Tax Revolts and Sovereign Defaults *

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November 2024

Abstract

Political and fiscal crises often coincide, with complex causal dynamics at play. We examine the interaction between tax revolts and sovereign risk using a quantitative structural model calibrated to Argentina. In the model, the government can be controlled by political parties with different preferences for redistribution. Households may opt to revolt in response to the fiscal decisions of the ruler. While revolts entail economic costs, they also increase the likelihood of political turnover. Our model mirrors the data by generating political crises concurrent with fiscal turmoil. Specifically, we find that our model aligns closely with the conditions observed during the Macri administration (2015-2019). We find that left-leaning parties are more prone to default upon entering office, while right-leaning parties issue more debt. Our framework explains the high deficits observed during the Macri administration as well as the sovereign default that occurred immediately after the Left regained power.

Keywords: Civil unrest, financial crises, sovereign default, redistribution

JEL Classifications: E32, E44, F41, G01, G28

*We thank Manuel Amador, Cristina Arellano, Gadi Barlevy, Javier Bianchi, Emilio Espino, Stelios Fourakis, Mike Golosov, Grey Gordon, Tim Kehoe, Ilenin Kondo, Andy Neumeyer, Juan Pablo Nicolini, Leonardo Martinez, Matias Moretti, Cesar Sosa-Padilla, Monica Tran-Xuan, and Jing Zhang for useful comments, and seminar participants at NBER Emerging Markets Spring Meeting 2024, the SED 2024, SCIEA 2024, and Di Tella University. We are also thankful to Sophia Lansell and Caydn Hillier for their excellent research assistantship. The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Chicago or the Federal Reserve System. All errors are our own.

1 Introduction

Fiscal decisions are made by public officials aligned with specific factions of the nation. In practice, tax reforms and fiscal adjustment decisions often provoke civil unrest. While the literature on sovereign default has explored various facets of political risk since the seminal work of Hatchondo and Martinez (2010), the theoretical insights from Acemoglu and Robinson (2001) on how the risk of civil conflict constrains governmental decisions have yet to be integrated into a quantitative model of sovereign risk. This paper aims to fill this void.

Protests differ from other forms of political backlash along crucial dimensions relevant to sovereign risk. Unlike elections, protests allow opposition members to express their dissatisfaction immediately, often leading to subsequent declines in reelection rates for the incumbent (Madestam et al. (2013)). Moreover, protests disrupt economic activity for both demonstrators and the wider economy, introducing significant strategic considerations for all involved parties. Protesters must be willing to bear the costs, while governments may adjust fiscal policy to mitigate unrest. Furthermore, since protests can alter the reelection prospects of incumbents, they can also shape lenders' expectations regarding future government preferences, directly impacting the pricing of public debt.

We highlight the significance of these dynamics by examining Argentina, particularly during the presidency of Mauricio Macri from December 2015 to December 2019, while also showing that the relationship between political and sovereign risk holds for a cross-section of countries. We show that episodes of heightened civil unrest, termed *revolts*, are associated with increases in sovereign spreads, i.e. fiscal crises.

We develop a quantitative sovereign debt model in the tradition of Eaton and Gersovitz (1981) and Arellano (2008), supplemented with a non-linear tax framework inspired by Heathcote et al. (2017), and incorporating civil conflict dynamics from Acemoglu and Robinson (2001). Heterogeneous households participate in production and are ruled by political parties with different preferences for redistribution that alternate in office. Furthermore, households can strategically respond to the government's fiscal choices by staging revolts. Revolts lower productivity but decrease the probability that the incumbent party will stay in power. As in the data, we note that political and fiscal crises often coincide.

Our model uncovers two channels linking revolts and sovereign risk. Firstly, political conflict can elevate default risk by increasing the probability of transitioning from a ruling party with a low default rate to one with a higher rate. This mechanism generates a testable prediction that coincides with the Argentinean experience in 2020. Defaults are more likely to follow a transition from right-wing to left-wing governance, and protests make these transitions

more likely. Secondly, revolts can mitigate default risk by shortening the expected tenure of incumbents who choose to default. Indeed, we find that in equilibrium, revolts are more common during defaults than under repayment, allowing them to function as an endogenous default cost. The lenders anticipate this additional cost, and offer a more favorable bond price schedule to an incumbent in our baseline model relative to an environment with political turnover but without revolts.

Our quantitative analysis shows that, while the two channels offset each other in terms of default frequency, revolts lead to increased overall indebtedness. In equilibrium, governments utilize the fiscal space created by revolts to take on more debt. Although both parties borrow more, right-wing incumbents–who face a higher frequency of protests–are notably more prone to increase deficits. As a result, it becomes more likely that a left-wing government will inherit a debt load misaligned with its distributional priorities, prompting it to default.

Related literature This paper connects to several strands of literature on sovereign default, political economy, and public finance. Our primary contribution lies within the political economy of sovereign default, focusing on the risks associated with political turnover.[1]

The exogenous part of political turnover in our model resembles Hatchondo and Martinez (2010), and like them, we find that one party defaults more frequently than the other. However, unlike their model, we assume equal discount factors for both parties. In Cotoc et al. (2021), discount rates are equalized across parties, but asymmetric reelection odds translate into asymmetric effective discount factors, thereby explaining the differences in default rates. In our framework, absent the endogenous revolt choices, both parties have the same exogenous probability of remaining and gaining power.[2]

In our model, parties differ in their preferences regarding the redistributive consequences of fiscal policy, a characteristic often observed in political parties in developing nations. This aspect is also explored in recent work by Andreasen et al. (2019), Azzimonti and Mitra (2023), and Scholl (2024), with further extensions in Scholl and Hermann (2024), who explicitly incorporate political constraints and redistribution dynamics in a sovereign debt model. While we share certain elements with these models, there are notable differences. Compared to Andreasen et al. (2019) and Azzimonti and Mitra (2023), we introduce heterogeneity in the labor supply response to taxation. In our setup, redistribution is not simply a

[1] Our model will however also draw elements from the strand of the literature that focuses on sovereign reputation (Amador and Phelan (2021), Fourakis (2023), Morelli and Moretti (2023)

[2] In Chatterjee and Eyigungor (2019) model of endogenous political turnover, the asymmetry in the effective discount rates stems from the ability to divert public funds into private use and from informational frictions regarding the effects of government's policies. These issues are outside the scope of our paper.

matter of dividing a fixed endowment, as in Cuadra and Sapriza (2008). Instead, there is an efficiency-equity trade-off that impacts aggregate output and, consequently, repayment capacity.

Scholl (2017) and Scholl (2024) bear the closest resemblance to our paper, but two key differences stand out: the frequency of political turnover and the debt's maturity structure. Our framework endogenizes the frequency of political turnover by making it a strategic decision of households. This feature proves significant for our novel mechanism, as households opt to exercise their protest option more frequently during default periods than in repayment periods. Additionally, while Scholl (2017) and Scholl (2024) assume one-period debt, we assume long-term debt. This assumption allows us to quantitatively match the level and volatility of debt and spreads observed in empirical data.[3] Moreover, the maturity structure of the debt directly influences the transmission of political risk into default risk. First, long maturities imply that the borrowing policies of the opposition party impact the price of the incumbent's debt. Second, longer debt maturities mitigate exposure to rollover risk, thus reducing the likelihood of default during political turnovers from right to left. In section 7.1 we show that these right-to-left transitions are the main channel by which political risk can increase default risk.

Our paper also draws on well-established literature on the economic impact of regime change, particularly in the context of taxation and redistribution (e.g., Acemoglu and Robinson (2001), Acemoglu et al. (2011), Scheuer and Wolitzky (2016), and many others). Additionally, there is a large body of literature on regime change (see Barbera and Jackson (2020) and references therein). Our paper relates to Dovis et al. (2016), but we focus on the aspect of sovereign default rather than the dynamics of optimal taxation.

2 Empirical motivation

2.1 Cross-country evidence

Following the literature, we document the positive relation between political risk and spreads across different countries. Hatchondo and Martinez (2009) were first to highlight the importance of political risk measured by the International Country Risk Guide (ICRG) indicator, which they interpret as capturing the effect of governmental turnover on sovereign spreads. They study the 2001 Argentine default episode, pointing to outcomes of high government turnover driven by popular dissatisfaction. Similarly, Trebesch (2019) uses ICRG and length

[3]This well-known result is proved in Chatterjee and Eyigungor (2012) and Hatchondo and Martinez (2009).

of renegotiation to argue that intense political turmoil makes restructuring more difficult. We confirm the positive correlation between political risk and spreads in the cross-country panel regression of countries with a credit rating below A-, presented in Table 10.[4]

Table 1: CDS spreads and political risk

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	9.179***	9.910***	16.75***	19.04**	24.90*
	(0.529)	(0.774)	(4.538)	(6.314)	(9.893)
External Debt-to-GDP		3.890***		-0.613	-0.266
		(0.390)		(4.654)	(4.947)
CA-to-GDP		-1.237		1.384	1.515
		(0.667)		(1.187)	(1.692)
Reserves-to-GDP					-1.137
					(4.321)
Real GDP growth					-2.039
					(1.384)
Primary Balance-to-GDP					0.00801*
					(0.00366)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	2261	1838	2258	1835	982

Note: We drop the top 2% of CDS Spread observations before all empirical work. Additionally, we use Standard and Poor's credit rating data to drop all nations rated A- or higher. All data sources are listed in Appendix A. Standard errors clustered at the country levels in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The positive association between political risk and sovereign spreads persists even after accounting for macroeconomic fundamentals (such as Current Account Balance, Reserves, Real GDP growth, and Primary Balance), as well as time and country fixed effects. In Appendix **??**, we show that this relationship is also present regardless of the party in power, albeit with a stronger effect when the incumbent is a right-wing party. Figure 1 shows the fitted values of the regression with all the aforementioned macroeconomic controls and the fixed effects.

Additionally, in Figure 2, we further investigate this relationship in the data by focusing on

[4]The source for CDS spreads is CMAN obtained from Bloomberg Per Security Data and Bloomberg terminal, used with the permission of Bloomberg. This regression only includes countries whose foreign-exchange debt was rated below A- by Standard and Poor's in July 2024. We conduct the same exercise keeping countries of all ratings in Appendix H and find similar results.

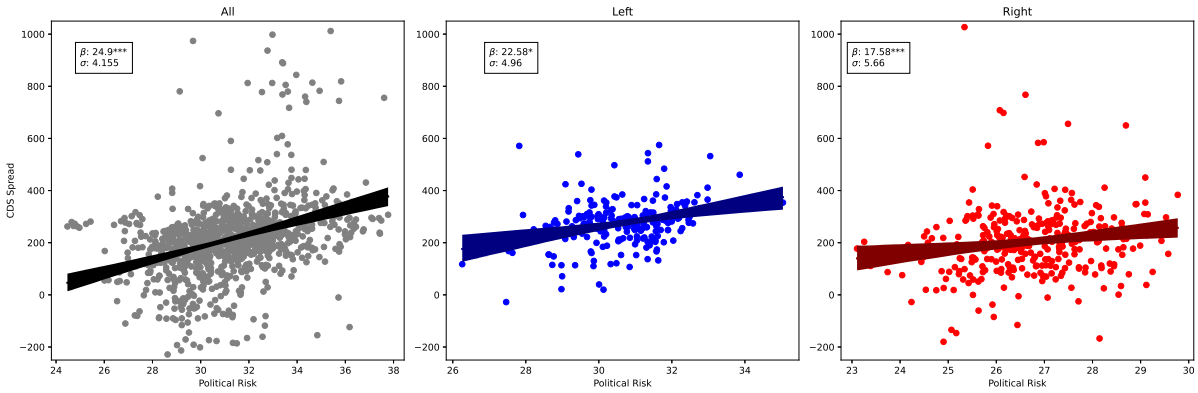


Figure 1: Fitted values CDS on spreads controlling for fundamentals

Note: The plots contain the fitted regression lines that pin down the empirical relationship between political risk and CDS spreads, after controlling for fundamentals. The fitted values are constructed by controlling within sample for external debt, gross domestic product (GDP), current account balance, reserves, and primary fiscal balance, with quarterly and country-specific fixed effects. All data sources are listed in Appendix A. We keep only countries with a credit rating below A-. We drop the top 2% of CDS spreads at the beginning from the total set of empirical data. We also demean the spreads series.

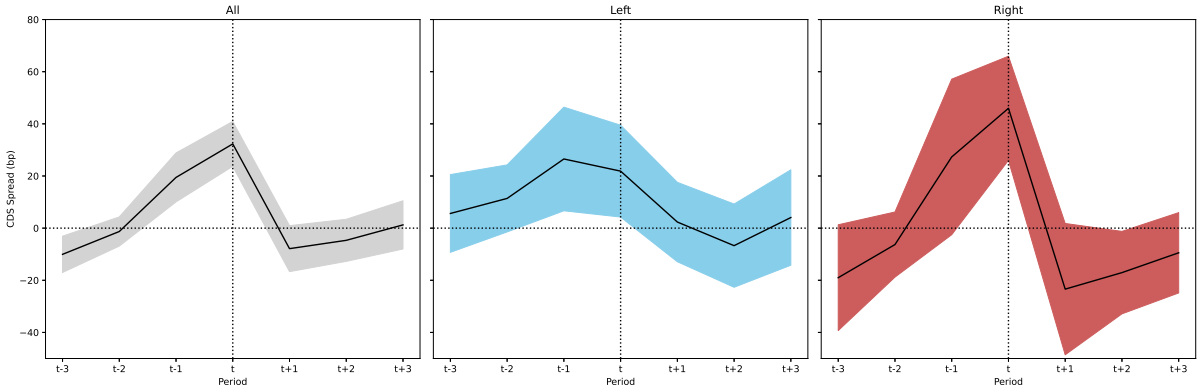


Figure 2: Change in spreads during a political crisis

Note: We encode an event as a one-quarter difference in the ICRG political risk measure that is greater than one standard deviation above the mean of all one-quarter differences within the time series for a particular country. The y-axis represents the corresponding one-quarter difference in the CDS spread, averaged over the appropriate sample of events. The events are then divided according to the party that was in power at the time of the event. Some observations do not have clear left/right affiliations and are thus dropped without changing the original indication of treatment. The magnitudes are averaged after controlling for the fundamentals of current account balance and external debt, which ensures comparability with the event studies in the simulated data. All events are required to have continuous data availability in a six-quarter window around the event quarter. We keep only countries with a credit rating below A-. We drop the top 2% of CDS observations at the beginning from the total set of empirical data. We have 426 events for the total data, 102 for the left-wing governments, and 114 for the right-wing governments.

political crisis events. We select events in which the index of political risk increases by more

than one standard deviation above its long-run country-specific mean.[5] We then look at the change in CDS spreads around these events. The exercise can also be conducted by isolating events based on the party affiliation of the incumbent. Once again, our findings reveal that political crises are linked to an average increase in interest rate spreads of around 20 basis points, with larger increases observed when the incumbent is affiliated with a right-wing party. We validate our quantitative model by verifying it is consistent with these data patterns.

2.2 The case of Argentina 1995-2020

A significant drawback of the ICRG index of political risk is that its method of calculation is not public. To circumvent this issue, we construct our own measure of political conflict using a narrative approach. Following David et al. (2022), we utilize the Dow Jones Factiva dataset to search Argentinean newspaper articles that mention protests motivated by economic conditions on a daily frequency and record the size of the protests. The exact keywords and a detailed description of our method can be found in Appendix A. We conduct this analysis from the earliest possible date in the dataset, January 1995, until December 2020. The results of this analysis, aggregated at the quarterly level, are shown in Figure 3, alongside the party affiliation of the incumbent president.

The figure shows three important empirical facts that will inform our quantitative model:

1. Large and more numerous strikes and protests are common immediately before and after a default episode.

2. Presidents from right-wing parties tend to face more protests than their left-wing counterparts. This is especially visible during the Macri administration (2015-2019) and is explored in more detail below.

3. Reelected parties (N. Kirchner and C. Kirchner's first term) faced fewer protests during their terms compared to administrations that ended in a political turnover (De la Rua, C. Kirchner's second term, and Macri).

