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Sanctions and Incentives to Repudiate External Debt*

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Abstract

We study, theoretically and empirically, how international sanctions shape a government's incentives to default on foreign debt. The International Community levies a sanction in the attempt to foment discontent with the government. A default on foreign debt frees resources that the government can use to buy political support. It then becomes a defensive strategy aimed at regaining political stability.

Data covering the period 1950-2005 reveal that sanctions provide an almost 2 percentage point increase in default probability one year later. An external debt crisis that occurs after a country has been hit by a sanction is positively associated with a sizeable increase in the level of political stability.

This paper suggests that a certain degree of caution is necessary in the use of sanctions, especially when the targeted country is highly indebted.

1 Introduction

Myanmar has been ruled by a military regime from 1962 to 2011. In 1988, the regime violently repressed demonstrations against economic mismanagement and in favor of a democratic transition. As a result, during the following decade US, EU, and several other countries levied economic sanctions against Myanmar. In 2002, the regime defaulted on its external debt. Despite the efforts of the International Community, it remained in power until 2011.

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Economic sanctions represent an important foreign policy tool, a middle course of action in-between diplomacy and war. As in the case of Myanmar, they are frequently imposed by foreign countries with the aim of impairing a hostile regime. However, despite their widespread usage, their effectiveness is still a matter of debate. One may argue that sanctions may even strengthen the popularity of the ruling government, promoting a nationalistic rhetoric.[1] Moreover, as suggested by the Myanmar case, a specific link between sanctions and defaults may be at work. Defaulting on external debt may become more "politically acceptable" if it is advertised as a reaction to a sanction imposed by unfriendly foreign countries. It may also enable the government to divert resources from servicing the external debt to instrumentally buying internal support.

In fact, Myanmar appears not to be an isolated event. In our database, which collects information about sanctions, sovereign defaults, and political unrest in the period 1950-2005, out of 92 default episodes, 25 occurred while countries were under a sanction. A country is almost 15% more likely to enter an external debt crisis if it has been hit by a sanction in the previous year. On average, countries which are either subject to a sanction or in an external debt crisis experience higher internal political instability. Interestingly, however, political turmoil decreases when countries enter an external debt crisis *after* being targeted by a sanction.

This paper explores the link between economic sanctions and debt crises. While existing literature argues that the threat of international sanctions acts as a deterrent for defaults, here we turn the issue around and study whether sanctions, imposed to a country for any reason (but unrelated to a default), would give a government more incentives to default on its sovereign debt.

We present a theoretical model in which the International Community levies a sanction that has the effect to exhaust the country economically, in the attempt to foment the population's discontent with the regime. The latter has to choose the income tax rate and how much to invest in activities to counteract the opposition. Tax proceeds are used also to service public debt, but the government can decide not to repay it, namely to default. Of course, a default is costly for the country, due to reputational losses and systemic consequences. A default, however, yields also some benefits. Once unburdened of the public debt, the government can lower taxes or invest more resources to fight opposition. Both these policies lower political instability and enhance the government's probability to survive in office. We show that when the country is hit by a sanction, such benefits are larger, making the choice to default more attractive to the government. We

[1] Following the sanctions levied by the US against Venezuela in 2011, the Venezuelan President Hugo Chavez portrayed this act as a "gringo aggression", arguing that it would reinforce "the nationalist and patriotic morale of Venezuela."

further assume that, at the time the sanction is levied, financial markets form rational expectations about the probability with which a default occurs in equilibrium. In doing so, they anticipate the higher chance of a debt crisis following a sanction. Thus, they demand a risk premium rise on the government debt. This, in turn, further strengthens the government's incentive to enter a debt crisis.

The main implication of the model is that a default *following* a sanction dampens political instability. We test such implication and we find support in the data. We regress political instability (as measured either by the frequency of riots or by a composite Conflict Index) against three dummies capturing (a) whether the country was under sanction, (b) whether it was in an external debt crisis, and (c) whether it was under a sanction and in an external debt crisis status, *provided that the former occurred one year before the latter.*[2] We find that the first two dummies are not significantly associated to political instability while the last interaction variable is significantly correlated with a decrease in the level of political unrest.

This evidence is consistent with the implications of the theoretical model. A sanction may trigger a *strategic* default on external debt which, at least partially, offsets the International Community's attempt to foment political instability and to pursue a regime change. Therefore, the default on external debt may backfire on foreign countries, especially those holding a substantial amount of debt. But, why are sanctions so frequently used? We propose two explanations. First, the International Community may have an interest in punishing the misconduct of a regime *per se*, independently of the sanction's effect on its chance of surviving in office. Second, the collective decision on whether to impose a sanction is realistically influenced by more powerful members. If these members own relatively small amounts of the country's debt, they will be relatively uninterested in the risk of triggering a default. This would lead to an excessive use of sanctions and to frequent debt crises occurring after sanctions.

