Political Institutions and Sovereign Borrowing: Evidence from Nineteenth-Century Argentina*

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Abstract

I analyze the relationship between political institutions and sovereign borrowing in a simple model where institutions are endogenous and governments vary in their credit risk and political goals. The model demonstrates that there is an inverse relationship between institutional constraints and the cost of borrowing, which is consistent with the North-Weingast thesis. The model also explains why previous empirical studies on this subject, which rely mostly on observational data to make casual inferences, have reached disparate conclusions. I use extensive data on the risk premia of Argentine bonds in the nineteenth-century to evaluate the model's central implications. My analysis indicates that the adoption of constitutional constraints in the 1850s led to a considerable drop in Argentina's cost of borrowing. I also use the value of Argentina's public debt issued in international and domestic markets to examine how credibility affects borrowing costs when rulers are responsive to some creditors but not others (i.e. institutions are exogenous). The findings indicate that when the country's perceived creditworthiness deteriorated, the only creditors who demanded a higher risk premia where those with no significant influence over the authorities. In contrast, changes in the country's perceived risk failed to have any effect on the interest rates charged by influential lenders.

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Introduction

In the past two decades, a number of scholars have turned to non-economic factors to explain variations in wealth across countries. Economic theory suggests institutions impact decisions about labor supply, saving, investment, and exchange. According to the *institutionalist* view, laws and regulations that enforce contracts, guarantee property rights and promote well-developed financial markets can foster economic growth by encouraging investment in human and physical capital, as well as the development of technological innovations.

The emphasis on the institutional causes of material well-being is well established in the literature. For example, North (1997) states that institutions are the *primary* cause of economic development. In turn, Djankov et. al. (2003) consider the concern over institutional design to be at the core of comparative economics. But despite much scholarly input and much econometric analysis, the impact of political institutions on economic performance has been difficult to substantiate empirically. Cross-country studies have documented a set of correlations between measures of various non-technological factors, such as constitutional structures or security of property rights, and economic indicators. However, most of these findings are not robust (Aron 2000). Thus, the scholarly debate regarding the importance of institutions continues to rage on (see Przeworski 2004 and Acemoglu and Robinson 2004).

In this paper I present a model where: (1) political institutions are endogenous; (2) governments vary in their credit risk; and (3) the degree to which governments care about borrowing costs also varies. By doing so, I am able to analyze the relationship between institutional constraints and sovereign borrowing. The aim of the model is to demonstrate the main consequences of using observational data to make causal inferences when institutional constraints are not random and their presence responds to unobservables.

Nonetheless, I establish several results regarding the degree of institutionalization, credibility, and the cost of sovereign borrowing. Because the adoption of institutional constraints

entails a loss of political power, even if rulers care about minimizing the cost of sovereign borrowing, the degree of institutionalization preferred by the ruler will be lower than the one that is required to minimize the government's interest rate. An important implication of this result is that there is an inverse relationship between institutional constraints and the cost of borrowing. The notion that governments bound by the rule of law will be more likely to secure better borrowing conditions has been a prominent idea since the publication of North and Weingast's seminal article on public debt in seventeenth century England (North and Weingast 1989).

The model also explains why previous empirical studies on this subject have reached disparate conclusions. In particular, the analysis suggests that to determine if greater constraints on a ruler lead to better borrowing terms, one has to consider both the direction and the magnitude of the institutional effects on risk premia. It also indicates that the impact of enhanced *credibility* can only be disentangled from the influence of institutional constraints if rulers are responsive to some type of investors but not others.

I examine the model's central implications by focusing on the link between institutional constraints and public borrowing in nineteenth-century Argentina. Using extensive data on the risk premia of Argentine bonds and the econometric techniques of break-point models, I find that the adoption of a constitution in 1859 permanently changed the level of the series. The existence of a single and distinct break point supports the view that the establishment of institutional constraints marked a "before" and "after" dichotomy in Argentine history. I also analyze the value of Argentina's public debt issued in international and domestic markets. The findings indicate that when the country's perceived creditworthiness deteriorated, the only creditors who demanded a higher risk premia where those who did not have a significant influence over the authorities. In contrast, changes in the country's perceived risk did not have any impact on the interest rates charged by influential lenders.

This study is part of a growing literature on the economic significance of political institutions. In particular, it contributes to two related literatures in political economy. The first is the aforementioned debate concerning the relationship between institutions and economic performance. The second pertains to the work on the "democratic advantage." According to this view, electoral accountability makes democracies more likely to honor their debts than nondemocratic countries (Schultz and Weingast 2003, Saiegh 2005). This paper also makes an ancillary contribution. Examining the Argentine case nicely aligns with the recent analyses on the role of institutions in explaining the country's economic performance in both its nineteenth century success (della Paolera and Taylor 2001 & 2003), as well as in its twentieth century demise (Alston and Gallo 2005; Spiller and Tommasi 2007).

The rest of the paper is organized as follows. In the next section I present my model of sovereign borrowing. Next, I analyze the relationship between institutional constraints and public borrowing in nineteenth-century Argentina. The final section concludes.

1 Institutional Constraints and Sovereign Borrowing

North and Weingast's (1989) work on public borrowing in seventeenth-century England cemented the notion that governments bound by the rule of law are less likely to expropriate private wealth. However, a lively debate still exists in the literature with regards to the link between constitutional checks and balances, access to credit, and the cost of capital. Table 1 summarizes the main empirical findings in the literature.

< Table 1 Here >

The lack of consensus regarding the effect of institutional constraints on the cost of sovereign borrowing can be clearly seen in Table 1. For example, Stasavage argues that constitutional checks and balances are "... neither a necessary nor a sufficient condition..." to create a credible commitment to secure property rights (Stasavage 2003: 2). Likewise, Sussman and

Yafeh (2000) and Mauro, et. al. (2006) argue that investor-friendly institutional changes rarely elicit an *immediate* response by investors and financial markets. They suggest that peace and stability are more likely to affect the cost of borrowing.

The inconclusiveness of the empirical findings reflects two important problems facing this research agenda (Przeworski 2004). The first relates to the difficulty of identifying the effect of institutions in the presence of endogeneity. The basic complication is that many features of a country's institutions are likely to be determined by factors that also have a direct impact on its economic outcomes (Przeworski 2004; Acemoglu 2005). The second complication is that many factors that may influence the adoption of institutional constraints and that vary systematically across societies are hard to observe. Dismissing such unobservable factors introduces an omitted variable problem that would bias any attempt at measurement that does not account for them explicitly (Greif 2006).