[5]This method of event analysis has been used to study sudden stop crises, Bianchi and Mendoza (2018), and inflation surges, Arellano et al. (2020)

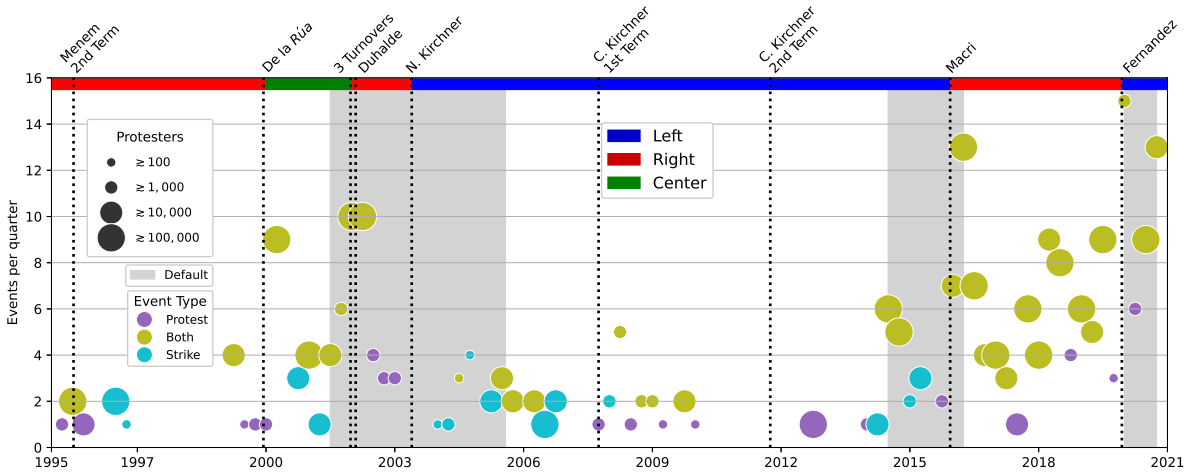


Figure 3: Protests in Argentina 1995-2020

Left vertical axis measures the number of protest events recorded in that quarter. Purple and cyan circles correspond respectively to protests and general strikes mentioned in the Dow Jones Factiva dataset and are associated with economic reforms. The size of the dot corresponds to the highest protest size recorded. The name of the president in power at the time is written above. Presidents from a right-wing (left-wing) party are colored in red (blue). Political affiliation is from the Database of Political Institutions 2020 compiled by the IDB and the World Bank (see Scartascini et al. (2021)).

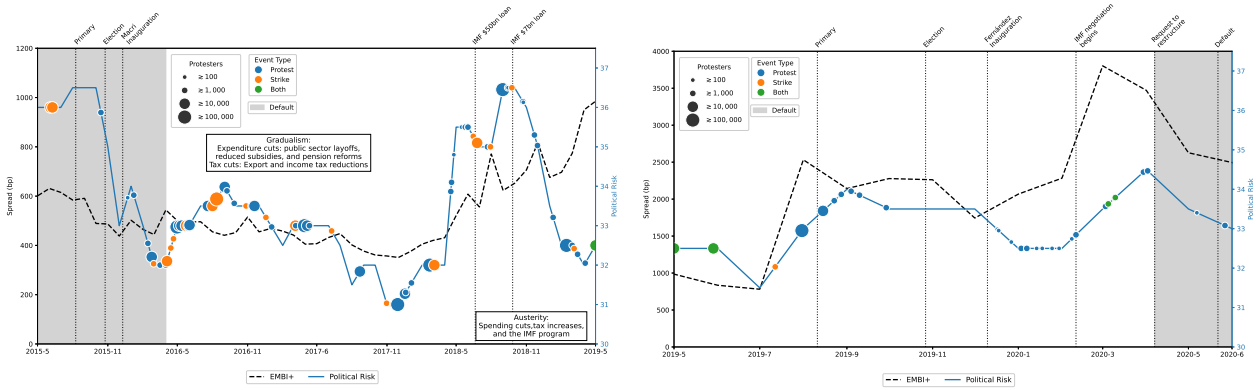
2.3 The Macri Administration and the Right-to-Left Default

Taking advantage of the high frequency of the data, we examine the years around the Macri administration in greater detail.[6] This period was marked by frequent revolts, volatile spreads, two sovereign defaults, and two political transitions between parties of different ideologies, providing a tangible example of the issues addressed in this paper.

After 13 years of left-wing governance, Argentina elected a president from a right-wing party in November 2015. The previous administration had defaulted on debt payments and was still entangled in ongoing legal battles with its creditors. Macri won the election with a platform promoting fiscal responsibility and openness to international capital markets while also promising to maintain some of the social programs introduced by the left.

As shown in Figure 4, Macri's administration faced social unrest for most of its four-year term. In the first fifteen months, this increase in social unrest did not translate into higher interest rate spreads. This was because, during his first two years in office, Macri's approach to fiscal consolidation was characterized by gradualism. The administration attempted to reduce spending through cuts to subsidies, pension reforms, and public sector layoffs, but these measures faced opposition on the streets and in Congress. Consequently, the administration

[6] In Appendix B show the same results for the administrations that ruled Argentina between 1995 and 2015.



(a) 2015-2019.

(b) 2019-20.

Figure 4: Macri Administration: Spreads, political risk, and daily protests

Note: Left vertical axis measures the interest rate spread using the EMBI+ in basis points. The right vertical axis corresponds to one hundred minus country risk from the ICRG database. This is an index of political risk with high values representing higher levels of political instability. Blue and orange circles correspond respectively to protests and general strikes mentioned in the Dow Jones Factiva dataset and are associated with fiscal reforms. The size of the dot corresponds to the highest protest size recorded.

also introduced measures that decreased revenues, such as cutting export and income taxes. As a result, total net borrowing by the central government increased from 6.0% of GDP in 2015 to 6.7% of GDP in both 2016 and 2017. This additional borrowing was facilitated by the administration's successful negotiation with bondholders in April 2016, which allowed Argentina to re-enter international credit markets.

The situation changed when a recession began in 2018 and unemployment surged. The government could no longer avoid austerity measures, leading to general strikes and widespread protests. By June 2018, the government had secured a loan agreement with the International Monetary Fund (IMF). To meet the program's conditionality requirements, the government cut subsidies and public investment projects. Protests against the program and discontent over the austerity measures remained frequent throughout the rest of the year. Political risk increased, and the president's popularity declined.

As the August 2019 primaries approached, spreads surged to 2500 basis points, as it became evident that Macri's prospects for reelection were bleak. The October elections confirmed the resurgence of the left-wing party, which assumed office in December 2019. In January 2020, the new government announced the end of austerity measures, a plan for debt sustainability, and the reversal of export tax reductions. In February 2020, the IMF declared Argentina's debt to be unsustainable. A formal request for debt restructuring was submitted in April, culminating in missed debt payments in May.

Argentina's experience is characterized by a positive correlation between interest rate

spreads and political risk, large deficits under a right-wing government, and a left-wing government commencing its tenure with a default. All of these elements will be present in our model.

3 Model

Parties and Households. Time is discrete and infinite. There is a small open economy populated by two political parties and two types of households. Both of these agents are indexed by $i \in \{L, R\}$, where L refers to the left-leaning (i.e., the more redistributive) party and its supporters, while R refers to the right-leaning (i.e., the less redistributive) party and its supporters. Households are heterogeneous in skill: the low-skilled (respectively, high-skilled) workers optimally support the left-wing (resp., right-wing) party. The party currently in office chooses the level and progressivity of tax policy, issues long-duration non-state-contingent bonds that are purchased by a mass of competitive foreign lenders, and has no commitment to repaying the debt.

Defaults and Revolts. The aggregate state of the economy, revealed only at the end of each period, is the result of strategic decisions made by both the government and the households. Namely, the party in office, as long as it is in good standing with its creditors, can decide whether to repay its debt in the current period ($\mathcal{D} = 0$) or default ($\mathcal{D} = 1$). If it chooses to default, no debt payments are made to lenders, and the country is excluded from financial markets for some time—i.e., it remains in the "default" state $\mathcal{D} = 1$ until it regains its good standing. Following the government's actions, households decide whether to accept the proposed fiscal package ($\mathcal{R} = 0$) or revolt ($\mathcal{R} = 1$). Production, borrowing, and consumption then take place given these strategic decisions. All agents are forward-looking. We focus on Markov-perfect equilibria.

3.1 Households

Households can be of two types (or ideologies) with equal mass, $i \in \{L, R\}$. Throughout the paper, whenever we refer to households of type i, we denote by j the other type; that is, $j = R$ if $i = L$, and *vice versa*. Households differ in labor productivity θ^i and taste for effort ψ^i, with $0 < \theta^L < \theta^R$ and $0 < \psi^L < \psi^R$. Households of type i derive utility from

consumption C and disutility from labor supply N according to the following preferences:

$$u^i(C, N) = \log C - \frac{1}{\psi^i(1 + 1/\psi)} N^{1+1/\psi},$$

where $\psi > 0$ is the Frisch elasticity of labor supply, common to both types of households.

We denote the wage per unit of labor by w and labor income by $y = wN$. The government levies an income tax schedule $\boldsymbol{\tau}(\cdot)$ that has the following two-parameter functional form:

$$\boldsymbol{\tau}(y) = y - \tau_0 \cdot y^{1-\tau_1},$$

with $\tau_0 > 0$ and $\tau_1 < 1$. The constant τ_1 is the rate of progressivity of the tax system. If $\tau_1 = 0$, the tax schedule is linear, with a constant marginal tax rate equal to $1 - \tau_0$. If $\tau_1 > 0$ (respectively, $\tau_1 < 0$), the tax schedule is progressive (resp., regressive); that is, the marginal and average tax rates are monotonically increasing (resp., decreasing) with income.[7] Notice that if the tax schedule is progressive, low-income households receive transfers, i.e., $\boldsymbol{\tau}(y) < 0$, whenever $y < \tau_0^{1/\tau_1}$. Thus, for a given rate of progressivity $\tau_1 > 0$, a higher parameter τ_0 maps into both a higher base and a higher level of transfers to low-income households.

Households are hand-to-mouth. When making their decisions, they take wages and all other aggregate states of the economy—including the fiscal package proposed by the party in power—as given. A household of type i with wage w^i solves

$$\begin{aligned} U^i = \max_{C,N} \; & u^i(C, N) \\ \text{s.t.} \quad & C = w^i N - \boldsymbol{\tau}(w^i N). \end{aligned} \tag{1}$$

We obtain that the optimal choice of labor supply is given by

$$N^i = [\psi^i(1 - \tau_1)]^{\psi/(1+\psi)}.$$

Thus, labor supply is decreasing in the rate of progressivity τ_1. It does not explicitly depend on the wage rate w^i because the income and substitution effects on labor supply offset each other with a log utility of consumption. We let $y^i = w^i N^i$ the labor income, and U^i the indirect utility, of households of type i.

[7] The parameter $-\tau_1$ is then equal to the elasticity of the household's "keep rate", i.e., $1 - \boldsymbol{\tau}'(y)$, with respect to labor income y.

3.2 Representative Firm

A representative firm hires both types of households to produce the final good. The production function is CES with an elasticity of substitution between the two types of labor $\eta < 1$. The total factor productivity $\alpha(A, \mathcal{D}, \mathcal{R})$ depends on an exogenous and persistent shock A, the government's current standing with its creditors $\mathcal{D} \in \{0, 1\}$, and the households' revolt decision $\mathcal{R} \in \{0, 1\}$. The firm produces

$$Y = \alpha(A, \mathcal{D}, \mathcal{R}) \left[(\theta^L N^L)^\eta + (\theta^R N^R)^\eta\right]^{1/\eta}$$

We assume that the function $\alpha(A, \mathcal{D}, \mathcal{R})$ is strictly decreasing in both $\mathcal{D}$ and $\mathcal{R}$. That is, both defaults—which last until the country recovers its good standing with creditors—and revolts lead to a reduction in the economy's output.

We assume the firm maximizes its flow profits. The labor market is competitive. In equilibrium, wages of households of type i are given by

$$w^i = \left[1 + \left(\frac{\theta^j N^j}{\theta^i N^i}\right)^\eta\right]^{(1-\eta)/\eta} \alpha(A, \mathcal{D}, \mathcal{R})\, \theta^i \tag{2}$$

Expression (2) shows that both defaults and revolts both lead to income losses for the households. Note also that, by influencing the decision of households to revolt, the tax schedule affects not only their disposable incomes ("redistribution") but also their pre-tax wages ("pre-distribution"). More generally, wages, labor supplies, and indirect utilities, depend on the exogenous shock A, the fiscal package $\mathcal{D}, \boldsymbol{\tau}$, and the revolt decision $\mathcal{R}$.

3.3 Parties

Party Ideology. There are two political parties, left and right, indexed by $i \in \{L, R\}$. As for households, whenever we refer to party i, we denote by j the opposition, and *vice versa*. Both parties are benevolent and strategic, but they differ in their redistributive tastes. Specifically, they both evaluate social welfare according to a weighted utilitarian criterion, but they assign different welfare weights to the two types of households. We denote by $\Omega^{i|i}$ and $\Omega^{j|i}$ the welfare weights respectively assigned to households of type i and j by party i, with $\Omega^{i|i} > 1/2$ and $\Omega^{i|i} + \Omega^{j|i} = 1$. Thus, the right-wing (respectively, left-wing) party places a higher Pareto weight on the high-skilled (respectively, low-skilled) households—implying in turn that households R (respectively, L) optimally support the policies of party R (respectively, L). Besides these heterogeneous redistributive preferences,

both parties are identical; in particular, they have the same discount factor β and face the same exogenous default costs.

Political Turnover. Each political party is either the incumbent (in-office) or the opposition (out-of-office). The probability that the incumbent party i stays in power next period depends on the households' decision to revolt, $\pi^{i|i}(\mathcal{R})$. The probability that the incumbent party i is ousted and replaced by party j is then equal to $\pi^{j|i}(\mathcal{R}) = 1 - \pi^{i|i}(\mathcal{R})$. We assume that $\pi^{i|i}(\mathcal{R})$ is strictly decreasing in $\mathcal{R}$. Thus, the probability of reelection, without revolts, is the same for both parties; it is unaffected by the default status but it is strictly lower if a revolt takes place in the current period.[8]

Fiscal Policy. We denote by B the current level of debt that the party in power, i, inherits from the previous period. If the country is currently in good standing with its creditors, party i gets to choose whether to default, $\mathcal{D} \in \{0, 1\}$, an end-of-period level of debt B', and a tax-and-transfer policy $\boldsymbol{\tau}$ consisting of a level of transfers τ_0 and a rate of progressivity τ_1.[9] If the party defaults, or has defaulted in the past and has not yet recovered its good standing with creditors, then $\mathcal{D} = 0$ and $B' = 0$, i.e., the country cannot borrow on international markets. In this case, the tax schedule $\boldsymbol{\tau}$ must balance the current-period budget. We use the shorthand notation $\mathcal{F}^i \equiv \{\mathcal{D}, B', \tau\}$ to denote the fiscal package chosen by party i.

Note the sovereign decides how much debt to issue before knowing whether households will riot—but this outcome will in turn affect the price of borrowing. As we explain below, the level of transfers τ_0 needs to adjust ex post in order to ensure that the government budget constraint holds. For simplicity, we omit the argument $\mathcal{R}$ from τ_0 in the sequel.

We assume that debt is a long-term contract promising a stream of exponentially declining coupon payments. Specifically, a unit of the bond issued at time t promises to pay $(1 - \delta)^{t+s-1}(\delta + z)$ units of the consumption good in period $t + s$. The price of the newly issued bonds faced by party i, denoted by $Q^i(A, B', \mathcal{R})$, is then a function of the exogenous total factor productivity A, the level of debt announced for next period B' (conditional on which the initial stock of debt B and the tax policy $\boldsymbol{\tau}$ are irrelevant), and the households' revolt decision $\mathcal{R} \in \{0, 1\}$. Note that the ideology of the party in office $i \in \{L, R\}$ matters explicitly for the bond price, since this variable is persistent and therefore informative about future

[8]This reduced form assumption allows the model to match the empirical evidence showing that incumbents facing social unrest are reelected at lower rates Madestam et al. (2013)). A model where the median voter is dissatisfied with the social unrest and at least partially blames the incumbent for it could rationalize this assumption.

