The Political Economy of Credit Booms and Macroprudential Regulation *

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Abstract

We study how political economy frictions reshape macroprudential policy and the dynamics of credit booms in an open-economy model of financial crises. When policymakers with heterogeneous regulatory biases alternate in power, a forward-looking, responsible regulator tightens preemptively—setting tighter capital controls even when near-term risks are low. Quantitatively, political frictions generate regulatory cycles in which extended tranquility is followed by deregulation and crises, consistent with event-study evidence around sudden stops. Finally, the framework clarifies why conventional empirical estimates can understate the effects of regulation on capital flows, and shows how political shocks can be used to remedy this endogeneity.

Keywords: Macroprudential policy, capital flows, political economy, financial crises

JEL classification: E42, F31, F32, F34, F41, P48.

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1 Introduction

Financial deregulation episodes follow a consistent pattern: they stimulate credit and output booms in the short run, but are often followed by financial crises. This recurring pattern—long emphasized by Minsky (1977)—has fueled the view of financial crises as credit booms gone bust, prompting a large empirical literature aimed at identifying the drivers of the credit cycle and a growing theoretical literature emphasizing the role of macroprudential regulation in containing the vulnerability to these crises.

Currently, in the United States, a renewed political shift toward deregulation is underway, reigniting concerns that such policies may once again sow the seeds of financial instability.[1] Similar dynamics have played out across advanced and emerging economies alike, where political cycles often coincide with shifts in regulatory stance, amplifying financial vulnerabilities. The association between political cycles, financial deregulation, and crises raises important questions. What are the implications of political economy factors for the dynamics of credit booms and busts? And how should policymakers adjust the regulatory design in the face of political uncertainty?

To address these questions, this paper develops a dynamic quantitative model of macroprudential policy with political economy frictions. Unlike the existing literature, which assumes a single benevolent social planner, we consider an environment where policymakers with different ideological backgrounds alternate in power. Taking the political cycle as given, we show that a responsible, forward-looking policymaker has incentives to tighten regulation above and beyond what would be optimal in a setting without political frictions. The model illustrates how the dynamics of the regulatory cycle can generate an extended period of financial tranquility, followed by a wave of financial deregulation that ultimately culminates in a financial crisis. Finally, we show how these political economy dynamics help shed light on empirical estimates of macroprudential effectiveness. Our model shows that conventional estimates may be biased due to endogeneity, and we propose a way to address this by using political economy variation.

We consider a small open economy model with tradable and non-tradable goods and imperfect capital markets, building on Mendoza (2002) and Bianchi (2011). Households face uninsurable income shocks and borrow from foreign investors, subject to an occasionally binding constraint linked to their income. In this benchmark economy, the feedback between consumption, the relative price of non-tradables, and the borrowing constraint generates a pecuniary externality by which households overborrow because they do not internalize that

[1] See, for example, the Financial Times editorial board article on "*Trump's reckless experiment with financial deregulation*", Feb 17, 2025.

higher aggregate debt contributes to a tighter borrowing constraint for other households. This calls for a strictly positive tax on borrowing whenever there is a positive probability of a binding constraint in the next period (e.g., Bianchi, 2011).

We study a Markov equilibrium in which two types of policymakers alternate in power. An "irresponsible" policymaker lets capital flow freely and, because of an ideological bias (or other reasons), fails to impose any regulations. On the other hand, a "responsible" policymaker sets a tax on borrowing optimally, anticipating that it might be replaced by an irresponsible policymaker in the future. In contrast to the constrained-efficient solution, we demonstrate that the responsible policymaker implements a strictly positive tax on borrowing, even when the probability of a crisis occurring in the following period is zero.

If a responsible policymaker expects to remain in power indefinitely, she can smooth regulation over time, loosening today and tightening tomorrow as risk evolves. By contrast, when there is a risk of being replaced by an irresponsible policymaker, it becomes optimal to front-load regulation, since future corrective action may not occur. The key mechanism is that political turnover risk breaks the standard envelope logic: current debt affects not only future crisis probabilities, but also the borrowing path implemented under future deregulation. We derive a Generalized Euler Equation (GEE) that shows the responsible policymaker internalizes both the direct resource effect of lower debt tomorrow and an additional effect operating through the borrowing policy of a potential future irresponsible government. By reducing debt today, the responsible policymaker constrains the scale of overborrowing that would arise under future deregulation, thereby mitigating future externalities.

Turning to the quantitative results, we show that the dynamics of capital flows differ sharply depending on whether political economy frictions are present. In the constrained-efficient economy (without political frictions), financial crises are preceded by tighter regulation. This apparent paradox reflects selection: crises occur in states where the planner anticipates elevated risk and responds by tightening ex ante. By contrast, in the economy with political frictions, crises are preceded by looser regulation on average, consistent with the data. In this case, crises tend to follow credit booms that arise under episodes of deregulation when the irresponsible policymaker is in power.

Finally, we derive implications for the empirical evaluation of macroprudential policy. A central challenge in estimating the impact of regulation on capital flows is policy endogeneity: regulatory changes respond to underlying economic conditions. Policymakers tighten in periods of rapid credit growth and relax following episodes of financial stress, making it difficult to disentangle policy effects from the economic environment. As a result, standard estimates may confound the causal impact of regulation with the dynamics that trigger it.

Through the lens of our model, we show that this endogeneity leads OLS regressions to understate the effects of macroprudential policy. We then propose an instrumental-variables strategy that exploits political economy variation to address this bias. Using model-simulated data, a two-stage least squares approach recovers sizable effects of regulation on capital flows, a finding we validate in a panel of emerging economies.

Related Literature. Our paper belongs to the literature on macroprudential regulation. This literature has examined how tightening borrowing limits can help correct pecuniary externalities that emerge because of price-dependent financial constraints (e.g., Lorenzoni, 2008; Bianchi, 2011; Bianchi and Mendoza, 2018; Jeanne and Korinek, 2018). The literature has focused on second-best environments in which a benevolent policymaker chooses regulation to maximize average welfare. One notable exception is Rola-Janicka (2020). In an environment with heterogeneous borrowers that differ in the level of political connectedness, she shows that, depending on the electoral power of the connected borrowers, the outcome may be a macroprudential policy that is either too lax or too strict. Our focus is different in that we take the political economy process as given and use our framework to understand the dynamic effects of political economy frictions for the design of macroprudential policy.

Herrera, Ordonez and Trebesch (2020) document that political booms—measured as increases in incumbent popularity—precede financial crises in emerging markets. They rationalize this pattern with a model in which incumbents of differing quality value reelection and may refrain from tightening regulation during credit booms to preserve political support. Müller (2023) provides complementary evidence, documenting systematic electoral cycles in macroprudential regulation, with regulatory loosening in the run-up to elections. While these papers emphasize electoral incentives, we focus on how stochastic political turnover reshapes optimal macroprudential policy in an environment with pecuniary externalities, generating endogenous cycles of deregulation, credit booms, and crises.

Our paper is also related to an extensive literature on the effectiveness of macroprudential policy (e.g., Forbes, 2007; Alfaro, Chari and Kanczuk, 2017; Forbes, Fratzscher and Straub, 2015; Richter, Schularick and Shim, 2019; Rojas, Vegh and Vuletin, 2022; Das, Gopinath and Kalemli-Özcan, 2022; Bergant, Fernández, Teoh and Uribe, 2026) and the link between financial liberalization, credit booms, and financial crises (Kaminsky and Schmukler, 2008; Jordà, Richter, Schularick and Taylor, 2021; Sufi and Taylor, 2022; Jordà, Schularick and Taylor, 2017). A central challenge in this literature is policy endogeneity: regulatory measures respond to the economic environment, making it difficult to disentangle causal effects from underlying dynamics. Recent work has addressed this concern using microdata, narrative approaches, and high-frequency identification strategies (see, e.g., Drechsel and Miura, 2025).

Our contribution is complementary: we provide a structural framework that clarifies the source and direction of the bias, show that standard OLS estimates are attenuated, and argue that political turnover provides exogenous variation suitable for instrumental-variables estimation.

Outline. Section 2 presents the model. Section 3 characterizes optimal policy under political turnover. Section 4 provides quantitative results. Section 5 discusses the empirical implications of the model and implements the proposed instrumental-variables strategy. Section 6 concludes.

2 Model

We embed stochastic political turnover into a standard small open economy model with pecuniary externalities. The economy is populated by a continuum of identical households that borrow externally, subject to an occasionally binding borrowing constraint linked to their income. Policymakers set taxes on borrowing and alternate in power stochastically.

2.1 Households

Households have time-separable preferences over consumption bundles of tradable and non-tradable goods:

$$\mathbb{E}_0 \sum_{t=0}^{\infty} \left(\prod_{j=0}^{t} \beta_j \right) u(c_t) \, . \tag{1}$$

We use a CRRA utility function over a consumption composite, c. The composite has a CES form:

$$c = \left[\omega \left(c^T \right)^{\frac{\eta-1}{\eta}} + (1-\omega) \left(c^N \right)^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}} \, ,$$

with $\omega \in (0,1)$ denoting the weight on tradable consumption, and where $\eta > 0$ is the elasticity of substitution between tradable and non-tradable goods. The household discount factor, β_t, is stochastic and it follows the process:

$$\beta_t = \bar{\beta}(1 + \iota_t) \, , \tag{2}$$

where $\bar{\beta} \in (0,1)$ denotes average impatience, and ι_t is an i.i.d. shock with mean zero.[2] Stochastic impatience generates exogenous fluctuations in borrowing demand, independently

[2]We assume the support of ι_t is such that $\beta_t \in (0,1)$.

of income realizations and the political process.

Households receive a stochastic endowment of tradable goods y_t^T and a constant endowment of non-tradable goods y^N. We assume that y_t^T follows a first-order Markov process. The budget constraint of the households, denoted in units of tradable goods, is

$$p_t^N c_t^N + c_t^T + b_t = p_t^N y^N + y_t^T + \frac{1}{R(1+\tau_t)} b_{t+1} + T_t\,, \tag{3}$$

where b_t denotes a one-period non-state-contingent debt, which pays a gross interest rate R, τ_t is a tax on borrowing, and T_t represents lump-sum transfers from the government. We normalize the price of tradable goods to one, and p_t^N stands for the relative price of non-tradable goods.

Household's debt choice (b_{t+1}) cannot exceed a fraction κ of the total value of their endowment:

$$b_{t+1} \leq \kappa(y_t^T + p_t^N y^N)\,. \tag{4}$$

The constraint captures, in a parsimonious way, the empirical fact that income is central in determining households' credit-market access (e.g., Jappelli, 1990; Lian and Ma, 2021). Importantly, borrowing capacity depends on the equilibrium relative price of non-tradables. Because households take prices as given, they do not internalize how aggregate borrowing affects the real exchange rate and thus the value of the collateral. This price dependence generates a pecuniary externality.

The problem of households is to maximize (1) subject to (2)–(4), taking prices and taxes as given. The first optimality condition of this problem yields a standard condition equating the marginal rate of substitution between tradable and non-tradable goods to their relative price:

$$p_t^N = \frac{1-\omega}{\omega}\left(\frac{c_t^T}{c_t^N}\right)^{1/\eta}\,. \tag{5}$$

The intertemporal Euler equation is:

$$u_T\left(c_t^T, c_t^N\right) = \beta_t R(1+\tau_t)\,\mathbb{E}\,u_T\left(c_{t+1}^T, c_{t+1}^N\right) + \mu_t\,, \tag{6}$$

where $\mu_t \geq 0$ is the Lagrange multiplier on the borrowing constraint, and u_T denotes the derivative of the household's utility with respect to tradable consumption.