1.1 A Model of Sovereign Borrowing

I now consider a simple model of sovereign borrowing, which is adapted from Rodrik (2005), to analyze the relationship between institutional constraints and the cost of sovereign borrowing. This parsimonious model illuminates the consequences of drawing causal inferences from observational data when institutional constraints are not random and their presence responds to unobservable factors.

Sovereign debt possesses two intrinsic characteristics that make it very different from ordinary debt owned by nongovernment entities. First, repayment is not necessarily connected with the ability to repay. A country may have the technical ability to repay the debt but still adopt a political decision not to do so. This fact is connected with the second element of sovereign borrowing: limited enforcement mechanisms. In fact, the literature on sovereign debt identifies a "willingness to pay" as the main factor that distinguishes sovereign debt

from ordinary debt owed by nongovernment entities. In the corporate world, debt contracts are enforced by the threat of liquidation in the event of default. In contrast, creditors have limited legal redress in the case of sovereign entities. Therefore, governments can (and sometimes do) default selectively on their obligations, even when they possess the financial capacity for timely debt service.[1]

Consider the interest rate paid by a borrowing country, which takes the following linear form

$$y = r + \theta p \tag{1}$$

where r is the risk-free interest rate, and the other two parameters capture the credit risk. The risk of a government becoming unwilling to meet its loan obligations is denoted by $\theta \in [0, 1]$. Lenders cannot directly observe θ. Therefore, I assume that when $\theta > 0$, the interest rate paid by the government increases because of the increased perception among investors that the country will default on its obligations. The parameter p captures the the risk of loss due to a country's inability to pay the loan. This is an observable parameter, as lenders can use a number of indicators (such as the debt output ratio or the debt service ratio) to evaluate a country's debt sustainability.

For my purposes, this model is appealing since it provides an endogenous role for political institutions. Therefore, I assume that rulers can adopt additional institutional constraints on their power, denoted by s, to increase their credibility and thus enhance their borrowing ability. However, the cost of establishing these additional institutions (such as an elected parliament, a judicial system, a national treasury, etc.) may need to be financed through loans. This implies that lenders would require a higher rate of return in order to lend to *institutionally* enlarged governments. Let the degree of institutionalization affect the government's interest rate at a rate $\alpha(s)$, with $\alpha(0)$, $\alpha'(s) > 0$, and $\alpha''(s) > 0$.

Therefore, the modified expression for the interest rate can be written as

$$y(s, \theta) = r + \theta p(1 - s) + \alpha(s) \tag{2}$$

The benchmark for the analysis developed below is the efficiency criterion. This requires the minimization of the interest rate. The familiar first-order condition is $\alpha'(s) - \theta p = 0$, and the second-order condition follows directly from the assumption regarding $\alpha(s)$. Hence, the efficient level of institutionalization can be denoted by s^*, with s^* solving $\alpha'(s^*) = \theta p$.

Consider now the ruler's problem. On one hand, a greater degree of institutionalization entails a loss of political power. On the other hand, so long as the ruler cares about the cost of sovereign borrowing, he/she may be willing to adopt institutional constraints to increase his/her credibility. Let the effect of institutionalization on the ruler's welfare be given by a convex and single-peaked function $\pi(s)$ (with $\pi'(s) < 0$, $\pi''(s) > 0$). The relative weight placed on the cost of borrowing by the ruler is λ (which is also unobservable, with $\lambda \in (0, \infty)$). The ruler maximizes

$$u(s; \theta) = \pi(s) - \lambda y(s) \tag{3}$$

The first-order condition is

$$\pi'(s) - \lambda y'(s) = 0 \tag{4}$$

and the second-order condition requires that

$$\pi''(s) - \lambda \alpha''(s) < 0 \tag{5}$$

Let the internal solution to this problem be given by $0 < \hat{s} < 1$ and $\lambda \in (\frac{\pi''(\hat{s})}{\alpha(\hat{s})}, \infty)$. Then, the following proposition holds:

Proposition 1 *The amount of institutional constraints preferred by the ruler will be lower than the one that is required to minimize the government's interest rate.*

Proof. The first order condition for a maximum of $u(s;\theta)$ requires that $y'(\hat{s}) = \frac{\pi'(\hat{s})}{\lambda}$. By assumption, $\pi'(\hat{s}) < 0$ and $\lambda > 0$; therefore, it is necessary that $y'(\hat{s}) < 0$, which implies that $\alpha'(\hat{s}) < \theta p$. Recall that the efficient level of institutionalization s^* solves $\alpha'(s^*) = \theta p$. Consequently, $\hat{s} < s^*$.

The next step is to examine how changes in λ and θ affect the degree of institutionalization chosen by the ruler and the government's interest rate. I focus first on a change in the relative weight on the cost of borrowing placed by the ruler. We know that the optimal choice function $\hat{s}(\lambda)$ must satisfy the condition

$$\frac{\partial u(\hat{s}(\lambda), \lambda)}{\partial \hat{s}} \equiv 0 \tag{6}$$

Solving for $d\ \hat{s}(\lambda)/d\ \lambda$, we have

$$\frac{d\ \hat{s}}{d\ \lambda} = -\frac{\theta p - \alpha'(\hat{s})}{\pi''(\hat{s}) - \lambda\alpha''(\hat{s})} > 0 \tag{7}$$

Recall that in equilibrium, $\alpha'(\hat{s}) < \theta p$, and that as long as the ruler cares about the interest rate (i.e. $\lambda > \frac{\pi''(\hat{s})}{\alpha(\hat{s})}$), the denominator in the above expression is negative. Similarly,

$$\frac{d\ y}{d\ \lambda} = y'(\hat{s})\frac{d\ \hat{s}}{d\ \lambda} < 0 \tag{8}$$

Therefore,

$$\frac{d\ y/d\ \lambda}{d\ \hat{s}/d\ \lambda} = y'(\hat{s}) = \frac{\pi'(\hat{s})}{\lambda} < 0 \tag{9}$$

The amount of institutional constraints and the cost of sovereign borrowing are thus negatively correlated. However, the preceding result only tells us how a small increase in s affects

y locally. The limitations of such result are best seen by distinguishing between the *direction* and the *magnitude* of the institutional effects on interest rates.