[9]The opposition party j does not make a fiscal decision but still receives a utility flow according to its own preferences.

borrowing and default choices. The government budget constraint then reads

$$0 = \sum_{k\in\{L,R\}} \boldsymbol{\tau}(y^k(A,\mathcal{D},\mathcal{R},\tau_1)) + \left\{Q^i(A,B',\mathcal{R})[B' - (1-\delta)B] - (\delta+z)B + \kappa(B,B')\right\}(1-\mathcal{D}). \tag{3}$$

The first term on the right-hand side is the tax revenue, consisting of the sum of taxes levied on the labor incomes y^L, y^R of the two types of households. Recall that labor income depends on the variables $A, \mathcal{D}, \mathcal{R}$ via the total factor productivity $\alpha(\cdot)$, and on the rate of progressivity τ_1 that affects labor supply decisions. The second term on the right-hand side is the government's debt balance. It is non-zero only if the government is able to borrow, i.e., if it is in good standing with its creditors so that $\mathcal{D} = 0$. The last term in the curly brackets ($\kappa(B, B')$ is a convex portfolio adjustment cost that penalizes the government for large changes in the stock of debt. We add this term to avoid the well-known issue of extreme dilution immediately before a default; at the calibrated values, less than 0.06% of output is spent on this adjustment cost. Note that a revolt has the ex-post effect of altering the price of bonds and tax revenue. However, given a specific revolt choice, the budget constraint (3) renders one of the fiscal variables redundant. The choices of end-of-period debt B' (possibly constrained to zero if $\mathcal{D} = 1$) and tax progressivity τ_1 uniquely determine the level of transfers τ_0. We assume that the government commits to the levels of borrowing and tax progressivity, but once the revolt decision is realized, it adjusts the transfers (τ_0) to satisfy the budget constraint.

Following a repayment of its debt, the government keeps its good standing and can borrow in the next period. By contrast, after a default, the government is unable to borrow until it recovers its good standing and can re-enter credit markets. We assume that this happens with an exogenous positive probability $\gamma \in (0, 1)$ in each period. Letting $\mathcal{G}(\mathcal{D})$ denote the probability that the government is in good standing in the current period, we thus have $\mathcal{G}(\mathcal{D}) = 1$ if $\mathcal{D} = 0$, and $\mathcal{G}(\mathcal{D}) = \gamma$ as long as $\mathcal{D} = 1$.

Taste Shocks. The final ingredient of the model are two privately observed taste shock vectors $(\varepsilon^g, \varepsilon^h)$ that affect the political parties and the households in each period. The government's shock $\varepsilon^g(B', \boldsymbol{\tau})$ is a vector containing all the potential fiscal packages that are available to the government.[10] The households' shock $\varepsilon^h(\mathcal{R}) \in \mathbb{R}^2$ is a two-dimensional vector associated with the costs of revolting and of accepting the fiscal package. We draw the taste

[10] For computational simplicity, we assume that the potential choices of end-of-period debt B' and tax progressivity τ_1 can only take a finite set of values: $B' \in \mathcal{B} \equiv \{B^1, B^2, ..., B^{N_B}\}$ and $\tau_1 \in \mathcal{T} \equiv \{\tau^1, \tau^2, ..., \tau^{N_\tau}\}$. There are thus $N_B \times N_\tau$ possible fiscal packages in repayment and N_τ possible packages in default. Hence $\varepsilon^g \in \mathbb{R}^{(N_B+1)\times N_\tau}$.

shocks from a generalized type-one extreme value distribution with scale parameters μ^g, μ^h and correlation coefficients ρ^g, ρ^h for the government and the households, respectively, with $\rho^h = 0$. The shocks are independently and identically distributed (i.i.d.) over time and uncorrelated to each other.

3.4 Value Functions

We write the model in recursive form and "primed" variables (e.g., B') always represent the next-period values. We denote by W the value functions of the political parties, and by V the value functions of the households. Whenever a variable has a superscript of the form $i|i$ or $j|i$, the second variable (i in these two examples) denotes the party that is currently in office.

Parties. Suppose that the country is in good standing and that party i is in power; hence, party j is in the opposition. We let $W^{i|i}$ and $W^{j|i}$, respectively, denote the value functions of parties i and j, given that i is in office. Moreover, we let $W_{\mathcal{D}}^{i|i}$ and $W_{\mathcal{D}}^{j|i}$ be the values obtained when party i repays the debt ($\mathcal{D} = 0$) or defaults ($\mathcal{D} = 1$).

The party in office, i, chooses whether to repay or default, so that its value function satisfies

$$W^{i|i}(A, B, \varepsilon^g) = \max \left\{ W_0^{i|i}(A, B, \varepsilon^g) \ ; \ W_1^{i|i}(A, \varepsilon^g) \right\} \tag{4}$$

where the state variables are the exogenous level of productivity A observed at the beginning of the period (and inherited from the previous period), the initial stock of debt B, and the vector of taste shocks ε^g. The initial stock of debt becomes irrelevant once the government has decided to default ($\mathcal{D} = 1$). We denote by $\mathcal{D}^i(A, B, \varepsilon^g) \in \{0, 1\}$ the resulting policy function that determines the decision to default or repay by the party in power i. For the opposition party j, there is no optimization problem: It takes the policy functions of the incumbent i and of the households as given. Its value function is then given by

$$W^{j|i}(A, B, \varepsilon^g) = (1 - \mathcal{D}^i(A, B, \varepsilon^g))W_0^{j|i}(A, B, \varepsilon^g) + \mathcal{D}^i(A, B, \varepsilon^g)W_1^{j|i}(A, \varepsilon^g). \tag{5}$$

We now characterize the values of repayment and default. For simplicity, we only derive those of the party in power, $W_0^{i|i}, W_1^{i|i}$, and omit those of the opposition, $W_0^{j|i}, W_1^{j|i}$. Party i makes its fiscal decisions taking into account the households' reaction function, i.e., whether to revolt or not. However, it cannot perfectly predict whether a revolt will happen since it does not observe the taste shocks ε^h. We denote by $\mathbb{P}(\mathcal{R}|A, \mathcal{F}^i)$ the probability that households of type j make the decision $\mathcal{R} \in \{0, 1\}$ given the productivity shock A, which affects their wages,

and the incumbent party i's choice of fiscal package $\mathcal{F}^i = \{\mathcal{D}, B', \boldsymbol{\tau}\}$. In case of repayment, we have

$$W_0^{i|i}(A, B, \varepsilon^g) = \tag{6}$$
$$\max_{B', \boldsymbol{\tau}} \sum_{\mathcal{R} \in \{0,1\}} \mathbb{P}(\mathcal{R}|A, \mathcal{F}^i) \left\{ \sum_{k \in \{i,j\}} \Omega^{k|i} U^k(A, \mathcal{F}^i, \mathcal{R}) + \beta \mathbb{E}\left[W^{i|i'}(A', B', \varepsilon^{g'}) \middle| A, \mathcal{R} \right] \right\} + \varepsilon^g(\mathcal{F}^i).$$

subject to the budget constraint (3) with $\mathcal{D} = 0$. In case of default, we have

$$W_1^{i|i}(A, \varepsilon^g) = \tag{7}$$
$$\max_{\boldsymbol{\tau}} \sum_{\mathcal{R} \in \{0,1\}} \mathbb{P}(\mathcal{R}|A, \mathcal{F}^i) \left\{ \sum_{k \in \{i,j\}} \Omega^{k|i} U^k(A, \mathcal{F}^i, \mathcal{R}) + \beta \mathbb{E}\left[W^{i|i'}(A', 0, \varepsilon^{g'}) \middle| A, \mathcal{R} \right] \right\} + \varepsilon^g(\mathcal{F}^i).$$

subject to the budget constraint (3) with $\mathcal{D} = 1$. In these expressions, $\varepsilon^g(\mathcal{F}^i)$ is the value of the taste shock ε^g given the chosen fiscal package $\mathcal{F}^i = \{\mathcal{D}, B', \boldsymbol{\tau}\}$, and the expectation inside the curly brackets is taken over future productivity A' and the ideology of the next government i', given the current productivity shock A and the household decision $\mathcal{R}$. To characterize this continuation value, recall that party i is ousted from office with probability $\pi^{j|i}(\mathcal{R}) \in (0, 1)$; thus, when choosing the fiscal package, the incumbent party internalizes that its probability of staying in power is strictly smaller if citizens decide to revolt. In addition, recall that the government will be in good standing with creditors in the next period with probability $\mathcal{G}(\mathcal{D})$, which is equal to 1 if it repays its debt ($\mathcal{D} = 0$), but is strictly lower than 1 if it defaults ($\mathcal{D} = 1$). We can thus write

$$\mathbb{E}\left[W^{i|i'}(A', B', \varepsilon^{g'}) \right] \tag{8}$$
$$= \mathbb{E}_{A'|A} \left[\sum_{i' \in \{i,j\}} \pi^{i'|i}(\mathcal{R}) \left\{ \mathcal{G}(\mathcal{D}) W^{i|i'}(A', B', \varepsilon^{g'}) + (1 - \mathcal{G}(\mathcal{D})) W_1^{i|i'}(A', \varepsilon^{g'}) \right\} \right]$$

where $B' = 0$ if $\mathcal{D} = 1$.

Households. Given the state of the economy, the fiscal package $\mathcal{F}^i = \{\mathcal{D}, B', \boldsymbol{\tau}\}$ chosen by the incumbent government of type i, and their taste shock ε^h, households of the *opposite*

type $j \neq i$ make the revolt decision.[11] They solve:

$$V^{j|i}(A, \mathcal{F}^i, \varepsilon^h) = \max_{\mathcal{R} \in \{0,1\}} V_{\mathcal{R}}^{j|i}(A, \mathcal{F}^i, \varepsilon^h) \tag{9}$$

where $V_0^{j|i}, V_1^{j|i}$ are the values of revolting and accepting the fiscal package, respectively. We denote by $\mathcal{R}^j(A, \mathcal{F}^i, \varepsilon^h)$ the corresponding policy function. By contrast, the households who support the party in office do not make a revolt decision and take all of the policy functions as given. Their value function is then given by

$$V^{i|i}(A, \mathcal{F}^i, \varepsilon^h) = (1 - \mathcal{R}^j(A, \mathcal{F}^i, \varepsilon^h))V_0^{i|i}(A, \mathcal{F}^i) + \mathcal{R}^j(A, \mathcal{F}^i, \varepsilon^h)V_1^{i|i}(A, \mathcal{F}^i). \tag{10}$$

In turn, the values of revolting and accepting the fiscal package for household j satisfy

$$V_{\mathcal{R}}^{j|i}(A, \mathcal{F}^i, \varepsilon^h) = U^j(A, \mathcal{F}^i, \mathcal{R}) + \beta \mathbb{E}_{A'|A} \left[\sum_{i' \in \{i,j\}} \pi^{i'|i}(\mathcal{R}) V^{j|i'}(A', \mathcal{F}'^{i'}, \varepsilon^{h\prime}) \right] + \varepsilon^h(\mathcal{R}), \tag{11}$$

where $\varepsilon^h(\mathcal{R})$ is the value of the taste shock associated with the revolt or acceptance decision $\mathcal{R}$. Revolts therefore lead to a decline in wages, and hence in utility, in the current period but increase the odds that a household's preferred party will be in power next period. The value functions $V_0^{i|i}, V_1^{i|i}$ for households of type i, who support the incumbent, can be derived analogously.

3.5 Foreign Lenders

A continuum of deep-pocketed, risk-neutral, and competitive international lenders can buy the government's bonds. Lenders have access to a one-period risk-free rate bond that pays interest rate r. As is standard in the literature, lenders are forward-looking and price the risk of default and debt dilution. Moreover, in our environment, lenders also internalize that the government's redistributive preferences vary by party—and hence change over time—and that revolts decrease the odds of an incumbent staying in power. When party i is in office,

[11] This assumption is without loss of generality in a Markov equilibrium. Revolting against a party of the *same* type as the households is not a credible threat, since it would decrease current wages and increase the odds of a future incumbent who places a lower welfare weight on the household.

the bond price that satisfies the lenders' zero-profit condition is given by

$$Q^i(A, B', \mathcal{R}) = \frac{1}{1+r}\mathbb{E}_{A'|A}\Bigg[1 - \sum_{i' \in \{i,j\}} \pi^{i'|i}(\mathcal{R})\mathcal{D}^{i'}(A', B', \varepsilon^{g'}) \times \Bigg\{\delta + z + (1-\delta)\sum_{\mathcal{R}' \in \{0,1\}} \mathbb{P}(\mathcal{R}' \mid A', \mathcal{F}^{i'})Q^{i'}\left[A', B''^{i'}(A', B', \varepsilon^{g'}), \mathcal{R}'\right]\Bigg\}\Bigg] \tag{12}$$

where $B''^{i'}$ is the policy function that determines next-period's borrowing of party i'. The price of debt therefore depends on the probability of reelection of the incumbent, not only because of the default decision next period (as in, e.g., Scholl (2024)), but also because the ideology of the incumbent changes the level of future debt issuance and therefore the probability of future defaults. Long-term debt also implies that future political instability (represented by the probability of future revolts) also has an effect on the price of current bonds. In a model with one-period debt, both of these channels would be absent.

3.6 Recursive equilibrium definition

Definition 1. Markov Perfect Equilibrium (MPE). *An MPE is defined by value functions* $\{W^{i|i}, W^{j|i}, W^{i|i}_{\mathcal{D}}, W^{j|i}_{\mathcal{D}}, V^{i|i}, V^{j|i}, V^{i|i}_{\mathcal{R}}, V^{j|i}_{\mathcal{R}}\}$*, policy functions* $\{\mathcal{D}^i, B'^i, \mathcal{F}^i, N^i, \mathcal{R}^i\}$*, and prices* $\{w^i, Q^i\}$*, for all* $(i,j) \in \{L,R\}^2$ *and* $(\mathcal{D}, \mathcal{R}) \in \{0,1\}^2$*, such that:*

1. *Households' policy functions solve (1) and (9)-(11).*
2. *Parties solve the dynamic programming problems (4)-(8).*
3. *Wages are given by (2).*
4. *Bond prices are given by (12).*

The logistic shocks from Dvorkin et al. (2021) allow us to find closed-form solutions for all policy functions, and value functions in expectation of the taste shocks. We solve the model numerically using value function iteration.

4 Quantitative Analysis

The model is calibrated at the quarterly frequency using Argentine macroeconomic data. A first set of parameters to values that are either standard in the literature or based on

historical Argentine data. We internally calibrate the remaining parameters to match relevant moments for Argentina's sovereign spreads, political turnover, frequency of revolts, and other business-cycle statistics. Table (2) summarizes the parameters set outside the model.

We take the first set of parameters from sovereign default models calibrated to Argentina. The quarterly risk-free real interest rate, r is set to 0.01, a standard value for this period. The inverse Frisch elasticity is $\psi = .5$, in line with the values used by Arellano et al. (2017) and Arellano and Bai (2017) on sovereign debt models with labor. The maturity rate $\delta = 0.05$ and its coupon value $z = 0.03$ are set to the values used by Chatterjee and Eyigungor (2012) who also study Argentina and match the average maturity of the debt of 5 years and the debt service. Similarly, we assume that the productivity shock follows an AR(1) process given by $\ln(A_t) = \rho^A \ln(A_{t-1}) + \epsilon_t^A$ with $\epsilon_t^A \sim N(0, \sigma^A)$. Once again, we use Chatterjee and Eyigungor (2012) parameters estimates of an AR(1) endowment income process on detrended GDP data. We keep the persistence at their values $\rho^A = 0.95$, and we adjust the volatility of innovation such that the simulated volatility of output matches that of the data $\sigma^A = 0.03$. The reentry parameter is set to $\gamma = .0385$, this corresponds to an average exclusion period from credit markets after default of 6 years and 6 months.[12] We use Morelli and Moretti (2023) estimates of political change in Argentina as our measure of the average probability of reelection without revolts (i.e $\pi^{i|i}(\mathcal{R} = 0) = .969$). Without revolts, this corresponds to an average tenure in office of 8 years for each political party.[13] The reelection probability under sustain revolts ($\pi^{i|i}(\mathcal{R} = 1)$) is a key determinant of the benefits of revolting and as such will be internally calibrated.

We take a second set of parameters from the literature on skill premia and inequality in Latin America. Gallego (2006) analyzes 40 years of skill premium data in Chile following the same method as Krusell et al. (2000). They measure a labor elasticity between skilled and unskilled labor of 1.5 that is consistent with $\eta = 0.66$, in line with estimates for the U.S. We use data on hourly wages by education group in Argentina from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC) dataset (SEDLAC (2023)). The data is available biannually from 2003 to 2021. The dataset splits the Argentinean labor force into three groups with different years of formal education (Less than 8 years, between 8 years and 13, and more than 13 years). For each group, we have their size, hourly wages, labor hours, and finally total net labor income. We use this to divide the labor force into two half-tiles of equal size. We follow Heathcote et al. (2017) and use equation (2) to compute

[12]This number corresponds to the average length of debt renegotiation period across multiple Argentine defaults and is computed in Chatterjee and Eyigungor (2012) using data from Benjamin and Wright (2009).