2.2 Government

The government rebates tax revenues lump-sum to households. Its budget constraint is

$$T_t = \frac{\tau_t}{1+\tau_t}\frac{B_{t+1}}{R}, \tag{7}$$

where upper-case B denotes the aggregate debt level.

Policy is chosen sequentially by the party in power, and political parties alternate in power exogenously according to a Markov process. Let $g_t \in \{i, r\}$ be an indicator variable representing the identity of the incumbent party in period t, with i referring to the "irresponsible" party and r to the "responsible" one. In particular, we assume that the identity of the incumbent party follows a Markov process characterized by a transition probability matrix:

$$\Gamma = \begin{bmatrix} \Gamma_i & 1-\Gamma_i \\ 1-\Gamma_r & \Gamma_r \end{bmatrix}, \tag{8}$$

where $\Gamma_g \in (0,1)$ is the probability that incumbent party $g \in \{i, r\}$ remains in power in the next period. Policy cannot be committed beyond the current period; future macroprudential policy is determined by the party in office at that date.

2.3 Competitive Equilibrium

Market clearing in the non-tradable goods market implies

$$c_t^N = y^N. \tag{9}$$

Combining market clearing with the household and government budget constraints yields the aggregate resource constraint for tradables:

$$c_t^T + B_t = y_t^T + \frac{B_{t+1}}{R}. \tag{10}$$

We are now ready to define a competitive equilibrium.

Definition 1. (Competitive Equilibrium) Given initial debt B_0, government policies $\{\tau_t, T_t\}_{t=0}^{\infty}$, and the stochastic processes for y^T and ι_t; a *competitive equilibrium* is a sequence of household allocations $\{c_t^T, c_t^N, b_{t+1}\}_{t=0}^{\infty}$, and a sequence of prices $\{p_t^N\}_{t=0}^{\infty}$ such that:

i. Given prices and government policies, households maximize (1) subject to (2)–(4);

ii. The government budget constraint (7) holds;

iii. Markets clear, i.e., (9) holds.

Discussion of the political structure The political block can be interpreted in several ways. One interpretation is that parties differ in their ideological stance toward financial regulation. Alternatively, policymakers may refrain from implementing optimal regulation due to electoral concerns (e.g., Herrera, Ordonez and Trebesch, 2020; Cotoc, Johri and Sosa-Padilla, 2025) or because they represent constituencies adversely affected by prudential measures. We make the simplifying assumption that the irresponsible party sets prudential taxes to zero at all times. Allowing instead for private political costs of regulation would leave the mechanism and main results unchanged.

2.4 Constrained-Efficient Allocations

We close the description of the model by defining the constrained-efficient allocations in this environment. Following Bianchi (2011), consider a planner who chooses debt subject to resource and borrowing constraints. These allocations are a helpful benchmark because they are equivalent to the choices of a responsible government if it were immune to political turnover. The problem of the constrained planner is

$$V^{SP}(B,s) = \max_{c^T,B'} u(c^T,y^N) + \beta \mathbb{E} V^{SP}(B',s') \tag{11}$$
$$\text{s.t} \quad c^T + B = y^T + \frac{B'}{R}$$
$$B' \leq \kappa \left[y^T + \mathcal{P}^N(c^T) y^N \right] ,$$

where $s \equiv \{y^T, \beta\}$ is the exogenous state, and $\mathcal{P}^N(c^T) = \frac{1-\omega}{\omega} \left(\frac{c^T}{y^N} \right)^{1/\eta}$.

The Euler equation that characterizes the optimal allocations of the social planner is:

$$\frac{u_T(c^T,y^N)}{R} = \beta \mathbb{E} \left[u_T(c^{T\prime},y^N) + \frac{\partial \mathcal{P}^N}{\partial c^T} \kappa \mu' \right] + \mu \left(1 - \frac{\partial \mathcal{P}^N}{\partial c^T} \kappa \right) \tag{12}$$

As in Bianchi (2011), the pecuniary externality is reflected in a wedge in the Euler equation of the planner relative to the Euler equation of individual households (6). When the borrowing constraint binds, $\mu > 0$,[3] higher tradable consumption helps to appreciate the real exchange rate (i.e., to increase the relative price of non-tradable goods) and relaxes other households' borrowing constraints. When the borrowing constraint is not binding, $\mu = 0$, higher savings imply higher consumption tomorrow, positively affecting tomorrow's borrowing capacity. These dynamics imply that there is scope for policy intervention in this environment.

3 Macroprudential Policy under Political Frictions

We now study the political game between the responsible party r and the irresponsible party i. Each party chooses policy subject to the implementability constraints implied by household behavior, taking the other party's strategy as given. We focus on Markov equilibria, so the pay-off relevant aggregate state variables are B, g, and s.

3.1 Responsible government

When the responsible party (r) is in power, it chooses the macroprudential tax τ that maximizes the welfare of households subject to the allocations being competitive equilibrium. The problem can be written as:

$$V^r(B,r,s) = \max_{c^T,B'} u\left(c^T, y^N\right) + \beta\left[\Gamma_r\,\mathbb{E}\,V^r(B',r,s') + (1-\Gamma_r)\,\mathbb{E}\,V^r(B',i,s')\right] \tag{13}$$

$$\text{subject to}$$

$$c^T + B = y^T + \frac{B'}{R}$$

$$B' \leq \kappa\left[y^T + \mathcal{P}^N(c^T)y^N\right]$$

Relative to the planner problem (11), the continuation value reflects that with probability $1-\Gamma_r$ the responsible party will lose control and future policy will be set by the irresponsible party. The responsible party's continuation value for the case in which the irresponsible party is in power is given by

$$V^r(B,i,s) = u\left(\mathcal{C}^T(B,i,s), y^N\right) + \beta[\Gamma_i \mathbb{E} V^r(\mathcal{B}(B,i,s),i,s') + (1-\Gamma_i)\,\mathbb{E}\,V^r(\mathcal{B}(B,i,s),r,s')] \tag{14}$$

where $\mathcal{C}^T(B,g,s)$ and $\mathcal{B}(B,g,s)$ stand for the equilibrium consumption and debt functions

[3] With some abuse of notation, we denote by μ the multipliers in the borrowing constraint for all agents in this economy, including the social planner.

when the aggregate state is (B, g, s).

3.2 Irresponsible government

The irresponsible government is restricted to setting $\tau(B, i, s) = 0$ when in power. Consumption and borrowing satisfy the following.

$$\mathcal{C}^T(B, i, s) = y^T - B + \frac{\mathcal{B}(B, i, s)}{R} \tag{15a}$$

$$\mathcal{B}(B, i, s) \leq \kappa \left[y^T + \mathcal{P}^N \left(\mathcal{C}^T(B, i, s) \right) y^N \right] \tag{15b}$$

$$u_T \left(\mathcal{C}^T(B, i, s), y^N \right) \geq \beta R \left[\Gamma_i \mathbb{E} u_T(\mathcal{C}^T(\mathcal{B}, i, s'), y^N) + (1 - \Gamma_i) \mathbb{E} \, u_T \left(\mathcal{C}^T(\mathcal{B}, r, s'), y^N \right) \right] \tag{15c}$$

where the last constraints holds with equality if $\mathcal{B}(B, i, s) < \kappa \left[y^T + \mathcal{P}^N(\mathcal{C}^T(B, i, s)) \, y^N \right]$. We assume uniqueness of the equilibrium allocations under $g = i$, which we verify numerically under our calibration.

3.3 Markov equilibrium

We define the Markov perfect equilibrium of this environment as follows.

Definition 2. (Markov Equilibrium) A Markov perfect equilibrium consists of policy functions $\{\mathcal{C}^T(B, g, s), \mathcal{B}(B, g, s)\}$ and value functions $V^r(B, g, s)$, for $g \in \{i, r\}$ such that; $\{\mathcal{C}^T(B, r, s), \mathcal{B}(B, r, s), V^r(B, g, s)\}$ solve the responsible party's problem (13), $\{\mathcal{C}^T(B, i, s), \mathcal{B}(B, i, s)\}$ solve (15), and $V^r(B, i, s)$ satisfies (14).

We now characterize the optimal policy of the responsible government and contrast it with the constrained-efficient allocation.

3.4 The Generalized Euler Equation (GEE)

The first-order condition for debt is:

$$\frac{u_T(c^T, y^N)}{R} = -\beta \left[\Gamma_r \, \mathbb{E} \, \frac{\partial V^r(B', r, s')}{\partial B'} + (1 - \Gamma_r) \, \mathbb{E} \, \frac{\partial V^r(B', i, s')}{\partial B'} \right] + \mu \left(1 - \frac{\partial \mathcal{P}^N(c^T)}{\partial c^T} \kappa \right) \tag{16}$$

We can use the envelope condition to compute the derivative of V^r when the responsible party remains in power:

$$\frac{\partial V^r(B,r,s)}{\partial B} = -u_T(c^T, y^N) - \frac{\partial \mathcal{P}^N(c^T)}{\partial c^T}\kappa\mu \tag{17}$$

On the other hand, when the irresponsible party is in power, we can use (14)–(15) to obtain:

$$\frac{\partial V^r(B,i,s)}{\partial B} = -u_T(c^T, y^N)\left(1 - \frac{1}{R}\frac{\partial \mathcal{B}(B,i,s)}{\partial B}\right) - \tag{18}$$
$$\beta\,\frac{\partial \mathcal{B}(B,i,s)}{\partial B}\left[(1-\Gamma_i)\,\mathbb{E}\left(\frac{\partial V^r(B',r,s')}{\partial B'}\right) + \Gamma_i\,\mathbb{E}\left(\frac{\partial V^r(B',i,s')}{\partial B'}\right)\right] - \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B,i,s)\big)}{\partial c^T}\kappa\,\mu$$

From now on, we will focus on the macroprudential motives of the responsible government. So, we will focus on states where the borrowing constraint is not binding ($\mu = 0$). We combine (16)–(18) to obtain:

$$\begin{aligned}
u_T(c^T, y^N) = \beta R\Bigg[\Gamma_r\,\mathbb{E}\left(u_T(c^{T\prime}, y^{N\prime}) + \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B',r,s')\big)}{\partial c^{T\prime}}\kappa\,\mu'\right)& \\
+ (1-\Gamma_r)\,\mathbb{E}\Bigg(u_T\big(\mathcal{C}^T(B',i,s'), y^{N\prime}\big)\left(1 - \frac{1}{R}\frac{\partial \mathcal{B}(B',i,s')}{\partial B'}\right)& \\
+ \beta'\,\frac{\partial \mathcal{B}(B',i,s')}{\partial B'}\left[(1-\Gamma_i)\,\mathbb{E}'\frac{\partial V^r(B'',r,s'')}{\partial B''} + \Gamma_i\,\mathbb{E}'\frac{\partial V^r(B'',i,s'')}{\partial B''}\right]& \\
+ \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B',i,s')\big)}{\partial c^{T\prime}}\kappa\,\mu'\Bigg)\Bigg]&
\end{aligned} \tag{19}$$

Suppose that the household chooses the optimal consumption and debt policy when the irresponsible party is in power. In that case, we can use the envelope theorem to cancel the second line in (19) and recover the Euler equation that characterizes the solution of the constrained efficient allocations, namely equation (12). Instead, the FOC of the responsible government accounts for the deviations from the optimal policy when the irresponsible party is in power. In particular, the responsible party reduces debt because it might be the case that in the future they will be out of office. Consequently, households would overborrow due to the lax macroprudential policy of the irresponsible party. The best response, from the point of view of the responsible party, is to increase current taxes to reduce the exposure of the economy and, in that way, reduce future overborrowing. In the next subsection, we will show that this effect leads to the responsible government's more aggressive macroprudential policy than to the constrained efficient policy.

