83)*	(2.66)***	(1.84)*
Sector dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Observations	263	262	262	262
R-squared	0.45	0.40	0.45	0.41
F-statistic	14.06	19.91	14.89	20.42
Prob > F	0.000	0.000	0.000	0.000

Robust standard errors adjusted by clustering at the country level are given in parentheses. *** Significant at 1%; ** Significant at 5%; * Significant at 10%

Table 8 Governance and net privatization price premium

Governance indicator	Coefficient	t-statistic	Country 25th percentile	Country median	Price premium
Voice	0.078	4.55***	Tanzania	Bulgaria	17.36
Political Instability	0.079	3.27***	Israel	Trinidad & Tobago	8.21
Government Effectiveness	0.067	4.01***	Panama	Lithuania	8.85
Regulatory Burden	0.094	2.92**	Slovak Republic	Malaysia	6.11
Rule of Law	0.087	2.79***	Zambia	India	12.63
Corruption	0.072	3.33***	Bolivia	Slovak Republic	7.85

Robust standard errors adjusted by clustering at the country level are given in parentheses. *** Significant at 1%; ** Significant at 5%; * Significant at 10%

Chong and Zanforlin 2004). Whereas the fact that the within-country political variables are statistically significant and thus consistent with the above, we further test this idea by including a regime duration variable in our benchmark specifications. Table 7 shows our findings. We do find that regime duration matters. In fact, whereas the broad democracy measure from Polity V is not statistically significant when included by itself, it does become significant when including an interactive term that captures an association between democracy and duration of regime. Not only are broad democratic regimes linked with higher net privatization prices, but also the longer the duration of the democratic regime, the higher the net privatization price.[20]

For the sake of completeness, in Table 8 we explore additional institutional measures and provide some illustrative robustness exercises with respect to the governance measure employed in our benchmark regressions in Table 5. This table shows the corresponding estimate in terms of net privatization price premium that would accrue to a country ranked in the 25th percentile if it would improve its governance rating up to the same level as the median country.[21] To do this we also use the measures from Kaufmann et al. (2003) as well as its sub-components. We ask how much the net privatization prices may increase in a country like China or Cote d'Ivoire if it enjoyed the level of governance quality of Thailand or the Philippines, everything else equal.[22] While, as expected, our findings are not as high as suggested by the tests of means and medians performed above, they are still economically noteworthy. For instance, if a country like Bolivia decreased its level of corruption inasmuch as to catch up with, say, the Slovak Republic when using the corresponding data governance measures from Kaufmann et al. (2003), it would experience an increase of 7% in the net privatization price perceived for the sale of its state-owned enterprises. We find similar responses for the other governance indicators. Similarly, if a country such as Panama improved its government effectiveness up to the level of Lithuania, the net privatization prices would

[20] As mentioned on the text above, this finding is consistent with previous research by Clague et al. (1996) and Chong and Zanforlin (2004). Furthermore, when including the more detailed, within country political variables (e.g., political cohesion, allhouse) the results stand. That is, both the democracy measure and the interactive term become both statistically significant. For the sake of economy we do not report this results but they may be provided upon request.

[21] In all cases, the change in the variable from moving from the 25th percentile to the median is always less than one standard deviation.

[22] For the sake of parsimony, if there is more than one firm in the country that we are looking at, we just report the average privatization price premium for all the firms in that country in our sample.

increase by 8.5% when selling public enterprises. Furthermore, the net privatization price premium would reach around 7% if a country like Slovakia tried to catch up with a country like Malaysia in terms of improved regulatory burden. Finally, using the aggregate governance indicator in our regression, we find a privatization price premium of 12% for Cote d'Ivoire and 8% for Chinese firms when reaching the median value.[23]

4 Robustness to changes in specification

We assess the robustness of our results with respect to the addition of regressors to the benchmark specification in Table 5 (column 1). As in Sala-I-Martin (1997), we consider the entire distribution of the estimator of the variable of interest by focusing on the fraction of the density function lying on each side of zero.[24] Given that zero divides the area under the density in two, the larger of the two areas is denoted *cdf*(0), regardless of whether it is above or below zero. Under the assumption that the distribution of the coefficient of interest is non-normal the *cdf*(0) is calculated as follows.[25] First, consider a group of variables classified as the dependent *variable,* the benchmark explanatory variables, and a set of ancillary variables ($X_{A,i}$), representing a group of related auxiliary variables identified as potentially related to the determinants of inequality and institutions. We augment the empirical specifications used in our benchmark specifications of column 1 in Table 5 by using this pool of ancillary variables X_A. The idea is to choose up to two variables of this pool at a time, and perform regressions including all the possible combinations based on such pool of ancillary variables.[26] We test the benchmark specification for all possible combinations of ancillary variables and compute the coefficient estimates, their variance, the integrated likelihoods, and the individual *cdf*(0) for each regression; this is summarized in the vector $V = F\{\hat{\gamma}_{I,j}, \hat{\sigma}^2_{I,j}, L_{I,j}, \Phi_{I,j}(0/\hat{\gamma}_{I,j}, \hat{\sigma}^2_{I,j})\}$. We compute the aggregate *cdf*(0) of our coefficient of interest γ_I as the weighted average of all individual *cdf*(0)*s*, $\Phi_I(0) = \sum_{j=1}^{M} \omega_{I,j} \Phi_{I,j}(0/\hat{\gamma}_{I,j}, \hat{\sigma}^2_{I,j})$ where the weights are the integrated likelihoods, $\omega_{I,j} = \frac{L_{I,j}}{\sum_{k=1}^{M} L_{I,k}}$. The variable of interest is said to be strongly correlated (i.e., is robust) with the dependent variables if the weighted *cdf*(0), is greater than or equal to 0.90. Our findings are shown in Table 9. The results are consistent with the results in Table 5. For instance, we find that the measures "right" and "democracy" do not yield robust links with privatization prices. However, we find that "fraud", "allhouse", and "political cohesion" do