[13]As in the U.S., Argentina's presidential elections are held every 4 years and only one reelection is permitted.

the model prediction for the ratio of hours:

$$\frac{N^R}{N^L} = \left(\frac{\psi^R}{\psi^L}\right)^{\frac{\psi}{1+\psi}}.$$

We use average hours for each type half-tile in the data to estimate ψ^R, ψ^L, finding that $\frac{N^R}{N^L} = 1.15$. Normalizing by the mass of households and using our estimate of ψ, we obtain $\psi^R = 0.60$ and $\psi^L = 0.40$. Similarly, we know from equation (2) that the ratio of pre-tax wage in the model is:

$$\frac{w^R}{w^L} = \frac{(\theta^R)^\eta}{(\theta^L)^\eta}\left(\frac{N^R}{N^L}\right)^{1-\eta}.$$

Using the previous result for the ratio of hours, and our estimate of η, we estimate $\frac{\theta^R}{\theta^L} = 2.3$, and normalizing the sum to one, this yields $\theta^R = 0.70$ and $\theta^L = 0.30$.

Table 2: Parameters estimated outside of the model

Parameter	Value	Source/Transition
Risk-free rate	$r = .01$	Standard value
Inverse Frisch elasticity	$\psi = .5$	Standard value
Productivity shock	$\rho^A = .95$	Chatterjee and Eyigungor (2012)
$\log(A_t) = \rho^A \log(A_{t-1}) + \epsilon_t^A$	$\sigma^A = .03$	Argentina's GDP
Debt Maturity	$\delta = .05$	Avg. maturity of debt
Debt Coupon	$z = 0.03$	Debt Service
Reentry Probability	$\gamma = 1/26$	Average renegotiation lenght
Reelection odds under stability	$\pi^{i\|i}(\mathcal{R} = 0) = 1 - 1/32$	Morelli and Moretti (2023)
Elasticity of substitution	$\eta = 2/3$	Gallego (2006)
Labor productivity	$\theta^R = .70, \theta^L = .30$	Hourly wage premia
Taste for effort	$\psi^R = .60$	Hours top education half-tile
Taste for effort	$\psi^L = .40$	Hours bottom education half-tile

Table (3) shows the parameters of the model that we calibrate internally. The stochastic discount factor (β) is the same for both parties and the households. We follow Dvorkin et al. (2021) and assume a Generalized Type One Extreme Value distribution with scale parameter σ^{ϵ^G} and correlation ρ^{ϵ^G} for the fiscal taste shock and scale parameter $\sigma^{\epsilon^{HH}}$ for the revolt decision of the households.[14] We also take the functional form of the portfolio adjustment

[14]The households' taste shock is a scalar and not a vector, thus no correlation parameter. We allow for the government's taste shocks to be correlated across fiscal packages ($\rho^{\epsilon^G} \neq 1$)

cost of debt from Dvorkin et al. (2021):

$$\iota(B', B) = \iota_1 \exp(\iota_2 |B' - B|) - \iota_1).$$

At the calibrated parameters, less than $6e-4$ of output is spent on these costs. To assess the effect of revolts and defaults on productivity, we borrow the functional form of the default costs from Chatterjee and Eyigungor (2012), and assume a similar transformation for the revolt costs:[15]

$$\begin{aligned}
&\alpha(A, \mathcal{D}=0, \mathcal{R}=0) = A, \\
&\alpha(A, \mathcal{D}=0, \mathcal{R}=1) = A - \max(\phi_0^R A + \phi_1^R A^2, 0), \\
&\alpha(A, \mathcal{D}=1, \mathcal{R}=0) = A - \max(\phi_0^D A + \phi_1^D A^2, 0) \equiv \alpha^{\mathcal{D}}_{\mathcal{R}_0}, \\
&\alpha(A, \mathcal{D}=1, \mathcal{R}=1) = \alpha^{\mathcal{D}}_{\mathcal{R}_0} - \max(\phi_0^R \alpha^{\mathcal{D}}_{\mathcal{R}_0} + \phi_1^R \alpha^{\mathcal{D}\,2}_{\mathcal{R}_0}, 0).
\end{aligned} \tag{13}$$

These transformations add four parameters to calibrate internally. The first two, ϕ_0^D, ϕ_1^D, correspond to the exogenous default costs common in the sovereign default literature. The other two, ϕ_0^R, ϕ_1^R, represent the analogous penalty that the economy suffers during a revolt. Note that if a revolt happens when the economy is in default, (i.e. $\mathcal{R}=1$ and $\mathcal{D}=1$), both penalties are imposed on productivity. As we show in the next section, the ability to revolt during defaults is crucial for our mechanism. We also internally calibrate the welfare weights (ω_i^j) that each party ($j \in \{L, R\}$) assigns to each type of household ($i \in \{L, R\}$). Since the welfare weights for each party add up to one, we only need to estimate the welfare weight given to the rich households. We find that the parties are broadly symmetric. Finally, we calibrate the effect of revolts on reelection probabilities and find that an incumbent in power who faces revolts throughout its mandate can expect to remain in office for an average of 3 years.

Table 4 shows the complete list of targets and model fit. The first set of moments we target are standard in the sovereign default literature. These are the average debt to output, the volatility of debt, the average spread, the volatility of spreads, the frequency of defaults, and the average increase in debt immediately preceding a default. As Morelli and Moretti (2023), we use international debt securities from the Joint External Debt Hub and GDP in U.S. dollars series from the World Bank Global Economic Monitor. As in Chatterjee and Eyigungor (2012), we exclude from the sample the episodes of default when computing debt both in the data and simulations. We target an annual default frequency of 4.1% since Argentina

[15] In Appendix E we verify that the main results of the paper are robust to alternative specifications of the revolt costs. In particular, we show that our results would hold qualitatively under utility costs of revolts.

Table 3: Parameters internally calibrated

Parameter	Value	Parameter	Value
Discount factor	$\beta = .92$	Reelection odds under revolt	$\pi^{i\|i}(\mathcal{R}=1) = 1 - 1/12$
Fiscal taste shock ε^G	$\sigma^{\epsilon^G} = 7.5e^{-3}$	Ideology Right-Wing Party	$\omega_R^R = .69$
	$\rho^{\epsilon^G} = .37$	Ideology Left-Wing Party	$\omega_R^L = .31$
Revolt taste shock ε^{HH}	$\sigma^{\varepsilon^{HH}} = 9.0e^{-3}$	Default Cost	$\phi_0^D = -.19$
Issuance Cost	$\iota_1, = 5e^{-5}$	$\alpha(A, \mathcal{D}=1, \mathcal{R}=0) = A - \max(\phi_0^D A + \phi_1^D A^2, 0)$	$\phi_1^D = .25$
$\iota(B', B) = \iota_1 \exp(\iota_2 \lvert B' - B \rvert) - \iota_1)$	$\iota_2 = 28$	Revolt Cost	$\phi_0^R = -.21$
		$\alpha(A, \mathcal{D}=0, \mathcal{R}=1) = A - \max(\phi_0^R A + \phi_1^R A^2, 0)$	$\phi_1^R = .25$

has defaulted five times since the 1900s.[16] The average increase in debt-to-GDP one period before a default is targeted to identify the portfolio adjustment cost parameters.[17] The mean and standard deviations of the spreads are computed using the quarterly EMBI+ interest rate spreads from Global Financial Data from 1993q4-2022q4, again excluding defaults.[18] The model fits most moments well, except for the volatility of the spread.[19]

We also target moments related to political risk. As in Scholl (2024), we target the consumption share of each household type, but we do this both before and after taxes and transfers. In the data, we once again use the SEDLAC (2023) dataset. For each half-tile, we compute total earnings pre-tax as the product of total hours and the hourly wage. We use these earnings to compute the pre-tax earnings shares. Post-taxes income in the data corresponds to the SEDLAC's variable total labor income by years of formal education. We use this to construct the post-tax income share of the half-tile with the most years of formal education. As Heathcote et al. (2017), we estimate the average tax progressivity in the data by running a regression on the log of post-tax income on the log of pre-tax income. This yields an average progressivity $\tau = 21\%$ slightly above the value they find for the U.S.. We use the Inter-American Development Bank's Database of Political Institutions (DPI) to asses

[16] Morelli and Moretti (2023) count only four (1956, 1982, 2001, and 2014), since then Argentina defaulted one more time in 2020.

[17] It is well known that in the absence of an adjustment cost, models of sovereign debt with long-term bonds exhibit large increases in debt issuance followed immediately by default. The adjustment costs, though negligible in the end, help the model fit the patterns of debt accumulation observed in the data.

[18] Since we have three defaults in the data we exclude 2001q3-2005q3, 2014q3-2016q1, and 2020q1-2020q3.

[19] The definition of debt and output in the model, as well as the spreads follow the standard assumption made on the sovereign debt literature with long-term debt. The annualized spreads correspond to $(1 + (\delta + z)/Q - \delta)^4 - (1 + r)^4$, output is Y, and debt is B'.

Table 4: Targeted moments and model counterparts (in %)

Parameter	Target	Model	Parameter	Target	Model
Mean External Debt	88.8	89.6	Income share R pre-tax	65.6	65.7
Volatility External Debt	23.1	21.2	Income share R post-tax	62.5	63.4
Mean Spread	8.4	7.3	Mean tax progressivity	21.1	15.5
Volatility Spread	4.9	2.3	Right wing party in power	46.4	47.9
Default frequency	4.1	4.4	Revolts frequency	39.0	36.6
Debt surge pre-default $\Delta B'_{D-1}$	4.7	3.0	Revolts against Right	41.1	42.9
			Revolts against Left	32.9	30.9

Note: Moments in the model are computed using 100,000 simulations. In both the data and the model we compute the debt and spread moments excluding periods of default.

the ideology of the ruling party in Argentina in the period 1990-2022. We restrict ourselves to the ideology of the president regardless of the ideology of Congress. Argentina has been ruled by a right-wing president 46.4% of the time.[20] We also use our narrative study to compute the Revolt frequency. Specifically, we consider that the country is in Revolt if, at any point during the quarter, a protest of more than 100,000 people took place. To capture the empirical observation that protests tend to be more frequent against a right-wing incumbent we also target the frequency by party in power. The model replicates this asymmetry even though party preferences for each type are symmetric.

5 Validation

This section shows that the model generates untargeted patterns quantitatively similar to those observed in the data. In Figure 5, we plot the residuals from the regression presented in the empirical section (Table 11) along with the residuals computed from model simulations. In the data, we focus on the regression of the CDS spreads on political risk controlling for the Current Account-to-output ratio and the External Debt-to-GDP ratio. We chose this

[20]The DPI dataset (Scartascini et al. (2021)) records that Argentina was ruled by a political party with a Center ideology in 2000 and 2001. Since we don't have such a party in the model we exclude those two years from our measure of the average.

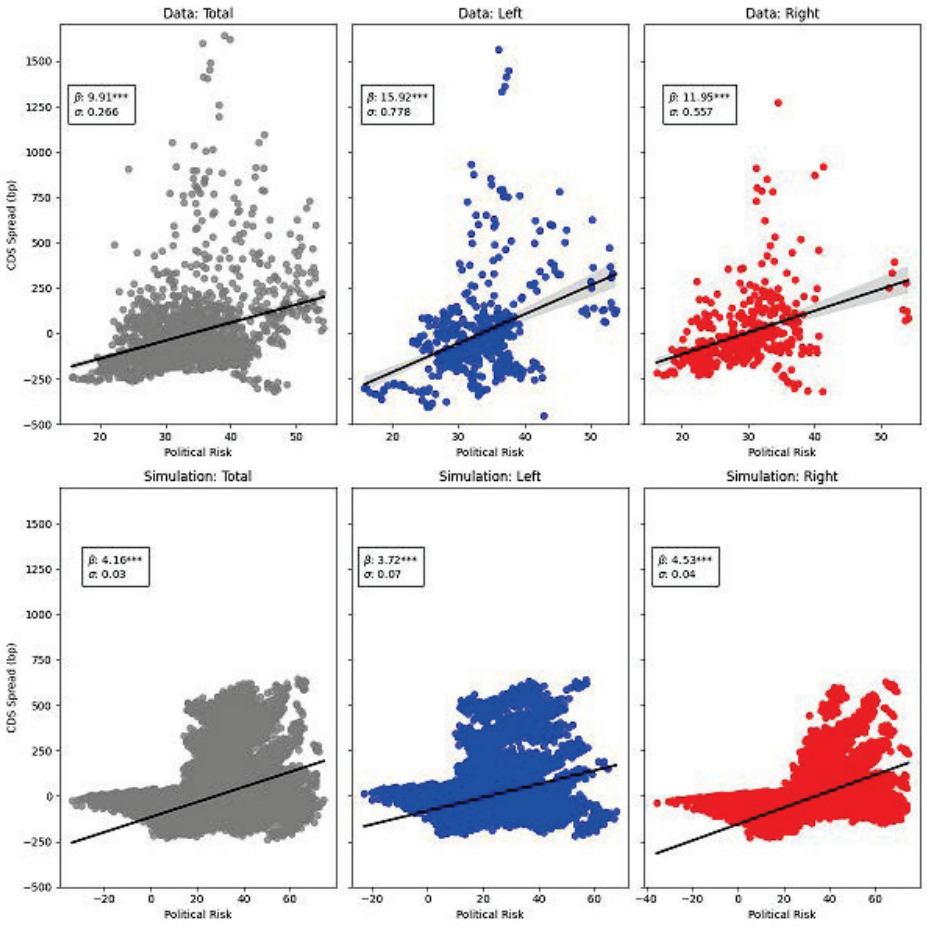


Figure 5: Correlation between political risk and spreads: Regression analysis.

Note: Fitted regression lines between political risk and CDS spreads, after controlling for fundamentals. The fitted values are constructed by controlling within sample for external debt, and current account balance, without fixed effects. The samples are respectively: full empirical data, left-wing governments in the data, right-wing governments in the data, full simulation, left-wing governments in the simulation, and right-wing governments in the simulation. We drop the top 2% of observed spreads from the total samples in the data and the simulation. We use Standard and Poor's credit rating data to drop all nations rated A- or higher.

specification since it has direct model counterparts.[21] The results show that political risk and changes in the spreads are positively correlated, both in the cross-section and are significant for both parties. The estimated slopes are statistically significant and positive in both cases, with the model magnitudes being around 40% of their data counterparts.

We also use the model to conduct an event analysis of a *political crisis*. The first row of Figure 6 shows the increase in spreads observed in the data during a political crisis event. In

[21] Output in the model corresponds to total production Y, external debt B', and the current account $(\delta + z)B - Q \times (B' - (1-\delta)B)$. Political risk in the model corresponds to the simulated probability of revolt given government policies ($\mathbb{P}(\mathcal{R} = 1)$), while the spreads are the same as those used in the calibration section. To avoid the effect of outliers, in both the data and the model we Winsorize the top 2% of spreads.

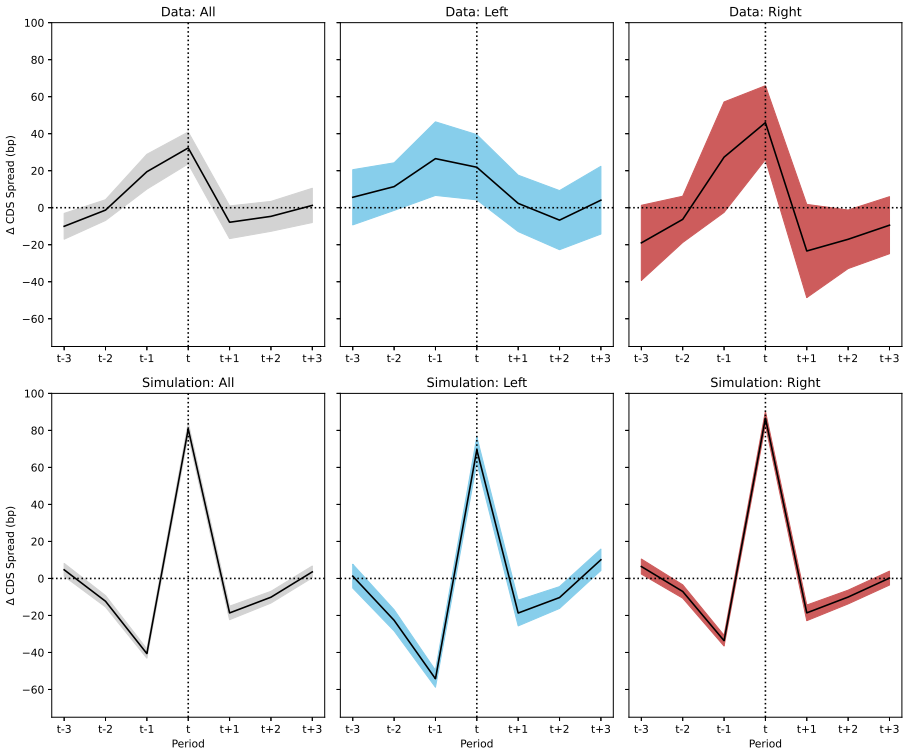


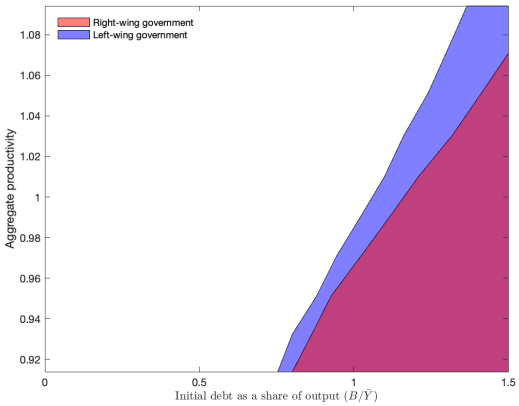
Figure 6: Change in spreads during a political crisis.