Iterating forward (19), we obtain the Generalized Euler Equation for the responsible party, which we formalize in the lemma below.

Lemma 1. *(Generalized Euler Equation) The Generalized Euler Equation (GEE) for the responsible party satisfies:*

$$
\begin{aligned}
u_T\left(c_t^T, y_t^N\right) = \beta_t R \Bigg[\Gamma_r\, \mathbb{E}_t \left(u_T\left(c_{t+1}^T, y_{t+1}^N\right) + \frac{\partial \mathcal{P}^N\left(\mathcal{C}^T(B_{t+1}, r, s_{t+1})\right)}{\partial c_{t+1}^T} \kappa\, \mu_{t+1} \right) \\
+ (1-\Gamma_r) \sum_{n=1}^{\infty} (\Gamma_i)^n \left(\prod_{j=t}^{t+n-1} \beta_{j+1} \frac{\partial \mathcal{B}(B_j, i, s_j)}{\partial B_j} \right) \mathbb{E}_t \Bigg[\Bigg(u_T\left(\mathcal{C}^T(B_{t+n}, i, s_{t+n}), y^N\right) \\
+ \frac{\partial \mathcal{P}^N\left(\mathcal{C}^T(B_{t+n}, i, s_{t+n})\right)}{\partial c_{t+n}^T} \kappa\, \mu_{t+n} \Bigg) \left(\frac{1}{R} \frac{\partial \mathcal{B}(B_{t+n-1}, i, s_{t+n-1})}{\partial B_{t+n-1}} - 1 \right) \\
+ (1-\Gamma_i)\, \mathbb{E}_t \left(u_T\left(c_{t+n}^T, y_{t+n}^N\right) + \frac{\partial \mathcal{P}^N\left(\mathcal{C}^T(B_{t+n}, r, s_{t+n})\right)}{\partial c_{t+n}^T} \kappa\, \mu_{t+n} \right) \Bigg] \Bigg] + \mu_t \left(1 - \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T} \kappa \right)
\end{aligned}
$$

Proof. See Appendix A.1. □

The GEE of the responsible government equates the marginal utility of current consumption with the cost of carrying higher debt into the future. The cost of the debt depends on which party will be in power in all possible future histories. The first term on the right-hand side of the equation is the marginal cost of one unit of debt if the responsible party remains in power. The second term measures the cost of one unit of debt if the irresponsible party takes power in any future history. Note that the future cost of one unit of debt when the irresponsible party is in power depends on the derivatives of the optimal debt policy function of the irresponsible government and on the sequence of Lagrange multipliers of the borrowing constraints.

3.5 Macroprudential Tax

One of the key results in the literature on macroprudential policy is that the competitive equilibrium is inefficient if and only if, at least for some states, the borrowing constraint is binding in the next period. This, in turn, implies that macroprudential policy has no role in states where the probability of the borrowing constraint binding the next period is zero. This result no longer holds for an economy with political frictions.

Proposition 1. *(Macroprudential Policy is always active.) Assume that there exists a horizon $h > 0$ and a state s_{t+h} such that $\mu^r_{t+h}(B_{t+h}, g_{t+h}, s_{t+h}) \neq 0$. Then $\tau_t(B_t, r, s_t) > 0$.*

Proof. See Appendix A.2. □

Proposition 1 summarizes a key difference between the optimal policy in our model and the one typically found in the literature. In the model, households do not internalize the effect of their decisions on the price of non-tradable goods. They do not consider that by taking more debt they are reducing their expected consumption of tradable goods in the next period, thus reducing prices and increasing the probability of the borrowing constraint binding. In a model without political frictions, the externality is irrelevant in states where the probability that the constraint binds in the next period is zero. In those states, the household's debt policy coincides with the efficient one, and the optimal tax is zero. The key is that, without political friction, the government will adjust macroprudential policy if risk increases to prevent households from overborrowing.

In contrast, with political frictions, even if the probability of a crisis in the next period is nil, there is still a chance that some macroprudential policy would be necessary down the road if the risk were to increase. It might also be that future governments will be irresponsible and do not implement the necessary regulations. This implies that if the risk increases, the economy will overborrow. In response, optimal regulation is more aggressive in reducing risk.

4 Quantitative Analysis

In this section, we describe the solution of the quantitative model to explore the implications of political frictions. We solve the model for three different economies: (i) an "Unregulated" economy where the irresponsible party is always in power, (ii) a "constrained efficient" economy where the responsible party is always in power, and (iii) a regulated economy with political frictions.

4.1 Calibration

We calibrate the model to Mexico, and follow the approach in Bianchi (2011). One period corresponds to one year. Table 1 reports all parameter values used in the baseline. The coefficient of relative risk aversion is set to $\sigma = 2$, the world interest rate to $R = 1.04$, and the elasticity of substitution to $\eta = 0.83$.

Table 1: Parameter Values

Parameter	Value	Source
Interest rate	$R = 1.04$	Bianchi (2011)
Risk aversion	$\sigma = 2$	Bianchi (2011)
Elasticity of substitution	$\eta = 0.83$	Bianchi (2011)
Weight on tradable in CES	$\omega = 0.33$	Share of tradable GDP = 33%
Tradable output persistence	$\rho = 0.24$	WDI data
Tradable output volatility	$\sigma_T = 0.034$	WDI data
Mean discount factor	$\bar{\beta} = 0.904$	NFA-GDP ratio
Discount factor shock	$\iota \in [-0.05, 0.05]$	Uniform distribution
Credit constraint parameter	$\kappa = 0.34$	Frequency of crises
Prob. responsible party in office	$\Gamma_r = 0.22$	Political data
Prob. irresponsible party in office	$\Gamma_i = 1 - \Gamma_r$	Baseline

To estimate the stochastic process for the tradable endowment, we use value-added data from the primary and manufacturing sectors. We assume a first-order autoregressive process for the cyclical component:

$$\ln y_t^T = \rho^y \ln y_{t-1}^T + \varepsilon_t^y \quad \text{with} \quad \varepsilon_t^y \sim N(0, \sigma_y),$$

and estimate $\rho^y = 0.24$ and $\sigma_y = 0.034$.[4] We normalize non-tradable output to one and set $\omega = 0.33$ to match Mexico's average tradable output share of 33%. The mean discount factor is set to $\bar{\beta} = 0.904$ to match the average net foreign asset (NFA) to GDP ratio of -37.0%. We assume that ι is uniformly distributed over the support $[-0.05, 0.05]$, and set $\kappa = 0.34$ to target the average sudden-stop frequency (5.5% as in Bianchi and Mendoza (2010)) in the economy with political frictions.

The political process is governed by the transition matrix Γ. In the baseline, we assume no persistence, so the process is summarized by a single parameter. We calibrate this parameter using data on party orientation and capital inflow restrictions, such that the party more likely to impose capital controls is in office 22% of the time.[5] We also perform a sensitivity analysis to show that our main results are robust to alternative specifications of the political process.

[4]We use annual value-added data for manufacturing and agriculture from the WDI (1970–2024). The cyclical component of tradable output is extracted using the Hodrick-Prescott filter with a smoothing parameter of 100.

[5]See Section 5.7 for further details.

We solve the Markov equilibrium using a combination of value function iteration and time iteration as explained in Appendix B.

4.2 Optimal Tax Policy

Figure 1 shows the tax policy of the responsible party and the social planner for the mean values of the tradable endowment and the impatience of households.

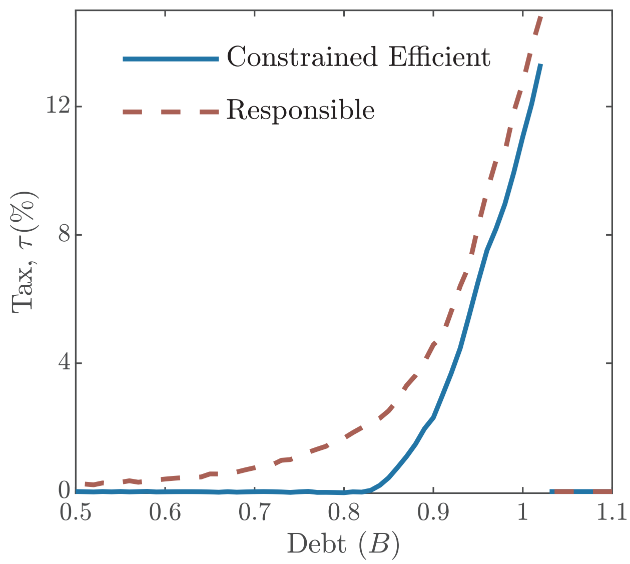

Figure 1: Macroprudential Tax

Note: This figure is computed assuming the endowment of tradable goods and the impatience of the households are their respective means .

First, note that the optimal tax is zero for high debt levels in both economies. In those states, the borrowing constraint is already binding, so there is no scope for macroprudential policy. The social planner and the responsible party set high taxes for intermediate debt levels to reduce the probability of a crisis. However, the responsible government adopts a more aggressive policy. Finally, for low levels of debt, the optimal tax converges to zero, while the tax of the responsible party does not, which is consistent with the analytical results (see Proposition 1).

Next, we perform an event analysis that compares the macroprudential policy in the model and the data. We analyze episodes of sudden stops. For the model, we follow the literature in classifying an event as a sudden stop if the borrowing constraint binds and the current account falls by more than two standard deviations compared to the historical mean. Also, we follow the empirical literature for the data to define a sudden stop as any event in which the current account falls two standard deviations below its mean.

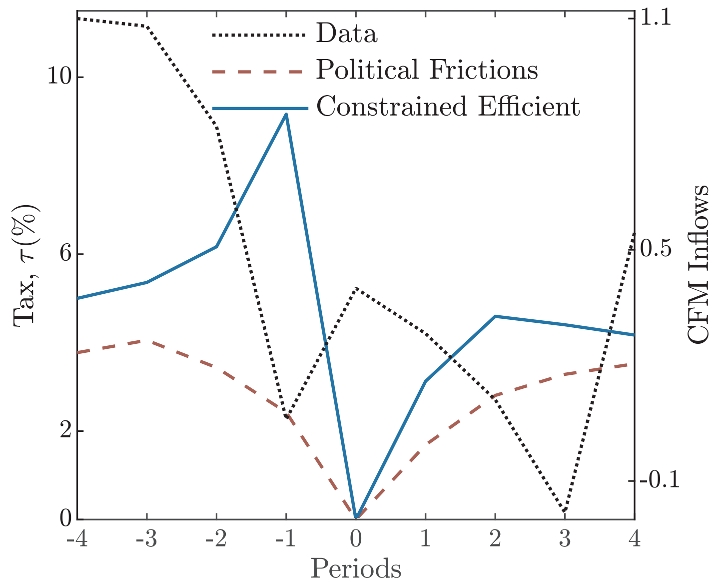

Figure 2: Tax on Borrowing around Crises

Note: This figure plots the simulation results of both the constrained-efficient and the political-frictions economies. Period zero corresponds to a sudden stop. We present the average tax policy for five periods before and after the sudden stop. CFM increases by one if a country introduces a capital control and decreases by one if it removes a capital control.

In Figure 2, we use data from Das et al. (2022) on changes in capital controls to construct measures of how countries use macroprudential policy around episodes of sudden stops. In particular, we use a measure that increases by one if a country introduces a capital control and decreases by one if it removes a capital control. We focus on capital controls on inflows because these better represent the type of macroprudential policy studied in the model. We can see that in the data, the typical crisis is preceded by periods in which countries tend to remove capital controls.