Suppose that we observe two countries: (i) country A where s is set equal to $s' > s^*$, and (ii) country B where s is determined as in equation (9). An empirical finding that $\partial y/\partial s < 0$ will be insufficient to claim that the institutions in country A are preferable to those in country B, since it is entirely possible that $y(\hat{s}, \theta) < y(s', \theta)$. Therefore, this implication follows:

Implication 1 *Given two observed degrees of institutionalization, $s' > s*$ and $\hat{s} < s*$, to be sure that more constraints on the ruler are conducive to better borrowing conditions, $\partial y/\partial s$ not only needs to be negative, but must be large in magnitude.*

Assume now a change in the investors' perceptions regarding the borrowing country's credit risk (captured by θ). In this case, solving for $d\ \hat{s}(\theta)/d\ \theta$, we have

$$\frac{d\ \hat{s}}{d\ \theta} = -\frac{\lambda p}{\pi''(\hat{s}) - \lambda\alpha''(\hat{s})} > 0 \tag{10}$$

as long as the ruler cares about sovereign borrowing costs (i.e. $\lambda > \frac{\pi''(\hat{s})}{\alpha(\hat{s})}$).

$$\frac{d\ y}{d\ \theta} = y'(\hat{s})\frac{d\ \hat{s}}{d\ \theta} < 0 \tag{11}$$

Therefore,

$$\frac{d\ y/d\ \theta}{d\ \hat{s}/d\ \theta} = y'(\hat{s}) = \frac{\pi'(\hat{s})}{\lambda} < 0 \tag{12}$$

A negative relationship between s and y still exists, even if λ is very large. The intuition is the following: when a country's credit risk increases, the optimal institutional response is to increase the constraints on the ruler's authority, but no so much as to completely offset the cost of borrowing against the change in creditors' perception.

Suppose now that after choosing s in the way presented above, rulers cannot immediately respond to changes in investors' perceptions (i.e. institutions are *sticky*). Alternatively,

assume that rulers are responsive to some type of investors but not others. In either case, changes in θ would have an effect on the government's interest rate, but would not be appropriately handled through an adjustment in s. Formally,

$$\frac{d\ y}{d\ \theta} = p(1 - \hat{s}). \tag{13}$$

Assuming once again that $0 < \hat{s} < 1$, and that $p > 0$, then $\frac{d\ y}{d\ \theta} > 0$. Hence, the next implication follows:

Implication 2 *As long rulers have some discretionary authority (i.e. $\hat{s} < 1$) and they do not adjust their institutional constraints to changes in investors' perceptions, they will face higher borrowing costs when they are perceived as being less credible.*

1.2 Discussion

The main results from the previous section indicate that institutional constraints will be negatively correlated with the cost of borrowing. However, the analysis also implies that to establish empirically that more constraints on the ruler are conducive to better borrowing conditions, a considerable drop in the interest rate should occur after the adoption of institutional reforms. This is essentially Clark's critique of North and Weingast, as he claims that the Glorious Revolution did not have a significant impact on interest rates.

Stasavage, in turn, argues that interest rates in England only fell when holders of government debt took control of the Parliament. This is consistent with one of the findings presented above (i.e. $\frac{d\ y}{d\ \lambda} < 0$). However, in terms of the model presented above, his view can be interpreted as the special case in which $\lambda \to \infty$. In fact, it is straightforward to see from equation 9, that when this is the case, the association between institutional constraints and the cost of borrowing will be zero.[2]

The model also implies that a change in investors' perceptions would only translate into higher interest rates when institutions are *sticky*. Therefore, the empirical findings in Mauro et. al. (2006) suggesting that investor-friendly institutions do not lead to an immediate decline in the cost of capital can also be accounted for in this model.

Finally, the model also accommodates the findings in Flandreau and Flores (2008). Their central argument is that, in the early 19^{th} century, a hierarchy of underwriters provided investors information regarding countries' credit risk. Their empirical evidence shows that outright reactionary powers, whose bonds were underwritten by the Rothschilds, were successful borrowers. As shown above, institutional constraints are increasing on a country's perceived probability of default; that is, $d\ \hat{s}(\theta)/d\ \theta > 0$. This implies that a country that issues debt through the agency of a leading underwriter (and thus, has a lower θ) would possess fewer institutional constraints.[3]

2 Empirical Analysis: Nineteenth-Century Argentina

The theoretical framework presented in the previous section not only rationalizes the disparate conclusions reached by previous studies, but it also clarifies the logical requirements and identification issues associated with an empirical evaluation of the relationship between institutional constraints and sovereign borrowing. In this section, I examine the model's two central implications by focusing on public borrowing in nineteenth-century Argentina.

Argentina serves as an especially insightful case to study the institutional determinants of the cost of capital for several reasons. First, the Argentine experience in the nineteenth century allows us not only to establish if constitutional constraints had an impact on borrowing terms, but also to quantify the magnitude of those effects. Second, the country issued public debt both in international and domestic markets. This distinction can be exploited to examine if changes in investors' perceptions influenced the value of Argentine public debt.

2.1 Historical Background

The early years after Argentina established independence from Spain in 1810 brought chaotic struggles and deep political instability to the former Viceroyalty of Rio de la Plata. The principal schism centered upon centralists (unitarios) and autonomists (federales); the former group consisted of advocates of strong central government, while the latter comprised the supporters of a loose confederation of provinces (Scobie 1971).

In 1829, and in the midst of a civil war, Juan Manuel de Rosas was elected to the governorship of Buenos Aires. Invested with extraordinary faculties to"restore the order" by the Junta de Representantes, Rosas possessed ample and discretionary authority to conduct the financial affairs of the province without consulting the assembly. However, given the needs of periodic terror and repression, Rosas was constantly short of funds. This led him to resort to various illegal and semilegal exactions and confiscations as a means of raising revenue (Irigoin 2000).

Figure 1 shows the risk premium of Argentina's domestic bonds between 1829 and 1848. The risk premium is calculated as the spread between their yields and the British Consol yield. The analysis relies on end-of-month measures of the current yield on internal bonds that paid an annual 6 per cent coupon in domestic currency. The yield is calculated as the ratio of the coupon to the price, as if all bonds were perpetuities.[4] End-of-month Argentine bond price quotes are from Burgin (1946), and the rates on U.K. bonds are those reported by Mitchell (1971).