[23] We also obtain economically and statistically significant results when using other institutional data. For example, in the case of the well-known ICRG institutional measures, if a country like Ghana improved its overall institutional quality as to catch up with the median country, represented by Brazil, it would experience an increase of 12% in the net privatization prices. We obtain similar results when using the BERI (Knack and Keefer 1995) data set. Moving from the 25th percentile (e.g., Egypt, with a score of 1.77) to the median of BERI (e.g., Italy with a score of 2.12) in terms of overall governance quality would be linked with an increase of net prices of 4.5%.

[24] If 95% of the density function for the estimates of the coefficient of interest lies to the right of zero, one could say that this variable is more likely to be correlated with our dependent variable.

[25] Assuming normality yields essentially identical results.

[26] We use twelve ancillary variables: population growth rate, public-sector employment, participation of female workers in the labor force, the share of the agricultural sector in output, secondary schooling ratio, share of urban population, share of agriculture, rate of growth, external debt, rate of unemployment, membership to the World Trade Organization, membership and membership to the International Labor Organization.

Table 9 Robustness to changes in specification

	Ordinary least squares			Instrumental variables		
	Mean	*t*-statistic	*cdf*	Mean	*t*-statistic	*cdf*
Right	0.051	1.55	0.851	0.054	1.65	0.828
Fraud	−0.17	3.42	0.989	−0.194	3.34	0.934
Allhouse	0.075	2.38	0.934	0.103	2.75	0.911
Political Cohesion	0.063	3.17	0.918	0.096	2.47	0.937
Democracy	0.008	1.32	0.857	0.007	1.01	0.219
Governance	0.052	1.97	0.941	0.128	4.34	0.986

The cumulative distribution function is denoted "cdf". A variable whose weighted cdf(0) is larger than 0.95 is significantly correlated with the dependent variable (i.e., it is robust) at a 5% statistical significance level. The cdf is computed assuming non-normality of the parameters estimated. In the normal case, the results are similar. Results are based on the benchmark regression of column 1 in Table 5

yield robust links with privatization prices. This is also true in the case of our governance variable for it is a robust determinant of privatization prices.[27]

5 Summary and conclusions

This paper studies the link between the political and institutional context and net privatization sales prices, where the latter serves as a measure of assessing the relative performance of the privatization goals. Whereas this link has been studied theoretically, there are very few, if any, empirical papers on this relationship. We show that political context matters because it appears to be an economically significant determinant of privatization prices. We use data from 308 privatizations around the world and apply a cross-country approach, including instrumental variables. We find that while the overall political regime does not matter much for prices, the political processes beyond the basic regime do matter. Institutional context also has a significant impact on prices. Both results are robust to changes in specification. While a straightforward political recommendation is quite naȈve, a more sensible policy lesson from this paper is that regime duration appears to matter since countries with younger democracies will receive lower returns to the sale of state assets compared to longer-lasting democratic political regimes because institutional building and reputation appear to be important elements conducive to higher privatization prices. This is consistent with the observation that firms in emerging markets tend to receive lower prices compared to firms in industrial countries, ceteris paribus.

[27] Similar results are obtained when testing governance measures from ICRG and BERI. Also, the democracy variable is weakly robust (i.e., 10%) when testing the specification in Table 7 which includes an interactive term with regime duration.

Appendix: instruments for potentially endogenous variables

Instruments	Foreign Participation	Governance	Public offering
Electoral Competitiveness	*Yes*		*Yes*
Foreign Direct Investment	Yes		Yes
Gini Coefficient		*Yes*	
Inflation		Yes	
Leading Agent Bank			Yes
F-statistic on excluded instruments	4.74	14.10	4.63

All the instruments are either from Chong and López-de-Silanes (2004) and the World Development Report (2001)

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