Figure 2 also presents an event analysis of the optimal tax in economies with and without political frictions. We can see two very different patterns of optimal policy in these economies. On average, in a constrained-efficient economy, the planner increases taxes just before a sudden stop episode because she perceives that risk builds up and tries to avoid the crisis. On the other hand, in an economy subject to political frictions, macroprudential regulation, on average, decreases in periods before an episode of sudden stop. As in the data, in this economy, the typical crises follow credit booms fueled by lax regulation.

4.3 Optimal Debt Policy

Figure 3 plots the optimal policy functions for debt when the endowment is one standard deviation below the mean and the impatience of the households is at the mean. For an economy with political frictions, we plot the optimal policy when both the irresponsible and the responsible parties are in power. The numerical results show that households take, in general, less debt when there is a responsible party in power compared to the constrained-efficient economy. This is explained by the fact that the responsible government uses a more aggressive macroprudential policy than the constrained social planner.

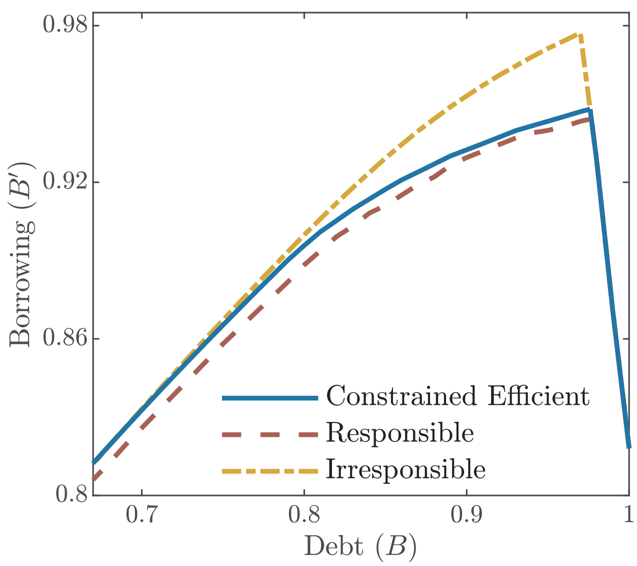

Figure 3: Policy functions

Note: This figure is computed assuming the endowment of tradable goods is 1 std. dev. below mean and the impatience of the households is at its mean.

Figure 4 shows the ergodic distribution of debt in the three economies. 56.2% of the time, the unregulated economy visits a level of debt that the constrained efficient one never does. Moreover, 23.8% of the time, the economy with political frictions visits levels of debt that the constrained efficient never achieves. We can see a loss in the macroprudential policy's effectiveness in reducing the economy's debt level in an environment with political frictions. However, the effect of prudential policy remains large.

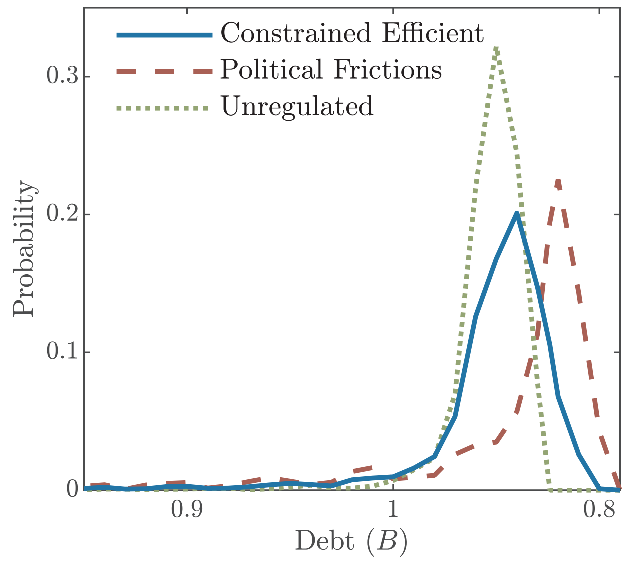

Figure 4: Ergodic Distributions

Finally, we perform a simulation exercise to evaluate the probability of sudden stops in the three economies. Table 2 presents the probability of a sudden stop derived from the models' simulations. The social planner effectively reduces the probability of crises from 11.1% to 2.2%, while the responsible government reduces it to 5.3%.

Table 2: Probability of Sudden Stop

Constrained Efficient	2.2%
Political Frictions	5.3%
Unregulated Economy	11.1%

4.4 Welfare Analysis

Now, let us measure the welfare cost of political frictions. For every initial state, we compute the percentage increase in consumption in all possible future histories that the household would require to be indifferent between living in an economy with political frictions or in a constrained-efficient economy. Due to the homotheticity of the utility function, the welfare gain γ in state s is given by:

$$(1+\gamma(B,g,s))^{(1-\sigma)}V^r(B,g,s) = V^{SP}(B,s)\,.$$

Figure 5 shows the welfare cost of political friction as a function of current debt. In panel

5a, we show the cost for a low level of the tradable endowment (1 std. dev. below mean), when the government in power is responsible or irresponsible. Panel 5b shows similar welfare costs but for the case of a high tradable endowment (1 std. dev. above mean). We can see in Panel 5a that for very high levels of debt, the cost of political friction is relatively low because the economy is already in the crisis zone. The cost increases for intermediate debt levels, but increases more when the irresponsible party is in power. On the other hand, the risk is lower for high levels of endowments (panel 5b), so both the cost of the distortion and the difference between parties are smaller. Intuitively, when risk is low—either due to a high endowment or low debt—the need for macroprudential policy diminishes, reducing the cost of the political frictions. Instead, for a combination of endowment and debt close to the crisis zone, having an irresponsible government is costly for the economy because those are the states where having an active macroprudential policy has a higher impact on welfare.

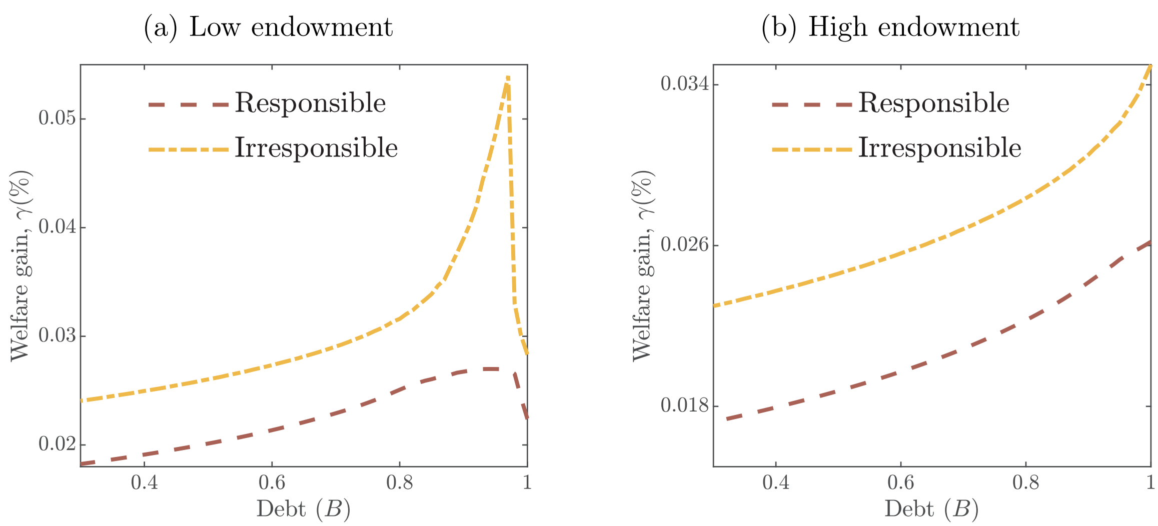

Figure 5: Welfare Losses of Political Frictions

Note: This figure is computed assuming the impatience of the households is at the mean value.

On average, a household would require an increase in consumption of 0.021% to be indifferent between living in an economy subject to political frictions and moving to the constrained-efficient one.

4.5 Sensitivity Analysis

This subsection studies how our main results change when we modify the parameters that govern the political process. We focus on two measures: the mean of the welfare cost and the mean tax conditional on the responsible party being in power. To do so, we fix all other parameters to their values in the baseline calibration and change the values in the transition matrix of the political process (Γ). For each exercise, we only change one probability of reelection at a time. As we change the probability of reelection, the political process has persistence.

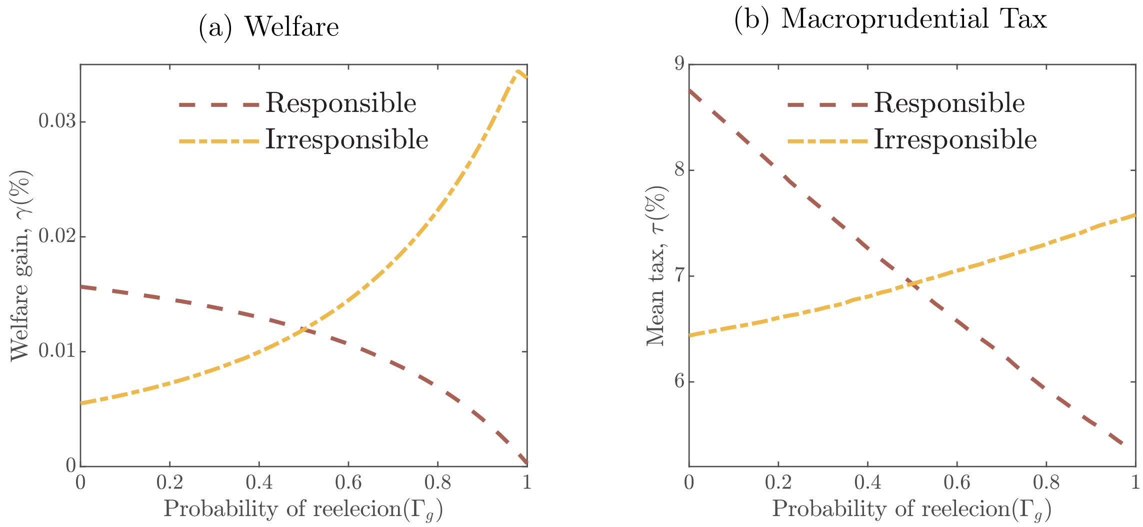

Figure 6: Sensitivity Analysis

Note: In this figure, we keep fixed all parameters at the value in the baseline and change only the probability of re-election (Γ_g) of one party at the time. The average tax is conditional on a responsible government. The welfare corresponds to the gains from removing the political economy friction. .

Figure 6a shows the sensitivity analysis for the welfare cost of political frictions. The dashed red line shows how the welfare cost changes as we increase the probability that the responsible government is reelected, Γ_r. The yellow dotted line plots how the welfare cost changes as we increase the probability that the irresponsible government is reelected Γ_i. We can see that the welfare costs of political frictions go down as the probability of reelection of the responsible party goes to one. On the other hand, these welfare costs increase as we increase the probability of the irresponsible party being reelected.

In Figure 6b, we show how the tax chosen by the responsible party changes as we vary the probabilities of reelection. As expected, the mean tax increases as the probability of the irresponsible party being in power increases. This reflects the fact that the responsible party sets more aggressive regulations when the probability of losing power in the next period is higher.

5 The Effectiveness of Regulation: Bridging Theory and Evidence

A vast amount of empirical literature has focused on estimating the effects of capital controls on different variables of interest and assessing the effectiveness of preemptive policy measures of the kind we study in this paper. A significant challenge in this literature revolves around endogeneity concerns, which arise from the potential presence of omitted variables and reverse causality.[6] Using structural relations implied by our model, we first establish that the typical OLS estimation suffers from endogeneity bias and then propose an IV specification that corrects this bias and performs better prediction.