< Figure 1 Here >

The average spread of the Argentine bonds throughout this period is roughly 650 basis points, with a maximum of 1,218 in November of 1838 and a minimum of 222 in December of 1847. It should be noted, though, that by the 1840s Rosas was clearly rationed in the amount he could borrow at going interest rates. Therefore, it is not surprising that bond

prices continued to improve, reaching par in September of 1846. As Robinson notes, in such circumstances, the fall in interest rates does not reflect an increase in the perceived commitment by the government to honor its agreements, but rather an indicator of credit rationing (Robinson 2006).

2.2 Institutional Constraints: Test of Implication 1

On February 3 1852, the *caudillo* of Entre Rios, Justo Jose de Urquiza, with the support of military forces from Brazil and Uruguay and the liberal unitarios in exile, defeated Rosas's men in the battle of Monte Caseros. In 1853 a national constitution was adopted. However, a year later, as Urquiza became president of a new Argentine Confederation, Buenos Aires seceded. During the next few years, the two governments co-existed resorting to token wars and, more often, to blockades and discriminating tariffs. The seccesion ended in 1859 when Buenos Aires agreed to join the union. After a series of reforms that accommodated the incorporation of Buenos Aires into the nation, the 1853 federal constitution was finally adopted a year later.

The reunification of the country led to the emergence of a consensus inspired by the liberal principles of limited government and the federal claims of provincial autonomy. This was not fortuitous. After the recent and traumatic Rosas experience, the public was still very sensitive to the adversities of arbitrary and confiscatory government. Hence, the national constitution's main features reflected the aspiration to solve some of the problems experienced in those decades of political and economic turmoil. First and foremost, it enacted a well-defined structure of horizontal and vertical accountability modeled after that of the United States constitution. It provided for a federal system of representative government based on a division of power between the central government and the provinces and on the separation of executive, legislative and judicial powers. These were vested, respectively, in

a President, a Bicameral Congress, and a hierarchy of Federal Courts headed by a Supreme Court. The three powers were interconnected by a system of checks and balances.

Moreover, to ensure that the institutions of limited government were credible, a number of specific institutional structures were also established in the constitution. These clauses provided explicit limits on the government's behavior. For example, in financial matters, the executive branch was explicitly constrained by the legislature. The constitution also included a comprehensive list of individual rights and guarantees, along with the explicit protection of private property. Finally, a whole set of principles of economic liberalism – the promotion of free trade, foreign investment, immigration and education – was included in the constitutional text.

With respect to public borrowing, the key issue is whether these constitutional arrangements influenced the cost of capital. To establish that these constitutional constraints led to better borrowing terms, I need to document that a sharp decline in interest rates following the country's reunification took place. Therefore, my empirical strategy is to analyze whether a structural break in the government's cost of borrowing time-series exists. As Franzese (2007) notes, vector autoregression and related techniques can be used to obtain valid estimates of causal effects. I use the Clemente, Montañés and Reyes (1998) unit root tests with one structural break to identify the structural break in the series. The model uses an endogenous selection procedure wherein the break date is selected when the t-statistic for testing unit roots is minimized.[5]

As a single time-series on the government's cost of borrowing including both the pre and post-constitutional eras (the period between 1822 and 1913) does not exist, it was necessary to construct one. I rely on different sources and select data from each of them based on the availability of information.[6] Whenever more than one source has data for a given year, I select the one that reports the lowest cost of capital.

As Figure 2 shows, the structural break in the series coincides with the unification of the country under the 1853 constitution. The t-statistic for unit roots is minimized in 1859, with a statistically significant value of -4.49, (relative to the 5% critical value, -3.56). I also checked for structural breaks using the Innovative-Outlier (IO) model. Based on the critical value of the t-statistic, I can reject the hypothesis that a gradual shift in the mean occurred slowly over time. Finally, I also checked for the possibility of multiple breaks. The results indicate that the presence of multiple breaks can be rejected.

< Figure 2 Here >

Substantively the analysis indicates that, in comparison to the Rosas' period, the level of the risk premium of Argentine bonds fell considerably. Before the adoption of the constitutional constraints, the average interest rate paid by the Argentine government was roughly 9.7 percent; for the period between 1860 and 1913, the cost of borrowing declined to a mean value of 6.3 percent (equivalent of some 300 basis points above the U.K. Consols).

This break with the past is even more remarkable since after 1860 a relaxation of credit rationing emerged. In fact, throughout the period between 1864 and 1913 a rapid expansion of credit was made available to the government. In 1864, government expenditures were about 7,119,931 pesos and debt was extremely limited. Twenty years later, government expenditures rose by eight times to 56,440,137 pesos, and the public debt to 122,503,000 pesos, a level that was previously unachievable.

From 1867 to 1889, the public external debt increased by 319 percent. This sharp change in the willingness of lenders to supply funds reflected a notable increase in the perceived commitment by the Argentine authorities to honor the country's agreements. The growth of the external debt continued to rise at spectacular rates between 1898 and 1908, at a time when Argentina was treated very favorably by the London market: the average risk premium spread of Argentine bonds during these two decades was roughly 230 basis points. In addition, at the same time that the scope of domestic borrowing increased, the price

of domestic Argentine bonds also increased. The initial yield of the 1863 *Fondo Público National* bond was around 14.96% in 1864. By 1884, the yield was less than half, at roughly 6.73%. Compared to the financial scenario of the pre-constitutional years, this acute change in the ability of Argentine governments to issue debt also reflects a substantial increase in their perceived commitment to debt repayment. A good illustration of this change was evident in the period between 1891 and 1902, when Argentina suffered from credit rationing in international markets but the government raised debt in the domestic market.

2.3 Credibility: Test of Implication 2

As the empirical evidence indicates, the adoption of constitutional constraints led to a marked decline in the interest rates paid by Argentine governments. This finding lends credence to one of the central implications of the model. The other main implication, and one that I examine empirically in this section, concerns the relationship between a country's perceived credit risk and its borrowing costs.

An examination of the Argentine experience indicates that after the fall of Rosas, the authorities made a sustained effort to restore investors' confidence. For example, in 1857 the government of the province of Buenos Aires decided to resume payments on a defaulted loan taken in 1824. After the country's re-unification, a general law establishing a public record of all public debts was enacted. In addition, Law 206 of October 1866, declared the nation in charge of a series of pre-unification debts. These included the loan of 1824 and the 1857 deferred bonds (*diferidos*); 20 million $m/c in provincial bonds that were issued in 1859; and 24 million $m/c of national bonds that were issued in 1861 (Cortés Conde 1989).

