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Clientelism, Institutions and Sovereign Default

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Abstract

Emerging economies exhibit pro-cyclical fiscal policy, counter-cyclical sovereign spreads, and recurrent debt crises, whereas advanced economies sustain high debt with low spreads and lower volatility in outcomes. We document that these differences are systematically related to institutional strength, measured by horizontal accountability, and to the prevalence of clientelistic allocation of public resources in a panel of 51 countries (1994-2023). We develop a dynamic political-economy model of sovereign borrowing with long-term debt in which institutional constraints discipline clientelistic transfers and shape default incentives. Variation in institutional strength generates both emerging-market and developed-economy outcomes within a unified framework and accounts for heterogeneous post-democratization trajectories in emerging markets.

Keywords— Sovereign Debt Crises, Tax Smoothing, Checks and Balances, Clientelism, Sovereign Default, Fiscal Policy, Emerging Markets, Long-term Debt

JEL— D72, E43, F34, E62, F41

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1 Introduction

Fiscal policy and sovereign debt management exhibit stark cross-country differences. Advanced economies are able to sustain high levels of public debt with low spreads, and fiscal policy is broadly consistent with tax smoothing[1]. Emerging markets (EMs), by contrast, borrow pro-cyclically, face counter-cyclical spreads, and in some cases experience recurrent debt crises at substantially lower debt ratios[2]. The standard explanation for the EM/developed divide attributes this to limited commitment and heterogeneous discount factors: emerging market governments are more impatient and simply unable to credibly commit to debt repayment. Additionally, these explanations leave open the sharp heterogeneity *within* the emerging market group: some countries are 'serial defaulters' (like Argentina), while others (like Chile) have maintained stable market access despite comparable income levels and similar institutional conditions at democratization. We propose an alternative that addresses these margins: the institutional environment in which fiscal decisions are made plays a first-order role, and much of the cross-country heterogeneity in fiscal behavior and sovereign risk—across and within income groups—can be accounted for by a single institutional parameter without requiring different discount factors or excessive impatience.

The argument rests on a specific mechanism. When horizontal accountability (HA)—the degree to which executive actions are constrained by legislatures, courts, and independent oversight bodies—is weak, fiscal policy tends to revolve around *clientelism*: the targeted, contingent allocation of public resources in exchange for political support. In such environments, borrowing finances not only pure public goods but also politically motivated transfers to key supporters, distorting default incentives and amplifying macroeconomic shocks. Institutional constraints discipline this behavior. When accountability is strong, the cost of obtaining political support through transfers is high, and fiscal policy converges toward broad public good provision and tax smoothing. We provide an empirical foundation for this mechanism and embed it in a quantitative political-economy dynamic model of sovereign default.

A central challenge in testing this mechanism is that clientelism is intrinsically hard to measure: it operates through discretionary, opaque channels that rarely surface in standard budget aggregates. We address this with a three-step empirical strategy. The first step validates our proxy. We use two federal democracies—Argentina and India—where granular data on discretionary intergovernmental transfers allow us to examine the V-Dem clientelism index against an observable counterpart. We document that periods of weaker HA coincide with larger and more unequally distributed discretionary transfers—precisely the pattern predicted by our framework. We find that these transfers have a strong positive correlation with the clientelism index—providing direct institutional validation for the cross-country evidence that follows.

The second step documents long-run patterns for a broad set of countries. Using data on 51 countries over 1994–2023, we show that weak-accountability countries (predominantly EMs) exhibit systematically higher spreads, more pro-cyclical fiscal policy, and higher clientelism than strong-accountability countries

[1] See the studies by Sargent and Velde (1995) or Hall and Sargent (2021).

[2] This pattern, especially prevalent in Latin America during the 80s and 90s, has been noted by studies including Kaminsky et al. (2004), Talvi and Végh (2005), Ilzetzki and Vegh (2008), and more recently Kaas et al. (2020) and Bianchi et al. (2023)

(predominantly advanced economies). Importantly, the emerging-market/advanced-economy distinction is interpreted as endogenous to institutional development, not as a fixed classification: Chile, for instance, behaves more like a developed economy in our data. The third step establishes the relationship within countries over time. Using fixed-effects panel regressions that exploit within-country variation in the HA index—controlling for macroeconomic fundamentals and country and year fixed effects—we find that improvements in accountability are negatively correlated to sovereign spreads and clientelism in emerging markets. We find no analogous relationship in developed countries, where horizontal accountability is already high and exhibits little variation. Local projections confirm that these effects are persistent: a positive HA shock generates sustained declines in spreads and clientelism over a multi-year horizon. Together, the case study evidence, long-run cross-sectional patterns, and panel dynamics provide an internally consistent empirical picture linking institutional quality to fiscal behavior and sovereign risk.

To rationalize these patterns, we develop a dynamic political-economy model of sovereign default in which institutional constraints discipline clientelistic transfers and shape default incentives. Group leaders bargain over taxation, public spending, external borrowing, and debt repayment. A proposer must secure the support of a minimum winning coalition (*mwc*) of size m—the model counterpart of HA—and can do so by offering fiscal transfers to coalition members. A small m enables targeted redistribution by a narrow coalition, amplifying borrowing during booms and raising default incentives during downturns. A large m approximates a planner, basically eliminating clientelism and restoring tax-smoothing behavior. Relative to Azzimonti and Mitra (2023), we introduce long-term sovereign debt: governments issue bonds with gradually decaying payments rather than one-period instruments. This is crucial for generating counter-cyclical spreads, a salient feature of emerging market data. Bond prices depend not only on fundamentals but also on institutional quality, since weaker accountability raises the likelihood that borrowing finances targeted transfers rather than broad public goods.

One of our key contributions is that the model delivers a *unified theory of tax smoothing and sovereign default across the development spectrum*. Tax smoothing arises endogenously when m is large: strong checks and balances make politically targeted redistribution costly, inducing fiscal behavior consistent with the optimal tax-smoothing benchmark. When m is small, fiscal policy becomes pro-cyclical and some defaults are *political*—arising from the interaction of weak institutions and targeted redistribution rather than from adverse fundamentals alone. Most importantly, we can calibrate the model to reproduce both emerging-market and developed-economy outcomes successfully. This distinguishes our framework from the canonical model of impatience in the sovereign default literature, which attributes cross-country differences in borrowing and default behavior to variation in the discount factor. Both approaches require adjusting the exogenous cost of default as part of their respective calibration strategies; the key difference emerges for developed countries. When the canonical low-β model is calibrated to match their debt and spreads, it generates *pro-cyclical* deficits, contradicting both the data and our benchmark, and produces output volatility roughly double what the data shows. The reason is fundamental: impatience drives pro-cyclical borrowing regardless of how the default cost is set, because an impatient government levers up whenever it can (the classic debt ratchet effect from Bulow and Rogoff (1991)). Our model instead generates counter-cyclical borrowing in developed countries endogenously, through the common-pool feedback mechanism that attenuates the debt ratchet effect and makes policymakers behave more responsibly when institutional constraints are strong.

We illustrate the quantitative implications through the divergent post-democratization trajectories of Argentina and Chile. Both countries transitioned from military rule in the 1980s under broadly similar initial conditions. We simulate a permanent institutional reform in which the *only* country-specific difference is the m-process following democratization. The results are sharp: differences in institutions alone account for the sovereign spread and default gaps between the two countries. This experiment speaks to the empirical findings in Frankel et al. (2013), who document that several emerging markets have "graduated" from pro-cyclical to counter-cyclical fiscal policy and link this to improved institutions. Our paper complements this by providing a mechanism: in the Argentina-Chile counterfactual, the shift in fiscal cyclicality is driven by the reduction in clientelistic transfers that follows institutional strengthening. The graduation pattern is thus a prediction of our framework, not an assumption.

Beyond this counterfactual, the benchmark model matches a set of moments simultaneously that other models have difficulty replicating jointly: the default frequency (5 per 100 years), spread volatility (3.4%), the counter-cyclical co-movement of spreads with output, and consumption relative volatility (1.2 in both model and data). We attribute this quantitative success to the common-pool feedback mechanism and the introduction of long-term debt, which together prevent the over-sensitivity of spreads to borrowing that plagues the canonical framework. We then calibrate the same model to a group of advanced economies (Germany, France, and the U.K.) and show that, with a higher $\bar{m}$ and larger default cost, the framework reproduces their counter-cyclical deficits, high debt, and negligible default risk. These exercises provide a transparent quantitative test of the central mechanism: institutional quality, not patience or TFP shocks, is the key driver.

The model also speaks to autocratic regimes, which combine weak horizontal accountability with persistent political power. These two features interact in a non-obvious way. Weak constraints create strong incentives for targeted extraction; the absence of political turnover removes the fear of losing power, extending the ruler's effective horizon. When we simulate an autocracy with $\bar{m} = 1$ and no turnover—all other parameters held at the Argentina benchmark—defaults vanish and spreads fall to near zero, even though institutional constraints are at their weakest. Debt to GDP is lower than in the benchmark, while clientelistic transfers rise to more than twice the emerging-market level, and deficits become strongly counter-cyclical, financed primarily through taxation rather than external borrowing. This pattern cannot be rationalized by attributing high patience to the ruler: a patient planner would not generate the large politically motivated transfers that characterize such regimes, nor explain their fiscal composition. The result sharpens the paper's central message: *weak institutions do not mechanically imply high sovereign risk*. In the autocratic case, it is the interaction of institutional constraints and the persistence of political power that matter.

The rest of the paper is organized as follows. Section 2 summarizes how our work fits in the literature. Empirical evidence is presented in Section 3. In Section 4, we describe the economic environment and define the politico-economic equilibrium. Section 5 describes the quantitative model, including the calibration strategy, model fit, and impulse-responses. We compare the transition to democracy in Argentina and Chile by simulating a once-and-for-all institutional reform in Section 6. We describe tax smoothing in developed economies through the lens of our model in Section 7 and discuss an autocracy in Section 8. Finally, we discuss how our model compares to the standard one with impatient governments in Section 9. Section 10 concludes.

2 Related Literature

Empirical contributions. Existing work documents correlations between institutional features and sovereign default or spreads: Kohlscheen (2007) links constitutional structure to serial default; Catão and Mano (2017) isolate an institutionally-determined spread component; Cotoc et al. (2025) link government ideology to spreads; Qian and Roch (2023) show that institutional quality reduces default frequency; and Azzimonti and Mitra (2023) document a cross-sectional relationship between political constraints and spreads. We advance this literature by exploiting within-country variation through panel fixed-effects regressions with country and year fixed effects, purging global shocks and time-invariant country characteristics. We further validate the mechanism by contrasting model-implied impulse responses to accountability and TFP shocks with empirical counterparts from local projections.

Moreover, we introduce clientelism as an empirical object in the sovereign debt literature. Graham et al. (2026) and Alaimo et al. (2018) document how weak oversight fosters targeted allocation of public resources and the size of fiscal leakages, but do not study their macroeconomic implications for sovereign risk. The disaggregated transfer literature shows that political alignment shapes intergovernmental grants in Brazil (Brollo and Nannicini (2012)), India (Arulampalam et al. (2009)), and China (Jiang and Zhang (2020))—we exploit similar programs for validation. We are the first to validate a cross-country clientelism proxy against granular transfer data and to connect clientelism jointly to spreads, fiscal cyclicality, and institutional quality in a unified panel framework. We also contribute to the literature that documents procyclicality in developing countries (Kaminsky et al. (2004) and Vegh and Vuletin (2015)), its amplification under corruption (Alesina et al. (2008)), and the role of institutional quality as the key threshold determinant (Calderón et al. (2016)). In particular, we show that countries with lower HA tend to have more pro-cyclical borrowing.

Theoretical and quantitative contributions. The traditional public finance literature (Barro (1979); Aiyagari et al. (2002)) delivers tax smoothing and counter-cyclical debt under commitment—predictions systematically violated in emerging markets (Gavin and Perotti (1997); Talvi and Végh (2005); Ilzetzki and Vegh (2008)).[3] The quantitative sovereign default literature—following Arellano (2008)—explains EM behavior by allowing strategic default. Cuadra et al. (2010) show that this generates procyclicality (see also Kaas et al. (2020) and Martinez et al. (2023)). These models abstract from the institutional environment and face a well-known tension between realistic default frequencies, plausible debt levels, and spread volatility (Aguiar and Gopinath (2006)). Second-generation models with long-term debt (Hatchondo and Martinez (2009); Chatterjee and Eyigungor (2012); Pappada and Zylberberg (2026)) better match spreads and debt-to-

[3] See Yared (2019) for a survey and Hall and Sargent (2021) for empirical discussions.

GDP ratios, yet reconciling default frequencies with spread volatility remains difficult (Aguiar et al. (2016)). Our framework resolves this via the common-pool feedback mechanism, which also delivers the correct sign on the spread-output correlation and realistic variation in the debt levels.

Our paper is related to those explaining inefficient fiscal policies caused by political frictions: Alesina and Tabellini (1990) shows that over-indebtedness results from electoral uncertainty, while Tornell and Lane (1999) and Velasco (2000) show that weak institutions generate overspending. Ilzetzki (2011) generates pro-cyclical fiscal policy through disagreement over public spending. Our model belongs to the dynamic legislative bargaining tradition (Baron and Ferejohn (1989); Battaglini and Coate (2008); Yared (2010); Drazen and Ilzetzki (2023)), that generate over-indebtedness under proposer uncertainty, though most contributions are theoretical. Azzimonti et al. (2016) and Barseghyan et al. (2013) provide quantitative applications, but must impose an exogenous debt ceiling to generate reasonable debt/GDP levels, something we endogenize through default. The key distinction from all these models is full commitment to repay, so they don't feature sovereign risk and default incentives. The political default literature (Hatchondo and Martinez (2010); Hatchondo et al. (2009); Cotoc et al. (2025); Chang (2007)) typically relies on low effective discount factors to generate default. We instead vary institutional constraints at standard patience levels, showing they alone can shift economies from serial defaulters to tax-smoothing advanced economies. Qian and Roch (2023) and Cusato Novelli (2020) also combine political frictions with sovereign default but assume an endowment economy, so neither framework can speak to tax-smoothing or generate a developed-economy fiscal regime. Our closest antecedent is Azzimonti and Mitra (2023), who embed legislative bargaining in a sovereign default model. We extend that framework by introducing long-term debt, which is necessary for counter-cyclical spreads and many other empirical regularities. Additionally, we introduce concavity in targeted transfers, which ensures interior clientelism and smoother debt dynamics allowing us to match second moments.

3 Empirical Evidence

Our theory emphasizes the role of institutional checks and balances in shaping fiscal policy, sovereign risk, and the use of public resources for political gain. We proxy the strength of institutional constraints using Horizontal Accountability, obtained from the Varieties of Democracy (V-Dem) project. It captures the extent to which executive actions are monitored and constrained by other state institutions, including courts, legislatures, and independent oversight bodies[4].

A natural empirical complement to HA would be a measure of the political use of public funds—specifically, the extent of clientelism. Yet reliable data on clientelistic practices are exceptionally difficult to obtain. Clientelism, by design, operates through discretionary, opaque, and often informal exchanges that rarely appear as identifiable items in national budgets. As emphasized by Alaimo et al. (2018), leakages, targeted transfers, and politically motivated allocations are typically embedded within broad expenditure categories—such as wage bills, procurement, and social transfers—where they are indistinguishable from

[4]The concept of horizontal accountability was first introduced by O'Donnell (1998).

legitimate programmatic spending. This problem is compounded by the fact that headline expenditure aggregates cannot isolate clientelistic use from genuine redistribution. For example, higher spending on social programs may reflect a well-functioning safety net in countries with strong checks and balances, while in weaker institutional environments the very same budget lines are the primary channels through which leakages and patronage occur. The same ambiguity arises with public consumption: the wage bill may represent essential service provision in one country and politically motivated hiring in another, but the aggregate data do not reveal its true nature. Disentangling these mechanisms requires deep, granular budget analysis—of the kind performed by Alaimo et al. (2018)—yet such audits are rare, cover only a limited set of countries, and do not produce consistent long-run time series. As a result, fiscal accounts systematically under-report the scale of clientelistic spending, and direct measurement from standard budget data is essentially infeasible. For this reason, we rely on V-Dem's direct empirical counterpart for clientelism. Their *clientelism index* quantifies the extent to which political competition is based on the targeted and contingent distribution of public resources—goods, services, jobs, or money—in exchange for political support. It captures precisely the kind of transactional exchanges discussed in the introduction, such as fiscal transfers traded for legislative backing, in which higher scores indicate more clientelistic environments. While no index can perfectly observe activities that governments attempt to hide, the V-Dem measure captures the structural, persistent component of clientelism that is central to our model—the set of practices that would not appear reliably in fiscal accounts. Importantly, it has been widely used in the political economy literature to study the institutional foundations of redistribution, corruption, development and democratic accountability, making it a natural and externally validated choice for our cross-country analysis (see the recent work by Graham et al. (2026)).

We proceed with our empirical analysis in three steps. First, we discuss two case studies close to the authors' expertise—Argentina and India—to provide institutional grounding for our measures. These cases allow us to observe directly how discretionary intergovernmental transfers rise and become more unevenly distributed across regions when HA becomes weaker. By documenting that politically contingent transfers move systematically with our institutional indicators, we provide concrete validation for interpreting the V-Dem clientelism index as a proxy for targeted, support-based allocation of public resources.

Second, we turn to cross-country evidence and document long-run relationships between HA and key fiscal and macroeconomic outcomes, including sovereign spreads, consumption, government expenditures, government borrowing, and the degree of clientelism. These moments reveal systematic differences across institutional environments and show how business cycle moments in developed countries (which exhibit stronger checks and balances) differ from those in emerging markets, where executive discretion is less constrained. Third, we examine short-run dynamics. Using panel regressions and local projections, we study how economic and political shocks propagate within countries. This allows us to separate persistent institutional differences ("regimes") from temporary fluctuations in institutional strength. In particular, we analyze how innovations in HA and output growth affect spreads, fiscal policy variables, and public spending over time.

3.1 Clientelism in Practice: Two Case Studies

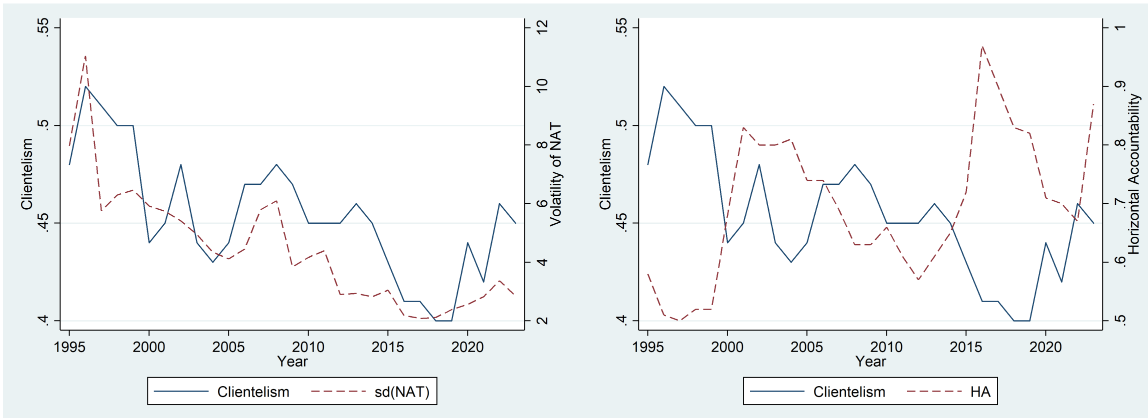
To validate our use of the V-Dem clientelism index as a proxy for politically motivated allocation of public resources, we examine two federal democracies—Argentina and India—where detailed data on discretionary intergovernmental transfers are available. As documented by the World Bank (2018), policymaking in Argentina can take the form of 'deals' between the executive and provincial governors, whereby political support is exchanged for fiscal transfers—a textbook instance of clientelism operating through an observable fiscal channel. In both countries, rule-based revenue sharing coexists with discretionary transfer programs that can be used to reward political allies or favor the executive's region of origin. These case studies allow us to observe directly the type of practices the clientelism index is intended to capture: the targeted and contingent distribution of fiscal resources in exchange for political gain. We show that periods characterized by weaker horizontal accountability are associated with larger and more uneven discretionary transfers, precisely the patterns one would expect in more clientelistic environments. This provides concrete institutional grounding for interpreting the clientelism index in our cross-country analysis.

3.1.1 The Case of Argentina

Argentina's system of fiscal federalism is centered on the regime of *coparticipación*, established under the Ley de Coparticipación Federal de Impuestos. Under this framework, the federal government collects national taxes and redistributes a legally mandated share to the provinces according to a fixed formula. These transfers are automatic and rule-based, leaving little room for executive discretion. They form the core of provincial revenues and provide a stable and predictable source of funding. In addition, the federal government distributes a second category of funds, *non-automatic transfers (NAT)*, that fall outside the coparticipación formula. Unlike automatic transfers, NAT are discretionary in both amount and timing. Although formally justified to finance specific projects (like infrastructure or education) or addressing fiscal emergencies, their allocation is negotiated between the national executive and provincial authorities and determined through the annual budgetary process. While they account for only about 8 percent of total intergovernmental transfers, they are often decisive for fiscally constrained provinces.

This dual structure creates clear scope for political targeting. While automatic transfers are rule-based, NAT provide the flexibility needed for strategic allocation. When provincial leaders gain influence at the national level, discretionary transfers can be redirected toward their home constituencies. The concentration can be substantial. Under Carlos Menem's presidency in the mid-90s, roughly 20 percent of all NAT were allocated to La Rioja, his home province. During the administrations of Cristina Fernández de Kirchner, between 15 and 30 percent of discretionary transfers went to Santa Cruz, her province of origin. These episodes illustrate how NAT can become geographically concentrated when executives face limited institutional constraints. A key implication is that the discretionary nature of non-automatic transfers should manifest not only in their level but also in their distribution over time. If NAT are used strategically to reward aligned provinces or to secure political support, their allocation will fluctuate with political incentives rather than fiscal fundamentals. Periods of intensified clientelism should therefore be associated with more unequal and less predictable allocation of these funds across provinces, which in turn will appear in the data as higher cross-provincial dispersion and greater time-series volatility.

Figure 1: Volatility of NAT, clientelism and HA in Argentina



Notes: NAT represents the share of real-per-capita non-automatic transfers from the federal government to provinces in Argentina. Author calculations, see Appendix A.2 for construction and sources.

Figure 1 provides suggestive evidence consistent with this mechanism. The left panel plots the V-Dem clientelism index together with the standard deviation of non-automatic transfers across geographical regions[5]. The two series co-move closely over time: periods characterized by higher clientelism are also periods in which the distribution of real-per-capita NAT is unevenly distributed across regions. The right panel relates clientelism to HA. The relationship is clearly negative: there is less clientelism when checks and balances are tighter. This is precisely the mechanism emphasized in our framework. Stronger institutional constraints limit executives' ability to allocate discretionary funds selectively, reducing both clientelism and the volatility of non-automatic transfers. When horizontal accountability weakens, discretionary reallocations become easier, and both clientelism and NAT volatility increase. Because such practices are difficult to observe directly in cross-country fiscal data, we rely on the V-Dem clientelism index to capture this underlying, hard-to-measure dimension of politically motivated spending.

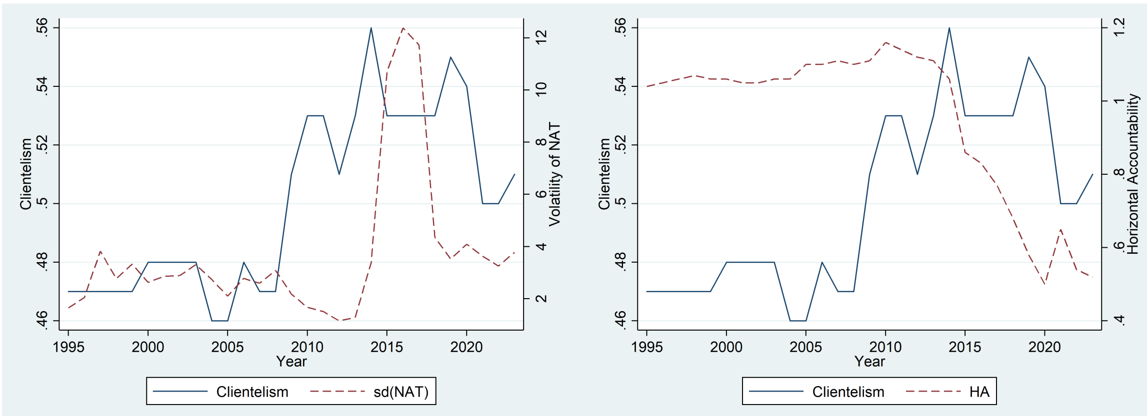
3.1.2 The Case of India

India's federal system also combines rule-based transfers with discretionary channels that allow the central executive to influence the allocation of resources across states. Transfers are justified by a vertical fiscal imbalance: states undertake roughly 62 percent of public expenditure but collect only about 37 percent of total tax revenue. Every five years, an independent Finance Commission recommends the devolution of central tax revenues and certain untied grants according to formula-based criteria. These transfers are largely insulated from executive discretion. The Center also allocates resources through Centrally Sponsored Schemes (CSS) and other Central Sector Schemes administered by line ministries. Unlike Finance Commission transfers, CSS are discretionary in both design and implementation. As noted by Rao (2017), these schemes have

[5] It is constructed, yearly, as the standard deviation of the share of NAT received by each province. We use real, per-capita NAT to account for inflation dynamics and the heterogeneous size of different regions within the country. See Appendix A.2 for a more thorough description.

often been used to extend the influence of ruling parties at the Center over state-level policy domains. In this respect, CSS plays a role analogous to Argentina's NATs: they create a margin for targeted allocation outside formula-based devolution.