5.1 Political Process

At this point, it is useful to put more structure on the political process. Each period, an election is held during which voters decide which party will be in office. We assume that voters derive a stochastic utility ν_t if the irresponsible party is in power (see Lindbeck and Weibull, 1987 and Davis, DeGroot and Hinich, 1972 for references on this type of preferences). Additionally, we assume that voters derive a fixed utility $\overline{\nu}$ if the responsible party is in power. Therefore, the voting rule is as follows.

$$g_t = \begin{cases} i & \text{if} \quad \nu_t \geq \overline{\nu}, \\ r & \text{otherwise.} \end{cases} \tag{20}$$

We model ν_t as a convex combination of a persistent component χ_t (which itself follows an AR(1) process) and an i.i.d. component ϱ_t. Therefore, we have:

$$\nu_t = \lambda \chi_t + (1 - \lambda) \varrho_t \,, \tag{21}$$

where $\lambda \in [0, 1]$. From (20) and (21), we can derive a Markov process for the identity of the incumbent party (g_t), mapping the probabilities of χ_t and ϱ_t to the transition matrix that we used in the model analysis (equation 8).

[6] There are, of course, attempts to alleviate partially such endogeneity concerns by resorting to microdata and by using high-frequency data that allows to control better for variables that are correlated with the use of preemptive capital controls (e.g., Das et al., 2022; Andreasen, Schindler and Valenzuela, 2019).

5.2 Structural Linear Relations

Next, we will express the model's nonlinear policy functions in terms of linear approximations and use the implied properties (signs of derivatives) to analyze some properties of the coefficients estimated in the empirical regressions below.

Our model delivers equilibrium policy rules for external debt and the macroprudential tax as functions of the current state. A first-order Taylor approximation of the policy functions yields:

$$B_{t+1} = \Upsilon_0 + \Upsilon_B B_t + \Upsilon_\tau \tau_t + \Upsilon_y y_t^T + \Upsilon_\beta \beta_t + \Upsilon_g g_t + r_t^B, \tag{22}$$

$$\tau_t = \gamma_0 + \gamma_B B_t + \gamma_y y_t^T + \gamma_\beta \beta_t + \gamma_g g_t + r_t^\tau. \tag{23}$$

Here, $(B_t, \tau_t, y_t^T, \beta_t, g_t)$ are components of the state, and r_t^B and r_t^τ collect higher-order terms of second order in deviations from the expansion point.

These linear relations will be used to assess whether the OLS coefficient is biased relative to the structural derivative of interest, and to characterize the direction of this bias as a function of the sign of the derivatives in the Taylor expansion.

Note that (i) $\Upsilon_\beta < 0$ because the more patient the households, the less debt they will accumulate, and (ii) $\gamma_\beta < 0$ because when the households are more patient, the government uses macroprudential policy less aggressively (chooses a lower τ). This occurs because households take less debt; therefore, the economy is exposed to less risk.

To connect with the econometric specification, we focus on the coefficient Υ_g, which captures the *direct* effect of the political state g_t on equilibrium borrowing, conditional on the current macroprudential policy τ_t and the remaining state variables. This coefficient is central for identification: if $\Upsilon_g = 0$, the political identity can shift τ_t without directly affecting B_{t+1}, making it a plausible instrument for macroprudential policy in regressions that relate external borrowing (or the current account) to capital controls. We now provide conditions under which $\Upsilon_g = 0$.

Lemma 2. *If the political process is not persistent (i.e., $\lambda = 0$), then $\Upsilon_g = 0$. Conversely, if the political process is persistent ($\lambda \neq 0$), then generically $\Upsilon_g \neq 0$.*

Proof. See Appendix A.3. □

The intuition is that political persistence makes the incumbent informative about the probability of future turnover and, hence, about the expected path of future taxes; through this channel, g_t affects current borrowing decisions beyond its effect through the current tax

τ_t. With Lemma 2 in hand, the next subsection studies a standard econometric model used to estimate the effect of capital controls. When $\Upsilon_g = 0$, it is possible to obtain an unbiased estimate of the coefficient of interest using the identity of the political party in power as an instrument for capital controls. When instead $\Upsilon_g \neq 0$, identification requires isolating the non-persistent innovations to the political process (denoted ϱ_t) and using those shocks as an instrument to satisfy the exclusion restriction.

5.3 Endogeneity Bias in the OLS Estimation

Consider the following econometric model aimed at estimating the effect of macroprudential policy on the current account:

$$CA_t = \delta_0 + \delta_B B_t + \delta_\tau \tau_t + \delta_y y_t^T + \epsilon_t \quad s.t. \quad \mathbb{E}[\epsilon_t] = 0 \tag{24}$$

We do not include shocks to the impatience of households in (24). We do so to acknowledge that this is an unobservable variable in most relevant empirical applications. Next, we investigate the consequences of this omitted variable in the properties of the estimation.

First, we use the definition of the current account ($CA_t \equiv B_t - B_{t+1}$), Lemma 2 and (24) to get a mapping between the parameters of the regression model and the structural relations of the endogenous variables:

$$\begin{aligned}
\delta_0 &= -\Upsilon_0 - \Upsilon_\beta \, \bar{\beta} - \mathbb{E}[o_t] \\
\delta_b &= 1 - \Upsilon_b \\
\delta_y &= -\Upsilon_y \\
\delta_\tau &= -\Upsilon_\tau \\
\epsilon_t &= -\left(o_t - \mathbb{E}[o_t]\right) - \Upsilon_\beta \, \bar{\beta} \, \iota_t.
\end{aligned} \tag{25}$$

The main coefficient of interest in (24) is δ_τ. Next, we investigate whether the estimation of (24) using an OLS regression produces a biased estimate for δ_τ. Recalling that we have argued above that $\Upsilon_\beta < 0$ and $\gamma_\beta < 0$, it is possible to establish the following proposition.

Proposition 2. *(OLS estimation is biased) Given $\Upsilon_\beta < 0$ and $\gamma_\beta < 0$, let $\hat{\delta_\tau}$ be the OLS estimation of δ_τ in (24). Then, we can show that the OLS estimator is downward biased: $\mathbb{E}[\hat{\delta_\tau} - \delta_\tau] < 0$.*

Proof. See Appendix A.4. □

The negative sign of bias is related to the structural relation between the omitted variable, macroprudential policy, and new borrowing. In particular, the omission of impatience shocks from the regression model introduces a negative correlation between the current account and the capital controls, making the OLS estimator smaller than the true coefficient.

5.4 Instrumental Variable

We propose using the political process as an instrument in a two-stage IV regression to correct for the endogeneity in (24). Let z_t be the instrument proposed in the estimation of (24). As usual, for z_t to be a valid instrument, we must confirm three conditions, which we restate below using the notation in our model.

i) Exogeneity. First, the proposed instrument should not be correlated with the error term in (24). This is:

$$Cov(z_t, \epsilon_t) = 0\,. \tag{26}$$

ii) Relevance. Second, we need to establish that the instrument is correlated with the endogenous regressor τ_t conditional on the exogenous variables of the model. This implies:

$$Cov(z_t, \tau_t \,|\, y_t^T, B_t, \beta_t) \neq 0\,. \tag{27}$$

iii) Exclusion. Finally, we need to confirm the exclusion restriction, which states that the instrument only affects the dependent variable CA_t through its effect on the endogenous regressor τ_t:

$$Cov(z_t, CA_t \,|\, \tau_t) = 0\,. \tag{28}$$

Usually, this condition is the most difficult to establish because it is typically impossible to test. In our case, however, we know the data-generating process, and this allows us to analyze conditions under which exclusion holds using the structural relations of the model derived in Lemma 2. It is possible to establish:

Proposition 3. *(IV estimation is unbiased) Let ϱ_t be the non-persistent component of the political process, and $\bar{\delta}_\tau$ be the IV estimation of δ_τ in (24), using ϱ_t as the exogenous instrument. Assume $\lambda \neq 1$. Then, the IV estimator is unbiased:* $\mathbb{E}\left[\bar{\delta}_\tau - \delta_\tau\right] = 0$.

Proof. See Appendix A.5. □

The proposition 3 implies that the non-persistent political process component is a valid instrument to solve the endogeneity problem in the estimation of δ_τ. In Proposition 3, we exclude the case of $\lambda = 1$. In this case, the nonpersistent shock does not have predictive power over which party will be in office, so ϱ_t would not be a valid instrument because it would violate the relevance condition.

Proposition 3 also implies that if there was no persistence in the political process ($\lambda = 0$), one could use the identity of the incumbent party directly as an instrument in the estimation, formally, in that case $g_t = \varrho_t$, therefore, setting $z_t = g_t$ delivers a valid instrument. Instead, suppose that there is persistence in the political process. In that case, one needs to identify the non-persistent shocks to the political process and use them as a valid instrument in the estimation. In the numerical section, we explore the performance of the estimation on finite samples. We also provide a numerical estimation of the bias on the OLS and IV estimations when we use g_t (the incumbent's identity) directly as an instrument and the political process has persistence.

We also highlight that in this structure, there is a role for ϱ_t (or g_t when $\lambda = 0$) as an instrument for τ_t rather than as a control variable in (24). In fact, one implication of Proposition 3 is that the exclusion restriction is satisfied, which in turn implies $\text{Cov}(\varrho_t, CA_t \,|\, \tau_t) = 0$. Consequently, if we were to use ϱ_t as a control variable in (24), the expected value of its coefficient should be zero.

5.5 Model Based Regressions

Next, we will explore numerically the performance of the OLS and IV estimators in finite samples. To do so, we performed a Monte Carlo simulation using the calibrated model and estimating (24) using both OLS and IV regressions. For this exercise, we simulate the model and create 30,000 samples of 700 observations each. For each sample, we discard the initial 300 observations. We used the following 300 observations to estimate the econometric model. Finally, we saved 100 observations for prediction error tests.

Figure 7 shows the distribution of the coefficient of interest (δ_τ) for both regressions. The OLS estimator is negative or positive with roughly similar probabilities. Instead, for the IV exercise, the mean of the estimated coefficients is higher and its value is never negative.

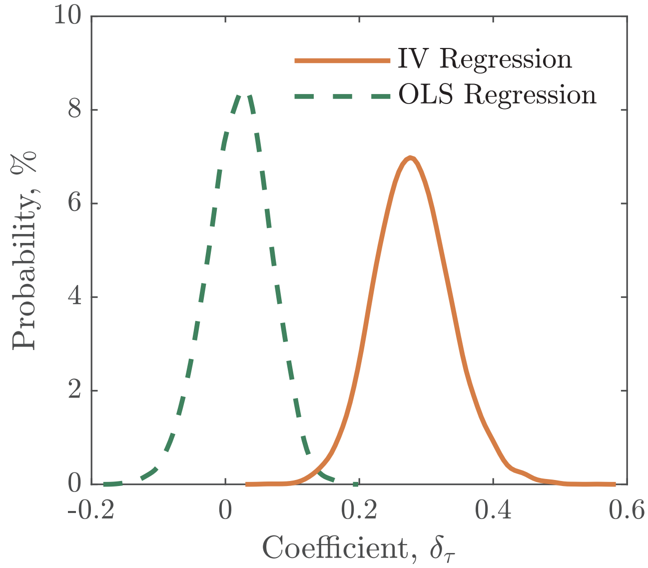

Figure 7: Monte Carlo Comparison

In Table 3, we use large samples. We used a sample size of 10,000 observations. The OLS coefficient is close to zero and the IV identifies an effect of the macroprudential policy that is roughly an order of magnitude larger.

Table 3: Large Samples

Variables	**OLS**	**IV**
τ	0.02	0.28
P-value	0.0001	0.00007
Observations	10,000	10,000

We conclude this subsection by comparing the prediction performance of both econometric models. In Figure 8, we plot the current account as a function of the macroprudential tax. We first plot the policy functions of the structural model (the data-generating process). In addition, we used the means of the coefficients estimated in the Monte Carlo simulations to construct the linear relations predicted by the OLS and IV estimators. We plotted all three models using the mean values for all state variables. We can see that the IV econometric model predicts a linear relation between macroprudential policy and the current account closer to the one in the data-generating process.