The key question, of course, is whether changes in the investors' perceptions influenced the value of public debt. However, as the model suggests, we can only distinguish the effect of enhanced *credibility* from the impact of institutional constraints when rulers are responsive to

some type of investors but not others. Therefore, empirically we should only observe higher borrowing costs when the government is perceived as being less credible by non-influential lenders.

To distinguish between different types of creditors, my empirical strategy is to look at the difference between the interest rates of the Argentine public debt issued in the international (London) and domestic (Buenos Aires) markets. Notice that when bonded debt is traded in anonymous secondary markets, it is virtually impossible to determine a creditor's country of residence (Cowan et. al. 2006). Therefore, the focus on the legal jurisdiction where the debt was issued does not seek to establish bondholders' citizenship, but rather their degree of diffusion. Creditor diffusion is usually cited as a measure of political influence: the more concentrated the creditor lobby, the higher the probability of exerting influence on the government (Mauro et. al. 2006; Tomz 2007).

As Ferns (1977) notes, most of the Argentine foreign bonds were held by a pool of British individual investors that included some wealthy capitalists, as well as country clergymen, widows, the poor, professional men and tradesmen, all of whom had small amounts of money to invest (Marichal 1989). In contrast, domestic bonds were usually sold in large blocks to institutional investors, that included both local and foreign bankers (for example, as Peters (1934) points out, in 1870 the Buenos Aires branch of the London firm Wanklyn and Company purchased 6,000,000 pesos of 6 percent internal bonds). More importantly, the community of bankers and brokers at Buenos Aires and London was relatively concentrated, so these creditors had much more access and influence over the local politicians than did individual bondholders. Therefore, my key identifying assumption rests on the differential ability of domestic versus foreign debt holders to influence the government.

To measure the cost of sovereign borrowing, I use the yields of the domestic and foreign bonds between 1862 and 1913, which are calculated in the same way as above (i.e. coupon

rate divided by price). For domestic bonds, I use the the yearly quotations of the 1863 6% Fondos Públicos National bonds (from 1863 to 1884), and the 1884 $5\frac{1}{2}$ percent Fondos Públicos National bonds (from 1885 to 1913). I use the gold premium in 1862 to complete the series. All the data come from Cortes Conde (1997) and della Paolera and Taylor (2001). Foreign bond yields are based on the Buenos Aires 6s from 1862 through 1866, and the Argentina Public Work 6s from 1867 to 1869, from Global Financial Data. For the period between 1870 and 1912, the data come from Mauro, et. al. (2006), who use Argentina's 6s issued in 1866, the Public Works 6s issued in 1871, and the Argentina External Gold 5s of 1886. The issues included in the calculations were never in default, and thus, their yields are not overstated due to lack of payment.

With respect to my main independent variable of interest, government credibility, I focus on executive-legislative relations. More specifically. I examine a president's degree of *negative* agenda control.[7] Given Argentina's constitutional structure, presidents were usually seen as the main actors in charge of carrying out the necessary reforms to sustain investor confidence. As two contemporary observers put it, "...the Argentine, in fact, is still under a system of personal power, the Presidency of the Republic is the focus about which all the political life of the country gravitates..." (Martínez and Lewandowski 1911). However, despite their privileged position, presidents usually needed the support of the congress to govern.

This period of Argentina's history has been generally described as one of tight governmental control by an *oligarchical* clique. And while it is true that the system was 'government by a few', it was not always the same few – as Rock cleverly points out – who were in power (Rock 1987: 25). Moreover, violence and personalism, rather than peaceful competition among rival legislative groups, characterized the confrontation for control over the government (Remmer 1984). Groups calling themselves parties participated in the struggle, however, no modern-day party organizations existed until the beginning of the twentieth century (Alonso 2000). Instead, political loyalties were mostly based on networks of personal relationships, and

the distribution of positions and sinecures in the national and provincial bureaucracies. Therefore, it would be misleading to use the distribution of seats held in Congress by these political factions to identify the main fault-lines in Argentine politics during this period.[8]

In terms of their constitutional prerogatives vis-a-vis the executive, the Argentine congress enjoyed somewhat similar powers to those of its U.S. counterpart. Among other things, legislators could call cabinet members to be questioned on particular policies. Legislators did not possess veto powers over the ministers or any capacity to sanction the policies undertaken. However, "... an *interpellation* (as the procedure was known) was a common device used by opposition members to raise public attention over a particular issue..." (Alonso 2000: 173).[9] A president who has *negative* agenda control should be capable of preventing such events (Cox and McCubbins 2005). Therefore, to gauge a president's degree of negative agenda power, I use the average number of interpellations per year suffered by his cabinet members during his term in office (Molinelli 1989). This variable indicates the proportion of times the president is unable to prevent one of his ministers from appearing before Congress.[10]

To examine the relationship between *negative* agenda control and variation in Argentine yields during the period between 1862 and 1913, I use the following regression estimation approach. First, to avoid further endogeneity problems, I exclude from the analysis those interpellations in which the finance minister was questioned. Second, to remove any possible confounding effects, I estimate separate regressions for foreign bond yields, domestic bond yields, and average number of interpellations per year. In all three, I include a time trend and a series of additional controls.[11] Next, I save the residuals from these separate regressions, and regress the residuals of the yield on the residuals of the number of interpellations (see Appendix I for a detailed description).

Figure 3 presents two scatter-plots relating the average number of interpellations per year between 1862 and 1913 (on the horizontal axis) to the average yearly yield of Argentine

bonds, both conditional on the time trend and a number of control variables. As Figure 3 shows, in the case of foreign bonds, an increase in perceived credit risk (measured by more interpellations) is associated with higher borrowing costs. The point estimate of the *negative* agenda control variable is significant at more than 99 percent confidence (estimate 0.558, z-score 3.19) and the overall fit of the model is an r-squared of .17. In contrast, the graphical relationship between interpellations and the yield of domestic bonds is negatively sloped. In fact, given the endogeneity of the institutional constraints, a change in the country's perceived creditworthiness should have no actual effect on domestic bonds' interest rates. As expected, the regression results demonstrate that there is no meaningful correlation between these two variables; the point estimate of the *negative* agenda control variable is statistically indistinguishable from zero (estimate -0.209, z-score 0.74).