Figure 2: Volatility of NAT, clientelism and HA in India



Notes: NAT represents share of real-per-capita non-automatic transfers from the central to states in India. Author calculations, see Appendix A.2 for construction and sources.

The left panel of Figure 2 plots the clientelism index together with the cross-state standard deviation of non-automatic transfers (captured by the CSS program). Clientelism begins to trend upward around 2010, coinciding with the onset of a decline in horizontal accountability (shown in the right panel). Importantly, the dispersion of discretionary transfers does not increase immediately. Instead, the standard deviation of NAT shares rises sharply several years later, around 2014-2016. This timing is consistent with the institutional structure governing these transfers. Major revisions to schemes and devolution rules occur on a five-year cycle[6]. Although executive constraints began weakening earlier, the ability to reallocate this particular budgetary component across states materialized after the last cycle before the institutional reform ended. The subsequent jump in dispersion reflects a more uneven allocation of transfers across states[7].

The Indian case mirrors the mechanism illustrated for Argentina, with an institutional timing component: declines in horizontal accountability precede and eventually translate into larger dispersion in discretionary transfers. Unfortunately, we do not have such detailed microdata for other countries. But we hope that these two case studies persuade the reader that focusing in the clientelism index—as capturing politically motivated allocation that is difficult to observe directly—is a good enough approximation.

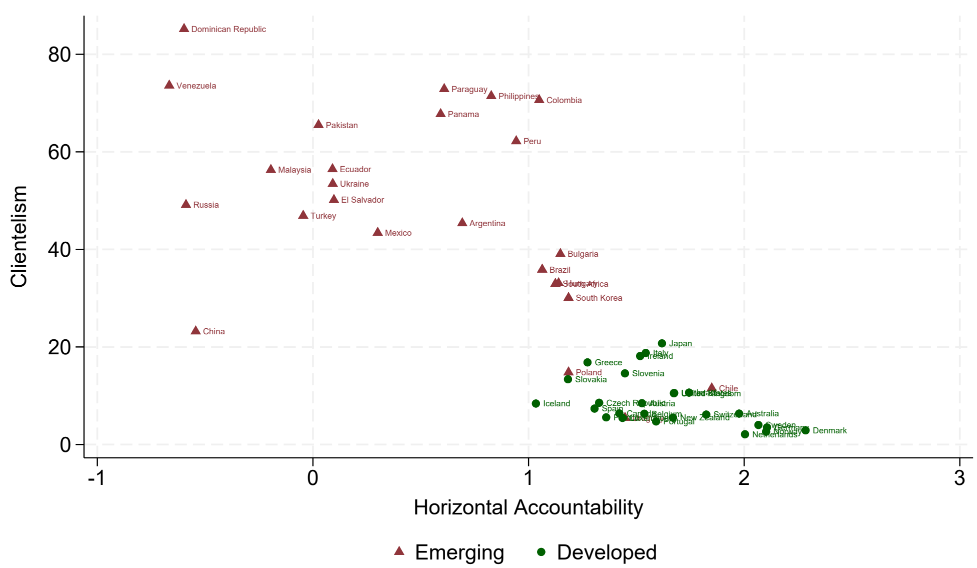
[6] In addition, the abolition of the Planning Commission in 2014 consolidated discretionary programs under central ministries. Before 2010, the average volatility in NAT across states was 2.6. During 2015-2017, this number jumps to 11.6, and then stabilize at a higher average value of 3.77 until the end of the sample.

[7] It is important to note that this delay pertains to the specific category of discretionary transfers for which we observe detailed cross-state data. Other forms of politically contingent spending—such as centrally administered schemes or expenditure items for which we do not have disaggregated data at the state level—may have adjusted earlier, but these are not observable in our dataset. The lag we document, therefore, reflects the institutional mechanics of this budgetary item rather than the absence of discretionary behavior more broadly.

3.2 Long-Run Cross-Country Differences

Having established in two institutional settings that weaker horizontal accountability is associated with more uneven and politically contingent allocation of public resources— and with higher levels of the clientelism index—, we now turn to cross-country evidence. Our second empirical step examines whether institutional differences translate into systematic long-run differences in fiscal behavior and spreads on sovereign debt. We begin by distinguishing between developed and emerging market economies and documenting that HA differs systematically across these groups. We then compare their average macroeconomic and fiscal outcomes.

Figure 3: HA and clientelism



Notes: HA and Clientelism from the V-Dem database. Data has 26 developed and 25 emerging market economies. Emerging and Developed follow World Bank definition. See Appendix A for the full list of countries.

Our sample contains 51 countries, listed in Appendix A.1 (see Table 9): 26 of them are Developed Countries while 25 are Emerging Market economies. We focus on the period 1994 to 2023. Figure 3 plots the average values of HA against Clientelism for each country in our sample, highlighting a clear negative relationship: countries with stronger institutional checks and balances tend to rely less on clientelistic practices[8]. Developed countries (green circles) cluster in the lower right quadrant—characterized by high HA and low clientelism—while EMs (red triangles) lie in the opposite corner, also exhibiting a negative relationship, but accompanied by higher dispersion.

Table 1 summarizes business cycle moments and fiscal characteristics. Developed countries tend to have higher debt-to-output ratios (70% vs. 45% of GDP) while facing substantially lower sovereign risk (captured by higher Fitch ratings) and lower default frequency.

This suggests that institutional quality (e.g. higher HA), rather than debt levels per se, is a key determinant of market access and repayment behavior. Consistent with this, developed countries also allocate a

[8]The distribution of these variables across countries is plotted in Figure 18 of Appendix A.

Table 1: Summary Statistics by Country Group

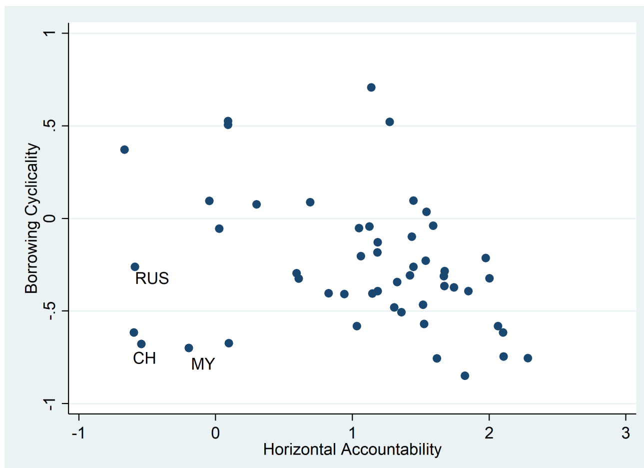
Moment	Developed	Emerging
Means		
Horizontal Accountability	1.62	0.51
Clientelism	8.79	47.85
Fitch Ratings	3.79	2.74
Govt. Consumption / GDP (%)	19.82	14.26
Debt / GDP (%)	70.34	44.50
Average Default Frequency (%)	0.26	2.57
Standard Deviations		
$\sigma(y)$ (%)	4.66	5.62
$\sigma(g)/\sigma(y)$	1.24	1.73
$\sigma(c)/\sigma(y)$	1.08	1.13
Business Cycle Correlations		
$\rho(c, y)$	0.79	0.79
$\rho(g, y)$	0.44	0.51
$\rho(\text{TB}/y, y)$	-0.09	-0.31
$\rho(\text{Deficit}/y, y)$	-0.37	-0.14
Correlations with HA		
$\rho(\text{Clientelism, HA})$	-0.47	-0.53
$\rho(\text{Fitch, HA})$	0.58	0.29
$\rho(g/y, \text{HA})$	0.15	0.23
$\rho(b/y, \text{HA})$	-0.27	-0.08
$\rho(\text{Default Freq, HA})$	-0.22	-0.22

Notes: c denotes private consumption, y GDP (in constant LCU), g/y public consumption to output ratio, b/y gross public debt to GDP, trade balance (TB) corresponds to net exports and Deficit is the Primary Deficit (non-interest expenditures minus revenues). HA is the horizontal accountability index. See Appendix A for more details on variable definitions, country coverage, and data manipulation.

larger share of output to government consumption (19% vs. 14%), indicating a larger overall fiscal capacity. Their fiscal systems appear less reliant on clientelism (8.79 vs 47.85 in EMs).

Business cycle properties also differ. Output and fiscal policy are more volatile in EMs, with government consumption fluctuating more relative to GDP (1.73 in EMs vs 1.24 in developed countries). While both groups show strong co-movement between consumption and output, EMs display more volatile private and public consumption, and a level of government spending that is more correlated to GDP. To analyze the cyclicality of borrowing, we look at the correlation between GDP and the trade balance (that is, exports-imports) as well as the correlation between the primary deficit (expenditures net of interest payments minus fiscal revenues) and output. The traditional sovereign-default literature has focused on $\rho(\text{TB}/y, y)$, as governments in EMs borrow predominantly from abroad and private international borrowing is minimal. Developed countries are basically acyclical on this measure, whereas EMs are pro-cyclical: as GDP goes up, net imports rise as well. Since developed countries carry significant domestic debt, the public finance literature uses the primary deficit as a proxy for borrowing. On this measure, borrowing is strongly counter-cyclical in developed countries—they tend to borrow in recessions rather than in booms. However, the divide between developed and emerging markets is somewhat artificial. Some emerging markets, such as Chile, exhibit fiscal behavior more typical of developed countries: Chile's correlation between deficit and GDP is -0.6, comparable to advanced economies. This suggests that institutional quality, rather than income level per se, drives cyclical borrowing patterns. This result is also consistent with Frankel et al. (2013), who showed that several emerging markets have "graduated" from pro-cyclical to counter-cyclical fiscal policy and attribute this to improved institutional quality. In Figure 4, we plot $\rho(\text{Deficit}/y, y)$ against HA directly for all countries regardless of development status and find a negative correlation between the two. Countries with stronger checks and balances tend to exhibit more tax-smoothing behavior. Exceptions are Russia and China, countries where formal institutional constraints on executive power operate quite differently from those in the rest of our sample; we return to these cases at the end of the paper.

Figure 4: Borrowing Cyclicality, $\rho(\text{Deficit}/y, y)$, and HA



Notes: Deficit is the primary deficit, defined as Total Non-Interest Spending - Total Revenue. y is GDP. Primary deficits are an indicator for government borrowing. RUS: Russia, CH: China, MY: Myanmar

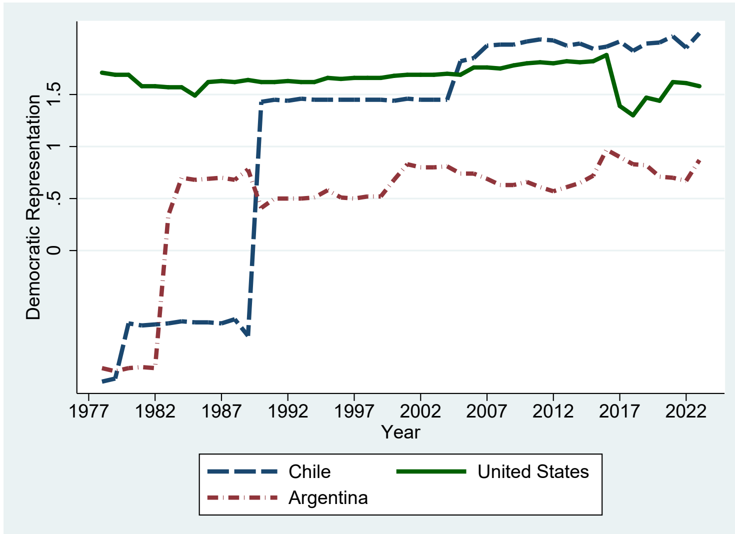
The final panel in the table underscores the importance of HA as an anchor for fiscal discipline. HA is negatively correlated with default frequencies and clientelism, and positively associated with sovereign credit ratings, the latter significantly larger for developed economies. Meanwhile, the correlation between HA and debt/GDP is negative in developed countries and close to zero in EMs, again signaling the lack of market access in these economies in some states of the world (such as after a default episode).

3.3 Short-run: within-country economic and political shocks

The previous section described how countries with different long-run averages of HA differ in terms of fiscal and economic outcomes. However, the HA series is not constant.

This is illustrated in Figure 5, which shows the evolution of HA in three countries: Argentina, Chile, and the United States since 1970. A few things are noticeable: (i) a developed country like the US has, on average, higher HA than emerging markets, (ii) there can be 'regime switches' in which average HA becomes permanently higher (in the cases of Argentina and Chile, this coincides with a change from an autocratic regime to a democratic one in 1983 and 1989, respectively), (iii) even within a regime, there are

Figure 5: HA over time (Argentina, Chile, and US)



Notes: Argentina: Jump in 1983 indicates transition to democracy. Chile: Jump in 1991 indicates democratization. Both show post-democratization variation over time. USA: Higher and relatively stable with temporary slippage starting 2016.

'political shocks' to HA, where checks and balances become weaker (or stronger) for a number of years (see the US at the end of the sample or Argentina after 1990).

In this section, we want to assess how short-run changes to HA affect the economy. To that end, we perform fixed-effects panel regressions in each group (e.g. developed and emerging economies). This will take out the long-run differences or institutional regimes—studied in the previous section—and focus instead on the effect of short-run fluctuations in HA. Our dependent variables are: sovereign spreads, clientelism, primary deficits/GDP, and public consumption/GDP. The main explanatory variable is the HA index. Each regression includes country and year fixed effects and controls for real GDP growth, lagged public debt-to-GDP, a default dummy, a COVID-19 pandemic dummy (2020–2022). Standard errors are clustered at the country level.

The regression results in Table 2 provide clear evidence that stronger horizontal accountability is associated with both lower sovereign risk and reduced clientelistic practices. The estimated coefficient on HA is negative and significant in the spread regression, indicating that a positive shock to political restraint lowers sovereign bond spreads. These estimates capture a conditional correlation rather than a causal effect: the within-country variation in HA we exploit is not randomly assigned and it is conceivable that economic crises may affect the political process in these countries. The paper's primary causal inference runs through the structural model, where the institutional channel is isolated by construction in the Chile–Argentina counterfactual (see Section 6). The coefficient on the squared-HA term is positive and significant. This implies that the impact is non-linear, with the effect strongest at lower levels of HA, and tapers off as HA increases. We show later that our quantitative model has the same property. This finding suggests that investors perceive fiscal policy as more disciplined and sustainable when the proposer is subject to more oversight, thereby lowering the risk premium required to hold sovereign debt. The estimated coefficients on the control variables are also broadly consistent with economic intuition and prior empirical evidence (see Table 2). Real

GDP growth enters with a negative and highly significant coefficient in the spread regression: sovereign risk premium is lower in booms. This result is in line with the view that improved macroeconomic fundamentals reduce the likelihood of fiscal distress and default, and are therefore rewarded by investors through narrower spreads. As expected, a higher lagged public debt-to-GDP ratio is associated with higher spreads, reflecting heightened concerns about fiscal sustainability. The default dummy is positive and statistically significant, capturing the sharp deterioration in sovereign creditworthiness that accompanies episodes of default.

The strong negative association between horizontal accountability and clientelism, as shown in the second column of Table 2, indicates that improvements in institutional checks and balances indeed reduce the ability of policymakers to engage in the diversion of public resources for political ends. The estimated coefficient is both statistically significant and economically meaningful. By contrast, the other explanatory variables in the specification do not reach conventional levels of statistical significance in explaining clientelism (other than clientelism went down significantly during the COVID years). This lack of significance may reflect the nature of the clientelism index, which is intended to capture structural features of political competition that are less sensitive to short-run macroeconomic or cyclical factors.

Table 2: Emerging Markets FE Regression

	Spreads (EMBI)	**Clientelism**	**Deficit/Y**	**Pub Cons/Y**
HA	-2.20^{***}	-7.82^{***}	-1.04^{**}	-0.04
	(0.76)	(1.91)	(0.48)	(0.22)
HA^2	1.32^{***}	-0.23	1.22^{***}	0.39
	(0.41)	(0.70)	(0.41)	(0.24)
Real GDP growth	-0.27^{***}	0.11	-0.05	-0.04^{*}
	(0.07)	(0.10)	(0.04)	(0.02)
Lagged Debt/GDP	0.12^{***}	-0.05	-0.04^{***}	-0.01
	(0.03)	(0.04)	(0.01)	(0.01)
Default dummy	13.81^{***}	2.24	0.94	-0.79
	(4.39)	(2.87)	(0.87)	(0.96)
COVID dummy	-9.01^{***}	-7.79^{***}	4.18^{**}	3.89^{***}
	(1.89)	(2.76)	(1.91)	(1.22)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Observations	546	546	545	546
Countries	25	25	25	25
R^2 (within)	0.59	0.38	0.47	0.36

Notes: Robust standard errors clustered at the country level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. HA = horizontal accountability index; HA^2 = squared HA. Deficit/Y = fiscal deficit, g/Y = government consumption (all as % of GDP). Default dummy from Asonuma and Trebesch (2016). See Appendix A for variable definitions.

The estimated coefficients on the third column of Table 2 show a U-shaped relationship between horizontal accountability and fiscal deficits. Below the inflection point, positive improvements in accountability reduce deficits, consistent with stronger checks and balances limiting clientelistic spending and rent-seeking behavior. Above the threshold, however, higher HA is associated with larger deficits. This pattern suggests that credible institutions with strong transparency enable governments to run larger deficits by improving access to credit markets and reducing borrowing costs. The COVID dummy shows a significant increase in deficits of 4.18 percentage points during the pandemic, while the negative coefficient on lagged debt (-0.04) indicates some degree of fiscal consolidation in response to accumulated debt.

The fourth column of Table 2 uses public consumption to GDP as the outcome variable. The coefficients on both HA and HA-squared are not statistically significant. As shown later, this what our theory predicts because of two reasons: firstly, at lower levels of debt, countries with lower HA are more likely to have higher public consumption together with higher clientelism (for example, supplies for running a public hospital need to be ordered in order to show inflated procurement costs for contractors). However, at higher levels of debt pure public goods give way to clientelism only (there is no fiscal space to properly run the hospital). Secondly, public consumption itself may be mis-measured. While part of clientelism are social transfers that are not part of public consumption, procurement waste and inflated wage bills are part of public consumption as well as clientelism. This further explains why both public consumption and clientelism increases together at lower levels of debt. Public consumption increased during COVID since it was used as a mitigation tool. It also decreases during booms as shown by the negative coefficient on real GDP growth[9].

Table 3: Developed Countries FE Regression

	Spreads (10-y)	**Clientelism**	**Deficit/Y**	**Pub cons/Y**
HA	4.34	1.02	-0.80	1.88
	(3.51)	(6.77)	(3.49)	(2.64)
HA^2	-1.51	-0.31	0.17	-0.80
	(0.98)	(2.03)	(1.27)	(0.96)
Real GDP growth	-0.08	-0.02	-0.26^{***}	-0.18^{***}
	(0.06)	(0.05)	(0.07)	(0.03)
Lagged Debt/GDP	0.02^{**}	-0.03^{***}	-0.02^{**}	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Default dummy	15.15^{***}	-2.15^{***}	-2.42^{**}	-0.39
	(1.02)	(0.41)	(0.99)	(0.37)
COVID dummy	-2.14^{***}	-0.80	4.44^{***}	1.08^{*}
	(0.75)	(0.90)	(1.09)	(0.64)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Observations	732	732	732	732
Countries	26	26	26	26
R^2 (within)	0.41	0.22	0.47	0.41

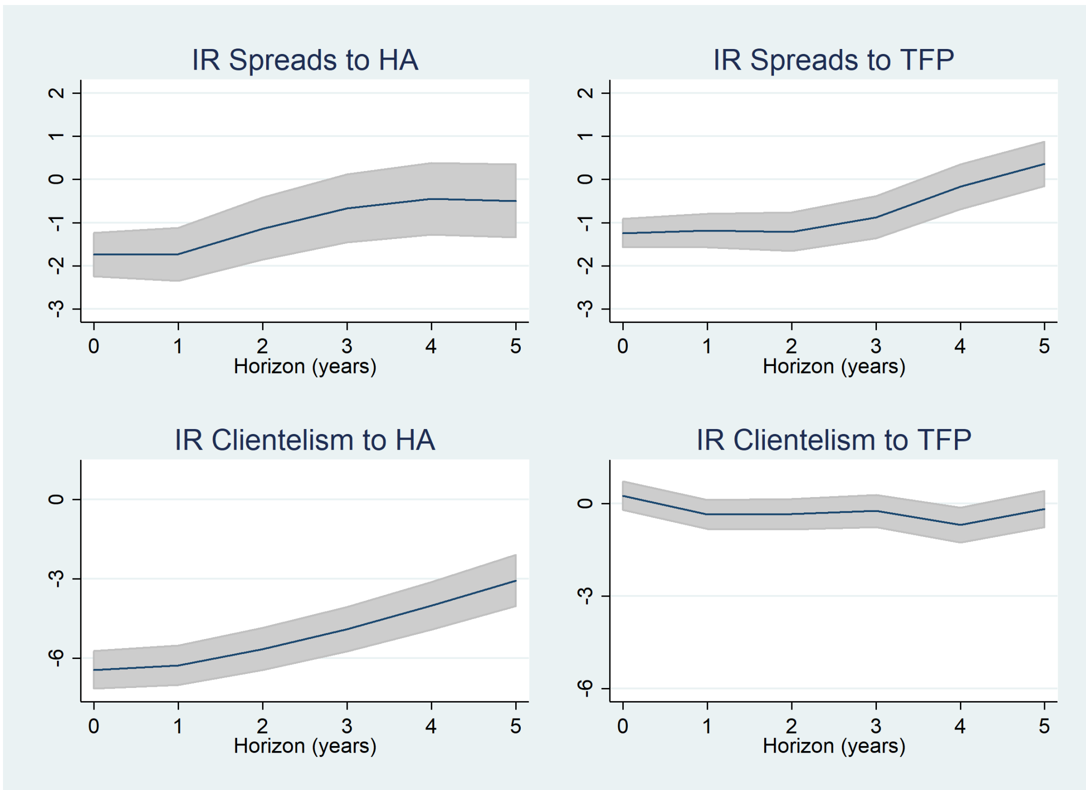
Notes: Robust standard errors clustered at the country level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. HA is the horizontal accountability index; HA^2 is its square. Deficit/Y denotes the fiscal deficit-to-GDP ratio, g/Y government consumption-to-GDP. The default dummy follows Asonuma and Trebesch (2016).

Table 3 presents results for developed countries. In contrast to EMs, we find no significant relationship between HA and spreads, clientelism, or fiscal aggregates. The coefficients on HA and HA-squared are statistically insignificant across all specifications. This reflects limited variation in accountability within the developed sample: the standard deviation of HA is 0.32 (mean 1.6), compared to 0.8 (mean 0.51) for EMs,

[9]A regression on tax-revenues to GDP (not-shown) on HA is also not significant for the similar reasons. In periods of low debt it is lower and increases to a level higher than a high HA government as debt rises. At lower levels of debt, private consumption and clientelism are complements.

and the fact that effects are smaller at higher levels of HA. Nearly all developed countries operate at high accountability levels.

Figure 6: Local Projections: Emerging Markets



Notes: Impulse responses estimated via local projections. Shaded areas represent 90% confidence bands. The dependent variables are the spreads (top row) and Clientelism (bottom row). Left panel: 1 sd increase in HA. Right panel: 1 sd increase in TFP.

Local Projections To assess the temporal dynamics underlying these results, we next estimate impulse response functions using the local projections methodology of Jordà (2005). Specifically, we trace the response of sovereign spreads, clientelism, and government spending to a 1 sd shock in HA and TFP (proxied by real GDP growth), controlling for the same set of covariates as in the panel regressions. This approach allows us to characterize not just the average effect, but also the trajectory and persistence of institutional improvements and productivity shocks on key fiscal and market outcomes.