Note: The first row shows event studies in the data for the full sample, only left-wing governments, and only right-wing governments. The second row shows event studies for the simulated data using the full sample, only left-wing governments, and only right-wing governments. We encode an event in the data (simulation) as a one-quarter difference in the ICRG index (probability of revolt) that is greater than one standard deviation above the mean of all one-quarter differences within the time series for a particular country (entire simulation). The y-axis represents the corresponding one-quarter difference in the spreads, averaged over the appropriate sample of events. The magnitudes are averaged after controlling for the current account and external debt, within both samples. All events are required to have continuous data availability in a six-quarter window around the event quarter. We drop the top 2% of CDS spreads at the beginning from both the data and simulation. We use Standard and Poor's credit rating data to drop all nations rated A- or higher.

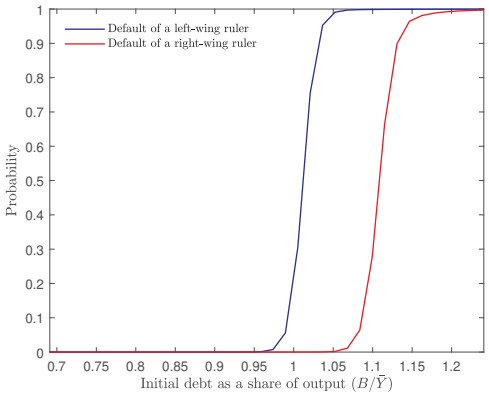
the bottom row, we identify these episodes in a simulation of 10,000 periods of the model. Specifically, we select episodes in which the probability of revolts increases by more than one standard deviation above its mean. We focus on the evolution of spreads around those episodes. The increase in spreads is much stronger in the model than in the data. On average, spreads increase by 80 basis points in the model as opposed to 40 basis points in the data. Looking at the result by party in power, the model replicates the asymmetry of right-wing incumbents witnessing a bigger jump in spreads during a political crisis. The intuition behind this positive correlation and the sources of the asymmetry are explored in the next sections.

6 Policy functions

Left-wing governments have bigger default sets: Figure 7, panel (a), depicts the default sets by party affiliation of the incumbent as a function of TFP and initial debt.[22] The model aligns with established findings in the sovereign debt literature, governments default when initial debt levels are high and productivity is low. However, a notable distinction emerges between parties: left-wing parties exhibit a larger default set. This result is significant, given that both parties are assumed to have identical discount factors and face the same exogenous default costs. The result can also be seen in panel (b), which shows the probability of the default by ideology of the ruler as a function of the initial level of debt keeping productivity constant at its mean value.



(a) Default sets by party.



(b) Default probability for fixed productivity.

Figure 7: Default sets by party

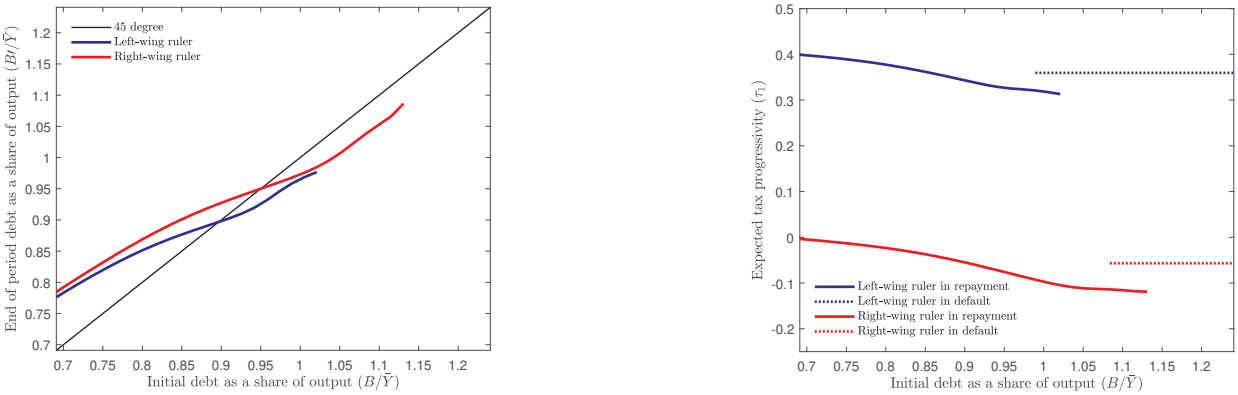
Note: Panel (a) shows the default sets implied by the policy functions for each party in the baseline model with revolts and turnover. The shaded regions represent the points in the state space at which the left-wing and right-wing parties have an ex-ante probability of default that is greater than 0.5, conditional on being in good standing initially. The area shaded in blue (red) corresponds to the left-wing (right-wing)party. Panel(b) depicts the probability of default by party affiliation of the ruler as a function of the initial level of debt keeping TFP fixed at its mean value. Debt levels are expressed as a share of mean output at the ergodic distribution.

Fiscal choices by party: Figure 8 shows the fiscal policies by ruler ideology as a function of the initial debt, while holding the productivity shock constant at its mean value. Since the available fiscal options depend on the default or repayment decision, we depict in solid lines the choices made when the probability of repayment is above 5%, and in dotted lines the choices made when the probability of default is above 5%. Panel (a) shows the expected

[22] For simplicity, the default sets assume that the government drew a vector of taste shocks equal to zero for all fiscal choices.

end-of-period debt (B'), while panel (b) shows the expected tax progressivity (τ_1). Tax decisions are made in default and repayment; however, during periods of default, the economy is excluded from credit markets, resulting in an end-of-period debt of zero.

We find that both parties tend to increase borrowing when initial debt levels are low and subsequently reduce their debt as they approach their respective default thresholds. The choice of tax progressivity reflects a similar tension between equity and efficiency; both parties adopt more progressive policies when debt is low but shift toward more regressive, output-friendly policies as debt levels rise. Notably, right-wing incumbents are able to sustain higher levels of debt because they also enact more regressive tax policies. In contrast, left-wing parties favor more progressive tax systems, which results in lower output and reduced tax revenue, thereby complicating the servicing of higher debt levels.



(a) Borrowing policy functions.

(b) Tax progressivity.

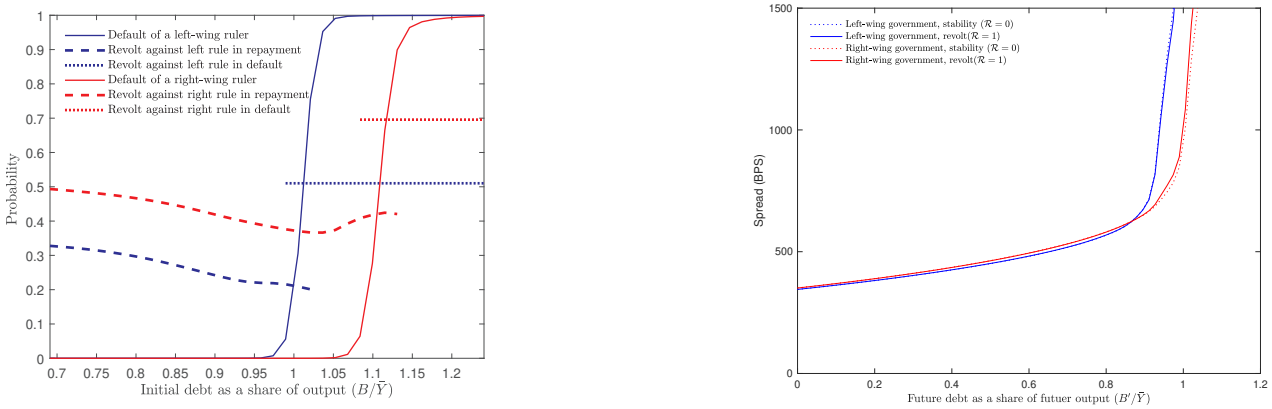
Figure 8: Expected fiscal packages by party

Note: Panel(a) depicts the expected end-of-period debt (B') by party affiliation of the ruler as a function of the initial level of debt keeping TFP fixed at mean values. Since credit markets are only available in repayment, we only plot the borrowing choices when the ruler's repayment probability is above 5%. Panel(b) depicts the expected tax progressivity (τ_1') by party affiliation of the ruler as a function of the initial level of debt keeping TFP fixed at mean values. Since the progressivity decision depends on the default decisions, tax decisions are depicted with a solid line when the ruler's repayment probability is above 5% and with a dotted line when the probability of default is above 5%.

Revolt probabilities: Panel (a) of Figure 9 depicts the revolt probabilities against each party as a function of the initial level of debt. In line with previous figures, we differentiate between policy functions when the probability of repayment exceeds 5% (dashed lines) and when the probability of default exceeds 5% (dotted lines). This figure provides intuition for the positive association between political and fiscal crises, highlighting why this effect is particularly pronounced under a right-wing ruler.

First, revolt probabilities show a discontinuous increase for both parties when transitioning

from repayment to default, as the opportunity costs of revolt are significantly lower in default conditions. Second, even conditional on repayment, the probability of revolt against a right-wing ruler – when there is a positive probability of default – rises with the initial level of debt. This increased risk of revolt occurs because the debt levels at which a right-wing ruler is at risk of default fall entirely within the default sets of the opposition. As a result, the fiscal policies enacted by the right-wing ruler to sustain repayment at these debt levels are particularly intolerable to the opposition. In contrast, we do not observe a similar rise in revolt probabilities against a left-wing ruler near their default threshold, as their repayment decision is consistent with what the right-wing opposition would do in the same scenario.



(a) Probability of revolt

(b) Price of debt.

Figure 9: Revolt probabilities and spreads

Note: Panel(a) depicts the probability of default and revolt by party affiliation of the ruler as a function of the initial level of debt keeping TFP fixed at mean values. Revolt probabilities depend on the default decisions, as such we denote with dashed-line revolt probabilities when the ruler's repayment probability is above 5% and with dotted lines the revolt probabilities when the default odds are above 5%. Panel (b) plots the policy-implied spreads as a function of future debt for both parties in the baseline model under stability(dotted lines) and under revolt(solid lines). We fix TFP at its mean value, and we fix initial debt to the mean level in the ergodic distribution.

Right-wing governments face favorable schedules, but revolts worsen them: Panel (b) in Figure 9 shows the price schedules of government debt, at the average TFP, by party affiliation of the ruler and by revolt status of the opposition. Consistent with the default sets previously discussed, right-wing governments benefit from a more favorable price schedule compared to their left-wing counterparts. That is, for any given end-of-period debt choice, a right-wing ruler pays a lower interest rate spread relative to the risk-free rate than a left-wing ruler.[23]

[23] Cotoc et al. (2021) find that a similar result holds at the cross-country level on average, when a country leans towards electing left-wing leaders.

Furthermore, when end-of-period debt is high right-wing rulers face higher spreads when the households revolt ($\mathcal{R} = 1$) than opt for political stability ($\mathcal{R} = 0$). This occurs because forward-looking lenders anticipate that revolts heighten the likelihood of political turnover, and the observed debt levels fall within the default sets of the opposition. As a result, lenders demand higher spreads to compensate for this increased political default risk.[24]

7 Equilibrium ergodic distribution

After presenting the policy functions for each potential incumbent, we now turn to the description of the ergodic equilibrium. Table 5 provides a detailed breakdown of revolts and defaults in the ergodic distribution by party. We calculate the proportion of time spent in repayment ($\mathcal{D} = 0$) and default ($\mathcal{D} = 1$), both in total and disaggregated by incumbent type. Additionally, we report the frequency of revolts ($\mathcal{R} = 1$) unconditionally and conditionally on the default status and the ideology of the ruler. Two asymmetries between the parties become apparent once again.

Left-wing governments default more: At the ergodic distribution, 27.7% of periods are spent in default, of which 15.9% under a left-wing incumbent and only 11.8% under a right-wing incumbent. Conversely, the 72.3% of periods spent in repayment is close to evenly split between the two types of rulers. The fact that left-wing governments are more associated with defaults arises from the interaction between asymmetries in defaults sets (Figure 7) and political transitions.

	$\mathbb{P}[\mathcal{D}=0]$	$\mathbb{P}[\mathcal{D}=1]$	$\mathbb{P}[\mathcal{R}=1]$	$\mathbb{P}[\mathcal{R}=1\|\mathcal{D}=0]$	$\mathbb{P}[\mathcal{R}=1\|\mathcal{D}=1]$
Right-wing ruler	36.1	11.8	20.5	17.2	29.3
Left-wing ruler	36.2	15.9	16.1	11.0	29.3
Total	72.3	27.7	36.6	28.2	58.7

Table 5: Frequency of each state in percent at the ergodic distribution

Note: The first and second columns report the frequency of repayment and default states at the ergodic distribution. The third column shows the unconditional frequency of revolts, while the fourth and fifth columns report the conditional frequency of revolts within repayment and default states respectively. The bottom line shows the total frequencies at the ergodic, while the first and second lines show the decomposition by party ideology of the ruler.

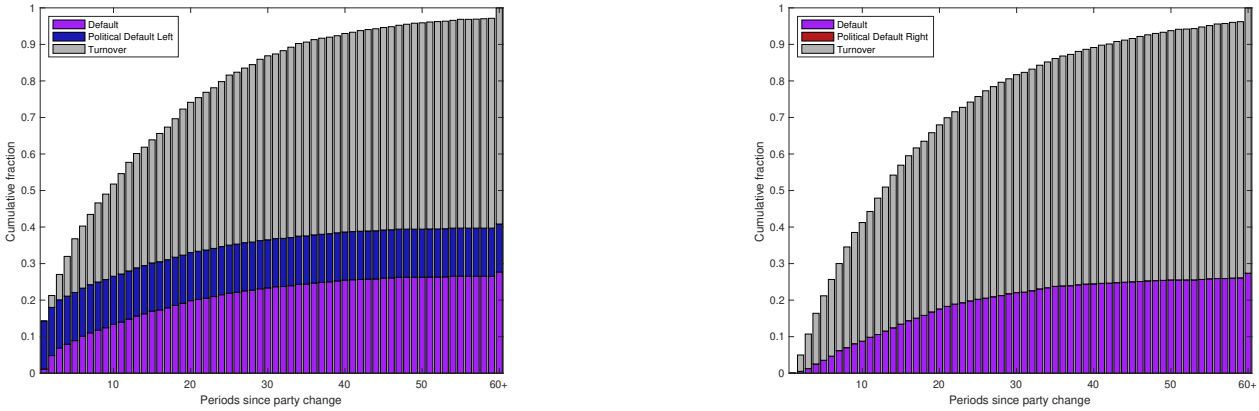
[24] A similar mechanism is present in reverse for the left-wing party in Appendix B. That is revolts lower borrowing costs for left-wing governments. In the appendix, we also show that, as in the data, most revolts have a very small effect on the spreads outside of fiscal crises.

Revolts are more common during defaults: When credit markets are accessible, revolts occur 28% of the time. In contrast, during default periods, the frequency of revolts rises to 59%. Additionally, right-wing incumbents face a higher likelihood of revolts in all states, with this disparity being particularly pronounced during repayment periods. This asymmetry in revolt frequency ultimately leads to differences in the time each party spends in office.

Although the exogenous productivity cost of revolts is independent of the incumbent's ideology, the opportunity cost of revolting is higher for more productive (right-leaning) households, especially during repayment periods when productivity is relatively high. During default periods, average productivity is lower, which narrows the difference in the opportunity cost of revolting across all parties.