< Figure 3 Here >

An alternative interpretation of these results is that persistent interpellations were regarded by faraway investors as an indication of political instability; therefore they had a negative impact on the perceived creditworthiness of Argentina (cf. Mauro et. al. 2006). In contrast, the effect of interpellations on Argentina's perceived creditworthiness was much weaker in the case of domestic debt holders. Since they were much more familiar with the the actual political events, they could distinguish the occasional skirmish from political turmoil. However, this alternative view is incomplete, because it does account for the role of institutional constraints. Recall that $\frac{d\ y/d\ \theta}{d\ \hat{s}/d\ \theta} < 0$; that is, the optimal institutional response to a change in the investors' perceptions is to increase the constraints on the ruler's authority. We should observe a decrease in the yield of foreign bonds rather than an increase, which is at odds with the empirical evidence presented in Figure 3. Therefore, we can conclude that the yield of foreign bonds increased because their holders lacked any significant influence over the Argentine authorities.[12]

Concluding Remarks

The supposition that governments are willing to *tie their hands* to achieve better borrowing conditions is at the core of the theoretical debate regarding the relationship between political institutions and sovereign lending. As such, the empirical evaluation of these theories is usually hampered by their very own logic. If the form and function of these institutional arrangements depend on the conditions under which they emerge, then the institutional variation observed in the real world is unlikely to be random. In fact, as Flandeau and Flores (2008) note, specific institutions may be consequences rather than the cause of sovereign lending.

The aim of this paper was to examine the relationship between institutional constraints and sovereign borrowing when certain institutional arrangements are chosen systematically by governments to obtain better credit conditions. A central implication of my model is that empirical studies that treat institutional constraints as if they were exogenous or random can tell us very little about the effectiveness of institutions. As noted above, when unobservables are not taken into account, the impact of institutional constraints on borrowing terms cannot be properly identified. Consider, for example, the role of creditworthiness. The model indicates that institutional constraints are increasing on a country's perceived probability of default. This implies that credit risk may sometimes lead to greater degrees of institutionalization, as in the case when governments adopt institutional reforms that enhance their borrowing abilities. However, in other instances, creditworthiness may have the opposite effect, as when autocratic governments with good credit have no need to adopt any meaningful institutional constraints to borrow funds. More generally, the endogeneity of institutions in the presence of unobservables is one reason why many empirical studies fail to find that cross-national variations in institutional constraints explain cross-national differences in risk premia.

This paper makes another important contribution. It shows that it is actually possible to undertake meaningful empirical tests of the relationship between political institutions and sovereign borrowing by carefully specifying the theoretical model of interest. In particular, the empirical results demonstrate that the appropriate econometric techniques can successfully distinguish both the direction and the magnitude of the institutional effects on risk premia. By doing so, we can clearly identify the role of political institutions. Finally, this paper suggest that with a suitable research design, it is possible to disentangle the effects of political institutions from the impact of government's credibility.

Notes

[1]For an excellent survey of this literature see Eaton and Fernandez (1995).

[2]Therefore, Stasavage's conclusion that limited government is "... neither a necessary nor a sufficient condition for government commitment" only holds under very special conditions.

[3]However, as the model indicates, once a country's credit risk is taken into account, institutional constraints are associated with better borrowing conditions (i.e. $\frac{d\ y/d\ \theta}{d\ \hat{s}/d\ \theta} < 0$). Therefore, Flandreau and Flores' conclusion that a good constitution is a sufficient but not a necessary condition for sovereign borrowing seems to be unwarranted.

[4]This is the standard way in which yields are calculated in the literature. As Mauro et. al. (2006) note, these calculations emulate the way contemporary investors regarded the bonds they invested in.

[5]The test for structural breaks is implemented using the Additive-Outlier (AO) model proposed by Perron (1989, 1990). For full specifications of each model see Perron and Vogelsang (1992) and Clemente, Montañés and Reyes (1998).

[6]I use domestic interest rates for the years 1822-1824, 1853, and 1855-1857, compiled by the *Banco de la Nación Argentina* and included in Ferreres (2005). For the years 1825-1828, I use the average yearly quotations of the 1824 Loan in the London Stock Exchange from Burgin (1946). Yearly yields for Argentine domestic bonds (1829-1848) also come from Burgin (1946). Service of the 1824 Loan was partially resumed in 1844, suspended in 1845, and resumed again in 1849. I use the price of these bonds in London as reported by Oszlak (1985) to calculate the cost of capital in 1850, 1852 ,1854, and 1858. The component series of foreign bond yields between 1859 and 1912, also selected in accordance with the lowest available price quotations, draw on price quotes for five different issues at two different coupon rates. Between 1859 and 1869 I used the Global Financial Data series. These data

are based on the Buenos Aires 6s from 1859 through July 1867, and the Argentina Public Work 6s from August 1867 through April 1888. For the period between 1870 and 1912, the data come from Mauro, et. al. (2006), who use Argentina's 6s issued in 1866, the Public Works 6s issued in 1871, and the Argentina External Gold 5s of 1886. Finally, I use the gold premium in 1849 and 1851 from Cortes Conde (1989) to complete the series.

[7]Here I use the term negative agenda control as defined by Cox and McCubbins (2005). A legislative majority exercises its negative agenda control if it uses its near-monopoly of formal agenda power in order to keep bills off the floor agenda that would, if passed, displease majorities of its membership (Cox and McCubbins 2005: 37).

[8]The lack of programmatic parties was reinforced by the persistence of personalism and *caudillismo* in Argentine politics. In fact, the presidential nature of the Argentine exacerbated the personalistic nature of political competition.

[9]These procedures were not to be taken lightly. In 1894, the Minister of Interior, Manuel Quintana, was requested to appear before congress. After a series of disappointing interventions on the floor of the Senate, the minister presented his resignation on 17 January 1895. This led to a ministerial crisis of such proportions, that five days later the president Saenz Peña himself tendered his resignation (Alonso 2000: 176).

[10]This measure is analogous to the one used by Cox and McCubbins, the *roll rate*.

[11]Coupons on foreign bonds were payable in sterling in London, thus no exchange-rate risk was attached to their yields. In contrast, domestic bonds were more sensitive to the value of the Argentine peso. I take these differences into account by including the appropriate controls (see Appendix 1 for more details).

[12]The endogeneity of institutional constraints may also explain why Mauro et. al. (2006) only find a weak correlation between political events in Argentina covered in the British press and changes in the risk premium of Argentine bonds.