Furthermore, we conducted a formal prediction error test using 100 observations. For most of the observations in the sample, the government tax was between zero and ten percent. As shown in Figure 8, the prediction errors are relatively small in that region. However, we find that, on average, the prediction error of the OLS model has a standard deviation of 0.032, while, for the IV regression model, it is 0.028.

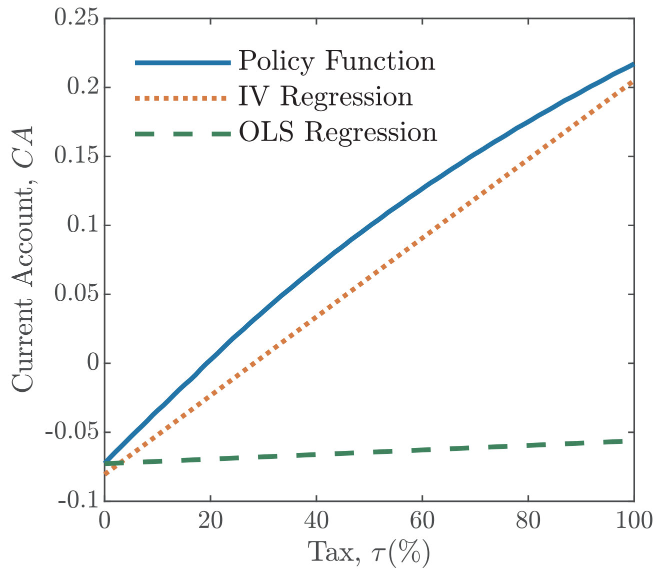

Figure 8: Prediction of the Current Account

Note: This figure is computed assuming the endowment of tradable goods and the impatience of the households are at the mean. This is, $y^T = 1$ and $\beta = 0.904$. The initial debt position is $b_t = 0.7$

5.6 Persistence in the Political Process

Next, we analyze how the results of the econometric analysis change when we change the persistence of the political process, λ. Recall that if the political process has a persistent component ($\lambda > 0$), the exclusion restriction is violated, and the estimation using the identity of the incumbent (g_t) as an instrument is biased. In Figure 9, we explore the size of the bias in the estimation of δ_τ as we change λ.

We plot the mean of the estimated δ_τ using three approaches: an OLS regression, an IV estimation where the instrument is the identity of the political party in power g_t, and an unbiased estimation using the non-persistent shock to the political process (ϱ_t) as the instrument. Consistent with our analytical results, when λ goes to zero, the political process is an i.i.d. process, and the IV estimator using the political party in power as an instrument coincides with the unbiased estimation. On the other hand, as we increase the persistence of the political process (by increasing λ), the IV specification produces a biased estimate of δ_τ.

In this case, it is below the true parameter. Additionally, we can see that the OLS estimation is an order of magnitude lower than the true parameter. In addition, the IV estimator is always closer to the true parameter for our calibration.

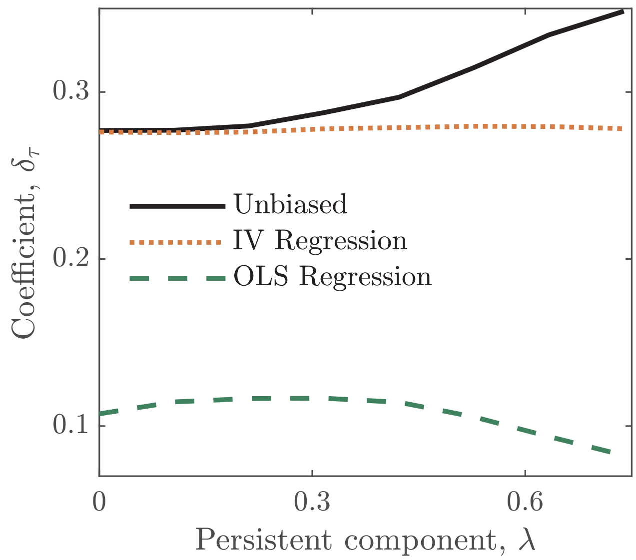

Figure 9: Sensitivity of the Empirical Results

Note: In this figure, we keep all parameters fixed at their values in the baseline calibration and only vary the persistence of the political process, λ.

In many applications, the exclusion restriction may not be satisfied. The exclusion restriction is violated when the covariance of the CA and macroprudential tax, conditional on debt and income, differs from zero. This can happen if political turnover is systematically correlated with other determinants of the current account (for example, the risk-free interest rate could be correlated with the incumbent government).

We explore the performance of the IV estimator when the exclusion restriction is violated by considering an economy where the political process has persistence.

5.7 Empirical Application

In this section, we use quarterly data for 18 countries from 2008q1 to 2019q1 to estimate an empirical version of the econometric model presented before. We include this as a proof-of-concept and emphasize that we use it merely as an illustration of the methodology.

We used data from Binici and Das (2021) on capital controls to construct a measure of changes in macroprudential policy. In particular, we focus on changes in "Capital Flow Management" (CFMs) tools targeting inflows because they are closer to the type of policy we consider in the model. Let us define an empirical version of (24) as:

$$CA_{it} = \delta_i + \delta_b CA_{i,t-1} + \delta_\tau \tau_{it} + \delta_y GDP_{it} + \epsilon_{it} \quad s.t. \quad \mathbb{E}[\epsilon_{it}] = 0\,, \tag{29}$$

where τ_{it} is a cumulative index that accounts for every new capital control the government introduced since the sample began. In particular, the index increases by one every time the country introduces a capital control measure and decreases by one every time the country removes one capital control.[7] We also used data on capital flows and GDP growth from the IMF International Financial Statistics database. Finally, we include fixed effects δ_i.

To construct a proxy for the political process, we use the Global Populisms Data (from Stanford University) to classify governments as populist or nonpopulist. Also, we use data from the Database of Political Institutions (2020 vintage) to classify countries as either left- or right-wing. We use the interaction of these two variables as proxies of political conditions. In particular, the specification of the first stage in our IV estimation is:

$$\tau_{it} = \gamma_0 + \gamma_b CA_{i,t-1} + \gamma_y GDP_{it} + \gamma_{g,1}\text{Populist}_{it} + \gamma_{g,2}(\text{Populist}_{it} \times \text{Left}_{it}) + u_{it}\,, \tag{30}$$

where Populist_{it} is an indicator variable that takes the value of one if the party in power is classified as populist, and Left_{it} is an indicator variable that takes the value of one if the party in power is classified as left-wing.

In Table 4, we compare the empirical estimate of (29) using OLS and IV regressions. In line with the numerical results, we find that the IV regression produces an estimated coefficient that is an order of magnitude higher than the one from the OLS regression. In addition, the $p-value$ in the IV estimate is lower than in the OLS estimate. In Appendix C, we show tables with the complete results for the estimation of (29).

Table 4: Empirical Regression

Variables	**OLS**	**IV**
τ	0.024	1.517
P-value	0.167	0.035
Observations	786	590
Number of countries	18	14

This simple exercise illustrates how the insights from the model regarding the interaction

[7] See Das, Gopinath and Kalemli-Özcan (2022) for details on the construction of this index

between political frictions and macroprudential policy can be used to discipline the related empirical work.

6 Conclusions

This paper shows how political-economy frictions shape both the dynamics of credit booms and the optimal design of macroprudential policy. When policymakers with heterogeneous regulatory biases alternate in power, a forward-looking responsible regulator tightens preemptively—front-loading borrowing taxes relative to an economy without political frictions. Consistent with event-study evidence around sudden stops, we show that these frictions generate an endogenous financial cycle in which extended periods of apparent tranquility are followed by waves of deregulation that build vulnerabilities and culminate in crisis. Finally, the framework offers guidance for empirical work on macroprudential effectiveness. Because macroprudential tools are deployed in response to underlying risks, standard reduced-form estimates can understate the causal impact of regulation on capital flows. Accounting for political-economy shocks provides plausibly exogenous variation in policy that helps address this endogeneity and reconcile theory with the evidence.

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A Proofs

A.1 Proof Lemma 1

Proof. Step 0. Lagrangian for the responsible party's problem.

The responsible party solves problem (13) by choosing c_t^T and B_{t+1} subject to the resource constraint (with multiplier $\lambda_t \geq 0$) and the borrowing constraint (with multiplier $\mu_t \geq 0$, complementary slackness). The Lagrangian is:

$$\mathcal{L}^r = u(c_t^T, y^N) + \beta \left[\Gamma_r \, \mathbb{E}_t \, V^r(B_{t+1}, r, s_{t+1}) + (1 - \Gamma_r) \, \mathbb{E}_t \, V^r(B_{t+1}, i, s_{t+1})\right] + \lambda_t \left(y_t^T + \frac{B_{t+1}}{R} - B_t - c_t^T \right) + \mu_t \big(\kappa \big(y_t^T + \mathcal{P}^N(c_t^T)\big) - B_{t+1}\big). \quad \text{(A.1)}$$

FOC with respect to c_t^T:

$$\frac{\partial \mathcal{L}^r}{\partial c_t^T} = u_{T,t} - \lambda_t + \mu_t \, \kappa \, \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T} = 0 \qquad \Longrightarrow \qquad \lambda_t = u_{T,t} + \mu_t \, \kappa \, \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T}. \qquad (\star)$$

FOC with respect to B_{t+1}:

$$\frac{\partial \mathcal{L}^r}{\partial B_{t+1}} = \frac{\lambda_t}{R} + \beta \left[\Gamma_r \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, r, s_{t+1})}{\partial B_{t+1}} + (1 - \Gamma_r) \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}} \right] - \mu_t = 0. \quad \text{(A.2)}$$

Substituting ($\star$) into (A.2) and rearranging:

$$\frac{u_{T,t}}{R} + \frac{\mu_t \, \kappa \, \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T}}{R} + \beta \left[\Gamma_r \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, r, s_{t+1})}{\partial B_{t+1}} + (1 - \Gamma_r) \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}} \right] - \mu_t = 0,$$

which delivers, after collecting the μ_t terms, the responsible government's FOC on debt used in Step 1 below:

$$\frac{u_{T,t}}{R} = -\beta \left[\Gamma_r \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, r, s_{t+1})}{\partial B_{t+1}} + (1 - \Gamma_r) \, \mathbb{E}_t \, \frac{\partial V^r(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}} \right] + \mu_t \left(1 - \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T} \kappa \right). \quad \text{(A.3)}$$

Envelope condition with respect to B_t:

Since B_t enters $\mathcal{L}^r$ only through the resource constraint (with coefficient -1), the envelope theorem gives:

$$\frac{\partial V^r(B_t, r, s_t)}{\partial B_t} = \left. \frac{\partial \mathcal{L}^r}{\partial B_t} \right|_{\text{opt}} = \lambda_t \cdot (-1) = -u_{T,t} - \frac{\partial \mathcal{P}^N(c_t^T)}{\partial c_t^T} \kappa \mu_t. \quad \text{(A.4)}$$

Step 1. Derivative when the irresponsible party is in power.