The estimated impulse responses, displayed in Figure 6, reveal that a positive shock to horizontal accountability generates a statistically significant short-run decline in sovereign spreads, with the effect concentrated in the first two years after the shock before gradually dissipating. By contrast, the reduction in clientelism following an HA shock is both immediate and highly persistent, continuing over the entire five-year horizon. For comparison, the impulse responses to a TFP shock (proxied by real GDP growth) show that improvements in economic fundamentals also lead to a decline in sovereign spreads, but in this case, the effect is more persistent, lasting 4 years, and the impact effect smaller than the HA shock. The dynamic response of clientelism to TFP shocks is relatively muted, consistent with the regression results. The LPs for developed countries do not show noticeable responses to HA or TFP, and are relegated to Appendix A.4.

4 The model

This is an infinite-horizon model where time is discrete. The economy has a domestic sector, with competitive firms and workers, a government that decides policy through bargaining, and international investors that buy debt from the government. Debt is risky, as the government does not commit to repaying its obligations.

4.1 Economic Environment

The domestic economy is populated by a continuum of identical infinitely lived agents uniformly distributed across n regions, each with a population normalized to 1. Agents in region i derive utility from private consumption c, labor l, a pure public good g, and region-specific goods π_i, which may include pork-barrel. Policymakers can redirect resources toward particular groups at each point in time through targeted transfers—such as disaster relief, food assistance programs, or preferential access to public employment—and through inefficiencies in procurement, such as inflated contracts or symbolic infrastructure ("bridges to nowhere"). These leakages allow politicians to selectively raise utility for favored regions (e.g., increasing π_i) at the collective expense of society. As we show below, this political targeting creates sharp disparities in the distribution of regional goods, even when preferences and endowments are symmetric.

The instantaneous utility of an agent in group i satisfies

$$U(c, l, g, \pi_i) = u(c, l) + \varphi v(g) + \pi_i, \tag{1}$$

where φ denotes the weight of pure public goods relative to the consumption-leisure aggregate. Agents discount the future at a rate β. In line with small open economy models of sovereign default, we consider imperfect capital markets that prevent individuals from using assets to smooth aggregate fluctuations. This is akin to assuming that agents are hand-to-mouth—as the model abstracts from idiosyncratic shocks—implying that $c = (1 - \tau)wl$, with w denoting the economy-wide wage rate and τ the labor income taxes.

Firms produce a single non-storable consumption good, y, using the linear technology $y = h(z, d')l$. The economy is subject to aggregate TFP shocks, where $z \in Z$ follows a first-order Markov process $\mu(z'|z)$. We denote the long-run value of TFP by $\bar{z}$. When $z > \bar{z}$, the economy is in *good times*, and when $z < \bar{z}$, the economy is in a *recession*. The function $h(z, d')$, increasing in z, takes different forms in states of repayment ($d' = 0$) and default ($d' = 1$). Firms are competitive and maximize profits, taking government policy as given,

$$\max_{l} \; y - wl.$$

The behavior of international lenders is modeled following Hatchondo and Martinez (2009) and Chatterjee and Eyigungor (2012). Specifically, we assume that an infinite number of identical risk-neutral international lenders are present. These lenders can borrow and lend non-contingent bonds at the risk-free rate r from international capital markets. They can also buy long-term government debt at a price q. Because this is a perfectly competitive market, lenders earn no profits in equilibrium. The resulting pricing function is presented in Section 4.3.

4.2 Government Sector

The government collects revenue $Rev(\tau) = \tau y$ and uses its proceeds to fund pure public goods g and regional goods π_i. In addition, it can issue long-duration non-contingent real bonds that can be sold in international markets. As in Hatchondo and Martinez (2009), these bonds are a perpetuity, and have a constant rate of decay, given by δ. Each unit of the total outstanding debt pays a coupon of κ at the beginning of each period. Unit bonds are assumed to be infinitesimally small and divisible, implying that if $b(1-\delta)$ bonds are outstanding at the beginning of the next period, the total coupon payment owed will be $\kappa(1-\delta)b$. In other words, each unit of the bond promises a payment of $\kappa(1-\delta)^{s-1}$ in the future, where $s \geq 1$. If new bond issuances are denoted by ν, then government borrowing evolves in the following way.

$$b' = (1-\delta)b + \nu \tag{2}$$

The net resources raised by the government from capital markets are denoted by $q\nu - \kappa b$, where a positive value of b' is the face value of the current debt of the government and, as mentioned before, q is the price of new bonds. Following Mihalache (2020), we further normalize $\kappa = \delta + r$, which implies that the price of risk-free bonds equals 1. Note that δ determines the average duration of debt: when $\delta = 1$, the model converges to one with one-period bonds. Any $\delta < 1$ implies a longer duration. The government can choose to strategically default on outstanding debt, a decision we denote with $d' = 1$. If the government reneges on its current debt obligations, it is excluded from international credit markets for a stochastic number of periods— determined by probability θ. While excluded from credit markets, $b' = 0$, implying that the sole source of revenues is $Rev(\tau)$ until market access is regained.

The government budget constraint is

$$Rev(\tau) - g + (1-d')\Big[q\Big(b' - (1-\delta)b\Big) - \kappa b\Big] \geq B, \tag{3}$$

where $B \geq 0$ denotes the total amount of resources allocated to regional fiscal transfers. While the government sets aside a total amount B for such transfers, only $f(B)$ units of actual regional goods are produced and delivered. The production function, $f(B) = B^{\omega}$ with $\omega \in (0,1)$, captures the technical inefficiencies and leakages that arise when public resources are diverted from the general budget toward regional transfers. This wedge between input and output reflects the real-world costs of pork-barrel politics—such as administrative frictions and distortions in procurement processes—when spending is used to secure political support rather than maximize efficiency. The government must ensure that "the pie" $\Pi \equiv \sum_i \pi_i$ (i.e., the total allocation of $\pi_i\, \forall i$) does not exceed the total production of region-specific goods provided by the government.

$$\Pi \leq B^{\omega}. \tag{4}$$

When the government borrows from abroad, additional resources (measured in consumption goods) are imported. When the government pays down debt, resources are exported. The aggregate resource constraint is

$$y = c + g + B + nx,$$

where $nx = x - i$ denotes net exports (e.g., exports minus imports). Since there is a single production good in the world, the exchange rate is equal to 1 at all times. In our model, trade deficits co-move with government deficits since the private sector does not borrow or lend.

Bargaining process

Each region has a leader with political influence, who has a 'seat' in the bargaining table where policy is decided. We could think of them as the executive and members of Congress or the Parliament, as Provincial/State Governors, or as heads of politically powerful regions in a country. Policy proposals need the support of enough leaders, $m \leq n$, to be implemented. Thus m captures the size of the minimum winning coalition. This process gives each one of them some veto power and opens the possibility for clientelism through unequal distribution of regional goods (e.g $\pi_i \neq \pi_j$ for $i, j \in \{1, ..., n\}$). We allow for m to change stochastically over time, capturing the evolution of horizontal accountability illustrated by Figure 5. More specifically, we assume that m follows a first-order Markov process with transition probability $p(m'|m)$. We define permanent increases or decreases in its long-run average $\bar{m}$ as "regime changes," reflecting fundamental shifts in the political landscape or institutional structures. On the other hand, temporary shocks to m are interpreted as fluctuations in the balance of power that may arise due to electoral outcomes. For example, m can be significantly lower than $\bar{m}$ if one group gains control of all branches of government after an election. Beyond elections, the fluctuating relative importance of certain regional leaders at different periods in time is another example of a temporary shock to m.

We use the bargaining protocol from Azzimonti and Mitra (2023), which extends the dynamic legislative bargaining model (with exogenous status quo) of Battaglini and Coate (2008) to incorporate strategic default. Group leaders meet at the beginning of a period, and one of them is chosen (at random) to make a policy proposal (we could think of this one as the executive power of a congressperson presenting a new bill). Since individuals are identical in all regions, the identity of the leader of each group is irrelevant. A proposal is given by the n-tuple

$$\Phi(d) = \begin{cases} \tau, g, (1-d')b', \pi_1, \pi_2, ..., \pi_n & if \ d = 0 \\ \tau, g, \pi_1, \pi_2, ..., \pi_n & if \ d = 1 \end{cases} \tag{5}$$

When the country is excluded from credit markets because of a previous default ($d = 1$), it is unable to borrow $b' = 0$, and we trivially have $d' = 1$, unless the government regains market access at the outset of the next period. When it has access to capital markets in the current period $d = 0$, then d' and b' are free choices.

Clearly, if it chooses to default, $d' = 1$, then $b' = 0$. If the proposal succeeds in obtaining the support of m leaders, the policy is implemented. If the proposal fails to obtain enough support, leaders move to the next proposal round, in which case a new proposer is chosen at random. If no agreement can be reached in $T \geq 2$ proposal rounds, an outsider is appointed to choose a reference (symmetric) policy.

What is clientelism in this model? Because preferences and endowments are symmetric (and z is an aggregate shock), the allocations in any competitive equilibrium given policy are identical across regions. A benevolent planner who gives equal weight to every group provides the same amount of region-specific goods to each region, $\pi_i = \pi$ for all i. A self-interested policymaker, however, may prefer a different allocation. By forming a minimum-winning coalition, the proposer can redirect a larger share of resources toward her own constituency; the proposal will pass if she also channels disproportionately large fiscal transfers—i.e., regional goods—to coalition partners. This behavior produces *clientelism*: the selective distribution of public goods to secure political support. Clientelistic allocations create "leakages" of public resources and reduce the efficiency of government spending, for example, through procurement irregularities, inflated local wage bills, or pork-barrel projects—patterns documented empirically by Alaimo et al. (2018).

4.3 Politico-Economic Equilibrium

The aggregate state variables at the outset of any period are the stock of debt b, the TFP shock z, the size of the mwc m, and the credit standing $d \in \{0, 1\}$. Let the vector of stochastic state variables be $\mathbf{s} = \{z, m, d\}$, and denote the full state by $s = \{\mathbf{s}, b\}$. We start by describing a competitive equilibrium given government policy $\Phi(d)$. In equilibrium, variables depend on $\Phi(d)$ and Π. Throughout the paper, we write Φ (omitting d) to simplify notation.

Firms maximize profits, implying that $w(\mathbf{s}, \Phi) = h(z, d')$. To characterize the agents' problem, we make further assumptions about the utility functional forms.

Assumption 1. *Suppose that $u(c, l)$ is of the GHH family (see Greenwood et al. (1988)),*

$$u(c, l) = \frac{1}{1-\sigma}\left(c - \frac{l^{1+\gamma}}{1+\gamma}\right)^{1-\sigma} \quad \textit{and} \quad v(g) = \frac{g^{1-\sigma}}{1-\sigma},$$

where $\sigma > 0$ captures the degree of risk aversion and $\gamma > 0$ is the inverse of the Frisch elasticity of labor supply.

Economic allocations given policy: Because agents are hand-to-mouth, it is easy to show that the individual labor supply $l(\mathbf{s}, \Phi)$ and optimal consumption $c(\mathbf{s}, \Phi)$ are independent of debt decisions, and aggregate output is also independent of debt

$$l(\mathbf{s}, \Phi) = [h(z, d')(1-\tau)]^{\frac{1}{\gamma}} \quad \text{and} \quad c(\mathbf{s}, \Phi) = (1-\tau)h(z, d')l(\mathbf{s}, \Phi).$$

$$=> \ y(\mathbf{s}, \Phi) = nh(z, d')l(\mathbf{s}, \Phi)$$

International lenders make zero profits. When $d = 0$, that is, when the country can actually borrow, their break-even bond prices satisfy

$$q(\mathbf{s}, b') = \frac{1}{1+r} \int_{(z',m')\in\Psi(z',m')} \Big[1 - \mathbb{d}(z', m', b')\Big] \Big[\kappa + (1-\delta) q(\mathbf{s}', \mathbb{b}'(s'))\Big] dz' dm' | (z, m), \qquad (6)$$

where $\Psi(z', m') = \{(z', m') : \mathbb{d}(z', m', b') = 0\}$ is the repayment set for the government and $\mathbb{d}(z', m', b')$ is the equilibrium default choice (which only depends on tomorrow's exogenous states and today's borrowing in the political equilibrium, as will become clearer in the next section) and $\mathbb{b}(s')$ is the equilibrium borrowing decision rule, signifying tomorrow's borrowing. Note that q also depends on **s**, since z and m are Markov processes.

The total amount of resources allocated to regional fiscal transfers B, satisfies

$$B(\mathbf{s}, \Phi) = \begin{cases} Rev(\mathbf{s}, \Phi) - g + (1-d')\Big[q(\mathbf{s}, \Phi)\Big(b' - (1-\delta)b\Big) - \kappa b\Big] & if\ d = 0 \\ Rev(\mathbf{s}, \Phi) - g & if\ d = 1 \end{cases} \qquad (7)$$

with $Rev(\mathbf{s}, \Phi) = \tau y(\mathbf{s}, \Phi)$ and Π satisfying eq. (4).

The proposer's problem: We focus on a symmetric Markov-perfect equilibrium, implying that any proposer in round $k \in \{1, 2, ..., T\}$ selects identical policies. Since the other $n-1$ group leaders are ex-ante identical, the $m-1$ coalition members needed to pass the legislation are randomly selected from them. To secure their consent, the proposer offers the funding necessary to provide $\pi_I = \pi$ regional goods to members of the selected mwc—where $i = I$ denotes those 'in' the coalition—and $\pi_O = 0$ to members outside of it—where $i = O$ denotes those outside of the coalition. This, again, is a result of symmetry and the fact that utility is linear in regional goods. The proposer retains the remainder $\pi_P = \Big(B(s, \Phi)\Big)^{\omega} - (m-1)\pi$, which can exceed the share given to other mwc members, $\pi_P \geq \pi$. Policy Φ yields welfare $V^P(s, \Phi)$ to the proposer, $V^I(s, \Phi)$ to members of the mwc and, $V^O(s, \Phi)$ to those outside of it. The value functions for $i \in \{I, O, P\}$ satisfy:

$$V^{ik}(s, \Phi^k) = U\Big(c(\mathbf{s}, \Phi^k), l(\mathbf{s}, \Phi^k), g\Big) + \pi_i + \beta\, \mathbb{E}_{\mathbf{s}'}\, J(s', \Phi' | \Phi^k).$$

The first term is the indirect utility under proposal Φ^k, the second is the provisions of regional goods depending on mwc-membership status, and $J(s', \Phi'|\Phi^k)$ is the expected future value in the following period, conditional on the current proposal being accepted.

In round k, the proposer chooses Φ^k to maximize

$$
\begin{aligned}
&\max_{\Phi^k} V^{Pk}(s,\Phi^k) \equiv U\Big(c(\mathbf{s},\Phi^k), l(\mathbf{s},\Phi^k), g\Big) + \pi_P + \beta\,\mathbb{E}_{\mathbf{s}'}\, J(s',\Phi'|\Phi^k) \\
\text{s.t.}\quad & V^{Ik}(s,\Phi^k) \geq J^{k+1}(s,\Phi^{k+1}) \\
& \pi_P = \Big(B(s,\Phi)\Big)^{\omega} - (m-1)\pi \geq 0 \\
& \tau, g, \pi \geq 0.
\end{aligned}
\tag{8}
$$

The first constraint is an incentive compatibility constraint (IC) stating that the value of accepting the proposal for members of the mwc, $V^{Ik}(s,\Phi^k)$, must be at least as large as the value of rejecting it, $J^{k+1}(s,\Phi^{k+1})$. The second condition ensures that the clientelistic transfers to the proposer's own region are non-negative. The last condition are non-negativity constraints on other policies, including transfers to other regions of the mwc.

We define the objects in the IC constraint next. If the proposal is rejected, we move to round $k+1$ where a new proposer is elected with probability $\frac{1}{n}$. If the member of the current minimum winning coalition mwc_k becomes a proposer in $k+1$, he/she will receive $V^{Pk+1}(s,\Phi^{k+1})$. Note that the states do not change, as all proposal rounds happen within a period. With probability $\frac{m-1}{n}$, a member of mwc_k belongs to mwc_{k+1}, in which case they get $V^{Ik+1}(s,\Phi^{k+1})$. With probability $\frac{n-m}{n}$ a member of mwc_k is not in mwc_{k+1}, which delivers $V^{Ok+1}(s,\Phi^{k+1})$. The continuation value of rejecting a proposal to any member of the current mwc, $J^{k+1}(s,\Phi^{k+1})$, is computed by taking expectations over these three possibilities.

$$
J^{k+1}(s,\Phi^{k+1}) = \frac{1}{n}\,V^{P,k+1}(s,\Phi^{k+1}) + \frac{m-1}{n}\,V^{I,k+1}(s,\Phi^{k+1}) + \frac{n-m}{n}\,V^{O,k+1}(s,\Phi^{k+1}). \tag{9}
$$

Simplified Problem. *The proposal is accepted immediately, in $k=1$. The proposer's problem is equivalent to one where the welfare of the average member of the mwc is maximized:*

$$
\begin{aligned}
&\max_{\Phi} U\Big(c(\mathbf{s},\Phi), l(\mathbf{s},\Phi), g\Big) + \frac{\Pi(s,\Phi)}{m} + \beta\mathbb{E}_{\mathbf{s}'}\, J(s') \\
\textit{s.t.}\quad & \Pi(s,\Phi) = \Big(B(s,\Phi)\Big)^{\omega} \geq 0,
\end{aligned}
\tag{10}
$$

with $B(s,\Phi)$ defined by eq. (7). The function $J(s')$ denotes the expected value of the proposer's continuation utility given next period's Markov-perfect equilibrium policy $\Phi'(s')$,

$$
J(s') = U\Big(c(\mathbf{s}',\Phi'(s')), l(\mathbf{s}',\Phi'(s')), g'\Big) + \frac{\Pi(s',\Phi')}{n} + \beta\,\mathbb{E}_{\mathbf{s}''}\, J(s''). \tag{11}
$$

To understand how we obtain this result, first re-arrange eq. (11) to obtain

$$
J^{k+1}(s,\Phi^{k+1}) = U\Big(c(\mathbf{s},\Phi^{k+1}), l(\mathbf{s},\Phi^{k+1}), g^{k+1}\Big) + \frac{\Big(B(s,\Phi^{k+1})\Big)^{\omega}}{n} + \beta\,\mathbb{E}_{\mathbf{s}'}\, J(s'|\Phi^{k+1}). \tag{12}
$$

where Φ^{k+1} is the optimal policy of the next round's proposer (given any continuation value). The proposer chooses Φ^k such that the IC constraint holds with equality, $V^{Ik}(s,\Phi^k) = J^{k+1}(s,\Phi^{k+1})$, implying that π

satisfies

$$\pi = J^{k+1}(s, \Phi^{k+1}) - U\Big(c(\mathbf{s}, \Phi^k), l(\mathbf{s}, \Phi^k), g\Big) - \beta\, \mathbb{E}_{\mathbf{s}'}\, J(s', \Phi'|\Phi^k).$$

Replacing this in the definition of π_P, in eq. (8), we obtain

$$\pi_P = \Big(B(s, \Phi^k)\Big)^{\omega} - (m-1)\left[J^{k+1}(s, \Phi^{k+1}) - U\Big(c(s, \Phi^k), l(s, \Phi^k), g\Big) - \beta\, \mathbb{E}_{\mathbf{s}'}\, J(s', \Phi'|\Phi^k)\right]$$

substituting π_P in $V^{Pk}(s, \Phi^k)$, we can write the objective function as

$$\max_{\Phi^k} U\Big(c(\mathbf{s}, \Phi^k), l(\mathbf{s}, \Phi^k), g\Big) + \frac{\big(B(s, \Phi^k)\big)^{\omega}}{m} + \beta\, \mathbb{E}_{\mathbf{s}'}\, J(s', \Phi'|\Phi^k).$$

Note that we dropped $J^{k+1}(s, \Phi^{k+1})$ from the expression. This is possible because it is unaffected by Φ^k, so it can be considered a constant for the optimization problem above[10].

Assuming that any coalition member accepts a policy mix that ensures that he/she is weakly better off compared to the next round than waiting for future rounds, proposal rounds $2, ..., T$, ensures that the following rounds do not occur on the equilibrium path. This allows us to write the proposer's problem omitting k. Moreover, since $c(.)$, $l(.)$, and $B(.)$ are independent of π, the only policy variables to be determined in the problem above are—with a slight abuse of notation—$\Phi(0) = \{\tau, g, b', d'\}$ when the government has access to credit markets and $\Phi(1) = \{\tau, g\}$ otherwise. The proposer problem collapses to eq. (10), with $J(s')$ satisfying eq. (11). The proposer calculates $J(s')$ as the expected value of $V^P(s', \Phi'(s'))$, $V^I(s', \Phi'(s'))$, and $V^O(s', \Phi'(s'))$, as in expression (9) but evaluated at the Markov-perfect equilibrium policies $\Phi'(s')$. Finally, as shown in Azzimonti and Mitra (2023), the last two inequalities in (8) translate into $\Pi \geq 0$. *Q.E.D.*

The value function obtained by solving problem (10) is not equal to $J(s)$, defined by eq. (11). This happens because the proposer may not be in the mwc next period, and hence will receive, on expectation, less than π_P. This force creates incentives for the proposer to overspend and over-borrow relative to a benevolent planner, a feature already highlighted in Battaglini and Coate (2008). In this paper, we emphasize how this characteristic also affects incentives to default, and how these incentives become stronger under institutional weakness (low m). When $m < n$, the policymaker does not internalize the preferences of all members of society, creating a classic common-pool problem: public revenues are financed collectively, but the benefits are captured by a narrow subset of recipients — empirically, the observations with low HA in our sample. Under these conditions, the incentives to engage in clientelism are especially strong, as problem (10) makes explicit.

4.4 Characterization and intuition

Suppose that $\gamma, \sigma \geq 1$ and $h(z, d') = z$. It is easy to show that $Rev(\tau, z) = \tau n z^{1+\frac{1}{\gamma}}(1-\tau)^{\frac{1}{\gamma}}$. Recall the government budget constraint, $B = Rev(\tau, z) - g + (1-d')\Big[q(\mathbf{s}, b')\Big(b' - (1-\delta)b\Big) - \kappa b\Big] \geq 0$, where

[10] A key assumption for the proof to go through is the linearity in π, and hence Π. Most dynamic bargaining papers, including Battaglini and Coate (2008) and Barseghyan et al. (2013), need to make this assumption to make the problem tractable.

B denotes resources available for the provision of regional goods. The first order conditions with respect to taxes and public good provision are static, but in general depend on the stock of debt through the government budget constraint.

The proposer chooses g to equate the marginal benefit of public good provision (LHS of the equation below) to the marginal cost of reducing regional goods (its RHS),

$$\text{FOC } g: \quad \varphi g^{-\sigma} = \frac{\omega}{m}\Big(B\Big)^{\omega-1}. \tag{13}$$

The term $\omega\Big(B\Big)^{\omega-1}$ represents the marginal change in the production of regional goods that can be obtained with an extra dollar of resources. Weaker institutions (m small) incentivize greater reliance on region-specific goods at the expense of public good provision, g. Relative to a benevolent planner, the proposer will tend to over-allocate on B.

The optimality condition with respect to τ equates the marginal cost of taxation (lower private consumption net of labor effort) to its marginal benefit (higher Π).

$$\text{FOC } \tau: \quad \left(\frac{\gamma}{1+\gamma}\big[(1-\tau)z\big]^{\frac{1+\gamma}{\gamma}}\right)^{-\sigma} = \frac{n}{m}\left[1-\frac{\tau}{\gamma(1-\tau)}\right]\omega\Big(B\Big)^{\omega-1}. \tag{14}$$

With everything else held fixed, when $m < n$, the proposer internalizes only part of the social cost of taxation. His/her marginal private benefit from raising taxes is scaled up by $\frac{n}{m} > 1$; this creates incentives for over-taxation in the political economy environment compared to the planner.

Two remarks are in place at this point. First, although utility is linear in π, the transformation of fiscal resources into regional goods is governed by a concave production function, introducing non-linearity into the policymaker's problem. Moreover, since $\Pi = B^{\omega}$ with $\omega < 1$, the marginal product of devoting at least some of the budget to providing these goods is infinite when $B \to 0$. Hence, any feasible solution will be interior: $\Pi > 0$, regardless of the value of m [11]. This does not imply that all regions receive equal resources for the provision of regional goods in equilibrium. The proposer instead finds it optimal to concentrate spending on regions with representation in the mwc, while those outside the coalition receive none. This result gives us a testable implication: as m shrinks, we should expect higher inequality in regional transfers according to this model. The second observation is that when the government defaults ($d' = 1$), τ and g solve the system of equations (13) and (14) and policy is independent of b.