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Table 1
Studies of Constitutional Constraints and Cost of Sovereign Borrowing

Author	Case(s)	Time Frame	Finding	Conclusion about Constraints
North & Weingast (1989)	England	1603-1750	constitutional arrangements enhanced government's borrowing ability	necessary
Clark (1996)	England	1540-1800	Glorious Revolution had no impact on interest rates	neither necessary nor sufficient
Sussman & Yafeh (2000)	Japan	1870-1914	modern constitution did little to affect investors' perceptions	necessary, but not sufficient
Mauro, et. al. (2006)	Emerging Markets	1870-1913 1994-2002	decline in cost of capital not driven by investor-friendly institutions	necessary, but not sufficient
Stasavage (2002 & 2003)	England France	1665-1750 1714-1789	cost of capital depended on partisan control of veto points	neither necessary nor sufficient
Summerhill (2008)	Brazil	1825-1895	constitutional arrangements allowed governments to honor debts	necessary
Flandreau & Flores (2008)	Emerging Markets	1818-1833	global bond market made sovereign borrowing possible	sufficient, but not necessary

Figure 1: Risk Premium: Argentina

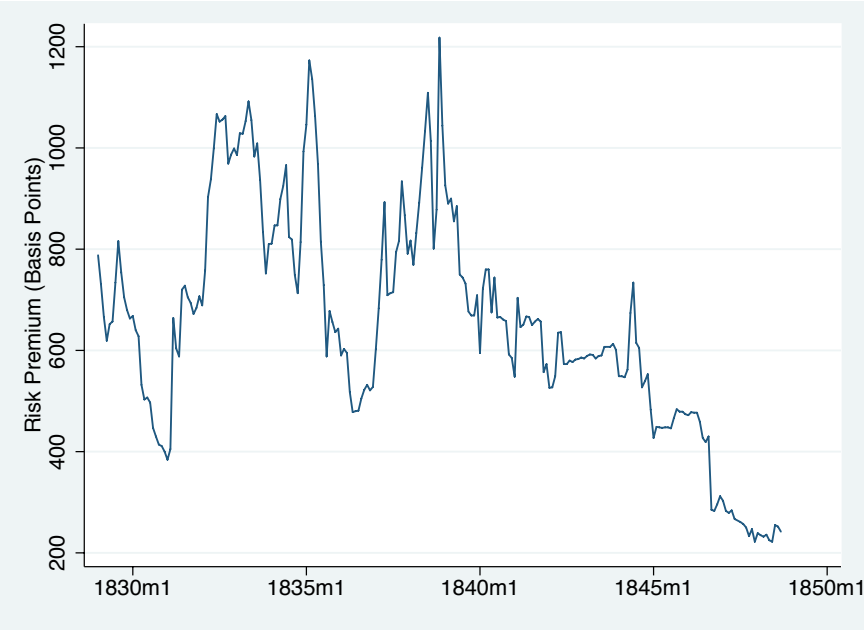


Figure 2: Structural Break in Yield Series

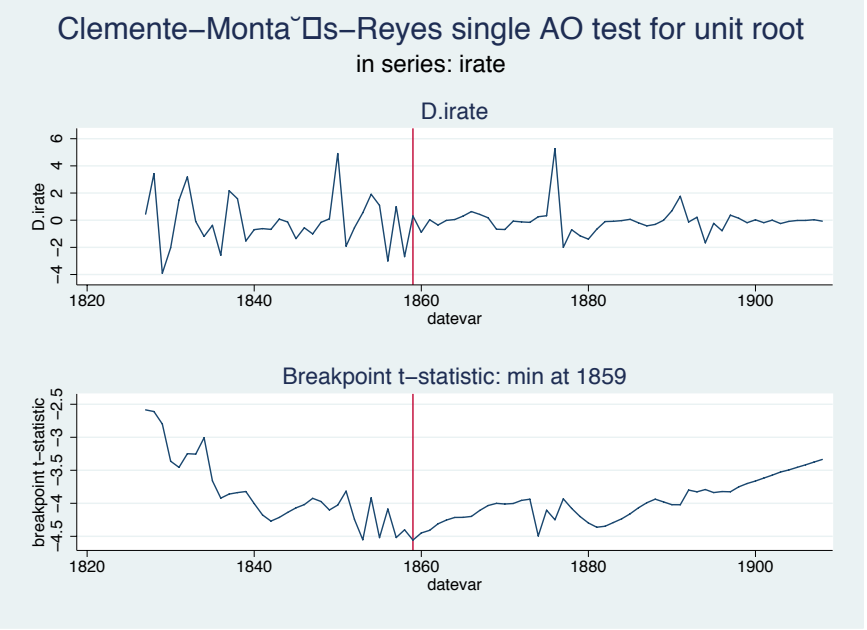
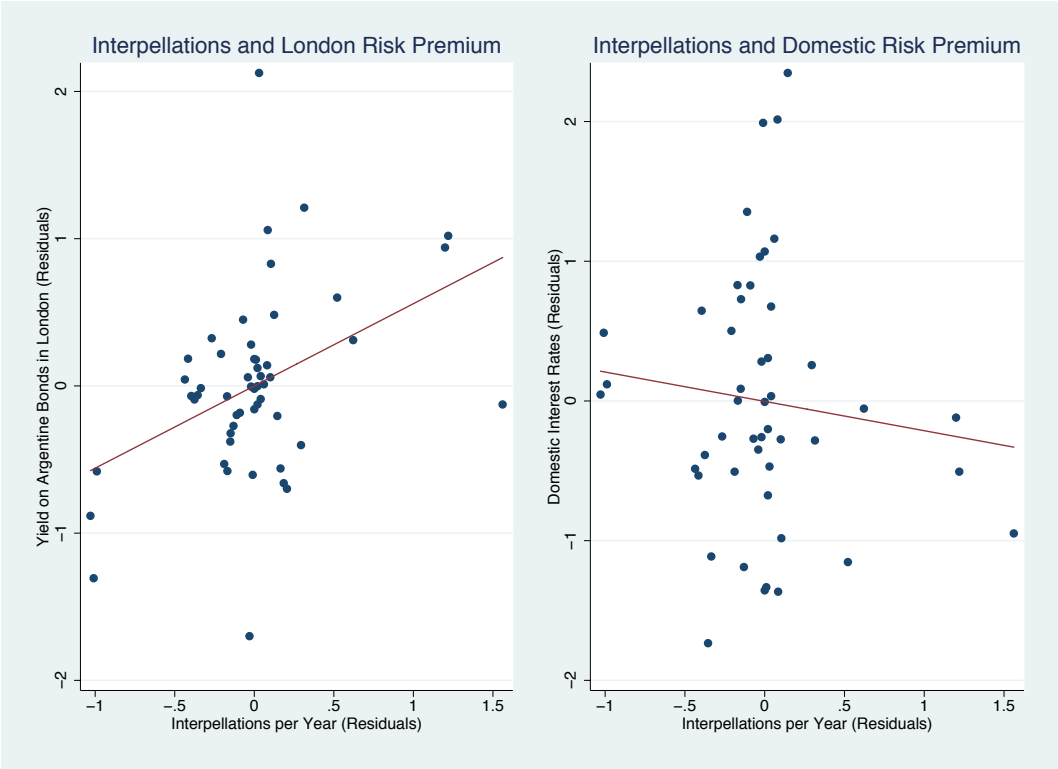