When the irresponsible party is in power, the object appearing in (A.3) is *not* the result of the responsible party's optimization. It is instead the responsible party's continuation value evaluated along the equilibrium policy rules under party i, i.e. $V^r(\cdot, i, \cdot)$, defined by recursion (A.1). Differentiating that recursion with respect to B_t and applying the chain rule yields:

$$\frac{\partial V^r(B_t, i, s_t)}{\partial B_t} = -u_{T,t}\left(1 - \frac{1}{R}\frac{\partial \mathcal{B}(B_t, i, s_t)}{\partial B_t}\right) - \beta\frac{\partial \mathcal{B}(B_t, i, s_t)}{\partial B_t} \left[(1-\Gamma_i)\,\mathbb{E}_t\,\frac{\partial V^r(B_{t+1}, r, s_{t+1})}{\partial B_{t+1}} + \Gamma_i\,\mathbb{E}_t\,\frac{\partial V^r(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}}\right] - \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_t, i, s_t)\big)}{\partial c_t^T}\kappa\mu_t, \tag{A.5}$$

where $\mathcal{B}(B_t, i, s_t)$ denotes the next-period debt policy under party i, and $\frac{\partial \mathcal{B}(B_t,i,s_t)}{\partial B_t}$ measures how current debt propagates through the irresponsible party's policy rule. The term $-\frac{\partial \mathcal{P}^N(\mathcal{C}^T(B_t,i,s_t))}{\partial c_t^T}\kappa\mu_t$ captures the additional cost to the responsible party when the irresponsible party's borrowing constraint binds: higher B_t depresses the collateral price, tightening the constraint in a way the irresponsible party does not internalise.

Step 2. Update one period and substitute into the GEE.

Update (A.4)–(A.5) one period forward (replace t by $t+1$) so they can be substituted for the derivatives in (A.3) evaluated at $(B_{t+1}, \cdot, s_{t+1})$. From (A.4) at $t+1$:

$$\frac{\partial V^r(B_{t+1}, r, s_{t+1})}{\partial B_{t+1}} = -u_{T,t+1} - \frac{\partial \mathcal{P}^N(c_{t+1}^T)}{\partial c_{t+1}^T}\kappa\mu_{t+1}.$$

From (A.5) at $t+1$:

$$\frac{\partial V^r(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}} = -u_{T,t+1}\left(1 - \frac{1}{R}\frac{\partial \mathcal{B}(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}}\right) - \beta\frac{\partial \mathcal{B}(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}}\left[(1-\Gamma_i)\,\mathbb{E}_{t+1}\,\frac{\partial V^r(B_{t+2}, r, s_{t+2})}{\partial B_{t+2}} + \Gamma_i\,\mathbb{E}_{t+1}\,\frac{\partial V^r(B_{t+2}, i, s_{t+2})}{\partial B_{t+2}}\right] - \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_{t+1}, i, s_{t+1})\big)}{\partial c_{t+1}^T}\kappa\mu_{t+1}. \tag{A.6}$$

Substituting both expressions into (A.3) and using $-\beta\cdot(-u_{T,t+1} - \frac{\partial \mathcal{P}^N(c_{t+1}^T)}{\partial c_{t+1}^T}\kappa\mu_{t+1}) = \beta\cdot(u_{T,t+1} + \frac{\partial \mathcal{P}^N(c_{t+1}^T)}{\partial c_{t+1}^T}\kappa\mu_{t+1})$ delivers the one-step representation:

$$\frac{u_{T,t}}{R} = \beta\Bigg[\Gamma_r\,\mathbb{E}_t\bigg(u_{T,t+1} + \frac{\partial \mathcal{P}^N(c^T_{t+1})}{\partial c^T_{t+1}}\kappa\mu_{t+1}\bigg) + (1-\Gamma_r)$$
$$\mathbb{E}_t\bigg(u_{T,t+1}\left(1 - \frac{1}{R}\frac{\partial \mathcal{B}(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}}\right) + \beta\,\frac{\partial \mathcal{B}(B_{t+1}, i, s_{t+1})}{\partial B_{t+1}}\bigg[(1-\Gamma_i)\,\mathbb{E}_{t+1}\,\frac{\partial V^r(B_{t+2}, r, s_{t+2})}{\partial B_{t+2}}$$
$$+ \Gamma_i\,\mathbb{E}_{t+1}\,\frac{\partial V^r(B_{t+2}, i, s_{t+2})}{\partial B_{t+2}}\bigg] + \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_{t+1}, i, s_{t+1})\big)}{\partial c^T_{t+1}}\kappa\mu_{t+1}\bigg)\Bigg] + \mu_t\left(1 - \frac{\partial \mathcal{P}^N(c^T_t)}{\partial c^T_t}\kappa\right). \tag{A.7}$$

Step 3. Iteration.

Applying (A.7) repeatedly along histories in which the irresponsible party remains in power for n consecutive periods, each iteration contributes a factor of Γ_i (probability of staying irresponsible) and a factor of $\frac{\partial \mathcal{B}(B_j, i, s_j)}{\partial B_j}$ (how inherited debt propagates through the irresponsible policy rule at each date j). Collecting all such histories and using (A.4) to substitute out the remaining $\partial V^r/\partial B$ terms whenever the responsible party returns to power yields the full Generalized Euler Equation stated in Lemma 1.

□

A.2 Proof of Proposition 1

Proof. The proof is by contradiction. We assume that there exists a horizon $h > 0$ and a state s_{t+h} such that $\mu(s_{t+h}) \neq 0$, and $\tau_t(B_t, r, s_t) = 0$.

Step 1. Implication of $\tau_t = 0$. If $\tau_t = 0$, the responsible party imposes no wedge on household borrowing today. This means the responsible party's GEE (**??**) must coincide with the households' Euler equation (6), which (setting $\mu_t = 0$ since $\tau_t = 0$ implies the constraint is slack today) reads:

$$u_T\big(c^T_t, y^N_t\big) = \beta R\left[\Gamma_r\,\mathbb{E}_t\,u_T\big(c^T_{t+1}, y^N_{t+1}\big) + (1-\Gamma_r)\,\mathbb{E}_t\,u_T\big(\mathcal{C}^T(B_{t+1}, i, s_{t+1}), y^N_{t+1}\big)\right]. \tag{A.8}$$

Step 2. The GEE cannot coincide with (A.8). Setting $\mu_t = 0$ in the full GEE (??), the responsible party's optimality condition is:

$$u_T\big(c_t^T, y_t^N\big) = \beta R\Bigg[\Gamma_r\,\mathbb{E}_t\Bigg(u_T\big(c_{t+1}^T, y_{t+1}^N\big) + \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_{t+1}, r, s_{t+1})\big)}{\partial c_{t+1}^T}\kappa\,\mu_{t+1}\Bigg) \tag{A.9}$$
$$+ (1-\Gamma_r)\sum_{n=1}^{\infty}(\Gamma_i)^n\left(\prod_{j=t}^{t+n-1}\beta_{j+1}\frac{\partial \mathcal{B}(B_j, i, s_j)}{\partial B_j}\right)\mathbb{E}_t\Bigg[\Bigg(u_T\big(\mathcal{C}^T(B_{t+n}, i, s_{t+n}), y^N\big)$$
$$+ \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_{t+n}, i, s_{t+n})\big)}{\partial c_{t+n}^T}\kappa\,\mu_{t+n}\Bigg)\left(\frac{1}{R}\frac{\partial \mathcal{B}(B_{t+n-1}, i, s_{t+n-1})}{\partial B_{t+n-1}} - 1\right)$$
$$+ (1-\Gamma_i)\,\mathbb{E}_t\Bigg(u_T\big(c_{t+n}^T, y_{t+n}^N\big) + \frac{\partial \mathcal{P}^N\big(\mathcal{C}^T(B_{t+n}, r, s_{t+n})\big)}{\partial c_{t+n}^T}\kappa\,\mu_{t+n}\Bigg)\Bigg]\Bigg].$$

Subtracting (A.8) from (A.9), the two conditions coincide if and only if all terms involving μ_{t+n} and $\frac{\partial \mathcal{P}^N}{\partial c_{t+n}^T}\kappa$ vanish, which requires:

$$\frac{\partial \mathcal{P}^N}{\partial c_{t+n}^T}\kappa\,\mu_{t+n} = 0 \qquad \forall\, n \geq 1,\ \forall\, s_{t+n}. \tag{A.10}$$

Since $\frac{\partial \mathcal{P}^N}{\partial c^T} > 0$ and $\kappa > 0$, condition (A.10) requires $\mu_{t+n} = 0$ for every $n \geq 1$ and every state s_{t+n}, which is a contradiction.

□

A.3 Proof of Lemma 2

Proof. Recall that $\mathcal{B}(B, s, g)$ denotes the optimal household debt policy rule. Since $c^N = y^N$ always, we write $u_T(c^T, c^N) = u_T(c^T, y^N)$. The household optimality conditions include the Euler equation

$$0 = u_T\big(c^T, y^N\big) - (1+\tau(s))\,\beta\,R\left[\Gamma_g\,\mathbb{E}\,u_T\big(c^{T\prime}(s', g), y^{N\prime}\big) + (1-\Gamma_g)\,\mathbb{E}\,u_T\big(c^{T\prime}(s', -g), y^{N\prime}\big)\right] + \mu, \tag{A.11}$$

together with complementary slackness for the borrowing constraint:

$$B' \leq \kappa\left[y^T + P^N(\mathcal{C}^T(B, s, g))\,y^N\right], \qquad \mu \geq 0, \qquad \mu\left(B' - \kappa\left[y^T + P^N(\mathcal{C}^T(B, s, g))\,y^N\right]\right) = 0, \tag{A.12}$$

so that, in particular,

$$B' = \kappa\left[y^T + P^N(\mathcal{C}^T(B, s, g))\,y^N\right] \quad \text{if} \quad \mu > 0. \tag{A.13}$$

Equation (A.11) implicitly defines the policy rule $B' = \mathcal{B}(B, s, g)$. Thus, by the implicit function theorem, there exists a differentiable function f such that

$$\mathcal{B}(B, s, g) = f(y, B, g, \tau, \beta)\,, \tag{A.14}$$

where y collects the components of s entering the household problem (e.g. $y = (y^T, y^N, \ldots)$), and $\beta = \beta$ is the state-dependent discount factor.

Step 1. First-order approximation (deviations). Take a first-order Taylor expansion of f around the steady state $\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)$:

$$\begin{aligned} B_{t+1} - \hat{B} = {} & \frac{\partial f}{\partial y}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)(y_t - \hat{y}) + \frac{\partial f}{\partial B}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)(B_t - \hat{B}) + \frac{\partial f}{\partial g}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)(g_t - \hat{g}) \\ & + \frac{\partial f}{\partial \tau}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)(\tau_t - \hat{\tau}) + \frac{\partial f}{\partial \beta}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right)(\beta_t - \hat{\beta}) + m_t, \end{aligned} \tag{A.15}$$

where m_t collects higher-order terms.