When the government has access to capital markets ($d = 0$), borrowing decisions satisfy

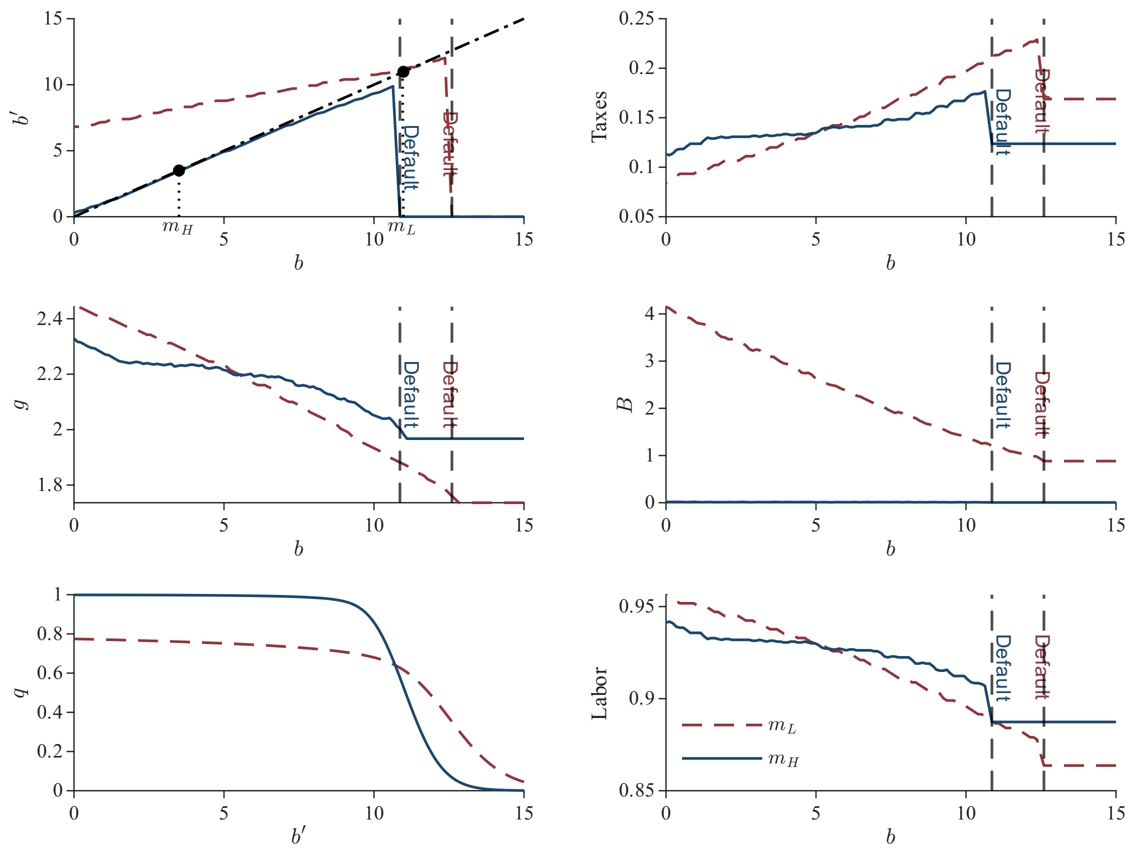
$$\text{FOC } b': \quad \frac{\omega}{m}\Big(B\Big)^{\omega-1}\left[q + \frac{\partial q}{\partial b'}\Big(b' - (1-\delta)b\Big)\right] = -\beta\mathbb{E}_{\mathbf{s}'}\frac{\partial J(s')}{\partial b'}.$$

The LHS captures the additional regional good provision that can be financed with an additional dollar of debt. The bracketed term represents the marginal revenue from new debt issuance: q is the current price at which debt is sold, while $\frac{\partial q}{\partial b'}$ captures the impact of additional borrowing on the price of debt that the

[11] In particular, even the planner would find it optimal to provide some regional goods.

country needs to pay to foreign investors. The derivative $\frac{\partial q}{\partial b'} < 0$ reflects that issuing more debt—regardless of maturity—raises the risk of default, thereby lowering the price at which the government can sell bonds. When debt is long-term ($\delta < 1$), the term $(b' - (1-\delta)b)$ captures the fact that newly issued debt not only increases total indebtedness but also dilutes the value of outstanding long-term bonds by raising future default risk without all previous debt maturing immediately. This debt dilution effect means that the marginal cost of new borrowing is partially borne by existing creditors, weakening market discipline on the government's borrowing decision. As a result, governments may find it optimal to issue more debt in equilibrium than they would with only short-term debt (see Hatchondo and Martinez (2009) and Chatterjee and Eyigungor (2012)). The right-hand side, $-\beta \mathbb{E}_{\mathbf{s}'}, \frac{\partial J(s')}{\partial b'}$, is the expected discounted marginal cost of carrying higher debt in the future.

Figure 7: Policy functions for different $\bar{m}$



Notes: Policy functions at median productivity for two regimes: m_H (blue, solid) and m_L (maroon, dashed). Panels display next-period debt b', taxes, government spending g, transfers B, and labor supply as functions of current debt b; Bond prices (q) are plotted against b'. Vertical dashed lines mark the default thresholds for each regime. In the b' panel, the dash-dotted line is the 45-degree line ($b' = b$) and the dots indicate the respective steady states. A moving-average filter is applied for visual clarity.

Figure 7 presents policy functions from the simulated model—with parameter choices detailed in Section 5.1—under two institutional regimes: weak institutions (dashed maroon, m_L) and strong institutions (solid blue, $m_H = n$), holding fixed the exogenous state z and assuming financial market access ($d = 0$). The plots illustrate how institutional strength shapes fiscal behavior, borrowing, and resource allocation decisions.

When debt levels are low (i.e., b near zero), policymakers in weak institutional environments (m_L) borrow more aggressively, as indicated by the b' policy function further lying above the 45-degree line. This behavior causes economies with m_L to rapidly accumulate debt and quickly transition to intermediate levels of indebtedness. As debt rises, the borrowing function for m_L flattens, suggesting that although additional borrowing continues, it does so at a slower pace. These economies tend to hover near the default threshold, amplifying their vulnerability. In contrast, under strong institutions (m_H), policymakers behave more cautiously, accumulating debt gradually and maintaining a safer distance from the default zone. Because $m_H = n$ in this example, the government acts more like a social planner, resulting in a steady-state debt level near the origin.

Taxes are set higher and general public goods (g) lower for m_L at high debt levels. Notice that this is in line with the empirical evidence on the effect of HA on public consumption in Section 3.3. At lower levels of debt, g and B act as complements for the m_L government. The provision of regional public goods (B^ω) is systematically higher. This reflects greater reliance on clientelism in environments with weaker horizontal accountability, as resources are strategically channeled to the proposer's coalition. The price of debt (q) declines with b in both cases, and remains unambiguously higher for the m_H government at levels of debt attained in equilibrium.

Overall, the figure illustrates how weaker institutions lead to more opportunistic borrowing, and remain inclined to provide clientelistic transfers. These dynamics result in higher debt and a greater likelihood of remaining near the default region, reinforcing fiscal fragility in low-accountability environments.

5 Quantitative Model

This section summarizes the calibration strategy and model fit. In addition, we illustrate how the government in our calibrated economy responds to economic and political shocks.

5.1 Calibration

We calibrate the model to Argentina for the period 1994-2019. We pick this period because 2019 is the latest year for which TFP data is available. A list of the economic and fiscal variables used, together with data sources, can be found in Appendix A.3. We start by describing the exogenously determined parameters and then move to the calibrated ones.

A period in the model is one year. The risk aversion parameter in the utility function is set to $\sigma = 2$, following the literature. The inverse of the Frisch elasticity of labor supply is set to $\gamma = 2$. The risk-free interest rate, $r = 2.7\%$, equals the annualized value of the real 3-month U.S. T-bill interest rate for the period under consideration. A price floor $\underline{q} = 0.1$ is set as in Hatchondo et al. (2016) to stop explosive borrowing behavior before default. It does not bind in equilibrium. The discount factor, β, is set to match the inverse of the gross risk-free rate in the model $\beta = \frac{1}{1+r} = 0.973$. It is worth noting that the discount factor takes the same value as in standard macroeconomic models. We do not need to assume an extremely low value for β—as most sovereign default models do[12]. In contrast, we use political frictions that enter in the form m/n to generate the allocations. A comparison between our model and the standard model without political frictions is presented in Section 9.

The exogenous productivity shock is assumed to follow an $AR(1)$ process of the form:

$$logz_{t+1} = (1 - \zeta_z)log\bar{z} + \zeta_z logz_t + \epsilon^z_{t+1} \tag{15}$$

where $\mathbb{E}\epsilon^z_{t+1} = 0$ and $\mathbb{E}(\epsilon^z_{t+1})^2 = \sigma^2_z$. The income process parameters ζ_z and σ_z are chosen by fitting this AR(1) process to the log of real TFP obtained from Penn World Tables (HP-filtered using a smoothing parameter of 100). The average value of the process $\bar{z}$ is normalized to 1[13]. The fitted AR(1) process is discretized to 21 possible realizations of the productivity shock using Tauchen and Hussey (1991). Table 4 reports the resulting values of ζ_z and σ_z used in the simulations (rounded to 3 decimal points).

In terms of the political process, we assume that there are $n = 20$ groups in the population. This is a normalization trading off computational accuracy and time. The normalization is without loss of generality since the quantitatively relevant number is the ratio m/n. The size of the mwc follows an AR(1) process of the form:

$$m_{t+1} = (1 - \zeta_m)\bar{m} + \zeta_m m_t + \epsilon^m_{t+1}. \tag{16}$$

Similar to the productivity shock, we assume $\mathbb{E}\epsilon^m_{t+1} = 0$ and $\mathbb{E}(\epsilon^m_{t+1})^2 = \sigma^2_m$. The values for ζ_m and σ_m are chosen by estimating an AR(1) process on the normalized series of HA for Argentina between 1994 and 2019, displayed in Figure 5. More specifically, we first normalize the HA data to take values between 1 and 20, and then discretize the fitted AR(1) process to take integer values in the same range. The mean of the political process is jointly calibrated, as explained later.

Following Chatterjee and Eyigungor (2012), the annualized probability of re-entry into the market following default, θ, is set to 0.153. This is approximately equal to $\frac{1}{\theta} \cong 6.5$ years of exclusion from financial markets after a default event. This value is consistent with the estimates by Gelos et al. (2011) and Richmond and Dias (2025). We set the duration of debt to 9.1 years following IMF (2016), implying $\delta = 0.109$. We also assume that default entails a loss in productivity (see Rose (2005), Bocola (2016)). While we do not formally model such loss, we take a reduced-form approach following Chatterjee and Eyigungor (2012). In

[12] For example, Arellano (2008) sets β to 0.8.

[13] This is done by setting the mean of the log TFP process as $-0.5\frac{\sigma^2_z}{(1-\rho^2_z)}$, and then taking the exponential of the log grid to obtain the levels.

Table 4: Calibration Targets

Parameter	Value	Target	Description
σ	2		CRRA
γ	2		Frisch Elasticity
β	0.973	$\frac{1}{1+r}$	FOC
r	0.027		90 day U.S. Treasury
θ	0.153	6.5 Years of Exclusion	
$\underline{q}$	0.1		Debt price floor
δ	0.109	9.1 Years Debt Duration	
κ	$\delta + r$		Normalized
$\bar{z}$	1		Normalized
n	20		Normalized
ζ_z	0.585	Persistence TFP	AR(1)
σ_z	0.033	Volatility of TFP	
ζ_m	0.799	Persistence of HA	AR(1)
σ_m	0.292	Volatility of HA	
α_0	-0.473	$\mathbb{E}$(Spreads) $= 7.63\%$	Jointly Calibrated
α_1	0.575	Debt$/Y = 49.63\%$	
φ	0.930	(g+B)$/Y = 18.58\%$	
$\bar{m}$	2.320	sd(Spreads) $= 3.44\%$	
ω	0.571	$B/Y = 7.2\%$	

Notes: Top panel: Parameters set from the literature and other external policy documents. Middle panel: AR(1) estimates of logged TFP series and rescaled HA series for Argentina. Bottom panel: Parameters jointly calibrated to match data moments.

particular, we assume that labor productivity takes the following form[14]:

$$h(z, d') = \begin{cases} z & \text{if } d' = 0 \\ z - \max\{0, \alpha_0 z + \alpha_1 z^2\}, \;\; \alpha_1 \geq 0 & \text{if } d' = 1 \end{cases} \tag{17}$$

We calibrate five key parameters of the model—α_0, α_1, $\bar{m}$, ω, and φ—by targeting five empirical moments. The first two moments are the mean and standard deviation of EMBI+ spreads for Argentina between 1994 and 2019—excluding periods of default, in line with common practice in the literature. These values are $\mathbb{E}(\text{Spreads}) = 7.63\%$ and $sd(\text{Spreads}) = 3.44\%$. The third moment targets the average public debt-to-GDP ratio over the same period, which equals 49.63% in the period under consideration. We use the IMF's "Gross public debt, percent of GDP" series from the Public Finances in Modern History Database, consistently with the data for other countries used in our empirical section. These three moments jointly inform the calibration of the sovereign default cost parameters α_0 and α_1, as well as the degree of institutional strength $\bar{m}$.

The two remaining parameters, ω and φ, govern the relative weight placed on general public goods (g) versus targeted goods (π_i) in agents' utility (and hence, also the level of public resources devoted to providing

[14]The curvature of the default cost function is disciplined by the parameters α_0 and α_1. If $\alpha_0 > 0$, and $\alpha_1 = 0$, then the cost of default is proportional. If $\alpha_1 > 0$, and $\alpha_0 = 0$, then the cost rises more than proportionally to the rise in productivity. If $\alpha_0 < 0$, and $\alpha_1 > 0$, then for $z < -\frac{\alpha_0}{\alpha_1}$, the default cost is 0, but the cost rises more than proportionally for higher realizations of z.

such goods, B). Calibrating these parameters poses a particular challenge because, in practice, the boundary between spending on public welfare and clientelistic transfers is often deliberately blurred. As a result, we cannot observe g and B separately. At best, we can observe total public outlays—what we label $g+B$, in our calibration table—and use external evidence to estimate the fraction attributable to clientelism. Our strategy combines two sources. First, we use official national accounts data to measure government consumption as a share of GDP, which averaged 14.38% in Argentina during the calibration period. Second, we draw on the detailed analysis of pork-barrel spending in Alaimo et al. (2018), one of the few sources offering quantitative estimates of clientelistic inefficiencies in Latin America. The authors estimate that technical inefficiencies—stemming from procurement mismanagement, inflated wage bills, and leakage in targeted transfers—amount to 7.2% of GDP in Argentina. We interpret this as our proxy for the total amount of resources allocated to regional, politically motivated spending, or $B/Y = 0.072$.

To refine this further, we distinguish between inefficiencies that still fall under reported government consumption (such as overpriced infrastructure projects awarded to political allies and inflated wage bills to public employees in certain regions) and leakages in targeted transfers (which fall into private consumption in national accounts, and public spending in government budgets). Alaimo et al. (2018) estimate that 3 percentage points of GDP correspond to the former, while the remaining 4.2 percentage points capture unreported transfer leakages—resources that are netted out in national accounts and reflect direct clientelistic transfers from the central government to sub-national units. Combining these pieces, we target a *total public spending* ratio of 18.58% of GDP in the model: 14.38% from observed government consumption, which includes procurement and wage bill inefficiencies, and 4.2% from transfer leakages. However, we do not interpret this entire amount as a general public good provision when comparing the model to data. Instead, we assume that a portion of observed spending is effectively diverted to politically motivated uses (e.g, reported as g-spending in the data, but in-truth used toward Π). Specifically, the true value of g in our calibration is 11.38% of GDP (18.58% minus 7.2%), with the remainder 7.2% allocated to Π.

To compute the model, we use 200 equally spaced grid points for the borrowing level, ranging from 0 to 130 percent of average GDP. In addition, we have grids for g and τ with 100 points each. The numerical algorithm is described in Section 2 of the Appendix B. The model is simulated for 50,000 periods. The values of the initial 5,000 periods are discarded and, the next 20,000 periods are used to compute the relevant moments. The bottom of Table 4 reports the parameters resulting from the calibration procedure.

5.2 Model Fit: the long run

We compute long-run moments obtained from the simulation, and report their values in the second column of Table 5 along with their data counterparts. Overall, the benchmark economy delivers a close quantitative fit. We target the average debt-to-GDP ratio, spreads, government spending, and targeted transfers to GDP, as well as the standard deviation of spreads, so these are closely matched by design. The model also reproduces second moments, in particular the volatility of output (5.9% in the data vs 6.3% in the model), the observed dispersion in debt-to-GDP (16.4% in the data vs 17.4% in the model) and the relative volatility of private consumption to output ($\sigma(\text{Cons})/\sigma(y) = 1.2$ in both the model and the data)[15]. Our default frequency (5 every 100 years) is also in line with the Argentinean experience to date.

Table 5: Model Fit

Moment	**Data: Argentina**	**Benchmark**	
Means(%)			
Debt/y*	49.6	52.6	
B/y^*	7.2	6.9	
Pub Cons Spend/y^*	18.6	17.9	
Spreads*	7.6	7.3	
Default per 100 years	5	5	
St Devs(%)			
Debt/y	16.4	17.4	
Spreads*	3.4	3.4	
y	5.9	6.3	
$\sigma(\text{Cons})/\sigma(y)$	1.2	1.2	
Correlations			
$\rho(\text{Debt}/y, y)$	-0.4	-0.5	
$\rho(B/y, y)$	-	0.4	Pro-cyclical
$\rho(y, c)$	$\simeq 1.0$	0.9	Pro-cyclical
$\rho(\frac{\text{Deficit}}{y}, y)$	0.1	0.3	Pro-cyclical
$\rho(\text{Spread}, y)$	-0.5	-0.2	Pro-cyclical

Note: The second moments for variables which are not expressed as ratios to y are logged, then HP-filtered with a frequency parameter set to 100. The only exception is 'Spreads', expressed in annualized percentage terms. Asterisks * denote the moments targeted in the calibration. *Deficit* are primary deficit defined as Total outlay (non-interest) - Total Revenue.

A central empirical feature of emerging economies is the procyclicality of borrowing, using net exports as a proxy, documented by Talvi and Végh (2005). We report deficits as a proxy since we are also interested in our model's performance for advanced economies, where net exports may not be an apt indicator for government borrowing. Also, since the private sector does not borrow or save in our model, primary deficits are a negative of the trade balance. For Argentina, $\rho\left(\text{Deficits}/y, y\right) > 0$. This implies that the government issues more debt in periods of high TFP shock. Our model estimate of this moment id 0.3, which is close to the empirical estimate of 0.1 for our sample period.

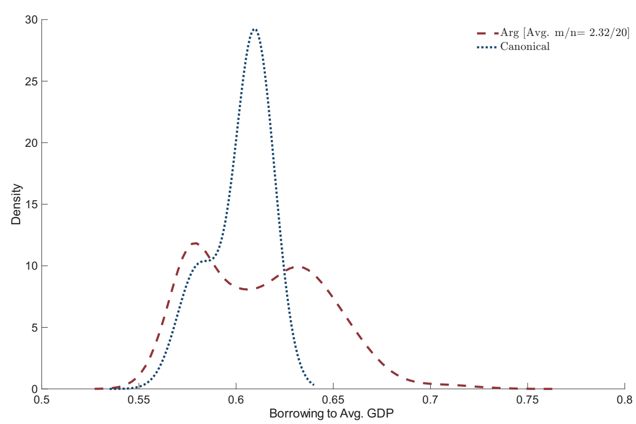
Related to this, the model reproduces the negative correlation between debt-to-GDP and output observed in the data. Since debt service is proportional to outstanding debt, κb, this implies counter-cyclical debt service to GDP ratio as well, consistent with the evidence emphasized by Bocola et al. (2019). We are also able to capture some of the negative correlation between spreads and output, $\rho(\text{Spread}, y) = -0.2$, although

[15]The relative volatility of public consumption spending is more difficult to assess empirically. Because we lack a time series on leakages and wage-bill inefficiencies, observed government spending may understate the true variability of effective public consumption, limiting our ability to evaluate the model along this dimension. Hence, we do not report it in the model fit table.

its value is half of what we see in the data. In an earlier version of the paper with only short-term debt, the model generated a positive correlation instead. The introduction of long-term debt allows bond prices to incorporate expectations of future repayment more effectively and improves the model's ability to match this moment[16]. Because the model underpredicts the strength of this negative correlation, additional mechanisms beyond institutional constraints may exist that amplify the countercyclicality of spreads in the data (such as exchange rate dynamics, which are not considered in our setup). The model also replicates key consumption dynamics. Output and consumption have a correlation of 0.9 both in the model and data.

It is worth emphasizing that our model performs significantly better than the existing models of sovereign default along several dimensions. First-generation sovereign default models typically failed to match high spreads and sustain empirically plausible levels of debt (see Arellano (2008)). Aguiar and Gopinath (2006) emphasizes the difficulty of reconciling realistic default frequencies with plausible debt and spread levels. Second-generation models with long-term debt (see Hatchondo et al. (2009) and Chatterjee and Eyigungor (2012)) could simultaneously match the spread and the observed debt-to-GDP ratio, yet quantitative tensions remained: matching plausible default frequencies often required spreads that were either too low or not sufficiently volatile (see Aguiar et al. (2016)). The underlying mechanism is well understood: since default is costly and infrequent, governments deleverage to avoid entering the default region following a negative TFP shock, compressing spread volatility. Even if spread volatility could be matched to the data by calibrating to a country with significantly volatile output, debt levels tend to be counterfactually restricted within a narrow band around the mean. Our framework alleviates this tension by reducing the over-sensitivity of spreads to the sovereign's borrowing decisions.

Figure 8: Borrowing Distribution for Benchmark vs Canonical Model



Note: Maroon (dashed): Benchmark. Blue (dotted): Canonical model. Distributions are constructed by truncating the build-up of debt after default.

Figure 8 illustrates this by showing that the borrowing to average GDP in the benchmark model has a thicker tail compared to the canonical model: borrowing levels vary significantly even without the incidence of default. We show later that this quantitative feature of the model also helps to explain counter-cyclical

[16]We thank an anonymous referee and the editor for suggesting the adoption of long-term debt, which allows the model to better match this moment.

borrowing behavior by some emerging countries, like Chile, and by most advanced economies. Matching these moments simultaneously is one of the main quantitative contributions of this paper. The key ingredient is the presence of $\bar{m}$. We compare how the two models differ theoretically in Section 9.

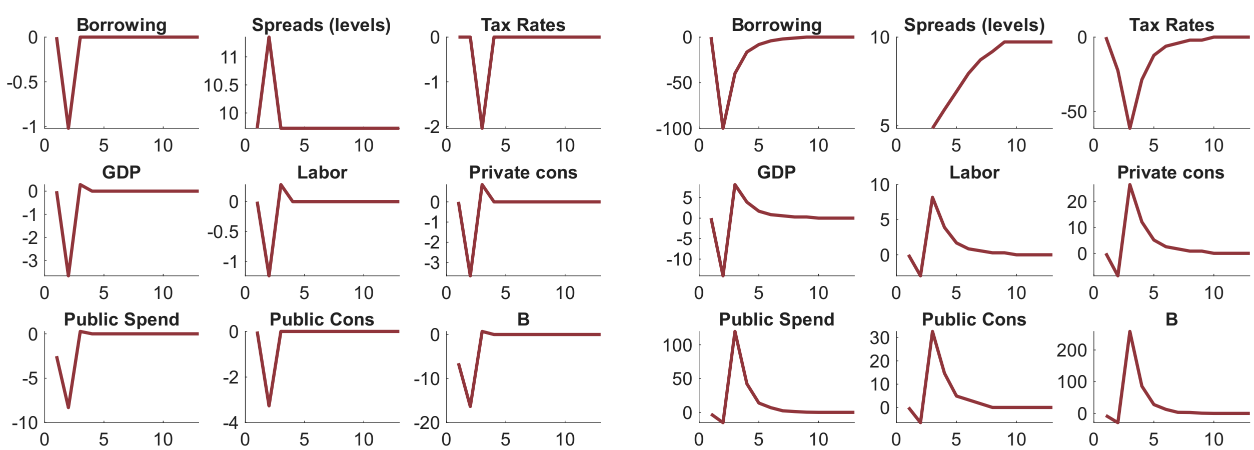
5.3 Short run fluctuations and tax smoothing

The standard models determining *optimal* fiscal policy state that the government should increase debt rather than increase taxes in response to a temporary shock (that lowers revenues or increases spending needs). This results from the assumption that raising tax revenue generates distortions in the economy, whereas selling bonds does not (see Barro (1979), Lucas and Stokey (1983)). This "tax smoothing" hypothesis implies that: (i) government debt should be counter-cyclical (borrow in recessions), (ii) taxes should rise in booms, to repay the debt, and (iii) taxes should exhibit low volatility (e.g., they should not track the shock process).