Figure 3: Negative Agenda Control and Bond Yields



Appendix 1

Table 1 reports the results of the estimation of the determinants of *negative* agenda control. The dependent variable, **Interpellations**, is the average number of interpellations per year for each administration in the period between 1862 and 1913. I exclude from the analysis those interpellations in which the finance minister was questioned. The data come from Molinelli (1989). The following explanatory variables are considered:

Time Trend. This variable is a linear time trend.

Federal Interventions. This variable is computed as the number of federal interventions in a given year. It measures instances of political instability that may lead to the questioning of cabinet ministers. Source: Sommariva (1929).

Electoral Support. This variable measures the electoral support of Argentine presidents. It is the percentage of electoral votes that each one of them received in the Electoral College as reported by Molinelli (1991). This variable is a good indicator of the size of the national coalition that carried these presidents into office.

1876 Crisis This is a a dummy variable that takes the value of 1 for those years in which the Argentine economy was under a financial panic (1876-1879) and 0 otherwise.

Baring Crisis This is a dummy variable that takes the value of 1 for those years in which the Argentine economy suffered the effects of the Baring Brothers & Co. crisis (1890-1897) and 0 otherwise.

Figueroa Alcorta This is a dummy variable that takes the value of 1 for those years in which the Argentina was governed by president Figueroa Alcorta (1906-1910) and 0 otherwise.

Saenz Peña This is a dummy variable that takes the value of 1 for those years in which the Argentina was governed by president Roque Saenz Peña (1911-1913) and 0 otherwise.

Table 1: Yearly Interpellations, 1862-1913

Variable	**Coefficient** (z-score)
Time Trend	0.021***
	(3.03)
Fed. Int.	0.193***
	(4.48)
Elect. Supp.	-0.014**
	(2.01)
1876 Crisis	0.572**
	(2.08)
Baring Crisis	0.782***
	(3.06)
F. Alcorta	1.428***
	(4.40)
S. Peña	4.237***
	(10.32)
Intercept	1.527***
	(3.03)
N	52
R^2	0.858
$F_{(7,44)}$	37.99

** significant at a 5% level; *** significant at a 1% level.

Table 2 reports the results of the estimation of the determinants of the yield of Argentina's external bonds. The dependent variable is the spread between Argentine bond yield and the yield on the British consol. The sources are the ones listed in the text. In addition to **Time Trend**, **1876 Crisis**, and **Baring Crisis**, the following explanatory variable is considered: **Gold**. This is a dummy variable that takes the value of 1 for those years in which the Argentine economy was under a gold standard and 0 otherwise. Source: della Paolera and Taylor (2001).

Table 2: Yields on Argentine Foreign Debt, 1862-1913

Variable	**Coefficient** (z-score)
Time Trend	-0.052*** (7.98)
Gold	0.133 (0.60)
1876 Crisis	3.641*** (10.57)
Baring Crisis	1.001*** (3.18)
Intercept	7.166*** (33.23)
N	52
R^2	0.822
$F_{(4,47)}$	54.47

** significant at a 5% level; *** significant at a 1% level.

Table 3 reports the results of the estimation of the determinants of the risk premium of Argentina's domestic government bonds. The dependent variable is calculated as coupon rate divided by price and comes from Cortes Conde (1997) and della Paolera and Taylor (2001). In addition to **Time Trend**, **Gold**, and **Baring Crisis**, the following explanatory variables are considered:

Risk Premium Lagged. This variable is the risk premium of Argentina's domestic government bonds in the previous year.

Debt/GDP. This variable is the ratio between the total government debt and the country's output. It is a common indicator of a country's degree of solvency. Source: Ferreres (2005).

Domestic Debt/Foreign Debt. This variable is the ratio between the total government domestic debt and the the total government foreign debt. Source: Ferreres (2005).

Credit Abundance This is a a dummy variable that takes the value of 1 for those years in which there was an abundance of credit in the Argentine economy (1888-1890) and 0 otherwise.

Mitre This is a dummy variable that takes the value of 1 for those years in which the Argentina was governed by president Mitre (1862-1868) and 0 otherwise.

Table 3: Yields on Argentine Domestic Debt, 1862-1913

Variable	**Coefficient** (z-score)
Risk (Lagged)	-0.145 (1.22)
Time Trend	-0.005 (0.38)
Gold	0.246 (0.50)
Debt/GDP	0.032*** (2.74)
Dom./For. Debt	8.632*** (5.74)
Credit Abun.	-2.691*** (3.04)
Baring Crisis	-2.258*** (2.70)
Mitre	2.161*** (2.84)
Intercept	4.111*** (3.15)
N	48
R^2	0.708
$F_{(8,39)}$	11.83

** significant at a 5% level; *** significant at a 1% level.

Finally, Tables 4 and 5 show the relationship between the average number of interpellations and yield of Argentine bonds, both conditional on the time trend and the control variables (reported in Figure 5).

Table 4: Yields on Argentine Foreign Debt (Residuals)

Variable	**Coefficient** (z-score)
Interpellations (Resid.)	0.558*** (3.19)
Intercept	0.000 (0.00)
N	52
R^2	0.169
$F_{(1,50)}$	10.20

** significant at a 5% level; *** significant at a 1% level.

Table 5: Yields on Argentine Domestic Debt (Residuals)

Variable	**Coefficient** (z-score)
Interpellations (Resid.)	-0.209 (0.74)
Intercept	-0.002 (0.02)
N	48
R^2	0.018
$F_{(1,46)}$	0.55

** significant at a 5% level; *** significant at a 1% level.