Define the linear coefficients (all evaluated at the steady state):

$$\begin{aligned} \Upsilon_y &\equiv \frac{\partial f}{\partial y}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right), \qquad \Upsilon_B \equiv \frac{\partial f}{\partial B}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right), \qquad \Upsilon_g \equiv \frac{\partial f}{\partial g}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right), \\ \Upsilon_\tau &\equiv \frac{\partial f}{\partial \tau}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right), \qquad \Upsilon_\beta \equiv \frac{\partial f}{\partial \beta}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right). \end{aligned}$$

Step 2. Equivalent representation in levels. Rearranging (A.15) yields the levels form

$$B_{t+1} = \Upsilon_0 + \Upsilon_y\, y_t + \Upsilon_B\, B_t + \Upsilon_g\, g_t + \Upsilon_\tau\, \tau_t + \Upsilon_\beta\, \beta_t + m_t, \tag{A.16}$$

where the intercept Υ_0 is defined as

$$\Upsilon_0 \equiv \hat{B} - \Upsilon_y\, \hat{y} - \Upsilon_B\, \hat{B} - \Upsilon_g\, \hat{g} - \Upsilon_\tau\, \hat{\tau} - \Upsilon_\beta\, \hat{\beta}. \tag{A.17}$$

Step 3. No persistence implies no independent g-effect (holding τ fixed). Finally, if the political process is *not persistent* (i.i.d. political turnover), then g_t has no independent effect on household debt choices beyond its impact on contemporaneous policy τ_t. Therefore, holding τ_t fixed,

$$\Upsilon_g = \frac{\partial f}{\partial g}\left(\hat{y}, \hat{B}, \hat{g}, \hat{\tau}, \hat{\beta}\right) = 0.$$

□

A.4 Proof of Proposition 2

Proof. The proof is by contradiction. Consider the population regression (24),

$$CA_t = \delta_0 + \delta_B B_t + \delta_\tau \tau_t + \delta_y y_t^T + \epsilon_t, \tag{A.18}$$

where, by the structural mapping in (25), the regression error is

$$\epsilon_t \equiv -(o_t - \mathbb{E}[o_t]) - \Upsilon_\beta \, \bar{\beta} \, \iota_t, \qquad \mathbb{E}[o_t \mid \tau_t] = \mathbb{E}[o_t], \qquad \mathbb{E}[\iota_t] = 0, \tag{A.19}$$

and $\Upsilon_\beta < 0$.

Assume that the OLS estimator $\hat{\delta}_\tau$ is unbiased. In the population, unbiasedness requires

$$\mathbb{E}[\hat{\delta}_\tau - \delta_\tau] = 0 \tag{A.20}$$

$$\mathbb{E}[\tau_t \epsilon_t] = 0, \tag{A.21}$$

equivalently $\text{cov}(\tau_t, \epsilon_t) = 0$.

Next, use the structural relation for the policy instrument,

$$\tau_t = \gamma_0 + \gamma_B B_t + \gamma_y y_t^T + \gamma_\beta \beta_t + \gamma_g g_t + r_t^\tau, \tag{A.22}$$

with $\gamma_\beta < 0$. Write the preference shock as $\beta_t = \bar{\beta} + \iota_t$, and assume

$$\mathbb{E}[\iota_t r_t^\tau] = \mathbb{E}[\iota_t o_t] = \mathbb{E}[\iota_t B_t] = \mathbb{E}[\iota_t y_t^T] = \mathbb{E}[\iota_t g_t] = 0, \tag{A.23}$$

so that ι_t is the unique common driver of τ_t and ϵ_t.

Then,

$$\begin{aligned}
\mathbb{E}[\tau_t \epsilon_t] &= \mathbb{E}\big[\big(\gamma_0 + \gamma_B B_t + \gamma_y y_t^T + \gamma_\beta(\bar{\beta} + \iota_t) + \gamma_g g_t + r_t^\tau\big)\,\big(-(o_t - \mathbb{E}[o_t]) - \Upsilon_\beta \, \bar{\beta} \, \iota_t\big)\big] \\
&= -\gamma_\beta \, \Upsilon_\beta \, \bar{\beta} \, \mathbb{E}[\iota_t^2] \\
&= -\gamma_\beta \, \Upsilon_\beta \, \bar{\beta} \, \sigma_\iota^2 \\
&< 0,
\end{aligned} \tag{A.24}$$

where the second line uses (A.23) and the last inequality follows from $\gamma_\beta < 0$, $\Upsilon_\beta < 0$, $\bar{\beta} > 0$, and $\sigma_\iota^2 > 0$.

This contradicts (A.21). Therefore, $\hat{\delta}_\tau$ cannot be unbiased. Moreover, since $\mathbb{E}[\tau_t \epsilon_t] < 0$, the standard omitted-correlation formula implies

$$\mathbb{E}[\hat{\delta}_\tau] - \delta_\tau = \frac{\text{cov}(\tau_t, \epsilon_t)}{\text{var}(\tau_t)} < 0,$$

so OLS is biased downward relative to the true parameter. □

A.5 Proof of Proposition 3

Proof. First, we check the three conditions for using g_t or ϱ_t as potential instruments.

1. Exogeneity. Note

$$\begin{aligned} cov(g_t, m_t) &= \mathbb{E}[g_t m_t] - \mathbb{E}[g_t]\mathbb{E}[m_t] \\ &= \mathbb{E}[g_t(\nu_t + \gamma_\beta \iota_t)] \\ &= 0 \end{aligned}$$

Similarly, it can be shown that $cov(\varrho_t, m_t) = 0$.

2. Relevance. First, we will study the relevance restriction when the proposed instrument is g_t. It is implied by Lemma 2 and $\gamma_g \neq 0$.

Second, we will study the relevance restriction if the proposed instrument is ϱ_t. Then note that in this case $\text{Cov}(\varrho_t, \tau_t) \neq 0$ if and only if $\lambda \neq 1$. So, the relevance restriction is violated if the proposed instrument is ϱ_t and $\lambda = 1$.

3. Exclusion. When the proposed instrument is the identity of the party in power, we need to confirm $\text{Cov}(g_t, \mathcal{B}(s, g, B)|\tau_t) = 0$. That is, we need to check $\Gamma_g = 0$. From the proof Lemma 2, we know $\Gamma_g = 0$ if $\lambda = 0$. Then, the exclusion restriction is violated if $\lambda \neq 0$.

Also, when the proposed instrument is ϱ_t we need to confirm $\text{Cov}(\varrho_t, \mathcal{B}(s, g, B)|\tau) = 0$. In general, $\mathcal{B}(s, g, B) \equiv f(s, g, B)$ which does not depend on ϱ_t. It implies that $\text{Cov}(\varrho_t, \mathcal{B}(s, g, B)|\tau) = 0$. So, the exclusion restriction always holds. In particular, note that (i) τ_t fully reveals g_t and (ii) Lemma 2 implies $\Upsilon_g = 0$ when $\lambda \neq 1$, the case in which ϱ_t is proposed as the instrument.

After checking those three conditions, one could follow the textbook proof to show that the IV estimation is unbiased if the proposed instrument meets these conditions. So we confirm ϱ_t is an unbiased instrument if and only if $\lambda \neq 1$. Also, g_t is an unbiased instrument if and only if $\lambda = 0$.

□

B Algorithm

1. Construct a grid for debt B and the exogenous shocks (the components of the state s).

2. Guess initial value functions $\{V^r(B, y^T, r),\, V^r(B, y^T, i)\}$ and the associated policy functions for c^T and B'. Use the constrained efficient allocation as an initial guess.

3. Solve the responsible government's value function V^r. For each (B, y^T) on the grid, solve

$$V^r(B, y^T, r) = \max_{B' \in \mathcal{G}_{B'}} \left\{ u\big(c^T, y^N\big) + \beta \Big[\Gamma_r \, \mathbb{E}_{s'} \, V^r(B', y^{T\prime}, r) + (1 - \Gamma_r) \, \mathbb{E}_{s'} \, V^r(B', y^{T\prime}, i) \Big] \right\}, \tag{B.1}$$

subject to

$$c^T = y^T - B + \frac{B'}{R}, \tag{B.2}$$

and the borrowing constraint

$$B' \leq \kappa \left(\mathcal{P}^N(B', r, s) \, y^N + y^T \right). \tag{B.3}$$

To solve (B.1)–(B.3), note there is a single choice variable B'. One can loop over a grid $\mathcal{G}_{B'}$, set the value to $-\infty$ for choices that violate (B.3), and select the maximizer.

4. Solve household allocations when the irresponsible party is in power (tax rule $\tau = 0$), and compute the associated continuation value under state $g = i$.

For each (B, y^T) on the grid, find (c^T, B') satisfying

$$c^T + B - \frac{B'}{R} = y^T, \tag{B.4}$$

the borrowing constraint

$$B' \leq \kappa \left(\mathcal{P}^N(B', i, s) \, y^N + y^T \right), \tag{B.5}$$

and the Euler equation

$$u_T\big(c^T, y^N\big) = \beta\, R\Big[\Gamma_i\, \mathbb{E}_{s'}\, u_T\big(\mathcal{C}^T(B', r, s'), y^{N\prime}\big) + (1-\Gamma_i)\, \mathbb{E}_{s'}\, u_T\big(\mathcal{C}^T(B', i, s'), y^{N\prime}\big)\Big] + \mu, \tag{B.6}$$

$$\mu \geq 0, \qquad \mu\Big(\kappa\big(y^T + \mathcal{P}^N(\mathcal{C}^T(B', i, s), y^N)\, y^N\big) - B'\Big) = 0. \tag{B.7}$$

The equilibrium policy functions under $g = i$ are then

$$\mathcal{C}^T(B, i, s) \equiv c^T, \qquad \mathcal{B}(B, i, s) \equiv B'.$$

Given $\mathcal{C}^T(B, i, s)$ and $\mathcal{B}(B, i, s)$, compute the continuation value when i is in power:

$$V^r(B, y^T, i) = u\big(\mathcal{C}^T(B, i, s), y^N\big) + \beta\Big[\Gamma_i\, \mathbb{E}_{s'}\, V^r\big(\mathcal{B}(B, i, s), y^{T\prime}, i\big) + (1-\Gamma_i)\, \mathbb{E}_{s'}\, V^r\big(\mathcal{B}(B, i, s), y^{T\prime}, r\big)\Big]. \tag{B.8}$$

5. Update value functions and policy functions and return to Step 3 until $\{V^r(B, y^T, r), V^r(B, y^T, i)\}$ converge.

6. Compute the implied tax wedge $(1+\tau)$ for the responsible party. Using the household Euler equation written with a wedge, compute

$$1 + \tau(B, r, s) = \frac{u_T\big(\mathcal{C}^T(B, r, s), y^N\big)}{\beta\, R\Big[\Gamma_r\, \mathbb{E}_{s'}\, u_T(\mathcal{C}^T(B', r, s'), y^{N\prime}) + (1-\Gamma_r)\, \mathbb{E}_{s'}\, u_T(\mathcal{C}^T(B', i, s'), y^{N\prime})\Big]}, \tag{B.9}$$

where $B' = \mathcal{B}(B, r, s)$ and $\mathcal{C}^T(B, r, s)$ are the responsible-party policy functions obtained in Step 3.

7. Simulate the economy using the converged policy functions $\mathcal{B}(B, g, s)$ and $\mathcal{C}^T(B, g, s)$ and the shock process for s.

Remark. In the algorithm, $V^r(B, y^T, g)$ denotes the continuation value under the responsible party's objective, evaluated at the state where the incumbent is $g \in \{r, i\}$. In particular, $V^r(B, y^T, i)$ is computed from the household equilibrium allocations under the tax rule $\tau = 0$ in Step 4.

C Additional Regression Tables

In this Appendix, we present the full regression results for the exercise conducted in section 5.7. First, in Table 5 we report the result of the first stage where τ_t is in the left hand side:

Table 5: First Stage - Empirical Analysis

VARIABLES	First-Stage
Populist_{it}	0.23*
	(0.14)
$\text{Populist}_{it} \times \text{Left}_{it}$	0.89**
	(0.382)
GDP Growth	3.62
	(3.01)
Lag CA	-0.04
	(0.042)
Constant	-1.06***
	(0.406)
Observations	590

Note: Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In Table 6 we report the full results of the second stage.

Table 6: Second Stage - Empirical Analysis

VARIABLES	IV	OLS
CFMs on Inflows Index	1.517**	0.0240
	(0.718)	(0.0174)
GDP Growth	-1.826	1.522
	(12.83)	(10.72)
Lag CA	0.24	0.221***
	(0.096)	(0.0842)
Constant	0.756***	0.284
	(0.289)	(0.225)
Observations	590	786
R-squared		0.676

Note: Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.