To understand intuitively why policymakers in the benchmark economy choose not to smooth taxes, we simulate the response to a recession. We assume that debt/GDP, z, and m equal their long run values at the outset of the simulation, but the economy suffers a one-time negative shock in the second period, $z_2 < \bar{z}$, recovering immediately after $z_t = \bar{z}\ \forall t > 2$. We consider two cases, a 'mild recession' where z's decline is lower than a one-half standard deviation and a 'severe recession' in which the shock is larger. In both experiments, we keep $m_t = \bar{m}$ (its long-run average for the calibrated economy).

Mild recession The evolution of the endogenous variables for the mild recession case is displayed in Panel A of Figure 9. The responses depart sharply from the tax-smoothing benchmark. Rather than issuing debt to absorb the temporary decline in fiscal revenues induced by lower output, the government contracts public spending, partly by sharply reducing clientelistic transfers and partly by reducing public consumption.

Figure 9: Impulse-response to a recession in $t = 2$



Panel A: Mild Recession Panel B: Severe Recession

Notes: Plot shows percentage deviations from each model's own steady state. Panel A depicts a mild recession without default (small decline in z). Panel B depicts a severe recession (large decline in z) triggering default.

Despite the austerity adjustment, the government does not generate enough room for counter-cyclical borrowing. Sovereign spreads increase by nearly four percentage points relative to the steady state. Government deficits, therefore, improve in the downturn: bond issuances decrease as the government is forced to borrow less (see the first panel in the figure) because of the high cost. These correlations arise from the interaction between political and financial constraints. With spreads positively responding to default risk—and the productivity shock perceived as persistent—the government faces a trade-off between defaulting and paying the associated output cost, or reducing borrowing to contain risk premia (see spike in the second panel of the figure). Because this is a relatively mild recession (of less than one standard deviation), it chooses the latter. Since output also contracts, the observed decline in the borrowing is somewhat mitigated by the magnitude of the underlying fiscal retrenchment (e.g., because Y falls by a higher magnitude, and b'/Y improves (not shown) in the recession, implying that the decline in borrowing is smaller than the decline in Y). In this simulation, the government does not raise taxes in the recession in period 2, nor does it reduce them. It lowers taxes as soon as the recovery starts (period 3) and amplifies the effect of the positive shock. This can be seen in the overshooting of labor, B, and GDP above the steady state in period 3, before they move down again. Therefore, public debt is not a frictionless smoothing instrument: once sovereign risk is endogenous, the marginal cost of funds rises precisely when fundamentals weaken, overturning the standard tax-smoothing prescription even in response to a temporary productivity shock.

Severe recession We now consider a large recession in which TFP falls sharply in period $t = 2$, again for a single period only. As before, the economy begins at its steady state, with all state variables at their long-run values. Panel B of Figure 9 shows that under a sufficiently large decline in productivity, the government no longer responds with austerity. Instead, it defaults in the second period. The increase in spreads that was sizable but contained in the mild recession becomes explosive in this case. Faced with sharply higher risk premia, the government finds it too costly to roll over its obligations through higher distortionary taxation or compressed public allocations. Borrowing drops to zero, spreads jump discontinuously (to infinity, and therefore are not displayed), and taxes decline slightly upon impact but then significantly once the government starts borrowing again in period 3. Private consumption increases in that period as a result of the tax-cut. The adjustment now operates through the default margin rather than through further fiscal retrenchment. In this experiment, the default is short-lived. The government regains access to international capital markets in the following period[17]. Once market access is restored and productivity returns to steady state, the government borrows again. It uses these funds to lower taxes, expand public good provision, and temporarily increase clientelistic spending above its steady-state level. As borrowing converges back to its long-run value, fiscal variables gradually return to the steady state, and clientelistic allocations decline.

Our finding is related to Arellano and Bai (2016), who show that a government facing binding fiscal constraints—particularly the inability to raise taxes—may be forced to default following a large recession, which they term a "fiscal default." In their framework, taxes are exogenously constrained by a fiscal rule.

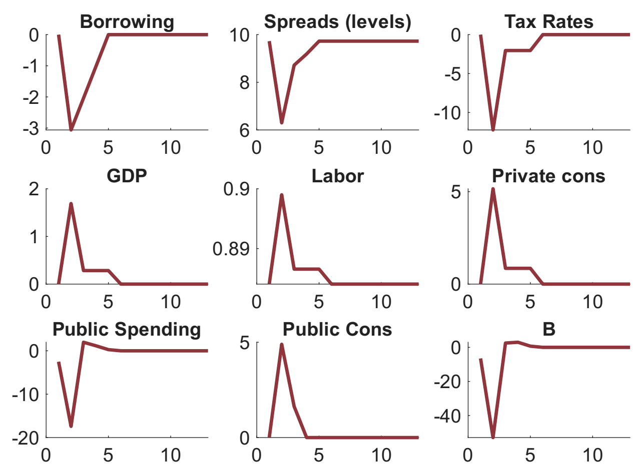
[17] Even though the model allows for a random number of periods of exclusion from capital markets, in this particular simulation we chose to allow borrowing immediately after for illustration purposes.

In our model, taxes are formally flexible, but political incentives make sharp tax increases undesirable when institutions are weak, partly because the tax levels are already high, and partly because default is not as costly. Default therefore arises not from an exogenous fiscal rule but from political distortions in fiscal adjustment, resulting in a "politically induced" default.

5.4 Institutional shocks

We next isolate the effect of political fundamentals by holding TFP at its long-run value and introducing a one-period increase in m at $t = 2$, after which m returns to the steady state. Figure 10 reports the associated impulse responses.

Figure 10: Impulse-response to an m-shock in $t = 2$



Notes: Effect of 1 unit rise in m on endogenous variables. Plot shows % devs. from own steady-state for all variables except spreads. Spreads are expressed in levels.

A temporary strengthening of institutional quality generates an immediate improvement in fiscal conditions. The government reduces borrowing on impact, which lowers sovereign spreads. The decline in interest payments, together with a marked contraction in clientelistic expenditures, creates fiscal space. As a result, the government is able to expand public good provision—public consumption rises by roughly five percent—while simultaneously cutting taxes. The tax reduction operates through the labor supply margin. Since labor satisfies $l = [h(z, d')(1 - \tau)]^{1/\gamma}$ in equilibrium, the lower tax rate raises labor effort, which increases output despite the absence of any productivity shock. GDP rises modestly, and private consumption increases by about five percent relative to the steady state. The improvement in fundamentals is therefore not driven by exogenous productivity gains but by the endogenous response of the economy to better political institutions.

The mechanism is transparent. A higher m reduces the scope for politically motivated transfers and limits excessive borrowing. Lower debt issuance compresses risk premia, reinforcing the decline in spreads. Fiscal policy becomes less distortionary, not because the government is more benevolent, but because stronger institutional constraints discipline its choices. The result is a simultaneous reduction in sovereign risk, lower taxes, higher labor supply, and higher private consumption. Even though the institutional shock is temporary, its effects propagate through prices and quantities in general equilibrium, producing a broad-based improvement in economic outcomes. Furthermore, note that the impact of an institutional improvement, albeit temporary, has a larger effect on fundamentals compared to a TFP shock. This is in line with the empirical evidence in Section 3.3.

5.5 Local projections

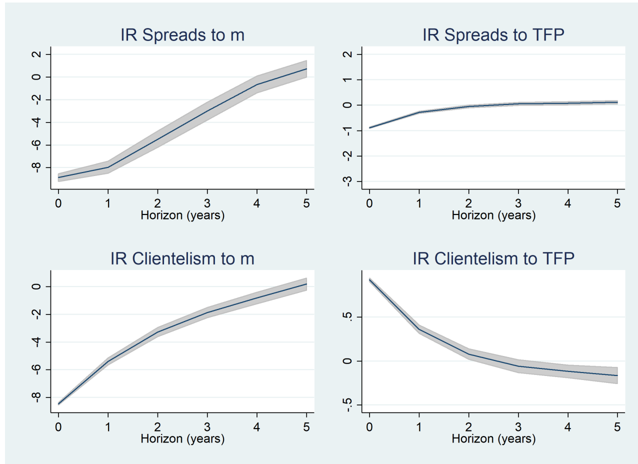
To further evaluate the model's ability to replicate empirical dynamics, we apply the same local projection specification described in Section 3.3, but using data generated by the model. We focus on the effects on sovereign spreads and clientelism, measured here as the HP-filtered series (with $\lambda = 100$) of the amount of government resources allocated to regional fiscal transfers, B. The resulting impulse responses are shown in Figure 11, which serves as the simulated counterpart to the empirical estimates presented in Figure 6.

This exercise complements the deterministic impulse responses shown above. The recession experiments isolate the transition dynamics of a representative economy conditional on a specific shock and a given initial state—one path with no default and one with default. By contrast, local projections average across the stochastic equilibrium of the model. In simulated data, some episodes feature default while others do not; some shocks occur when debt is already high, and spreads are elevated, while others arrive in more tranquil states. The local projection coefficients, therefore, reflect the typical response of spreads and clientelistic allocations across this distribution of states and outcomes.

Moreover, the earlier impulse-response exercises imposed simplifying assumptions that are relaxed here. In the severe recession experiment, we assumed that market exclusion following default is short-lived and that the government regains access to international capital markets immediately. We also considered one-period shocks to fundamentals and institutions. In the full stochastic simulation underlying the local projections, defaults are likely to be longer-lived and occur in an environment with persistent shocks to productivity and political conditions. The resulting dynamics, therefore, incorporate both the persistence of shocks and the endogenous duration of financial distress, yielding responses that are more directly comparable to the empirical estimates.

The left panels show the response to a shock on m, the model-equivalent of HA, whereas the right panels show the responses to TFP, where we used the GDP growth from the model (using the actual TFP z delivers the same responses, indistinguishable to the ones presented here to the naked eye). A positive shock to m (the model counterpart of HA) leads to a sharp and persistent decline in sovereign spreads, consistent with the data. The response, however, is stronger and dissipates after 4 years. The model also predicts a decline in clientelism following a temporary improvement in institutional strength (bottom-left panel), mirroring the steep drop observed in the empirical counterpart. Turning to TFP shocks (right column), the model predicts a modest decline in spreads, in line with the data, though the empirical response is slightly more persistent. Spreads are counter-cyclical in both model and data, with a positive TFP shock inducing an improvement in lending conditions. For clientelism, neither the model nor the data exhibit strong response to TFP innovations (note the axis bounds between -0.5 and 1.0 in the figure above). This supports the notion that improvements

Figure 11: Local projections using model-generated data



Notes: Impulse responses estimated via local projections on model-generated data. Shaded areas represent 90% confidence bands. The dependent variables are the spreads (top row) and Clientelism (B) (bottom row). Left panel: 1 sd increase in m. Right panel: 1 sd increase in TFP.

in productivity are not sufficient on their own to reduce clientelistic allocations in the short-term unless accompanied by long-lasting institutional reforms.

5.6 Cross-Regional Inequality in Transfers

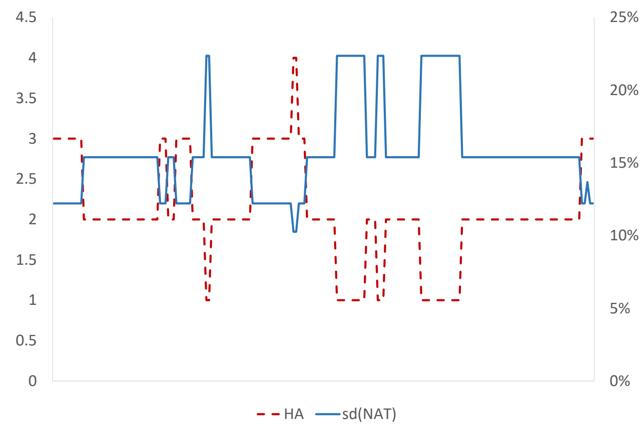
The model generates a testable prediction about the distribution of clientelistic transfers across regions. In our framework, the proposer allocates targeted spending unequally: every member of the mwc receives, approximately $\frac{B}{m}$[18]. As horizontal accountability weakens (lower m), the proposer needs to secure fewer coalition partners, concentrating transfers among a smaller subset of regions and increasing cross-regional dispersion in the allocation of B.

To measure this dispersion, we compute the standard deviation of the share of clientelistic transfers received by each group relative to total spending on targeted goods, $\sigma\left(\frac{B_i}{B}\right)$ in our simulated data for Argentina. This is the model counterpart to the volatility of non-automatic transfers (NAT) documented in Section 3.1 for that country. Figure 1 showed that periods of lower HA coincide with higher cross-provincial dispersion in real per-capita NAT shares—exactly the pattern our model predicts.

Figure 12 plots the model-generated relationship between m, our proxy for HA, and the standard deviation of transfer shares across regions. The negative correlation mirrors the empirical pattern: as m falls, cross-regional inequality in transfers rises sharply. At $\bar{m} = 2.32$, the proposer splits clientelistic resources among only 2-3 coalition members out of 20 total groups, generating substantial dispersion (about 12% to 15%). At $m = 4$, transfers must be shared more widely, compressing inequality: in this case the standard deviation falls to 10%. The correlation between the volatility of transfers and HA in the model is -0.77 vs

[18] In the model B is not equally distributed across members of the mwc. The proposer gets a bigger share while the rest is distributed equally between the remaining members. In this sense Figure 12 is a lower bound for the inequality across n.

Figure 12: HA and Volatility of transfers using model-generated data



Notes: HA (dashed maroon) is the m- series from the simulation of the benchmark, measured on left y-axis. sd(NAT) (solid blue) measured on right y-axis.

-0.56 for the Argentinean data. The correspondence between model and data provides micro-level validation for our institutional interpretation. Weaker checks and balances allow proposers to target spending more narrowly, producing the uneven geographic allocation of discretionary funds observed in the Argentine data during periods of institutional weakness. This within-country heterogeneity offers a complementary validation to the aggregate moments in Table 5, confirming that the model correctly captures not just economy-wide averages but also the political logic of how clientelistic resources are distributed across space when groups are interpreted as geographical units.

These results capture the short-term response of macroeconomic variables to innovations in the m process but do not shed light on the long-run effects of lasting institutional reforms (e.g., changes in $\bar{m}$). To address this, the next section compares the long-run outcomes of two economies that differ in their institutional strength, as reflected in different values of $\bar{m}$. We then conduct a counterfactual experiment in which the institutional process from the economy with stronger institutions ($\bar{m}^H$) is imposed on the one with weaker institutions ($\bar{m}^L$). This exercise helps us explore the role of institutional quality in shaping the divergent post-democratization experiences of two Latin American countries: Argentina and Chile, as we explain below.

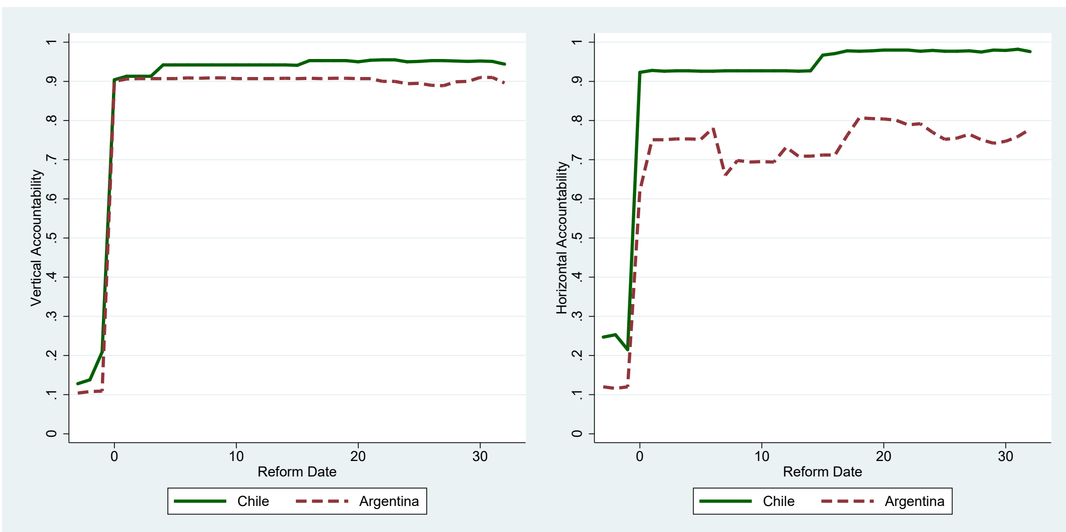
6 Transition to Democracy: Chile vs Argentina

Chile and Argentina were under the rule of military juntas in the late 1970s. Democratic governance was reinstated in both nations in the 1980s, with Argentina holding its inaugural democratic election in 1983 and Chile following suit in 1989[19]. Free speech, free association, free press, and free elections were fully

[19]Fiscal reforms in Chile were introduced under Pinochet in 1978, before the return to democracy. The 1980 Constitution and related economic reforms aimed to insulate economic policy from day-to-day political bargaining by embedding it within a rules-based institutional framework. Policy discretion was curtailed through constitutional constraints, supermajority requirements for key legislation, and the creation of independent technocratic institutions. Fiscal trans-

restored in both countries soon after. Yet, intriguingly, the trajectories of fiscal and economic indicators diverged significantly in the post-transition period. Argentina experienced a series of sovereign debt crises and high volatility in output, whereas Chile experienced economic stability and low sovereign debt spreads. Economists attribute this divergence to economic reforms, particularly market liberalization. However, both nations embarked on similar economic liberalization journeys. Political scientists, on the other hand, emphasized specific institutional reforms following the transition to a free democracy as the main differentiating factor. In this section, we examine whether asymmetric institutional reform can account for the divergent post-transition trajectories of Argentina and Chile. To do this, we simulate democratic transitions in both countries; the Chile calibration identifies a higher and more stable process for m. We then construct a counterfactual in which Argentina undergoes the same democratic transition, but instead inherits Chile's institutional process, allowing us to isolate the role of institutions in shaping fiscal and macroeconomic outcomes.

Figure 13: Political Accountability in Chile and Argentina



Note: VA and HA obtained from the V-Dem dataset. Period 0 signifies the year in which democracy was reinstated: 1983 for Argentina and 1989 for Chile. Difference of means of HA between Argentina and Chile not statistically significant for 10 years before period 0, and significant in the post 10 years. Same for VA.

This choice is guided by reading historical accounts of how the institutional reform was implemented in these countries (see O'Donnell (1998) and Wigell (2017)), as well as data on the evolution of political accountability. In his seminal work, O'Donnell (1998) distinguishes between 'vertical' and 'horizontal' accountability. Vertical accountability (VA) refers to the citizens' capacity to hold the government accountable, evidenced by their freedom to establish political parties and engage in open elections. He argues that both countries were successful in ensuring VA. Horizontal accountability, instead, refers to an effective system of separation of powers and checks and balances that impose constraints on how policy can be used to further

fers to subnational governments became more rule-based relative to earlier periods, and budgetary procedures were centralized under technocratic oversight. As a result, Chile appears to exhibit relatively higher HA at the starting point shown in Figure 13. However, when HA is examined over a longer horizon, as in Figure 5, Argentina and Chile display similar levels prior to these reforms.

politicians' private and political goals. According to the author, Chile was more successful than Argentina in securing strong HA, because key veto players could block the incumbent from governing by decree through legislative and judicial independence. Figure 13 provides evidence of these claims, illustrating the evolution of HA and VA from the V-Dem (Varieties of Democracy) dataset. Period 0 indicates the year in which the first democratic election was held. While both countries show similar trajectories of VA following the return to democracy, Argentina's HA is persistently lower than Chile's.

To quantify the role of institutions in shaping post-transition outcomes, we proceed in three steps. First, in Section 6.1, we recalibrate the model to Chilean data to recover the institutional process that best rationalizes Chile's post-democratization performance. This allows us to discipline the evolution of m using Chile's observed macroeconomic and sovereign risk dynamics. Second, in Section 6.2, we construct a counterfactual in which Argentina inherits Chile's institutional process while all other structural parameters remain fixed at their Argentina-calibrated values. This isolates the effect of institutional reform from differences in preferences, technology, or exposure to shocks. Finally, in Section 6.3, we simulate a 'transition to democracy.'

6.1 Argentina vs Chile

Argentina—our benchmark economy with weak institutional constraints—is calibrated using the parameter values reported in Table 5, which imply a long-run level of $\bar{m}^L = 2.32$. To construct the Chilean counterpart, we follow the same calibration strategy, matching Chile's long-run fiscal and sovereign risk moments to recover the institutional process consistent with its post-transition experience. The targeted moments and implied parameter values are reported in Table 12, and the fit of the model compared to non-targeted moments are reported in Table 13, both in Appendix C. The resulting estimate of Chile's institutional strength, $\bar{m}^H = 5.50$, is more than twice that of Argentina, highlighting the substantial gap in horizontal accountability that emerges from the data.

The first two columns of Table 6 display the long-run moments of interest. Chile has far lower spreads (1.5% vs 7.3%). Argentina defaults 5 times in a century, whereas Chile doesn't default. This improvement occurs despite the fact that Chile's calibrated exogenous cost of default is lower, and does not fall as much with output as that of Argentina. With stronger institutional checks and balances, policymakers in Chile face greater constraints on opportunistic behavior and are thus less inclined to engage in targeted transfers. This difference is visible in the composition of public spending. Clientelistic allocations, measured by B/y, are less than half as large in Chile (1.5% vs. 6.9%). With fewer resources diverted toward targeted transfers, the government's financing needs are structurally lower. The equilibrium level of debt-to-GDP is much smaller (15.4% vs. 52.6%), reducing exposure to rollover risk and attenuating the sensitivity of spreads to adverse shocks. In other words, institutional strength operates through two reinforcing channels: it reduces the demand for debt by curbing politically motivated spending, and it reduces the risk premium by making repayment more likely. The lower volatility of spreads and debt follows naturally from this mechanism. Moreover, while Argentina exhibits a negative correlation between spreads and GDP (-0.2), Chile's spreads are much less correlated with output. In Chile's case, lower debt levels and no incentives to strategically lever

Table 6: Argentina vs Chile, long-run moments

Moment	Argentina Calibrated $\bar{m}^L = 2.32$	Chile Calibrated $\bar{m}^H = 5.50$	Counterfactual (Arg w/ m Chile) $\bar{m}^H = 5.50$	% Explained by Institutions
Means (%)				
Debt/y*	52.6	15.4	38.0	39
B/y^*	6.9	1.5	1.4	>100
Gov Spend$/y^*$	17.9	13.1	13.2	98
Spreads*	7.3	1.5	0.6	116
Default per 100 years	5	0	0	100
St devs (%)				
Debt/y	17.5	2.6	11.5	40
B/y	4.7	0.8	0.8	100
Spreads	3.4	0.7	0.6	>100
y	6.3	1.8	4.2	47
Tax	4.1	0.9	1.9	69
HA (m)	0.3	0.3	0.3	–
σ(Gov Spend)$/\sigma(y)$	3.1	1.4	1.1	>100
σ(Cons)$/\sigma(y)$	1.2	0.8	0.7	>100
Correlations				
ρ(Debt$/y, y)$	-0.5	-0.1	-0.2	75
$\rho(B/y, y)$	0.4	0.1	0.2	67
ρ(Gov Spend$/y, y)$	0.7	0.6	0.7	0
$\rho(y, c)$	0.9	0.9	0.9	–
ρ(Deficit$/y, y)$	0.3	-0.6	-0.6	92
ρ(Spread$, y)$	-0.2	-0.1	-0.2	0

Note: The last column measures the fraction of the Argentina–Chile gap closed by institutions: $\frac{\text{Arg}-\text{Counterfactual}}{\text{Arg}-\text{Chile}} \times 100$. A value of 100% means institutions fully close the gap; values above 100% indicate the counterfactual overshoots Chile; negative values indicate the counterfactual moves away from Chile. "–" denotes cases where Argentina and Chile coincide.

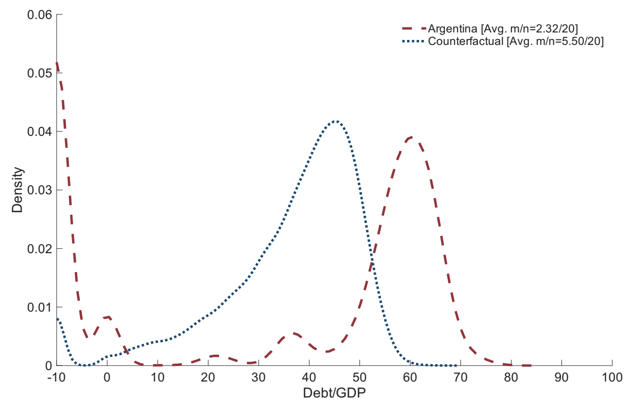
up in booms prevent spreads from amplifying cyclical fluctuations. Sovereign risk becomes less connected to short-run output movements.

Our calibrations reproduce the observed co-movement between deficits and GDP across institutional environments. For Chile, we obtain $\rho(\frac{\text{Deficit}}{y}, y) = -0.6$ close to the data (-0.5, shown in the tables of Appendix C). For Argentina, the model generates $\rho(\frac{\text{Deficit}}{y}, y) = 0.3$, compared to 0.1 in the data. This is a unique feature of our political economy environment. Better institutions create incentives to use debt as an instrument to smooth taxes and consumption. It mitigates the common pool problem, a feature of worse institutions, and reduces the incentive for pro-cyclical borrowing.