7.1 Political defaults: Right-to-left-to-default transitions

Political transitions from right to left are associated with a heightened risk of default, as right-wing rulers can sustain higher levels of debt compared to their left-wing counterparts. To illustrate this, we examine default patterns following political turnovers within the ergodic distribution. Figure 10 traces the duration of each party's tenure from the moment it assumes power until either a default occurs or power is transferred to the opposition. By this definition, most tenures last no longer than 60 periods.



(a) Left takeover.

(b) Right takeover.

Figure 10: Dynamics of default following a switch in the ideology of the ruling party.

Note: Plotted are the cumulative fractions of left-wing(right-wing) governments that have defaulted across 60 periods from coming into power. Each tenure is started by the left(right) coming into power in repayment. The cumulative fraction is computed by isolating events from a 100,000-period simulation, yielding 1783(1586) takeovers by the left(right). Areas in purple correspond to states in which both types of incumbents choose to default. Areas in blue (red) are political turnovers where only left-wing (right-wing) incumbents default.

We plot the cumulative number of tenures ending in turnover (gray shaded areas) and

defaults over time for left-wing (panel (a)) and right-wing (panel (b)) governments. A distinction is made between political defaults (blue and red) and regular defaults (purple). Following Hatchondo et al. (2009), we define a political default a a default that occurs in the first period after a political turnover and in a state where the previous incumbent would have opted to repay.

This exercise reveals a stark asymmetry: over 15% of transitions from right to left result in immediate defaults, almost all of which are political. These defaults account for nearly a third of all defaults observed under left-wing governments.[25] In contrast, no political defaults are observed when a right-wing party takes power. The similarity in the size of the purple areas in both panels suggests that political defaults are the primary driver of the asymmetry in default frequencies between left- and right-wing governments outlined in Table 5.

Political defaults allow our model to contribute to the policy debate (IMF (2013) and Guzman et al. (2016)) that argues that countries default "*too late*".[26] Political defaults occur when servicing the debt requires regressive policies that are acceptable to the Right but not to the Left. In the lead up to such a default, a planner with the Left's preferences would have defaulted before the political transition takes place. In the Argentinean context this is reminiscent of the 2020 default, but also of the the rapturous applause in congress after the motion to default passed in 2001(La-Nacion (2001)).

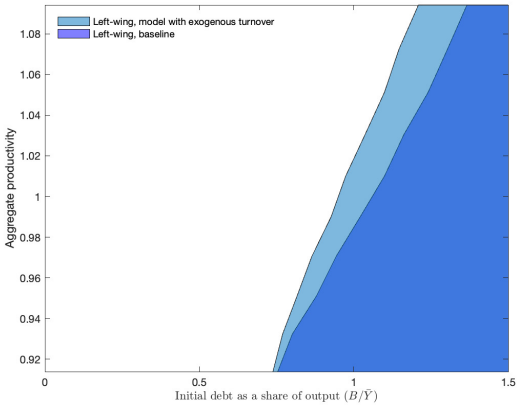
7.2 Revolts as an endogenous default cost

In our model, revolts are more than twice as likely to occur during default periods compared to repayment periods. This feature effectively transforms revolts into an endogenous cost of default. Incumbents who default should expect a shorter tenure. To assess the strength of this deterrent, we compare the default dynamics of our baseline model to those of a model with only exogenous political turnover. To simplify the comparison, we set the exogenous probability of turnover to the values we use in our baseline under stability.

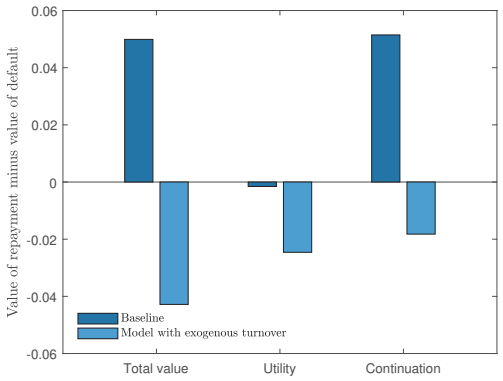
Figure 11, panel (a), compares the default sets of a left-wing government in the baseline model (dark blue) and in the counterfactual model with exogenous turnover (light blue). The results indicate that allowing for revolts reduces the size of the default set. In other words, for certain combinations of productivity and initial debt, a left-wing incumbent would choose to default in the model with exogenous transitions but would opt to repay in our baseline

[25] When a left-wing government inherits a substantial debt burden, its alternative to default is deleveraging through austerity measures. The dynamics of such policies under left-wing rule are explored in Appendix C.

[26] A related brunch of the academic literature has focused on *default renegotiations* that are inefficiently long, see Bai and Zhang (2012), Benjamin and Wright (2009), and Asonuma and Trebesch (2016).



(a) Default sets left-wing rule.



(b) Repayment minus default.

Figure 11: Default decisions: Baseline and model with exogenous turnover

Note: In panel (a) we plot the default sets of the baseline model (dark blue) alongside the default sets (light blue) of the model with exogenous turnover. In panel (b), we plot the difference between the value of repayment and default fixing the taste shocks at zero, the TFP shock at its mean value, and the initial level of debt at 96% of mean output in the baseline. In this state the value of repayment is higher than the value of default in the baseline (dark blue)) economy while the opposite is true for the economy with exogenous political turnover (light blue). We further decompose the total difference in values between the differences in current utilities and the differences in continuation values .

model. In panel (b), we examine this mechanism in even more detail by focusing on one such initial state: we fix the productivity at its mean level and the initial debt to 96% of mean output at the ergodic distribution.

The first pair of bars shows the difference between the value of repayment and the value of default for the baseline model (dark blue) and the model with only exogenous turnover (light blue). As expected, this difference is positive in the baseline (indicating that repayment is preferred) and negative in the exogenous turnover model (indicating that default is preferred). The second and third pairs of bars decompose this difference into the contributions of current period utility and expected continuation values in the future, respectively.

The results show that revolts have a limited effect on current period values but significantly impact continuation values. In the model with only exogenous transitions, default yields a higher value in both the current period and the future. By contrast, in the model with revolts, defaulting still provides higher utility in the current period, but these gains are outweighed by the losses in continuation values. This is because defaulting raises the likelihood of facing

a revolt, which in turn reduces the probability of remaining in office.[27]

7.3 Implications of revolts and turnover for debt and default risk

To evaluate the quantitative impact of revolts on sovereign risk, we examine various specifications of the baseline model. Table 6 provides a summary of the aggregate moments across six different model configurations.

The first two specifications are models without political turnover, representing either a permanent rule by the right-wing party or the left-wing party. These models reveal that in the absence of political turnover; the incumbent's ideology does not significantly alter the average levels of debt, spreads, and defaults. This is because both parties face identical exogenous default costs and discount factors.

Table 6: Moments comparison between models.

Model specification	Debt	Spread	Freq. default	Revolts	Share in power(Right)
Permanent left-wing	85.0	6.5	4.0	-	0.0
Permanent right-wing	86.7	6.3	3.9	-	100.0
Exogenous turnover	81.4	7.1	4.3	-	50.0
Revolts only in repayment	55.2	10.1	5.1	19.7	47.5
Revolts only in default	118.4	6.1	3.6	13.9	50.9
Baseline	89.6	7.3	4.4	36.6	47.9
Data	88.8	8.4	4.9	39.7	46.4

Note: We compare key moments of the data and the baseline model with the five alternative model specifications. The moments are computed using 100,000 simulations for each model specification. Revolts are not possible in the first three specifications and are thus not reported.

We then return to the model with only exogenous political turnover discussed in previous subsection. The reelection probability is kept at the value under stability in our baseline, and therefore each party averages an eight-year term in office. Compared to the models with permanent rule by one party, this specification shows lower levels of debt, higher spreads, and more frequent defaults. As in Hatchondo et al. (2009) we find that political turnover on its own can increase the frequency of sovereign defaults.[28] These additional "political defaults" happen in their framework when an impatient government takes over from a more

[27] A potential concern is that in our model, reelection probabilities depend not only on default status but also on party affiliation. Moreover, revolts lead to a lower average tenure in office at the ergodic distribution compared to the model with purely exogenous turnover considered here. We address these issues in Appendix F, where we explore alternative specifications of the exogenous turnover model. Our analysis confirms that the results are primarily driven by differences in reelection rates based on default status.

[28] This result is also found in the sovereign default literature with reputation. In this literature, one type of government is assumed to be more myopic than the other. See for instance Morelli and Moretti (2023), Amador and Phelan (2021), Alfaro and Kanczuk (2005), and Cole et al. (1995).

patient one. We add to their insights by showing that political defaults can occur due to ideological differences in the efficiency-equity trade-off. Moreover, since in our calibration revolts against a right-wing ruler are more common, revolts can exacerbate default risk by increasing the likelihood of a political default. [29]

The final two specifications involve models where revolts are restricted to either repayment or default states. When revolts are allowed only during repayment periods, spreads increase, defaults become more frequent, and the economy maintains significantly lower levels of debt. In contrast, when revolts are allowed solely during default periods, higher levels of debt are sustained with lower default frequencies. In the first scenario, defaulting becomes more attractive as it can extend the incumbent's tenure. In the second scenario, revolts serve only as an additional cost of default, as they present a new threat to the incumbent's tenure. This threat enhances commitment, allowing the economy to sustain more debt. In our model, revolts are always possible but endogenously observed more frequently during defaults, effectively acting as an endogenous default cost. Consequently, relative to the model with only exogenous turnover our baseline specification sustains significantly higher levels of debt at the cost of a modest increase in spreads and default frequency.

In appendix D, we explore in greater detail how both parties– but particularly right-wing ones–take advantage of the improved bond price schedules enabled by the revolts to issue more debt compared to an economy with only exogenous turnovers. This feature of the model provides a rationale for the substantial fiscal deficits observed during the "gradualism" period of the Macri administration and aligns with the political economy theory of "Starving the Beast".

Finally, in appendix G, we test several of the model's predictions derived from the two channels discussed earlier. First, we confirm that political transitions from right- to left-wing rule are associated with increased default risk by looking at interest rate spread movements around these transitions. Second, we demonstrate that right-wing governments tend to issue more debt than their left-wing counterparts. We validate these predictions using the model, data from Argentina, and a broader cross-country analysis.

[29] Besides the differences in discount factors of Hatchondo et al. (2009), asymmetric default rates by party can emerge due to variations in exogenous reelection probabilities (as in Cotoc et al. (2021)), or debt restructuring (as in Cruces and Trebesch (2013)).

8 Conclusion

We develop a quantitative model of sovereign debt that incorporates parties with distinct preferences for redistribution, political transitions, and social unrest. In our framework, revolts impose economic costs but increase the probability of political turnover. Governments with different ideologies strategically choose fiscal policies to satisfy their constituents and extend their time in office, while households strategically decide when to revolt. We calibrate the model to the economic and political context of Argentina. Specifically, we find that our model aligns closely with the conditions observed during the Macri administration (2015-2019), a period characterized by social unrest under a right-wing government, a subsequent political transition from right to left, and a sovereign default.

Our model is quantitatively consistent with several empirical patterns. First, it captures the positive relationship between political crises and sovereign risk, with political instability leading to higher interest rate spreads, especially under right-wing leadership. Second, we find that right-wing rulers face more frequent protests and that protests are more common during defaults. Third, political transitions from right-wing to left-wing governments are associated with heightened default risk.

Protests influence sovereign risk through two main channels. First, they increase default risk by making it more likely that a right-wing government will transfer a heavy debt burden to a left-wing successor, who might prefer immediate default over gradual deleveraging. Second, revolts can reduce default risk because they tend to be more frequent during default states than during repayment states. As a result, they serve as a deterrent to default for incumbents focused on maintaining power. This deterrent effect allows all parties to borrow at more favorable terms relative to a model with only exogenous political turnover. In equilibrium, we find that both parties exploit these favorable bond price schedules and issue more debt. As a result, revolts lead to higher debt levels, but with similar spreads and default frequencies to those observed in a model with only exogenous political turnover. Our model, therefore, provides an explanation for the substantial deficits accumulated during Macri's "gradualism" years, as well as the subsequent default that occurred following the return of a left-wing administration.

Several policy implications and avenues for future research arise from our findings. First, the model suggests a role for multilateral or concessionary lending to facilitate transitions from right-wing to left-wing governments without elevating default risk. Second, the mechanism that revolts use to deter default in our model could be replicated by less costly measures, such as using recall elections as a form of accountability for deviations from fiscal rules.

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A Data Sources

Data for revolt risk : We follow the empirical literature on sovereign debt and political risk (Cruces and Trebesch (2013), Trebesch (2019)), where they measure political risk using the International Country Risk Guide (ICRG) compiled by the PRS group. This data is available at the monthly frequency for 142 countries from Jan-1984 to Feb-2023. In all our calculations we use a transformed version of the index from one to one hundred where a higher value is associated with higher political risk[30].

We complement this cross-country data with detailed protest and strike news data for Argentina from 1995 to 2020. We follow David et al. (2022) and use a narrative approach to construct a dataset protests or strikes which are associated with economic policy. We depart from them in the construction of fiscal events, due to limited data coverage for the entire time span. Instead, we collect news reports of civil unrest and determine the nature of grievances from the articles' context. Specifically, we use a set of keywords in the *Dow Jones- Factiva* database to collect news articles about Argentina during the entire time period of 1995 to 2020, spanning multiple presidencies of both political leanings. In order to capture fiscal events and protests, we use the following keywords: "protest", "strike", and "demonstration". We also filter the articles, requiring that they are sourced from Latin America, are about Argentina, and fall into the news categories: Commodity/Financial Market News, Corporate/Industrial News, Economic News, or Political/General News [31]. Finally, we estimate the approximate participation for each event from the context of the article, whenever it is possible. All general strikes are grouped into the biggest participation category. Our goal was to collect protests and strikes that were organized in opposition to economic policies by the federal government. We manually check all events to ensure their relevance to our stated goal.

Data for sovereign spreads : For our empirical section 2, we use quarterly cross-country data on interest rate spreads on Credit Default Swap (CDS) data from Bloomberg/CMAN. We use measures in U.S. dollars and a five-year maturity for all countries. In our calibration section 4, we follow the sovereign default literature and use the EMBI+ spread data for Argentina from Global Financial Data[32].

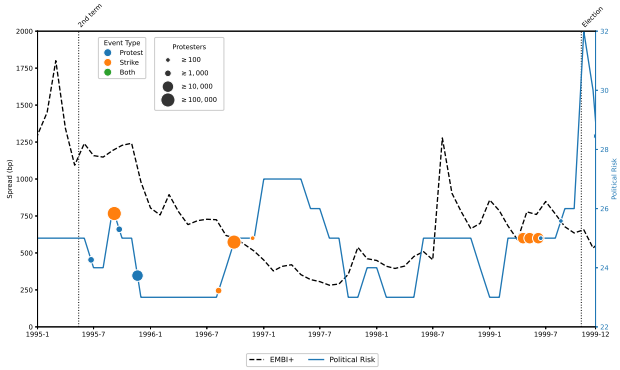
[30] Our measure is simply, one hundred minus the country risk index from the original data source.

[31] The database compiles articles from over 70 news sources for Argentina in English and Spanish. Among them are CE Noticias Financieras, Buenos Aires Herald, and the BBC.

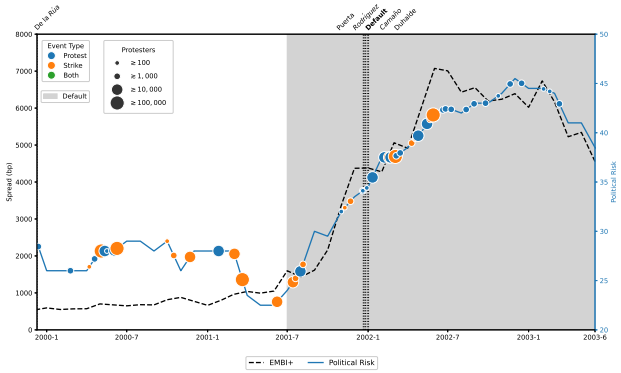
[32] As a robustness check we also run our empirical cross-country regressions on the limited set of countries for which we have EMBI+ spread data and find similar results.