6.2 Counterfactual: Argentina with Chilean institutions

While the Chilean calibration successfully replicates the country's observed macroeconomic performance, it does so by simultaneously adjusting multiple structural parameters—not just institutional quality. In particular, Chile's TFP is less volatile, and its debt duration is longer (a lower value of δ). It also features a smaller default cost, reflecting its better access to international capital markets. To isolate the role of institutional strength in shaping outcomes, we next construct a counterfactual in which Argentina only inherits Chile's institutional process (that is, $\bar{m}^H$ plus the persistence and volatility of m-shocks, ξ_m and σ_m) while keeping all other parameters constant. The results of the counterfactual are displayed in the third column of Table 6. The last column reports the percentage of the gap between Chile and Argentina's long-run outcomes explained exclusively by the m process.

Figure 14: Long-run distribution of debt



Notes: A default event is coded as -10 in the debt to GDP distribution. The density of -10s represents the frequency of their occurrence.

The effect of implementing a successful institutional reform is substantial: spreads drop from 7.3% to 0.6% (a bigger drop than that in Chile), and the debt-to-GDP ratio declines from 52.6% to 38.0%. Most importantly, the table shows that the reversal in the cyclicality of borrowing is *caused* by stronger institutions. In the counterfactual economy, the correlation between the primary deficit and GDP shifts from 0.3 in the benchmark to -0.6, matching Chile's actual value. This transition from pro-cyclical to counter-cyclical deficits occurs despite holding all non-institutional parameters constant. The counterfactual thus provides a quantitative rationale for the negative relationship between HA and deficit cyclicality documented in Figure 4.

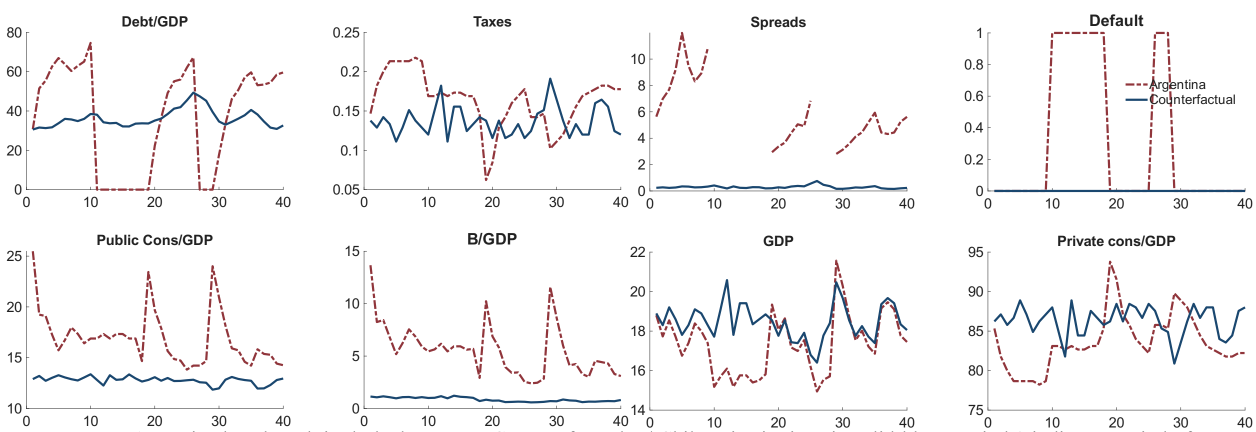
Figure 14 further illustrates these patterns, showing how the distribution of debt shifts leftward under stronger institutions—and away from the default region. In the benchmark, defaults are frequent, as reflected by the large mass at the leftmost bin (-10 the arbitrary coded value for debt under default). In contrast, the counterfactual exhibits a much smaller mass at that point, along with a noticeable increase in the density near zero suggesting that stronger institutions not only reduce default risk but may even create incentives to accumulate precautionary savings in some parts of the state space[20]. The regions of the (b, z) state space that lead to default are characterized in Figure 20 of Appendix C.

The composition and volatility of fiscal policy also improve in the counterfactual. Targeted transfers (B/y) fall by more than half, from 6.9% to 1.4%—even lower than that of Chile's 1.5%. Tax volatility also drops from 4.1% to 1.9%, consistent with better tax-smoothing, while public good provision becomes more stable relative to output (3.1 vs 1.1 in the counterfactual). Consumption volatility relative to output also declines from 1.2 to 0.7, indicating better intertemporal consumption smoothing. These results show that adopting Chile's greater constraints on policymakers would have generated substantially better fiscal discipline and macroeconomic stability in Argentina, holding all other structural parameters constant.

6.3 Simulating a transition to democracy

While long-run outcomes are informative, they may mask important transitional dynamics. In practice, regime change occurs with inherited debt and economic conditions. We now examine how institutional quality shapes the adjustment path immediately following democratization. The transition begins in period 0, at the same level of debt-to-GDP, to remove the effect of the initial stock of inherited debt on the transition dynamics. Both economies are subject to an identical sequence of TFP shocks, but each is exposed to the sequence of m-shocks implied by its own institutional process. That is, one under weak institutions, and the other is the counterfactual, inheriting Chile's horizontal accountability process. Figure 15 shows the evolution of key variables for 40 years. Dashed (maroon) lines correspond to the benchmark and solid (blue) lines to the counterfactual.

Figure 15: Evolution of policies and allocations to institutional reform.



Notes: Argentina benchmark in dashed-maroon. Counter-factual w/ Chilean institutions in solid-blue. Period 0 indicates period of democratization; both start at the same debt to GDP ratio.

[20]Following the tradition in the sovereign default literature, we computed the model restricting debt to be positive (e.g. ruling out savings). This is not binding in the calibrated benchmark economy (Argentina), but it can become binding in some states of the world for economies with higher values of $\bar{m}$ (such as the counter-factual). However, even if we allowed for such behavior, it is unlikely that borrowing will stop completely as in Aiyagari et al. (2002). With imperfect political institutions (lower HA), the asset floor is endogenously determined, which would make borrowing optimal at most points of the state space.

In the benchmark, weak-institutions lead to a sharp rise in targeted transfers—a pattern consistent with historical accounts of Argentina's early post-transition populism. Wigell (2017) documents that in the beginning of the 1990s, President Menem (Argentina) started manipulating targeted benefits as a linchpin for mobilizing political support[21]. The mechanism is intuitive: a lower value of $\bar{m}$ worsens the common pool problem. With fewer members in the minimum winning coalition (mwc), a smaller group benefits from "priority" government projects, while the costs—higher taxes and future debt repayments—fall on the entire population. This misalignment fuels clientelistic transfers, financed largely through borrowing. As debt rises, spreads increase and, as a result, defaults soon follow. The frequency of default episodes in the benchmark implies that Argentina becomes a country where, effectively, 'to default is the default.'

By contrast, stronger institutions incentivize fiscal restraint early in the transition. The reduction in targeted transfers is an endogenous choice. On the one hand, stronger institutions reduce the gains of engaging in clientelism (as targeted transfers must be shared with a larger number of groups in society). Thus, the government in the counter-factual borrows less. On the other hand, it also increases the likelihood that the proposer is in the mwc in the future (and receives said transfers). The latter effect makes the proposer endogenously want to borrow more, since transfers mitigate much of the cost of borrowing in the future. The endogenous responsible behavior happens because the former effect dominates[22]. This reflects upon other fundamentals. Taxes are lower, and private consumption is higher. Both of them are less volatile than in the benchmark. GDP is also higher and less volatile throughout the 40 years of the transition.

7 A Developed Country

If the mechanism we propose is to serve as a unifying theory of sovereign risk and fiscal dynamics, it must extend beyond explaining the dynamics of EMs. In particular, it must also account for the behavior of developed economies documented in Section 3. While increasing m lowers sovereign spreads and clientelism in the benchmark case, it also reduces debt-to-GDP. As we saw in the last section, Chile's debt to GDP is less than one-third of that of Argentina. Yet advanced economies are able to sustain high levels of debt with low spreads, as seen in Table 1. In this section, we recalibrate the model to match the debt and spreads of three European countries combined (Germany, France, and the U.K.). Similar to Chile, we use the AR(1) parameters from the TFP process and the HA process in our calibration. These are averages of the parameter estimates for the three countries. We use a different value of δ to match the average debt maturity, and hold all other parameters at the Argentina benchmark values (see Appendix C for details). We use $alpha_0$ and $\bar{m}$ to match the average debt to GDP and spreads for the developed countries. Interestingly, the model is able to replicate their key fiscal and business cycle properties.

[21] In Chile, by contrast, targeted programs remained under firm technocratic control. We can interpret B/GDP as the use of targeted programs for political support, as we do not have heterogeneity among agents (e.g., there are no other redistributive programs).

[22] In section 8, we show that weak institutions combined with persistence could also induce *responsible* policy-making by lowering defaults. That is a situation in which $\bar{m} = 1$, but the autocrat knows it will be in the mwc with probability 1 (which we interpret as the case of China).

The calibration requires: (i) a substantially higher level of institutional strength, $\bar{m}^{Dev} = 6.4$, and (ii) a higher exogenous cost of default. Under this calibration, $\bar{m}$ is 'high enough' that when the country experiences a good TFP shock, the government has incentives to reduce outstanding debt (e.g., tax-smoothing behavior). At the same time, it is 'low enough' (relative to, say, the planner's $\bar{m} = 20$) that when a bad shock hits, policymakers want to borrow. The high cost of default reduces the temptation to renege on debt when a long-enough sequence of bad shocks hits the country and debt grows too large. This keeps spreads low and allows them to sustain high levels of debt in equilibrium, as seen in the first two columns of Table 7. A negligible amount of clientelistic spending—consistent with advanced countries—is an endogenous outcome[23].

Table 7: Developed Country and an Autocracy

Moment	Developed		Autocracy
	Data	Calibrated	
		$\bar{m}^{Dev} = 6.4$	$\bar{m}^{Aut} = 1$
Means (%)			
Debt/y*	65.8	69.4	13.2
B/y	-	0.8	17.4
Spreads*	0.38	0.35	$\simeq 0.0$
Default per 100 years	0	0	0
St devs (%)			
Spreads	0.2	0.1	$\simeq 0.0$
y	1.5	1.1	3.7
$\sigma(\text{Cons})/\sigma(y)$	0.9	0.9	0.5
Correlations			
$\rho(\text{Deficit}/y, y)$	-0.6	-0.3	-0.8
$\rho(\text{Debt}/y, y)$	-0.2	-0.5	$\simeq 0.0$
$\rho(y, c)$	0.8	0.9	0.9
$\rho(\text{Spread}, y)$	-0.2	-0.3	-0.2

Note: Developed countries include Germany, France, and the U.K. The second moments for variables which are not expressed as ratios to y are logged, then HP-filtered with a frequency parameter set to 100. The only exception is 'Spreads', expressed in annualized percentage terms. * denotes the moments targeted in the calibration. The parameters for the Developed calibration are in Table 12 of Appendix C. For Autocracy, all parameters are same as in the benchmark except for the m process to capture persistence with no volatility of the political structure.

The second moments are even more interesting. Output volatility is low in the data (1.5 percent) and the model (1.1 percent). Spreads are counter-cyclical, consistent with the data, *despite negligible default risk*. As in the case of Chile, we obtain $\rho(\text{Deficit}/y, y) < 0$, reflecting the government's tax-smoothing behavior. This is the case despite the fact that average debt/GDP is 65.8 % for the period under consideration

[23] An estimate of pork-barrel spending by the U.S. is 0.22 percent of GDP, as shown https://www.minneapolisfed.org/article/2008/both-sides-of-the-pork-trough. In the absence of comparable estimates, we extrapolate that the developed countries in our calibration would have pork spending of similar magnitudes.

(1994-2023) vs 15.4 % in Chile. The debt-to-GDP ratio is counter-cyclical, mirroring the empirical pattern, although we obtain a much higher correlation. Consumption is smoother than output, with $\sigma(c)/\sigma(y) < 1$, in line with developed economy regularities.

The model's ability to replicate both emerging market debt crises with pro-cyclical deficits and developed country fiscal stability with counter-cyclical deficits —simply by varying institutional quality and default costs—makes ours a unifying theory of tax-smoothing and fiscal policy across different stages of development.

8 An Autocracy

While the analysis thus far has focused on democracies with varying levels of horizontal accountability, a complete theory must also account for autocratic regimes where electoral competition is largely absent. Autocratic regimes feature weak horizontal accountability but limited political turnover. It is not necessarily true that such economies should resemble weak democracies. Understanding whether low m in the absence of electoral competition generates similar fiscal distortions is essential for assessing the generality of the mechanism. If weaker institutions raise default risk and sovereign spreads, how can the model account for countries that combine limited political accountability with low spreads and no defaults? The answer lies not only in the level of institutional constraints but also in the persistence of political power.

In our model, the number of groups with veto power, $\bar{m}$, affects both the temptation to engage in targeted transfers and the probability of remaining in the mwc in the future. When $\bar{m}$ is low, and there is political turnover, policymakers behave impatiently: the risk of losing power induces front-loaded extraction and excessive borrowing. By contrast, when power is fully persistent, the effective horizon of the ruler expands. Even if institutional checks are weak, that is $\bar{m} = 1$, the absence of turnover fundamentally alters incentives. To isolate this mechanism, we simulate an autocratic economy characterized by $\bar{m} = 1$, but also assuming that the one group in power will be in power forever. That is, there is full persistence. While extreme, this experiment captures the logic of autocratic regimes. All other parameters are identical to those of our benchmark economy calibrated to Argentina. In particular, we keep the low cost of default from the Argentinean benchmark.

The last column of Table 7 reports the key moments in the autocratic experiment. Despite the weakest possible institutional constraint, defaults are essentially zero and spreads remain low (almost zero), in sharp contrast to the Argentinean benchmark. Because the autocrat internalizes the long-run consequences of default, borrowing is conservative: debt averages only 13.2 percent of GDP. Sovereign crises disappear not because institutions are strong, but because political persistence makes the ruler appear more responsible to the external lenders.

At the same time, the composition of spending changes dramatically. Clientelistic transfers rise to 17.4 percent of GDP—more than twice the benchmark level (and many times higher than the levels chosen by the developed country policymaker). With no need to bargain with other groups, the autocrat allocates a substantial share of resources to targeted transfers. Clientelistic expenditures are financed primarily through higher taxation (27.1 percent of GDP), rather than through external borrowing. The economy relies less on international markets and more on domestic distortions. Fiscal dynamics also differ markedly from the emerging-market benchmark. Deficits become strongly counter-cyclical, even more than in developed countries, and spreads also negatively co-move with GDP. Output and consumption volatility are lower than in the benchmark economy, reflecting the absence of financial amplification. In this environment, fiscal smoothing occurs primarily through domestic instruments (e.g., taxes) rather than external borrowing.

The key lesson is that weak institutions do not mechanically imply high sovereign risk. What matters is the interaction between institutional constraints and political turnover. When m is low but turnover is as in the benchmark, policymakers extract aggressively, and sovereign risk rises. When m is low but fully persistent, the ruler behaves with a long horizon and avoids default by borrowing less. Importantly, this pattern cannot be replicated simply by assigning a higher subjective discount factor β. A high β would mechanically reduce default risk, but it would not generate the large political transfers observed here nor explain the fiscal composition characteristic of autocratic regimes. Political frictions are therefore distinct from pure time preference as explained in the next section.

9 Institutional Constraints or Impatience?

A natural question is whether the effects generated by our political economy framework could instead be captured by a simpler formulation in which policy is chosen by a benevolent but *more impatient* planner. The answer is *no*: our model is not just micro-founding impatience. In canonical sovereign default models, cross-country differences in borrowing and default behavior are often attributed to variation in the discount factor. From this perspective, weak institutions might simply operate as a structural interpretation for effective β. We show that this interpretation fails to provide a unified theory of sovereign debt and fiscal policy across the development spectrum.

9.1 Comparing the calibrated models

To make the comparison transparent, consider an economy in which bargaining and political incentives to engage in clientelism are shut down. The mwc equals the entire population at all times ($m_t = n$), reducing the incentives to provide targeted transfers and its variance is set to zero. Fiscal policy is chosen by a representative planner who internalizes aggregate welfare. We calibrate this version of the model to two examples: Argentina and the Developed Country from Section 7 (representing Germany, France, and the U.K.). Table 14 in Appendix D reports details of these calibrations. Following standard practice in canonical sovereign-default models[24], we lower β to match spreads.

[24] The standard sovereign default literature typically imposes $\beta(1+r) < 1$. Without this assumption, the government would not borrow in the long run, and default would never happen in equilibrium. Since r is a fixed risk-free rate, this restrictive assumption often requires the value of β to be unusually low. In our model, we do not need restrictions on β, which has been normalized to a standard value in macro: $\beta(1 + r) = 1$.

Table 8 presents selected moments that result from the calibration (the full table is in Table 15 of Appendix C). For Argentina (second column), the low-β model performs reasonably well on first moments: it matches debt and spreads by construction and eliminates clientelistic spending. However, it produces greater tax volatility (4.0% vs 2.9%) and higher consumption volatility relative to output (1.3 vs 1.2) indicating worse stabilization[25]. Similar standard deviations of debt-to-GDP ratios in both models reflect the build-up-phase following defaults. They mask an important difference: the distribution of debt, as shown in Section 5.2 is much wider in the benchmark. Spreads become strongly counter-cyclical (-0.7 vs -0.2), though deficit cyclicality remains unchanged. Overall, the low-β trades off one distortion (clientelism) for another (higher volatility), but the differences are not dramatic for our Argentina benchmark, making the low-β model a reasonable approximation.

Table 8: Low-β: long-run moments

Moment	Benchmark (Arg) $\bar{m} = 2.32$	Low β (Arg) $\bar{m} = 20$	Benchmark (Dev) $\bar{m}^{Dev} = 6.4$	Low β (Dev) $\bar{m} = 20$
Means(%)				
Tax	18.2	14.1	14.6	13.7
Debt/y*	52.6	49.3	69.4	68.5
B/y^*	6.9	$\simeq 0.0$	0.8	$\simeq 0$
Spreads*	7.3	7.9	0.35	0.36
Default per 100 years	5	4	0	1
St Devs(%)				
Debt/y†	17.4	16.5	1.7	1.2
y	6.3	6.3	1.1	2.2
Tax	2.9	4.0	0.3	1.8
$\sigma(\text{Cons})/\sigma(y)$	1.2	1.3	0.9	1.4
Correlations				
$\rho(\text{Deficit}/y, y)$	0.3	0.3	-0.3	0.4
$\rho(\text{Spread}, y)$	-0.2	-0.7	-0.3	-0.4

Note: Second moments for variables not expressed as ratios to y are logged and HP-filtered with smoothing parameter $\lambda = 100$. Spreads are in annualized percentage terms. * denotes calibration targets for the benchmark and developed columns. For the low-β columns, B/y is not a target. †: For the developed economy calibrations, to make the *sd* of debt-GDP comparable, we adjust them for default. This is computed by removing the build-up of debt after a default in the low-β. Not adjusted for the Argentina calibrations in columns (1) and (2).

The critical failure of the low-β model emerges for developed countries. While debt levels and spreads are matched by construction, the model generates output volatility of 2.2%—double the benchmark's 1.1% and far above the data (1.5% in the benchmark). More fundamentally, the low-β model produces *pro-cyclical* deficits ($\rho(\text{Deficit}/y, y) = 0.4$), contradicting both the data (-0.6) and the benchmark (-0.3). Tax volatility is six times higher (1.8% vs 0.3%), and consumption is more volatile than output ($\sigma(c)/\sigma(y) = 1.4$), violating a core regularity of developed economies. In spite of a higher output volatility, the standard

[25] This was noted in Pappada and Zylberberg (2026), who study a model with distortionary taxation and long-term debt but under a benevolent planner.

deviation of debt to GDP ratio is much lower in the low-β economy (1.2 vs 1.7) after adjusting for the post-default debt build-up phase. This shows that the bond issuances do not move by much in the ergodic distribution. The low-β model makes borrowing costs adjust too sharply to make debt an effective smoothing instrument, forcing all adjustment onto taxes and consumption.

The contrast between the two models is stark: our political economy model replicates key features of both emerging markets (high spreads, pro-cyclical deficits, clientelism) and developed countries (low spreads, counter-cyclical deficits, tax smoothing, and high debt) by varying institutional quality. The canonical low-β model cannot. While lowering the discount factor can match emerging market debt and default patterns, it fundamentally cannot explain counter-cyclical fiscal policy in developed countries with low spreads and high debt[26]. A related limitation is well-recognized in the literature (Aguiar et al., 2016), which notes that canonical models struggle to generate empirically observed spread volatility without implausibly volatile TFP processes. In the next section, we show how our political economy structure resolves this problem, and generates counter-cyclical policies as a result. Our framework provides a unifying theory: institutions—not impatience—determine whether governments smooth or amplify shocks.

9.2 Intuition

What explains this quantitative success? The key difference lies in the elasticity of the marginal cost of borrowing. The low-β model features a much steeper marginal cost curve than our benchmark, which fundamentally alters the government's response to shocks.

To see the effect of this, consider a stripped-down version of both models with $\omega = 1$ and bond prices fixed at 1. The dynamic first-order condition for our benchmark can be written as[27]:

$$u'(s, b') + \frac{1}{m} = -(\frac{1}{1+r})\mathbb{E}_{\mathbf{s}'} J'(s') \tag{18}$$

For the low-β model:

$$u'(s, b') + \frac{1}{n} = -\beta \mathbb{E}_{z'} J'(z', b') \tag{19}$$

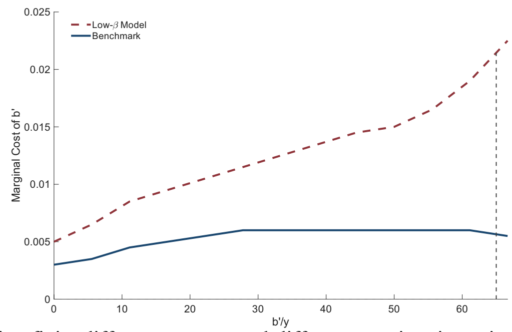
The right-hand sides denote the marginal cost of borrowing (MC); the left-hand sides are the marginal benefits (MB). Figure 16 plots the slope of the J functions for both models at typical debt levels in developed economies. The dashed-maroon line (low-β) is much steeper than the solid-blue line (benchmark), particularly near the equilibrium level of 68.5%.

Why is the MC steeper in the low-β model? Higher borrowing today induces even higher borrowing tomorrow due to the government's present bias— the classic debt ratchet effect (see Bulow and Rogoff (1991) or DeMarzo et al. (2023)). In response, the lenders lower bond prices sharply in the future periods, steepening the MC curve. In our benchmark, the common-pool problem creates a *feedback effect*: higher

[26] To be more precise, in both models we also change the costs of default in the calibration.

[27] $u(c, l)$ is not directly affected by b'. However, they are indirectly affected by the choice of g and τ by the government. These FOCs are loosely written to capture this effect.

Figure 16: MC for low-β model vs benchmark

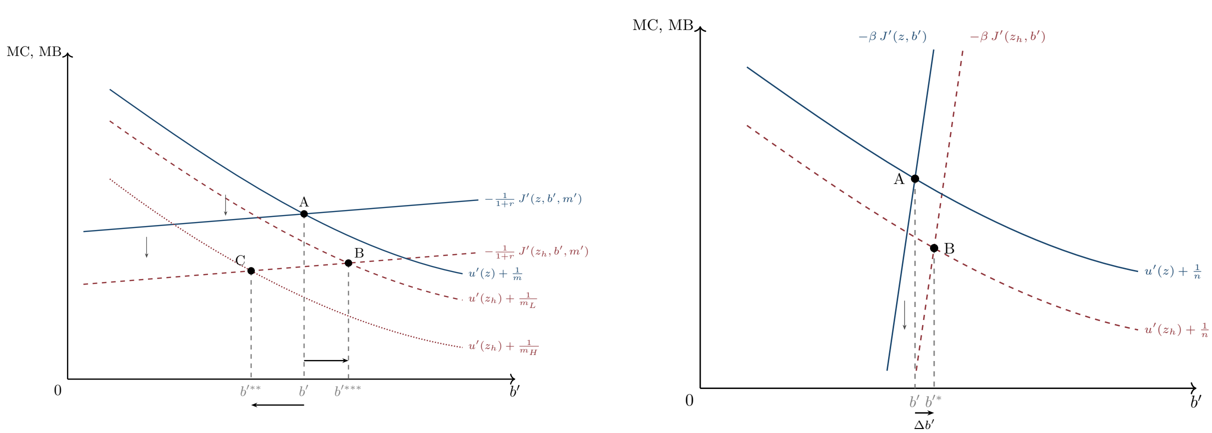


Notes: Marginal cost computed using finite differences — central differences at interior points and one-sided (forward/backward) differences at the boundaries. For the benchmark model, m set at $\bar{m}$. z set at its mean for both the models. Both lines are for developed economies.

debt today makes future proposers more cautious about borrowing, since they may not be in the mwc in the periods that follow. This moderates future borrowing and keeps bond prices more stable, even at higher levels of debt, flattening the MC curve. We formalize this feedback effect in Appendix D.1.