Other data sources : Our cross-country regressions use data on External Debt, Gross Domestic Product (GDP), Current Account Balance, Reserves, and Primary fiscal balance. The external debt data is from the Joint External Debt Hub of the World Bank, International Monetary Fund (IMF), and Bank of International Settlements (BIS). GDP data in national currency and U.S. dollars are from the World Bank's Global Economic Monitor, Haver/National Account sources, and National Account sources in Global Financial Data. Current Account Balance, Reserves, and Primary fiscal balance are from the IMF International Financial Statistics data set. Party affiliation data is from the Inter-American Development Bank's (IADB) 2020 Database of Political Institutions. Default data is from Asonuma and Trebesch (2016) Monthly Default and Restructuring Database. Finally, the credit ratings used to select countries for the regression and event analysis, are from Standard and Poor's country ratings for foreign exchange debt extracted in July 2024. We use data on hourly wages from the SEDLAC (2023) dataset, extracted in April 2023.

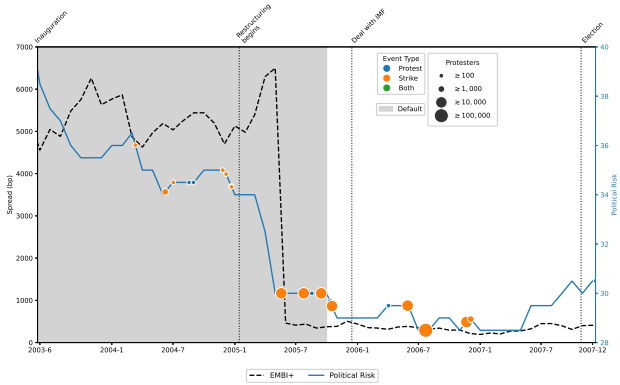
B Revolts and Spreads: Data and model



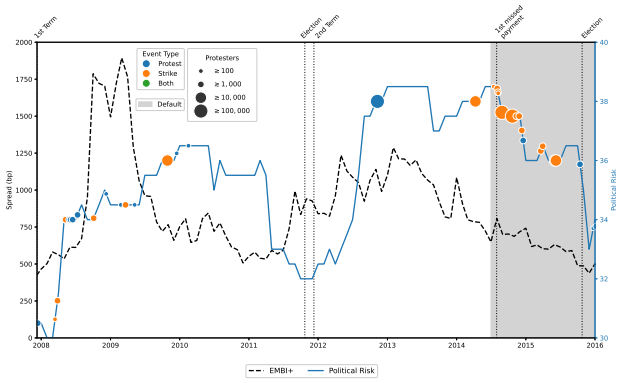
(a) 1995-1999.



(b) 2000-2003.



(c) 2003-2007.



(d) 2008-2015.

Figure 12: Spreads, political risk, and daily protests

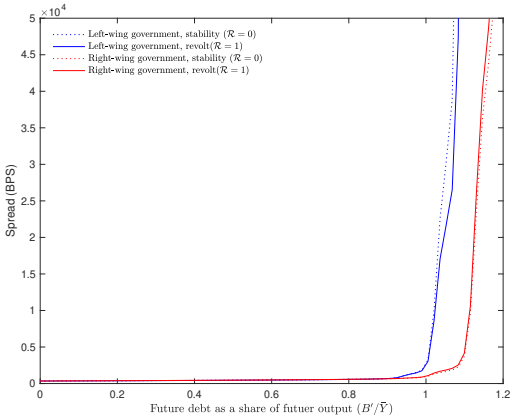
Note: Left vertical axis measures the interest rate spread using the EMBI+ in basis points. The right vertical axis corresponds to one hundred minus country risk from the ICRG database. This is an index of political risk with high values representing higher levels of political instability. Blue and orange circles correspond respectively to protests and general strikes mentioned in the Dow Jones Factiva dataset and are associated with fiscal reforms. The size of the dot corresponds to the highest protest size recorded.

We extend the daily analysis conducted for the Macri administration, shown in Figure 4, to the administrations that governed Argentina between 1995 and 2015. The results, plotted in Figure 12, reveal that the 2001 default also experienced similar frequent episodes of social unrest, government turnovers, and rapid increases in spreads. However, it is important to note that outside of these default crisis periods, most protests seem to only have a small impact on spreads.

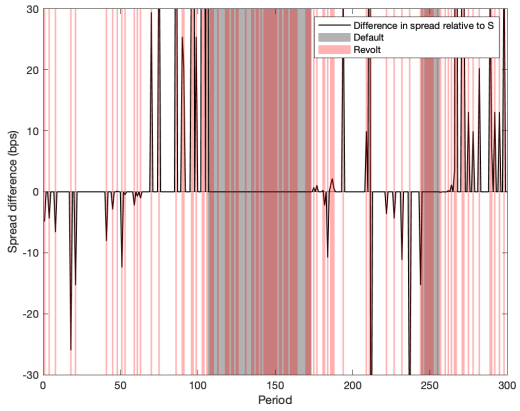
In the model, protests influence the reelection probability of the incumbent. Consequently, they can induce an increase in spread when a right-wing government is in office, as illustrated in Figure 9 in the main body of the paper. Conversely, protests can lead to a decline in

spreads when a left-wing government is in office, as depicted in panel (a) of Figure 13, where the y-axis is chosen to highlight this gap.

Although a significant change in spreads exists for certain portions of the price schedule, the spreads paid under stability and revolt also coincide for substantial portions of the debt support. At the ergodic distribution, we find evidence that revolts affect spreads at a similar rate as the one observed in the data. In panel (b) of Figure 13, we plot the difference in spreads between stability and revolt over 300 periods of the ergodic distribution. The results align with the data, showing that most revolts change the interest rate spread by less than 30 basis points, with a few rare instances having a significant impact. On average, revolts increase spreads by 8.6 basis points, with a standard deviation of 29.8 basis points.



(a) Left-wing gap in spreads.



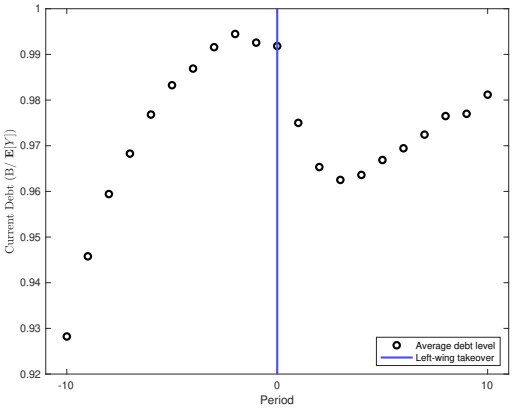
(b) Revolts and spreads at the ergodic.

Figure 13: Effect of revolts on spreads in the baseline model.

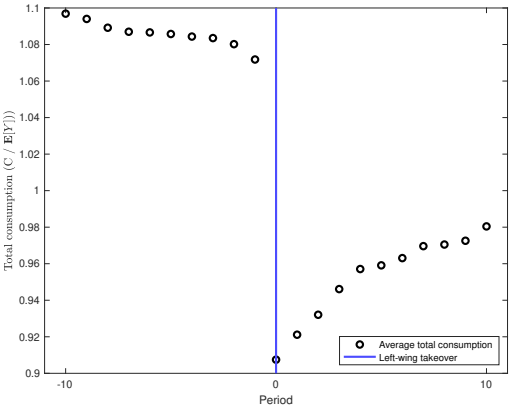
Note: Panel (a) plots the policy-implied spreads as a function of future debt for both parties in the baseline model under stability(dotted lines), and under revolt(solid lines). For this purpose, we fix TFP to the mean level, and we fix initial debt to the mean level in the ergodic. This figure is identical to Figure 9 with the exception of the y-axis.
Panel (b) plots a stylized simulation that is meant to be an example of the median effect of revolts on spreads. The simulation starts in power and lasts for 300 periods. The initial debt level is fixed to $B = 1.23$, which corresponds to the median level of debt for the right-wing party in the ergodic distribution. The initial productivity level is fixed to the mean level, which is in the middle of the productivity grid.

C Austerity policies under a left-wing ruler

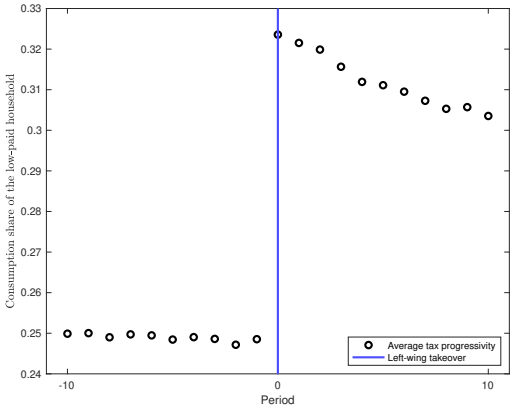
When a left-wing government takes power and opts against a political default, it must still navigate the substantial debt burden left by its right-wing predecessor. The only way to restore the debt to a level more aligned with its ideology is through austerity measures.



(a) Debt to mean output.



(b) Aggregate consumption



(c) Redistribution

Figure 14: Austerity policies under a left-wing government

Note: Plotted are episodes of political transition from a right-wing government to a left-wing government in the ergodic distribution of the baseline model. The transition happens at the period labeled as 0. The episodes are defined as chains in which the right-wing party has been in repayment for at least 10 periods, to be then replaced by a left-wing government that remains in repayment for at least 10 periods after the transition. Plotted are the associated series of debt relative to average GDP in the economy, total consumption relative to average GDP, and consumption of the L-type household as a share of total consumption.

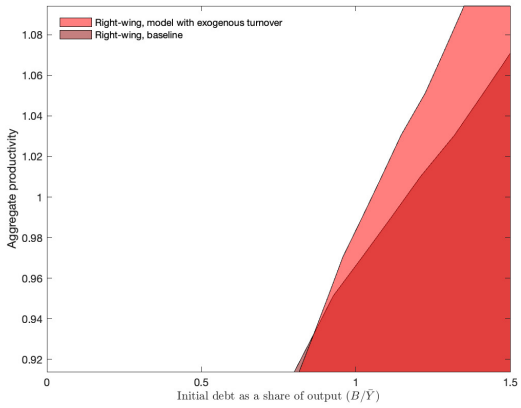
In Figure 14, we present the average evolution of various aggregates around a political turnover from a right-wing to a left-wing government that does not involve a default.[33] Panel (a) depicts the evolution of the debt-to-average-output ratio, panel (b) shows the evolution of aggregate consumption $(C^H + C^L)$ relative to average output, and panel (c) illustrates the evolution of the consumption share of type-L households as a percentage of total consumption $(\frac{C^L}{C^L+C^H})$.

Panel (a) shows that the left-wing government begins its term by reducing the debt by approximately 4% of average output. The subsequent rise in debt issuance after the first

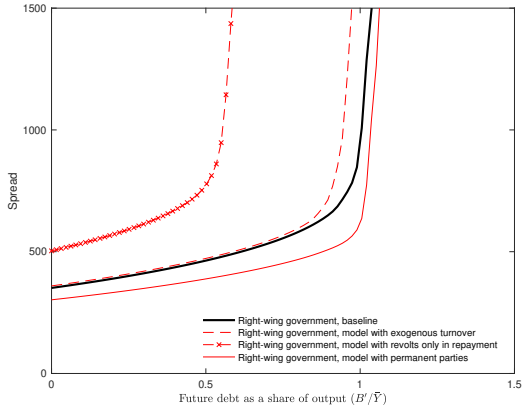
[33]The event analysis focuses on episodes without defaults for 10 periods before and after the political turnover. Additionally, we exclude episodes where an additional turnover occurred within these 20 periods.

five periods is partially explained by a selection bias, as economies experiencing positive productivity shocks are overrepresented in our sample. Panels (b) and (c) illustrate how austerity is implemented. The simultaneous decline in aggregate consumption and the increase in the consumption share of low-income households are consistent with higher progressivity (τ_1) and increased overall tax levels (τ_0). In other words, austerity is achieved through disproportionately higher taxes on high-income households. Given the efficiency-equity trade-off in our model, these policies also result in lower total output, leading to a political recession.

D Revolts and deficits: A theory of "gradualism"



(a) Default sets for the right-wing party.



(b) Right-wing price schedule.

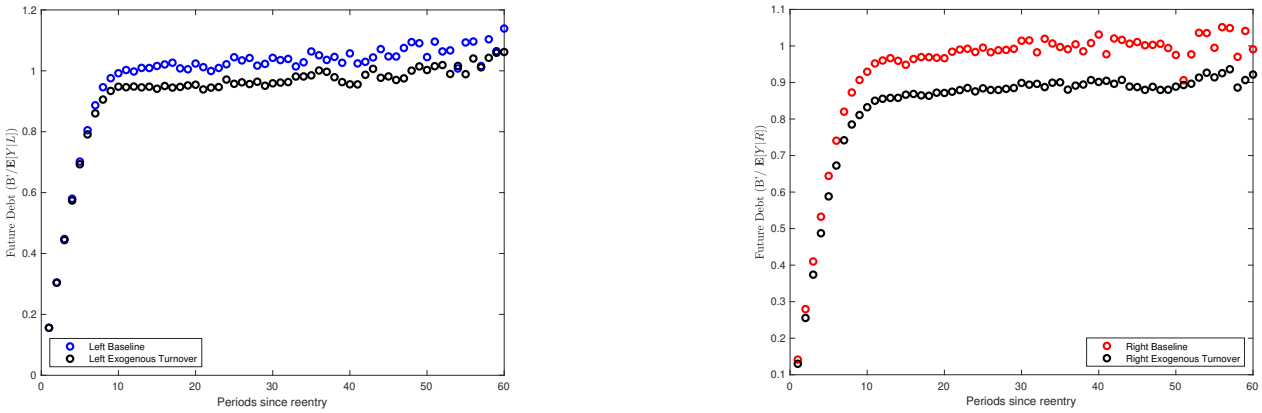
Figure 15: Default sets and comparison of policy-implied spreads across model variants.

Note: In panel (a) we plot the default sets implied by the policy functions corresponding to our baseline and to the model with exogenous turnover for the right-wing party exclusively. This is done by adopting the previous definition under which the shaded area represents an ex-ante probability of default that is greater than 0.5, conditional on being in good standing initially. In panel (b). we plot the schedule for the baseline model(solid line), the model with exogenous turnover(dashed line), the model without revolts in default(dashed line with asterisks), and the model with permanent types. For this purpose, we fix productivity and the initial debt at their mean value.

In this appendix we extend the analysis of the effect of revolts as an endogenous default cost of section 7.2, by examining the policy functions of right-wing incumbents, the price schedule of debt, and the effect of revolts on borrowing decisions. Figure 15, panel (a), compares the default sets of a right-wing ruler in our baseline model and in the model with only exogenous turnover. Similar to the case of left-wing rulers, we find that revolts lead to a lower default set. Consequently, for a given debt level, a model incorporating revolts

will exhibit lower default risk, which should be reflected in lender pricing. In panel (b), we confirm this outcome by presenting the price schedules faced by a right-wing ruler under the various model specifications discussed in section 7.3. Incorporating revolts in the model results in more favorable borrowing terms.

However, as Table 6 shows, the average level of spreads and the default frequency at the ergodic distribution in the baseline model are slightly higher than those in the model with only exogenous turnovers. This difference can be attributed to the fact that the average debt level in the baseline model is significantly higher than in the economy with exogenous turnovers. The government utilizes the more favorable borrowing conditions to accumulate substantially more debt.



(a) Debt under a Left wing party.

(b) Debt under a Right wing party.

Figure 16: Debt levels at the ergodic distribution after reentry.

Note: Plotted in panel (a) (panel (b)) are the average levels of debt for left-wing (right-wing) governments that reenter with zero debt at period zero and remain in power and repayment up to 60 periods later at the ergodic distribution of our baseline model. The averages are computed by isolating events from a 100,000-period simulation. In both panels, we also compute the hypothetical borrowing decisions that the same party would have made in the model with only exogenous turnover given the same state.

Figure 16 illustrates each party's contribution to the additional borrowing. It depicts the evolution of debt at the ergodic distribution in our baseline model following reentry to credit markets (with zero debt) for both left-wing (panel (a)) and right-wing (panel (b)) governments. As a benchmark, we calculate the counterfactual debt levels using the borrowing rules from the model with only exogenous turnover, applied to the same party and in identical states. The figure indicates that both parties tend to issue more debt, though the increase is slightly more pronounced for right-wing governments.

In section 7 we show that in our baseline model right-wing governments encounter significantly more revolts during repayment periods. Consequently, the results of Figure

16 suggest that they issue more debt to make their fiscal choices more agreeable to the opposition. This behavior mirrors Argentina's experience during the early years of the Macri administration ("Gradualism"), where concerns about social unrest led to fiscal concessions that increased the budget deficit while spreads remained low.