A key insight is that the slope of MC determines the degree of cyclicality. Figure 17 shows how each model responds to a positive TFP shock. In the benchmark (left panel), a positive shock lowers both MB and MC. For high-m countries (developed economies), the MB curve shifts down substantially because the clientelism motive $\frac{1}{m}$ is small. The new equilibrium (point C) features lower borrowing—counter-cyclical policy. For low-m countries (Argentina), the large clientelism term $\frac{1}{m}$ resists the downward shift in MB. Their marginal benefit of borrowing does not decrease by much irrespective of state, because of the persistent need to provide clientelistic transfers. Borrowing increases and the new equilibrium shifts to the right (point B)—pro-cyclical policy.

Figure 17: Response to a Positive TFP Shock



Notes: Left: benchmark model. Right: low-β model. Initial equilibrium in solid blue, new equilibrium in dashed maroon.

In the low-β model (right panel), the steep MC curve prevents counter-cyclical policy. A positive shock lowers both curves, but the MC is so steep: future bond prices rise sharply in response to the good shock, that incentives to increase borrowing dominates (point B). To generate lower borrowing, the MB would need to fall dramatically—essentially impossible for realistic shock processes. The model is trapped in pro-cyclical borrowing. This also explains why the low-β model produces lower spread volatility and requires high output volatility in the calibration. The steep MC makes bond prices extremely sensitive to borrowing, so the government stays close to a narrow range of debt levels[28] to avoid triggering sharp spread increases. Since borrowing cannot be used flexibly for smoothing, all adjustment falls on taxes and consumption, generating excess volatility in these variables.

10 Conclusion

We develop a unified political-economy theory of sovereign default and fiscal cyclicality in which institutional strength—captured by horizontal accountability—shapes borrowing, taxation, and default incentives. The key mechanism operates through clientelism: when political power is concentrated in a narrow coalition, governments allocate excessive resources to targeted, group-specific transfers, distort default incentives, and amplify macroeconomic shocks. When accountability is strong, the cost of securing political support through transfers is high, and fiscal policy converges toward broad public good provision and tax smoothing—without requiring commitment technologies or ad hoc differences in patience across countries.

Empirically, we document this mechanism using data on 51 countries over 1994–2023. We first validate our cross-country clientelism measure against granular data on discretionary intergovernmental transfers in Argentina and India, where political alignment verifiably shapes transfer allocation. Periods of weaker HA coincide with larger and more unequally distributed non-automatic transfers, directly confirming the model's fiscal channel. We also document long-run cross-country patterns: weak-accountability economies exhibit higher spreads, more pro-cyclical borrowing, and higher clientelism than strong-accountability ones. Exploiting within-country variation in HA through panel fixed-effects regressions and local projections—which control for time-invariant country characteristics and global shocks—we establish that positive accountability shocks persistently reduce sovereign spreads and clientelistic transfers in EMs, with no analogous effect in developed countries where HA is already high. These effects are nonlinear: institutional shocks have large macroeconomic consequences at low levels of accountability and diminish rapidly as accountability strengthens, a pattern the quantitative model replicates.

On the theoretical side, we embed legislative bargaining in a sovereign default model with long-term debt. The minimum winning coalition size m parametrizes HA: small m enables targeted redistribution by a narrow group, amplifying borrowing in booms and raising default incentives in downturns; large m approximates a social planner, eliminating clientelism and restoring tax-smoothing behavior. Introducing long-term debt—absent in the earlier framework of Azzimonti and Mitra (2023)—is critical for generating counter-cyclical spreads and the correct sign on the spread-output correlation, a moment that short-term-debt models usually get wrong. Concavity in targeted transfers ensures interior clientelism and prevents the abrupt debt accumulation that arises under linearity.

[28] Figure 23 in Appendix D.1 shows the distribution of new bond issuances for the two models. The benchmark model presents a wider distribution, similar to that in the emerging economy calibration.

Quantitatively, the model simultaneously matches Argentina's default frequency (5 per 100 years), spread volatility (3.4%), the negative spread-output correlation ($\rho = -0.2$), and consumption relative volatility (1.2). In the Argentina-Chile counterfactual, differences in the HA process alone account for 39% of the debt-to-GDP gap and 100% of the sovereign spread and default frequency gaps between the two countries—economies that began democratization under broadly similar initial conditions. The same model calibrated to advanced economies (Germany, France, and the U.K.) reproduces their counter-cyclical deficits, high debt levels, and negligible default risk.

A central contribution is that the quantitative model reconciles the behavior of developed and emerging economies—documented in our empirical section—under a common discount factor equal to the inverse of the risk-free rate. This distinguishes our framework from the canonical impatience-based explanation of the emerging-market/developed-economy divide. When the standard low-β model is calibrated to match the debt and spread levels of advanced economies, it generates pro-cyclical deficits—contradicting the data—and produces output volatility roughly double what is observed, because impatience drives pro-cyclical borrowing regardless of default cost. Our model generates counter-cyclical borrowing in developed countries endogenously when institutional constraints are strong.

The autocratic benchmark further sharpens this message. Simulating an economy with $\bar{m} = 1$ and no political turnover—all other parameters fixed at the Argentina calibration—defaults vanish and spreads fall to near zero despite maximally weak accountability. Clientelistic transfers rise to more than twice the emerging-market level, while debt-to-GDP falls and deficits become counter-cyclical, financed through taxation rather than external borrowing. This pattern cannot be generated by attributing high patience to the ruler: a patient planner would not simultaneously exhibit minimal default risk and maximal targeted redistribution. The result underscores that sovereign risk depends on the interaction of institutional constraints and political turnover, not on impatience alone.

The framework admits several natural extensions. As is standard in the sovereign default literature, we abstract from capital accumulation. Introducing capital would add a state variable and allow the model to speak directly to the long-run growth consequences of institutional weakness, particularly through its effects on investment and fiscal distortions. Moreover, the analysis focuses on the real side of the economy and on distortionary taxation as the primary fiscal instrument. Many EMs also rely on seigniorage to finance public expenditures. Incorporating a nominal side and allowing governments to use inflation as an implicit form of default would permit an integrated analysis of the interaction between sovereign risk, monetary financing, and institutional quality. Such an extension would clarify whether inflationary finance and outright default emerge as substitutes under weak political accountability. We abstract from incumbency advantages in the bargaining process. Allowing the proposer to enjoy an incumbency advantage—through, for example, greater agenda-setting power or higher re-election probabilities—could alter the allocation of political transfers and default incentives. Examining the robustness of our results to such an extension would further clarify the interaction between political power and fiscal dynamics. Finally, and most fundamentally, the model takes the evolution of institutions as given. It does not explain how weak institutions become self-reinforcing, or how regime changes generate polarized societies in which clientelistic transfers become increasingly necessary to sustain political support. Understanding these institutional dynamics and their macroeconomic feedback—in particular, whether sovereign risk accelerates institutional deterioration—remains an important avenue for future research.

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A Empirical Appendix

We collect annual data on (1) economic and policy variables, (2) institutional quality, and (3) sovereign credit ratings. Economic, institutional, and policy data series range from 1994 to 2023, and Fitch ratings start in 1995. The three sets of variables, their sources, and de-trending methods are described below. There are 51 countries in our sample, 26 developed economies and 25 EMs (see Table 9 for country list).

A.1 Indexes: HA, VA and Clientelism

The three variables are obtained from the V-Dem dataset[29]. Average per-country values for HA and Clientelism are displayed in Table 9. Below, we briefly describe what they capture and how they are constructed.

- **Horizontal Accountability** (HA): The HA index is a composite measure developed as part of the Varieties of Democracy (V-Dem) dataset (v2xhoracc), which systematically quantifies institutional checks and balances across countries and over time. The HA index captures the extent to which state institutions are able to constrain the use of power by other branches of government, particularly the executive. It reflects how effectively the judiciary, legislature, and other state bodies can oversee, review, and limit executive actions, and thus underpins the institutional capacity to enforce political and legal constraints on ruling authorities. Concretely, the HA index aggregates a set of underlying indicators—such as judicial independence, legislative constraints on executive authority, and compliance with judicial rulings-into a single latent score. These latent estimates are derived via a Bayesian item-response measurement model that pools expert coder assessments across multiple indicators to produce a continuous, cross-nationally comparable scale. Higher values of HA indicate greater institutional capacity to check executive power, while lower values denote weaker horizontal constraints and greater executive dominance. The variable range is [-2.5, 2.5].

- **Vertical Accountability** (VA): The index is obtained from the Varieties of Democracy (V-Dem) dataset (v2xveracc), which captures the extent to which citizens can hold political leaders accountable through elections and civic participation. The index reflects how effectively electoral processes, freedom of expression, and civil society enable voters to sanction incumbents. Unlike horizontal accountability—which relies on institutional checks from within the state—vertical accountability emphasizes direct citizen oversight via democratic mechanisms. High values indicate meaningful political competition and public influence over government actions (e.g., a more democratic environment). The variable range is [-2.5, 2.5].

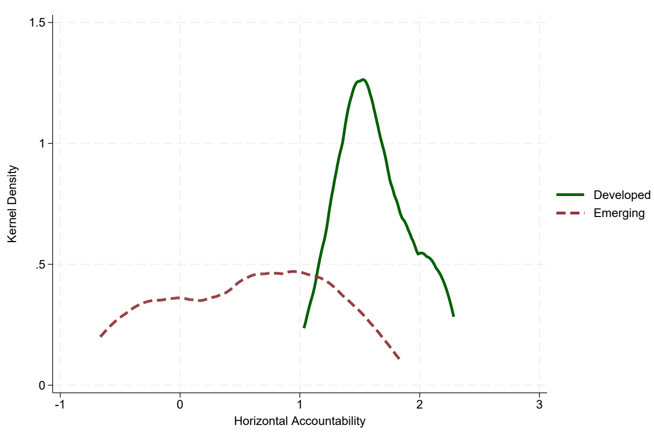
- **Clientelism**: In the V-Dem framework, clientelism refers to the systematic exchange of particularistic goods, services, or favors for political support. It captures practices in which politicians use targeted benefits—such as jobs, cash transfers, public contracts, or other material resources—selectively to secure loyalty from specific individuals or groups, rather than providing broad-based public goods.

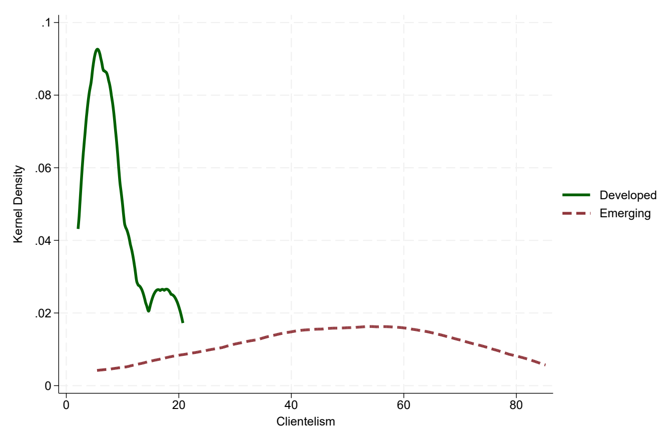
[29] Accessed Dec 2024. Link: https://v-dem.net/dataanalysis/VariableGraph/

Clientelistic linkages are characterized by asymmetrical, contingent exchanges: political actors offer targeted advantages to supporters in return for electoral support, votes, or other political backing. The V-Dem measure of clientelism aggregates expert assessments of such behaviors and institutions, reflecting how entrenched and widespread clientelistic practices are within a polity. High values on the clientelism index indicate that public resources are frequently allocated based on who you are or whom you support politically, rather than on transparent, universal criteria. Conversely, low values suggest that public goods and services are distributed more equitably and independent of partisan allegiances. Unlike general measures of public spending, the clientelism index specifically captures the political allocation of resources tied to individual or group support. This measure is cross-nationally comparable. The variable ranges from 0 to 100.

Figure 18 displays the distributions of HA (left) and Clientelism (right). HA in emerging markets (dashed maroon lines) is more widely dispersed and skewed toward lower scores than in developed ones (solid green lines). Developed countries, by contrast, cluster at low levels of clientelism, reflecting more programmatic and transparent modes of governance. While there is some overlap across both distributions, the distinction is quite stark.

Figure 18: Distributions of HA and Clientelism across countries





Notes: V-Dem, 51 countries: 26 Developed countries and 25 Emerging Markets, Date Range: 1994–2023. Full list of countries in Table 9.

A.2 Appendix to Section 3.1

Argentina: We have data for 23 Provinces and CABA (which is the area around the Capital), so there are 24 observations each year. The provinces are: Buenos Aires, Catamarca, Córdoba, Corrientes, Chaco, Chubut, Entre Ríos, Formosa, Jujuy, La Pampa, La Rioja, Mendoza, Misiones, Neuquén, Río Negro, Salta, San Juan, San Luis, Santa Cruz, Santa Fe, Sgo. del Estero, Tierra del Fuego and Tucumán.

Total nominal "non-automatic transfers" (NAT) per year-province is obtained from 'Presupuesto Abierto - MECON.' Let us denote it by $\text{NAT}_{t,p}$ where t denotes the year and p the province. The data spans the

Table 9: Benchmark Sample: Developed vs. Emerging Economies

Developed ($n = 26$)	HA	Clientelism	*EMs* ($n = 25$)	HA	Clientelism
Australia	1.98	6.33	Argentina	0.69	45.37
Austria	1.53	8.47	Brazil	1.06	35.87
Belgium	1.54	6.30	Bulgaria	1.15	39.06
Canada	1.42	6.37	Chile	1.85	11.52
Czech Republic	1.33	8.55	China	-0.54	23.20
Denmark	2.28	2.90	Colombia	1.05	70.63
France	1.36	5.57	Dominican Republic	-0.60	85.18
Germany	2.11	3.50	Ecuador	0.09	56.45
Greece	1.27	16.83	El Salvador	0.10	50.14
Iceland	1.03	8.40	Hungary	1.14	33.07
Ireland	1.52	18.13	Malaysia	-0.20	56.30
Israel	1.74	10.63	Mexico	0.30	43.40
Italy	1.54	18.77	Pakistan	0.03	65.50
Japan	1.62	20.73	Panama	0.59	67.74
Luxembourg	1.44	5.45	Paraguay	0.61	72.88
Netherlands	2.00	2.10	Peru	0.94	62.19
New Zealand	1.67	5.50	Philippines	0.83	71.44
Norway	2.10	2.63	Poland	1.19	14.79
Portugal	1.59	4.73	Russia	-0.59	49.13
Slovakia	1.18	13.38	South Africa	1.12	32.95
Slovenia	1.45	14.59	South Korea	1.19	30.07
Spain	1.31	7.37	Turkey	-0.05	46.89
Sweden	2.07	4.00	Ukraine	0.09	53.44
Switzerland	1.82	6.13	Uruguay	1.45	5.48
United Kingdom	1.67	10.50	Venezuela	-0.67	73.59
United States	1.68	10.57			
Mean	**1.6**	**8.9**	*Mean*	**0.5**	**47.9**
St. Dev.	**0.3**	**5.4**	*St. Dev.*	**0.7**	**21.1**

period 1995 to 2024. We use the series 'instancia devengado,' meaning that the data corresponds to what was agreed to in the budget rather than what was actually paid. The difference between the two variables is minimal. We construct real NAT as $\text{NAT}^{r}_{t,p} = \text{NAT}_{t,p}/\text{def}_t$, where def_t denotes the Argentinean GDP deflator obtained from FRED. Per-capita real NAT is constructed as $\text{NAT}^{pc}_{t,p} = \text{NAT}^{r}_{t,p}/\text{pop}_{t,p}$ where $\text{pop}_{t,p}$ denotes the population per province in year t. We define the total per capita real NAT in year t as $NAT_t = \sum_p \text{NAT}^{pc}_{t,p}$ and compute the normalized measure:

$$\text{NAT}^{sh}_{t,p} = \frac{\text{NAT}^{pc}_{t,p}}{NAT_t}$$

The volatility of NAT is constructed as the standard deviation of the normalized real per-capita NAT across provinces: $\sigma^{\text{NAT}}_t = sd(\text{NAT}^{sh}_{t,p})$. Note that this is a measure of *inequality* in transfers keeping the total level (which may depend on the business cycle) constant.

Table 10: Correlation with the Standard Deviation of Non-Automatic Transfers

Moment	Argentina	India
Mean σ^{NAT} (%)	4.48	3.63
ρ(Clientelism, σ^{NAT})	0.78	0.37
ρ(HA, σ^{NAT})	-0.56	-0.40
ρ(HA, Clientelism)	-0.76	-0.45

Notes: σ^{NAT} denotes the standard deviation of non automatic transfers as a share of total transfers. HA denotes horizontal accountability. ρ denotes pairwise correlation. Clientelism is measured using the V-Dem clientelism index.

India : The NATs we focus on in India are 'Centrally Sponsored Schemes' because it is the non-automatic programs for which there is extensive data across states and time. India has 28 states and 8 union territories. Out of all these, 11 are 'special category' states, which will not be used in the study[30]. We also exclude states that did not exist in the beginning of our sample period. The reason is that these states were either created after 2010 or strategically located. In addition, some states have missing data (Rajasthan, West Bengal, and Madhya Pradesh). The subset of states we include in our sample is: Andhra Pradesh, Bihar, Gujarat, Goa, Haryana, Karnataka, Kerala, Maharashtra, Odisha, Punjab, Tamil Nadu, Uttar Pradesh. They contribute 70 percent of India's GDP. The data spans 1991 to 2023. The computation of σ^{NAT} is identical to the one for Argentina.

A.3 Fiscal Variables and Economic Aggregates

Variables are obtained from the World Bank, the IMF (Data Mapper[31]), OECD, Fitch Solutions, Statistical Offices and Financial Ministries. They were accessed between December 2024 and March 2025.

A.3.1 Variable Definitions

- Debt/GDP (b/y): is "Gross public debt, percent of GDP (% of GDP)" obtained from the IMF, in Public Finances in Modern History (Dec 2025). It is the variable 'd' in the Data Mapper. Debt maturity is normally longer than a year. This includes general government gross debt, which consists of all liabilities that require payment of principal and/or interest by the government. These categories capture the broad set of financial obligations that the government owes to domestic and external creditors. Variable expressed as a percentage of GDP.

- Exports/GDP (x/y): is "Exports of goods and services (% of GDP)." Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and

[30] They are: Uttarakhand, Sikkim, Chattisgarh, Jharkhand, Telengana, Arunachal Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura.
[31] See https://www.imf.org/external/datamapper/rgc@FPP.

other services, such as communication, construction, financial, information, business, personal, and government services. Expressed as a percentage of GDP. It is obtained from the World Development Indicators, World Bank.

- Deficit: is the negative of the "Government primary balance, percent of GDP (% of GDP)". It corresponds to non-interest expenditures less fiscal revenue as a percentage of GDP, Deficit $= \frac{Exp-Int-Rev}{y}$.

- Fitch Ratings[32]: Fitch uses a combination of quantitative analysis and qualitative judgments to evaluate sovereign credit risk (e.g., their proprietary Sovereign Rating Model and the Qualitative Overlay). In addition, Fitch considers the impact of the sovereign's policies and actions on the country's overall economic performance, which can have significant effects on the sovereign's creditworthiness and can, in turn, be influenced by it[33]. Using a series of factors, Fitch summarizes the rating at each point in time on the scale AAA to CCC+. We transform these ratings to a 0-4 scale.

- GDP growth: is 'Real GDP growth rate, percent' obtained from the IMF. Obtained from the IMF Data Mapper, variable 'rgc.'

- GDP (y): is "GDP (constant LCU)". GDP measured in real terms, in local currency units. It is obtained from the World Development Indicators, World Bank.

- Imports/GDP (im/y): is "Imports of goods and services (% of GDP)." Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. Expressed as a percentage of GDP. It is obtained from the World Development Indicators, World Bank.

- Private Cons/GDP (c/y): is "Households and NPISHs final consumption expenditure (% of GDP)" Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. Expressed as a percentage of GDP. It is obtained from the World Development Indicators, World Bank.

- Public Cons/GDP (g/y): is "General government final consumption expenditure (% of GDP)". Final consumption expenditure is expenditure on goods and services by resident institutional units for the direct satisfaction of human needs or wants, whether individual or collective. General government FCE includes all government current expenditures for purchases of goods and services (including

[32] Accessed Dec 2023. Link: https://www.fitchratings.com/research/sovereigns/sovereign-rating-criteria-06-04-2023

[33] Structural factors, including 'political risk', are incorporated into Fitch's ratings. The company develops its measure of political risk incorporating Governance Quality (Government effectiveness, Rule of law, Control of corruption, Voice and accountability, and Business environment) and Political Stability & capacity (Political stability and capacity, Legitimacy of regime, Conflict/war risk, Debt payment record, Risk to economic policy). They also include past default decisions and other economic indicators when rating a country's default risk.

compensation of employees), and most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation. Expressed as a percentage of GDP. It is obtained from the World Development Indicators, World Bank.

- Spreads: For emerging markets, they correspond to EMBI+. Various sources. For Developed markets, they are computed as the difference between the real 10-year debt yield of the country and the corresponding figure from the US.
- Trade Balance/GDP (TB/y): corresponds to net exports, constructed as $(x - im)/y$ using the x/y and im/y series.
- Volatility of NAT: NAT corresponds to real per-capita "non-automatic transfers" to provinces in Argentina and states of India. The total nominal NAT per year-province is obtained from 'Presupuesto Abierto - MECON', and the data on Centrally Sponsored Schemes (CSS) for India from the CEIC database. We first convert it to real terms using the GDP deflator. We divide each number by the population per province/state-year to compute it in per-capita terms and then find shares to each province/state by dividing it with the total per-capita NAT. We then construct the standard deviation in each year across all provinces to obtain the volatility of NAT.

A.3.2 Variable Manipulations

For developed countries, we are able to collect all the data for the period 1994-2023. For emerging markets, a main restriction is access to EMBI+ spreads, which limit the coverage to a subset of years for some countries. These limitations are summarized in Table 11 below. For Bulgaria (2009), Colombia (1998), Poland (2007), Turkey (1998), and Ukraine (2003), the EMBI+ missing value was imputed.

Table 11: EMBI+ Data Coverage by Country

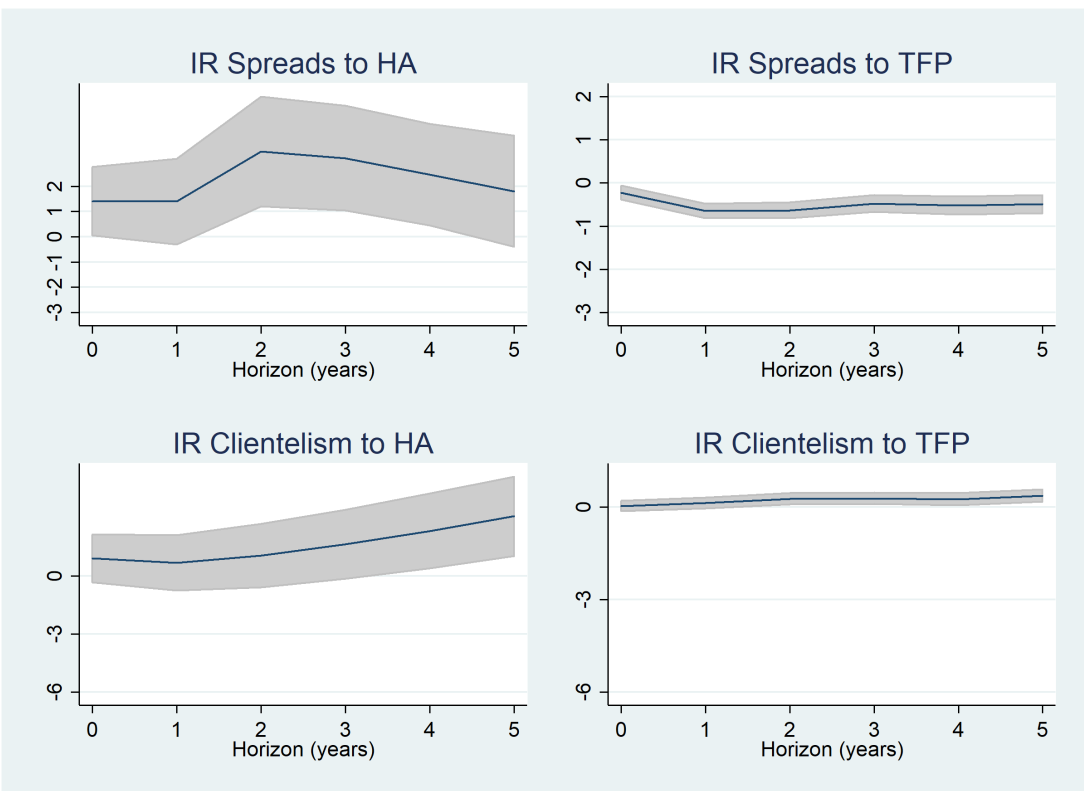
Column 1			**Column 2**		
Country	Coverage	Missing	Country	Coverage	Missing
Argentina	1994–2023		Pakistan	2002–2021	
Brazil	1994–2023		Panama	1997–2023	
Bulgaria	1998–2013	2009	Paraguay	2008–2023	
Chile	1999–2023		Peru	1997–2023	
China	1994–2023		Philippines	1998–2013	
Colombia	1997–2023	1998	Poland	1996–2023	2007
Dominican Republic	2002–2023		Russia	1998–2021	
Ecuador	1995–2023		South Africa	2002–2021	
El Salvador	2002–2023		South Korea	1994–2013	2005–2009
Hungary	1999–2013		Turkey	1996–2023	1998
Malaysia	1997–2023		Ukraine	2002–2017	2003
Mexico	1994–2023		Uruguay	2001–2023	
			Venezuela	1994–2015	

Real private consumption c and real public consumption g are constructed as $c = cy * y$ and $g = gy * y$, where cy, gy and y are defined in the previous section. We log-detrend: real GDP y, real private consumption c, and real public consumption g. That is, for each country, we regress $\ln y$ on time t using $\ln y_{it} = \alpha + \beta t + \epsilon_{it}$. Using the estimated parameters $\hat{\alpha}$ and $\hat{\beta}$, we compute the residual $\hat{\epsilon}_{it} = \ln y_{it} - \hat{\alpha} - \hat{\beta} t$, and this is our detrended measure for GDP. The same method is used to detrend private and public consumption. We use the resulting series to compute: (i) the standard deviations: $\sigma(g)$, $\sigma(c)$, $\sigma(y)$, and (ii) the cyclicalities $\rho(g, Y)$, $\rho(c, y)$. The trade balance (net exports) and fiscal deficits are neither logged nor de-trended, as they are expressed as a ratio of output and can take negative values. When calculating their cyclicalities, log-detrended real GDP is used for consistency. The cyclicality $\rho(x, y)$ is the correlation coefficient between x and y.

A.4 Appendix to Section 3.3

Local projections for developed countries can be seen in Figure 19. We can see that Spreads and Clientelism do not react to a shock in HA, as seen in the FE regression results in Table 3. The right panel shows that spreads decline when the economy experiences a positive TFP shock but clientelism does not react to it.

Figure 19: Local Projections: Developed Countries



Note: Impulse responses estimated via local projections. Shaded areas represent 90% confidence bands. The dependent variables are the spreads (top row) and Clientelism (bottom row). Left panel: 1 sd increase in HA. Right panel: 1 sd increase in TFP.

B Numerical Algorithm

The numerical algorithm for this model uses taste shocks in both the choice of borrowing b' and the default decision as in Mihalache (2020). Similar discrete choice methods are also used in Chatterjee and Eyigungor (2012). The idea is to perturb the borrowing choice and the default decision to make the value function $J(s')$ smoother, which in turn aids numerical convergence.

1. We start with discrete, equally spaced grids for labor income taxes (τ), pure public goods (g), debt (b), TFP shock (z), and the size of the mwc (m). The τ grid is of size 100 in the range $[0.0, 0.45]$; the g grid is also of size 100, ranging from 0 to 17 percent of average GDP. The b grid is of size 200, ranging between 0 and 120 percent of average GDP in the benchmark simulation. The m grid has 20 points starting from 1 to 20. The z grid has 21 points, discretized using the Tauchen and Hussey (1991) method.

2. Starting with a guess for continuation values both in repayment and default: $J(s)$ and $J^d(\mathbf{s}|d=1)$ and the price function $q(\mathbf{s}, b')$, we calculate the optimal τ and g, given state s, and borrowing b'[34]. We compute these optimal static policies for both repayment and default in all states $\{s, b'\}$.

3. Assuming repayment in all states, given the optimal choices for $\tau(s, b')$ and $g(s, b')$ in step (2), we perturb the choice of each b' with an IID taste shock that follows a Type 1 Extreme Value distribution.

$$W(\mathbf{s}, <\epsilon_{b'}>) = \max_{b'} \left\{V(\mathbf{s}, b') + \rho_{b'}\epsilon_{b'}\right\} \tag{B.1}$$

with

$$V(\mathbf{s}, b') \equiv (1-\beta)\left[u\Big(c(\mathbf{s}, b'), l(\mathbf{s}, b'), g(\mathbf{s}, b')\Big) + \frac{B(\mathbf{s}, b')^{\omega}}{m}\right] + \beta \mathbb{E}_{\mathbf{s}'} J(\mathbf{s}', b') \tag{B.2}$$

where $c(.)$, $l(.)$ and $g(.)$ incorporates the optimal taxes from step (2). $\rho_{b'}$ signifies the importance of taste-shocks in the bond choice. If $\rho_{b'} \longrightarrow \infty$, choice of b' follows a uniform distribution. At the other extreme, if $\rho_{b'} \longrightarrow 0$, we recover the singleton choice for b'. We set the value of $\rho_{b'}$ to $8.5 \cdot 10^{-4}$ in the benchmark calibration. Before the shocks are realized, the choice probabilities are given by

$$Pr(b' = x|\mathbf{s}) = \frac{\exp\left((V(\mathbf{s}, x) - \overline{V(\mathbf{s})})/\rho_{b'}\right)}{\sum_{\tilde{x}} \exp\left((V(\mathbf{s}, \tilde{x}) - \overline{V(\mathbf{s})})/\rho_{b'}\right)} \tag{B.3}$$

where $\overline{V(\mathbf{s})} = \max_{b'} V(\mathbf{s}, b')$. This is the maximum that the government can achieve in the absence of taste shocks. The government's value after taking expectations over the taste shocks is as follows.

$$\mathbb{W}(\mathbf{s}) = \mathbb{E}_{<\epsilon_{b'}>}\{W(\mathbf{s}, <\epsilon_{b'}>)\} = \overline{V(\mathbf{s})} + \rho_{b'} \log \sum_{b'} \left\{\frac{V(\mathbf{s}, b') - \overline{V(\mathbf{s})}}{\rho_{b'}}\right\} \tag{B.4}$$

[34] In our computations, we multiply the period utility by $(1-\beta)$ for ease of convergence.

From this step, we obtain the bond choice probabilities in the state of repayment and the effective value function in repayment $\mathbb{W}$. The value in default is then computed using the optimal τ and g in default.

4. We apply similar taste shocks in the default decision. The government, at the beginning of each period, observes the default decision shocks and decides accordingly. The optimal value of the government when default is a possibility is given as follows.

$$\mathbb{E}_{\{\epsilon_r,\, \epsilon_d\}} \max \left\{ \mathbb{W}(\mathbf{s}, b) + \rho_d \epsilon_r, \mathbb{W}^d(\mathbf{s}) + \rho_d \epsilon_d \right\} \tag{B.5}$$

where $\mathbb{W}^d$ is the default value function of the government. ρ_d is also assumed to be $8.5 \cdot 10^{-4}$, similar to the borrowing taste shock. The probability of default is then computed using the following equation.

$$Pr(d' = 1|\mathbf{s}, b) = \frac{\exp(\mathbb{W}^d(\mathbf{s})/\rho_d)}{\exp(\mathbb{W}^d(\mathbf{s})/\rho_d) + \exp(\mathbb{W}(\mathbf{s}, b)/\rho_d)} \tag{B.6}$$

5. Compute $J^r(\mathbf{s}|d' = 0)$ (defined as continuation value if the debt is repaid in every state in the following period) using 11 and the equilibrium policies, including the optimal distribution for b' obtained in step (3). This step involves taking an expectation of $J^r(\mathbf{s}, b')$ over the choice probabilities of b'. Similarly, compute $J^d(\mathbf{s}|d' = 1)$ using default policy choices. Then we compute $J(s)$ as the expectation of J^r and J^d over the probability of default given in B.6.

6. Compute the bond price schedule using the following equation.

$$q(\mathbf{s}, b') = \frac{1}{1+r} \mathbb{E}_{\mathbf{s}'} \Big[1 - d(s')\Big] \Big[\kappa + (1-\delta) q(\mathbf{s}', b''(s'))\Big] \tag{B.7}$$

7. Check if the recomputed J, J^d and q functions are close enough to the guess. We use a tolerance value of $1e^{-5}$ for the value functions and the price function for our benchmark calibration. If not, move back to step (2). Repeat until both the value functions and the bond price schedule converge.

C Appendix to Section 6 and 7

For the case of Chile, the calibration strategy is similar to the one for Argentina. In particular, β, γ, θ, and r take exactly the same values. The TFP z and m processes are calibrated using their respective data counterparts (see Table 12). The parameter δ is chosen to match Chile's average debt duration (11.4 years). The elasticity of targeted spending, ω, is taken from Argentina's calibration. The reason is that Chile does not have enough volatility of this moment to identify this parameter. However, we find that it matches the empirical counterpart of clientelistic transfers closely (1.5 vs 1.8 percent of GDP in the data). Finally, α_0, α_1, φ and $\bar{m}$ are chosen, to match the moments listed in Table 12.

For the developed countries, we do a limited calibration. Similar to Argentina and Chile, β, γ, θ, φ, and r take the same values; z and m processes are averages of the respective AR(1) processes for Germany, the U.K., and France. δ is set to 0.125 reflecting an average debt maturity of 8 years. α_0 and $\bar{m}$ are chosen to match the debt to GDP and spreads, which are the average of the three developed countries. The remaining parameters are fixed to Argentina's levels, and the other moments are not targeted. To make our point that low spreads and higher debt can support countercyclicality, we argue that a full calibration is not necessary.

Table 12: Calibration: Chile and Developed

Param	**Chile**	**Developed**	**Param**	**Chile**	**Developed**
δ	0.087	0.125	α_0	-0.113	-0.453
ζ_z	0.436	0.504	α_1	0.151	0.575
σ_z	0.014	0.008	ω	0.571	0.571
ζ_m	0.942	0.795	$\bar{m}$	5.50	6.40
σ_m	0.315	0.114	φ	0.9	0.93

	Chile		**Developed**	
Moment	**Data**	**Model**	**Data**	**Model**
$\mu\left(\frac{b}{y}\right)$	13.7%	15.4%	67.6%	69.4%
$\mu\left(\frac{g}{y}\right)$	13.8%	13.1%	-	-
$\mu(r-r^*)$	1.5%	1.5%	0.35%	0.35%
σ(Spreads)	0.4%	0.7%	-	-

Notes: The parameter ω is the same as that of the benchmark in both the Chile and Developed calibrations. The processes for z, m, and the parameters δ, α_0 and $\bar{m}$ are different from the Argentina in the developed calibration. α_0 and $\bar{m}$ are used to match the spreads and the level of debt to GDP. Only targeted moments are reported.

Table 13 shows the targeted and non-targeted moments of our Chile calibration. Even though B/y is not a target, we get very close to the empirical counterpart of 1.8 in our calibration. The calibration fits the data well in most cases. The most notable achievement is the countercyclicality of deficits. With a higher $\bar{m}$, Chile lowers its deficits during downturns. The model does not match the volatility of consumption with respect to that of GDP. In the data, it is 1.6, while the model delivers half of this number.

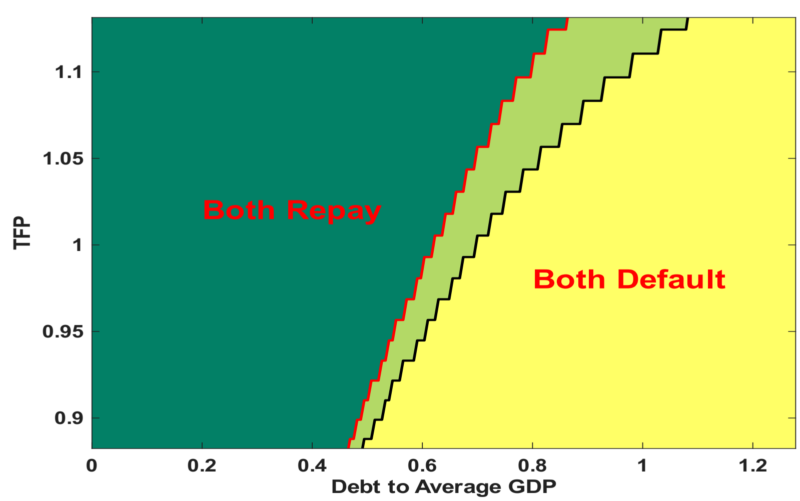
Figure 20 shows repayment and default regions in the state space for the counterfactual exercise in section 6. The two economies compared here are those of Argentina and the counterfactual (Argentina with Chilean institutions). The darker-shaded regions represent combinations of TFP shocks and legacy debt-to-GDP ratios where governments would optimally repay. The two green areas (dark plus light green) represent the repayment set for the counterfactual. If any country finds itself in the light yellow region, it defaults. In addition to having higher debt on average, Argentina defaults at a larger region of the state space in the benchmark calibration, making it more likely to end up in the default region.

Table 13: Model Fit: Chile

Moment	Data: Chile	Model
Means(%)		
Debt/y*	13.4	15.4
B/y	1.8	1.5
Pub Cons Spend/y^*	13.5	13.1
Spreads*	1.5	1.5
Default per 100 years	0	0
St Devs(%)		
Debt/y	6.8	3.0
Spreads*	0.4	0.7
y	2.0	1.8
$\sigma(\text{Cons})/\sigma(y)$	1.6	0.8
Correlations		
$\rho(\text{Debt}/y, y)$	-0.4	-0.1
$\rho(B/y, y)$	-	0.1
$\rho(y, c)$	0.6	$\simeq 1.0$
$\rho(\frac{\text{Deficit}}{y}, y)$	-0.5	-0.6
$\rho(\text{Spread}, y)$	-0.1	-0.1

Note: The second moments for variables which are not expressed as ratios to y are logged, then HP-filtered with a frequency parameter set to 100. The only exception is 'Spreads', expressed in annualized percentage terms. Asterisks * denote the moments targeted in the calibration.

Figure 20: Default and Repayment Regions



Notes: The dark green region represents the repayment set for the benchmark. The yellow shaded region represents the default set. Both for $m = \bar{m}$. The lighter green is the additional region where the counterfactual economy repays but the benchmark doesn't.

D Appendix to Section 9

The competitive equilibrium given policy is the same in both environments because the domestic private sector and international capital markets are identical. The government budget constraint is also the same, as we consider identical policy instruments in both cases. The only difference lies in the maximization problem of the policymaker. In our benchmark model, the proposer's problem is given by eq. (10). The maximization problem of the planner in the 'low β' case is, instead,

$$\begin{aligned} &\max_{\Phi} U\Big(c(\mathbf{s},\Phi), l(\mathbf{s},\Phi), g\Big) + \frac{B(\mathbf{s},\Phi)^{\omega}}{n} + \beta_L \mathbb{E}_{\mathbf{s}'} J(s') \\ \text{s.t.} \quad & B(\mathbf{s},\Phi) \geq 0, \end{aligned} \tag{D.1}$$

There are two main differences: First, since $B(\mathbf{s},\Phi) > 0$ in equilibrium, however small, these need to be distributed among all groups (so there is an 'n' instead of an 'm' in the denominator). Second, the discount factor of the policymaker is β_L, lower than that of the lenders. Because in the 'low-β' case $m = n$ (by construction), transfers are endogenously negligible. Both the proposer and the mwc members receive clientelistic transfers that are close to zero.

Table 14 reports the parameter values for the low-β versions of both the benchmark (Argentina) and the developed country calibration. They follow the same procedure as in Table 12. While we keep ω fixed to the benchmark calibration in both cases, the rest of the parameters are calibrated to match relevant moments of the Argentine data. The biggest difference is that instead of $\bar{m}$, we use β to match spreads. Similarly, the developed low-β calibration uses α_0 and β to match the debt to GDP ratio and spreads. ω, φ and α_1 are fixed at the benchmark levels. Table 15 shows the moments for the benchmark and low-β models for both the Argentina and the developed economy calibrations.

Table 14: Calibration: low-β models

Param	**Argentina**	**Developed**	**Param**	**Argentina**	**Developed**
δ	0.109	0.125	α_0	-0.673	-0.483
ζ_z	0.585	0.504	α_1	0.775	0.575
σ_z	0.033	0.008	φ	1.2	0.93
ζ_m	1.0	1.0	$\bar{m}$	20	20
σ_m	0.0	0.0	β	0.74	0.90
	Argentina			**Developed**	
Moment	**Data**	**Model**		**Data**	**Model**
$\mu\left(\frac{b}{y}\right)$	49.7%	49.3%		67.6%	68.5%
$\mu\left(\frac{g}{y}\right)$	17.9%	13.5%		-	-
$\mu(r-r^*)$	7.6%	7.9%		0.35%	0.36%
σ(Spreads)	3.3%	3.0%		-	-

Notes: The parameter ω is same as that of the benchmark in both the low-β calibrations. Only α_0 and β are different from the benchmark in the developed low β calibration. They are used to match the spreads and the level of debt to GDP. Only targeted moments are reported. In this model, $\bar{m}$ is set to n, and its volatility is set to zero.

Table 15: Low-β: long-run moments

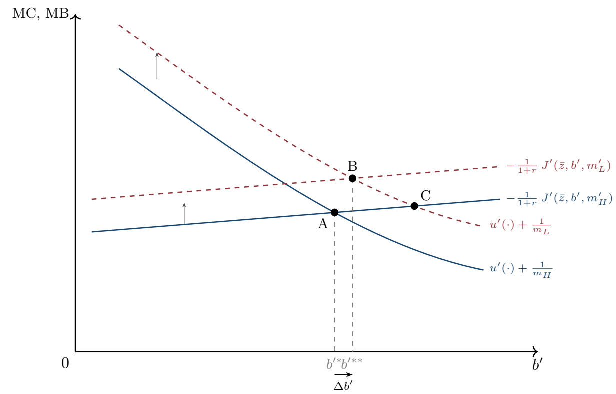
Moment	Benchmark (Arg) $\bar{m} = 2.32$	Low β (Arg) $\bar{m} = 20$	Benchmark (Dev) $\bar{m}^{Dev} = 6.4$	Low β (Dev) $\bar{m} = 20$
Means(%)				
Tax	18.2	14.1	14.6	13.7
Debt/y*	52.6	49.3	69.4	68.5
B/y^*	6.9	$\simeq 0.0$	0.8	$\simeq 0$
Gov Spend/y^*	17.9	13.5	12.5	12.0
Spreads*	7.3	7.9	0.35	0.36
Default per 100 years	5	4	0	1
St Devs(%)				
Debt/y†	17.4	16.5	1.7	1.2
Spreads*	3.4	3.0	0.1	0.1
y^*	6.3	6.3	1.1	2.2
Tax	2.9	4.0	0.3	1.8
σ(Gov Spend)$/\sigma(y)$	3.1	1.4	1.3	1.3
σ(Cons)$/\sigma(y)$	1.2	1.3	0.9	1.4
Correlations				
ρ(Debt$/y, y$)	-0.5	-0.6	-0.5	-0.3
$\rho(B/y, y)$	0.4	0.4	0.3	0.3
ρ(Gov Spend, y)	0.7	0.9	0.9	0.9
$\rho(y, c)$	0.9	0.9	0.9	$\simeq 1.0$
ρ(Deficit$/y, y$)	0.3	0.3	-0.3	0.4
ρ(Spread, y)	-0.2	-0.7	-0.3	-0.4

Note: Second moments for variables not expressed as ratios to y are logged and HP-filtered with smoothing parameter $\lambda = 100$. Spreads are in annualized percentage terms. * denotes calibration targets for the benchmark and developed columns. For the low-β columns, B/y is not a target. †: To make the *sd* of debt-GDP comparable, we adjust them for default. This is computed by removing the build-up of debt after a default in the low-β economy.

D.1 The Feedback Mechanism

Figure 21 summarizes the feedback mechanism because of the common-pool problem in our benchmark model. We show this by moving from a high m to a low m environment and the resulting strengthening of this effect. The solid (blue) downward sloping line is the MB curve, and the flatter upward sloping line is the MC. The initial equilibrium is at point A, where $m = m_H$. Consider a fall in m to m_L. The MB line immediately shifts up to the dashed (maroon) downward sloping line. This is because the benefit from clientelistic transfers increases, increasing the benefit from an additional unit of borrowing. Without any feedback from the MC, the equilibrium would be at point C. However, the MC also rises responding to the lowering of m. The government in the current period internalizes that if m is low, it is more likely to stay low in future periods as well. With political turnover, this makes it more unlikely for the proposer in the current period to be in the mwc in the future, making current borrowing costlier. This mechanism moves the equilibrium to B, increasing borrowing by a smaller amount. It is this feedback mechanism that keeps the marginal cost schedule flatter in the benchmark model.

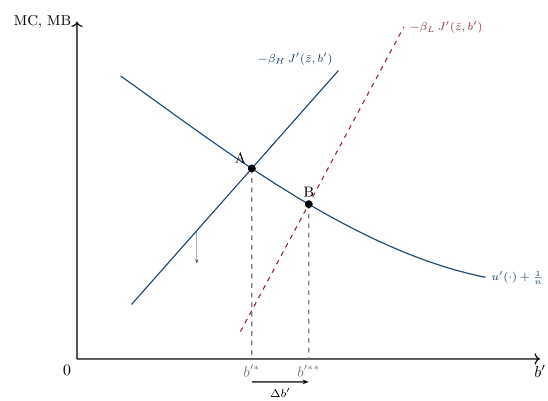
Figure 21: Effect of lowering m in the Benchmark Model



Note: A: Initial equilibrium; B: new equilibrium. C: potential equilibrium without *feedback effect*. Dashed (maroon) upward sloping line is the MC. Dashed (maroon) downward sloping line is new MB. Solid (blue) are initial MB and MC (for m_H). Feedback reduces borrowing from C to B.

Figure 22 shows the effect of a reduction in β from β_H to β_L. With the initial equilibrium at A, this simply moves the MC curve downwards and steepens it. Obviously, there is no feedback mechanism that results in a reduction in the level of new borrowing. The new equilibrium moves to B, and debt rises to b'^{**}.

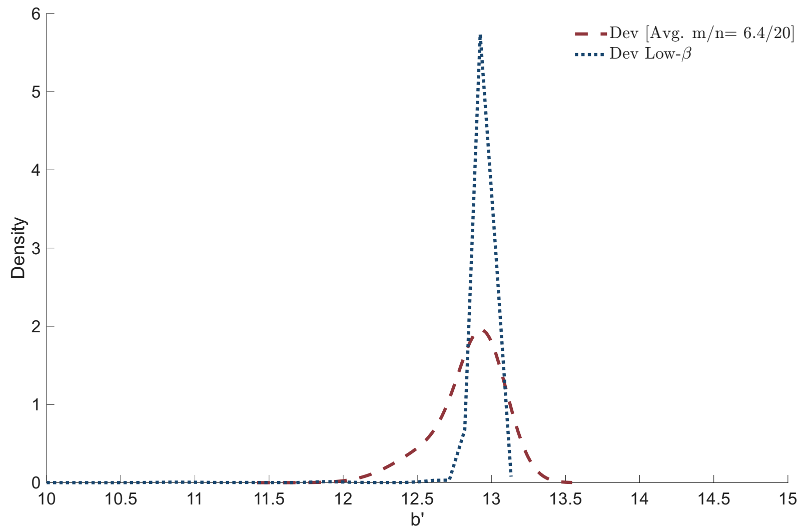
Figure 22: Effect of lowering β in the Low-β Model



Note: A: Initial equilibrium; B: new equilibrium. Upward sloping solid (blue line) is the initial MC; Dashed (maroon) is the new MC. Downward sloping solid (blue) line is the MB.

One implication of the β-model is the limited movement in new borrowing by the sovereign. This is expected, given the steepness of the MC curve. Figure 23 compares the new borrowing distribution for our developed country benchmark with its low-β counterpart. The dashed (maroon) line is the distribution of borrowing corresponding to the benchmark economy, while the dotted (blue) line is the distribution for the low-β economy. Our model delivers a more spread-out distribution of debt compared to the standard sovereign default model. Note that ours being an annual calibration weakens this result. In a quarterly calibration where the income process is more persistent, the difference between the distributions is starker.

Figure 23: Borrowing choice for Benchmark vs β-Model (Developed)



Note: Kernel density estimates of the ergodic distribution of borrowing choice (b'). Distributions are constructed from simulated panels, excluding periods of default and the subsequent build-up of debt.