Figure 16 is also consistent with the political economy theory of "Starving the Beast."[34] This theory predicts that right-wing governments tend to pursue tax cuts and larger budget deficits to pressure future left-wing governments to reduce spending when a turnover occurs. Although the original theory does not consider sovereign defaults, our model suggests that when a left-wing party comes to power, it could lead to either a sovereign default or a period of austerity until debt levels become sustainable for that ideology (see Appendix C). Therefore, a modified version of this theory may hold in our framework.

E Alternative revolt costs

We show here that our results are broadly robust to different specifications of the revolt costs (13). In all the specifications we keep the values of ϕ_0^R and ϕ_1^R at their calibrated values from section 4. We compare the moments under different specifications of the revolt costs to the baseline, and the model with only exogenous transitions in Table 7.

Table 7: Comparison between different revolt cost specifications.

Model specification	Debt	Spread	Freq. default	Revolts	Share in power(Right)
Baseline	89.6	7.3	4.4	36.6	47.9
Exogenous turnover	81.4	7.1	4.3	-	50.0
Revolt-Default cost	89.6	7.2	4.4	36.6	47.9
Utility cost	82.5	5.5	3.6	38.4	47.4

Note: We compare key moments of the baseline model and the model with only exogenous turnover to two alternative revolt cost specifications. The moments are computed using 100,000 simulations for each model specification. The Revolt-Default costs are still productivity costs as in the baseline model, but the additional cost of revolt under default is a function of total productivity (A) as opposed to default productivity (α_R^D). The utility cost specification imposes additive utility costs proportional to productivity. These costs are not a function of the default status and affect only the protesters, but not the households of the other type.

In the first alternative specification, we alter only the cost of revolts during defaults. Instead of the fourth expression in (13) we use :

$$\alpha(A, \mathcal{D} = 1, \mathcal{R} = 1) = \alpha_{\mathcal{R}_0}^{\mathcal{D}} - \max(\phi_0^R A + \phi_1^R A^2, 0),$$

[34] See for instance Bartlett (2007) for a political economy explanation and Martin (2019) for an application into economics.

This specification increases revolt costs during defaults relative to the baseline non-linearly with productivity. However, given that defaults will endogenously occur only when productivity is low, the aggregate moments are very close to the ones in the baseline model.

In the second alternative specification, we use instead a utility cost of default, as opposed to a productivity cost. However, to keep things comparable, we still make this utility cost proportional to productivity.[35] A household of type i will therefore have the following static utility in both default and repayment states :

$$u^i(C, N) - \mathcal{R} \times \left[\max(\phi_0^R A + \phi_1^R A^2, 0)\right]$$

Compared to our baseline model, this specification exhibits a similar frequency of revolts and right-wing governments in power. While the debt level at the ergodic distribution is lower, both the frequency of defaults and the spreads are also reduced. When we compare this specification to the model with only exogenous turnover, we still observe a higher level of debt issuance, albeit at lower spreads and with fewer defaults. The decrease in debt relative to our baseline model is expected, as output is higher when revolts do not impact total factor productivity (TFP). Revolts are more effective as an endogenous default cost when their costs are modeled in terms of utility losses for the protestors.

F Alternative models with only exogenous turnover

We show here that the differences between our baseline model and the model with only exogenous transition introduced in section 7.2 are primarily driven by the asymmetric reelection odds that default and repayment entail for the ruler. Specifically, we solve alternative specifications of the model with only exogenous turnover and compute the moments of Table 6 for each of them. We show that specifications that do not allow for reelection odds that depend on the default status sustain substantially less debt than our baseline model.

Table 8, summarizes the ergodic distribution moments for the baseline model, the model with only exogenous turnover, and various alternative specifications of the latter. For clarity, we refer to the exogenous turnover model presented in the main paper as the No-Revolts model. In this model, the probability of reelection is set to the value under stability in the baseline model, resulting in a higher average reelection probability than the average reelection

[35] Utility costs of this form are now common in the sovereign debt literature. See for instance Aguiar and Amador (2013), Bianchi and Sosa-Padilla (2023), and Roch and Uhlig (2018).

odds at the ergodic distribution of the baseline model.

In the first alternative specification, we keep reelection probabilities constant across states but match the average probability of reelection at the ergodic distribution of the baseline. The resulting moments are very similar to those in the No-Revolts model. In the second specification, we allow reelection probabilities to differ by party but keep them constant across default or repayment states. Again, the average debt level and spreads remain close to those in the No-Revolts model. In the third version, we set equal exogenous reelection probabilities for each party, but let them depend on the default or repayment status, using conditional means from our baseline. The resulting moments more closely resemble those of the baseline model than the No-Revolts model. Finally, in the fourth specification, we allow reelection probabilities to vary by party and by default status. The moments of this specification are the closest to our baseline but still underestimate the level of debt issuances by 3% of mean output. This suggests that the reelection odds channel is not the only way revolts lead to higher borrowing. For additional discussion about the role of revolts for borrowing see appendix D.

Table 8: Comparison to alternative specifications of the model with only exogenous turnover

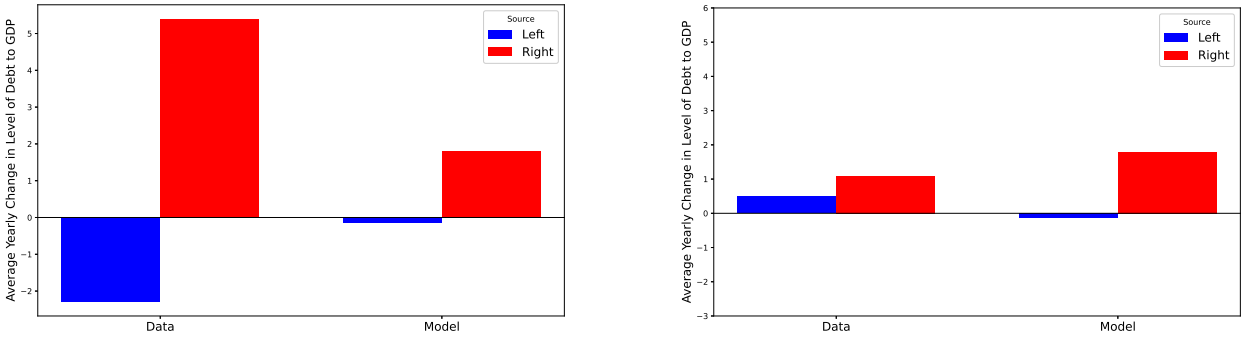
Model specification	Debt	Spread	Freq. default	Share in power(Right)
Baseline	89.6	7.3	4.4	47.9
No-revolts model	81.4	7.1	4.3	50.0
Average reelection odds	81.4	6.7	4.1	51.0
Odds vary by party only	81.3	6.7	4.2	48.4
Odds vary by default status only	85.1	7.1	4.3	50.1
Odds vary by party and default status	86.43	6.9	4.1	47.7

Note: We compare moments of the baseline model and the model with exogenous turnover (No-revolts) to two alternative specifications of the model with only exogenous transitions. The moments are computed using 100,000 simulations for each model specification. The average reelection odds model keeps the probability of turnover constant at the average of the ergodic distribution of the baseline model. The fourth line specifies a model where the probability of turnover varies by party but is exogenously fixed to the conditional means measured at the ergodic. The fifth line specifies a model where the probability of turnover varies by default status but is exogenously fixed to the conditional means measured at the ergodic. The sixth line specifies a model where the probability of turnover varies by default status and party but is exogenously fixed to the conditional means measured at the ergodic.

G Predictions of the model in the data

We verify several model predictions using Argentinean and cross-country data. In Section 7 we explain that right-wing governments sustain higher levels of debt, while left-wing governments default more frequently upon entering office. One implication of the first observation is

that we should expect more debt issuances under right-wing administrations compared to left-wing ones. Additionally, the second observation suggests that, in the absence of defaults, we should anticipate larger increases in spreads following a Right-to-Left transition than after a Left-to-Right. Here, we provide suggestive evidence supporting the validity of these two predictions in the data.



(a) Argentina changes in debt-to-GDP.

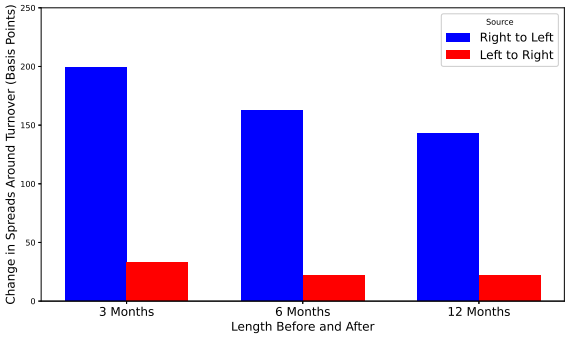
(b) Cross-country changes in debt-to-GDP.

Figure 17: First difference in annual debt-to-GDP by ideology of the executive.

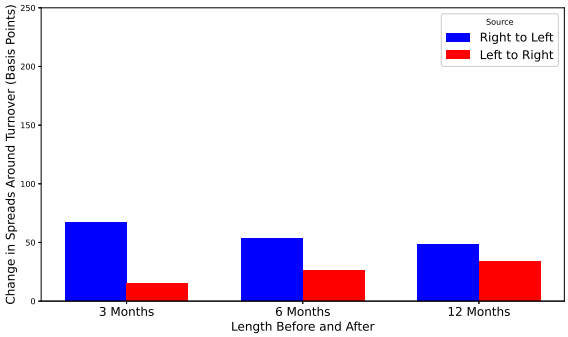
Note: In panel (a) We plot the average annual change in debt as a percentage of GDP in Argentina sorted by ideology of the executive. We use annual central government debt as a percentage of GDP from the IMF Global Debt Database. We combine this data with political information from the DPI. This restricts our study to years between 1975 and 2020. We use the party orientation of the executive to assign each year to a political leaning. In panel (b). We plot the average annual change in debt as a percentage of GDP for our cross-country sample grouped by which party was in power. We use the same data and methods as panel (a). We exclude years in which a country was in default as determined by Asonuma and Trebesch (2016) Monthly Default and Restructuring Database.

Figure 17 depicts the evolution of the debt-to-GDP ratio by party affiliation of the incumbent executive from 1975 to 2020, excluding defaults. The analysis is conducted at an annual frequency, using party affiliation data from the DPI and annual central government debt as a percentage of GDP from the historical IMF Global Debt Database. Panel (a) displays the first difference in levels for Argentina and the baseline model, while panel (b) presents the same statistics across different countries. The results are qualitatively consistent with the model predictions. In the model, left-wing governments that do not default must initiate their tenures with austerity measures (see Appendix C), resulting in slightly negative changes in the stock of debt an observation that aligns with the data from Argentina. In the cross-country data, we find increases in the debt-to-GDP ratio for both types of governments, but the increases are less pronounced under left-wing administrations.

Figure 18 shows the average change in the CDS spread around a political turnover. We identify Right-to-Left and Left-to-Right turnovers using the DPI dataset, with the election day marked as the day of turnover. To mitigate anticipation effects in the data, we calculate



(a) Data changes in spreads after turnover.



(b) Model changes in spreads after turnover.

Figure 18: Changes in the average spread around a political turnover.

Note: In panel (a) We plot the average change in spreads around political turnover. We use DPI data to find political turnovers. We use the election date as the turnover moment and conduct a monthly analysis. For each turnover, we exclude the three months immediately preceding and immediately following the election month. We then took the average spread for the given period before and after and took a difference. We then took an average of these differences grouped by turnover direction. In panel (b). We plot the average spread changes around political turnover generated by our model, excluding periods of default and one quarter before and after the transition.

the average spread while excluding the quarter before and after the turnover in both the model and the actual data. Outside of this exclusion period, we determine the difference between the average spread three months (as well as six months and twelve months) after the election and the average spread three months (six months, and twelve months) prior to the election. [36] Consistent with the model, we observe that average spreads tend to increase more following Right-to-Left turnovers than after Left-to-Right transitions.

[36]We only perform this analysis on Argentinean data for the 2020 turnover, which we examine in detail in the paper. The other two turnovers for which we have spread data (2003 and 2015) occurred while Argentina was in default and engaged in litigation with its creditors.

H Sensitivity analysis of the empirical motivation

We show that the cross-country correlation that links political risk and spreads also holds when we separate countries by the political ideology of the incumbent.

Table 9: CDS spreads and political risk, in countries ruled by left-wing parties

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	13.94***	15.92***	34.73**	41.01*	22.58**
	(1.581)	(1.765)	(11.36)	(14.35)	(5.165)
External Debt-to-GDP		10.05***		-3.091	6.718*
		(1.048)		(7.808)	(2.926)
CA-to-GDP		2.662		-7.398	2.416
		(1.652)		(4.660)	(3.191)
Reserves-to-GDP					-1.869
					(6.305)
Real GDP growth					-0.0463
					(3.658)
Primary Balance-to-GDP					1.713
					(3.500)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	540	522	540	522	205

Note: We drop the top 2% of CDS Spread data before all empirical work. Additionally, we use Standard and Poor's credit rating data to drop all nations rated A- or higher. These regressions were run on the same data as in Table 11, excluding values associated with non-left-wing governments. Standard errors are clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: CDS spreads and political risk, in countries ruled by right-wing parties

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	6.553***	11.95***	22.05**	17.06**	17.58
	(1.308)	(1.381)	(7.393)	(5.306)	(10.21)
External Debt-to-GDP		4.412***		3.048	3.249
		(0.506)		(3.871)	(3.937)
CA-to-GDP		-0.648		2.104	2.603
		(1.036)		(1.405)	(1.833)
Reserves-to-GDP					-2.748
					(5.465)
Real GDP growth					-2.928
					(1.837)
Primary Balance-to-GDP					-4.408
					(2.251)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	440	438	439	438	323

Note: We drop the top 2% of CDS Spread data before all empirical work. Additionally, we use Standard and Poor's credit rating data to drop all nations rated A- or higher. These regressions were run on the same data as in Table 11, excluding values associated with non-right-wing governments. Standard errors are clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We show that the cross-country exercise conducted in section 2 is robust to including all possible countries in the dataset (as opposed to only those whose sovereign credit rating was below A-). Table 11 shows the regression results for all governments, while Table 12 shows the results for left-wing governments, and Table 13 shows the results for right-wing governments.

Table 11: CDS spreads and political risk (all countries)

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	9.333***	8.635***	12.60***	10.82***	15.91***
	(0.224)	(0.266)	(2.838)	(2.735)	(4.155)
External Debt-to-GDP		0.530***		0.625*	0.493
		(0.0450)		(0.264)	(0.308)
CA-to-GDP		-1.913***		1.227	1.770*
		(0.291)		(0.699)	(0.844)
Reserves-to-GDP					1.899*
					(0.731)
Real GDP growth					-1.848*
					(0.774)
Primary Balance-to-GDP					0.00796*
					(0.00394)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	4585	4067	4582	4064	2400

Note: We drop the top 2% of CDS Spread observations before all empirical work. All data sources are listed in Appendix A. Standard errors clustered at the country levels in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: CDS spreads and political risk, in countries ruled by left wing parties (all countries)

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	11.78***	11.59***	14.70**	15.41**	14.86**
	(0.601)	(0.778)	(5.131)	(5.391)	(4.960)
External Debt-to-GDP		1.217***		0.156	1.689
		(0.275)		(2.320)	(1.428)
CA-to-GDP		-2.184*		-0.815	0.766
		(0.987)		(1.785)	(1.028)
Reserves-to-GDP					2.775*
					(1.291)
Real GDP growth					-1.616**
					(0.529)
Primary Balance-to-GDP					0.0289*
					(0.0129)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	1032	1000	1032	1000	604

Note: We drop the top 2% of CDS Spread data before all empirical work. These regressions were run on the same data as in Table 11, excluding values associated with non-left-wing governments. Standard errors are clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: CDS spreads and political risk, in countries ruled by right-wing parties (all countries)

	(1) CDS Spread	(2) CDS Spread	(3) CDS Spread	(4) CDS Spread	(5) CDS Spread
Political Risk	8.172***	9.209***	18.86**	17.00**	23.32***
	(0.513)	(0.557)	(5.448)	(5.289)	(5.661)
External Debt-to-GDP		0.464***		0.723	0.566
		(0.0667)		(0.455)	(0.497)
CA-to-GDP		-2.162***		2.269	2.361
		(0.606)		(1.179)	(1.246)
Reserves-to-GDP					0.282
					(3.027)
Real GDP growth					-1.605*
					(0.755)
Primary Balance-to-GDP					0.00933
					(0.00627)
Quarterly FE	No	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes	Yes
Obs	1116	1113	1115	1113	769

Note: We drop the top 2% of CDS Spread data before all empirical work. These regressions were run on the same data as in Table 11, excluding values associated with non-right-wing governments. Standard errors are clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$