The paper is organized as follows. Section 2 presents an overview of the related literature. Section 3 provides motivating evidence for our analysis. Section 4 introduces the theoretical model. Section 5 analyzes the equilibrium and presents theoretical predictions. Section 6 contains the empirical analysis. Section 7 concludes. The Appendix (Section 8) contains the proofs of lemmas and propositions, and additional empirical evidence.

[2]Results are robust to different specifications of the lag between sanctions and defaults.

2 Related Literature

Given their widespread use as a tool to handle international disputes, economic sanctions have been independently studied by scholars in economics and political science. Most literature has focused on the reasons behind the decision to impose a sanction and on whether such a sanction is ultimately effective.[3] Dating back to Galtung (1967), economic sanctions are intended to favor the "political disintegration" of a leader's support within the targeted country. This "instrumental" view highlights how sanctions aim at the removal of a leader, whose interests are misaligned with those of the International Community (Marinov, 2005; Escribà-Folch and Wright, 2010).[4] In partial contrast with this idea, other scholars (e.g. Kaempfer and Lowenberg, 1988, 1992; Lacy and Niou, 2004) have pointed out that sanctions may also be imposed for "expressive" reasons, namely to take a moral or political stance against the leader's behavior and to send him a signal about one's resolve. In this paper, we allow both motives to be at play. Indeed, members of the International Community enjoy an *economic* benefit if the leader is overthrown but, independently, they also experience a *political* utility by using a sanction "expressively". Moreover, in line with our motivation, we enrich the utility function of the coercers by explicitly accounting for the negative consequences they may suffer if the targeted country defaults. The decision to impose a sanction may (efficiently) serve political-economic objectives or (inefficiently) result from a politically distorted collective decision.

There is controversy in the literature about the efficacy of sanctions as a tool to discipline misaligned regimes. While Marinov (2005), Lektzian and Souva (2007) and Escribà-Folch and Wright (2010) conclude that sanction actually weaken authoritarian leaders, other scholars cast some doubts on this finding (e.g. Pape, 1997; Allen, 2008; Licht, 2017). Some papers also point out that sanctions may decrease living standards within the targeted country (Weiss, 1997; Allen and Lektzian 2013; Neuenkirch and Neumeier, 2015) and increase the level or repression and violence (Wood, 2008; Peksen, 2009; Peksen and Drury, 2010; Hultman and Peksen, 2015). Our paper is close to those casting doubts on sanctions' effectiveness. Indeed, in our setting, the leader's decision to default on public debt backfires on foreign countries, offsetting, at least partially, their attempt to overthrow the leader.

To properly account for the instrumental view described above, we explicitly model

[3] See Baldwin (2000) for a general discussion of the political logic behind sanctions and Drezner (1999) and Hufbauer *et al.* (2009) for reviews of their scope and effectiveness.

[4] Economic sanctions are then the "stick" in the hands of the international community to discipline a leader. The literature, however, has also investigated the "carrot-oriented" role of sanctions. For instance, Toke and Albornoz (2011) look at how changes in the flow of FDIs may help aligning the behavior of a leader with the interests of the international community.

the channel through which sanctions affect the leader's probability to survive in office. In this respect, we are close (among others) to Kaempfer *et al.* (2004), Wood (2008), De Mesquita and Smith (2009, 2010), Peksen and Drury (2010), and Oechslin (2014), which study how international sanctions may affect the behavior of an office-motivated leader. We differ from these papers as we focus on the use of a default on external debt as a reaction to the sanction.[5]

The relationship between international sanctions and sovereign defaults has been explored by the literature on "supersanctions" and "gunboat diplomacy" (e.g. Bulow and Rogoff, 1989a, 1989b; Weidenmier 2005; Mitchener and Weidenmier 2010).[6] This literature argues that international sanctions are imposed to induce debt repayment because of the severe and prolonged economic costs borne by the sanctioned country. In other words, defaults *cause* sanctions. Although in several instances this may have been the case, the link emphasized in the present paper goes in the opposite direction: sanctions *cause* defaults. We claim that a sanction may lead an office-motivated government to repudiate foreign debt in order to free resources allowing to regain political support.

This paper is an instance of how political constraints may affect the choice to service public debt.[7] There is ample empirical evidence that political uncertainty is priced by financial markets (Citron and Nickelsburg, 1987; Brewer and Rivoli, 1997; Kohlscheen, 2007; van Rijckeghem and Weder, 2009). Political risk has also been incorporated in dynamic general equilibrium models (Cuadra and Sapriza, 2008 and Andreasen *et al.* 2016).[8] We contribute to this literature by explicitly modeling the link between sanction, revolt risk, and the probability to enter a default.

In our model, a default is effective in improving the government's probability to survive in office only if the cost borne by domestic citizens is not too high. This establishes a link with the literature investigating the costs of a default for the defaulting country (English 1996; Arellano 2008; Borensztein and Panizza 2009; Gelos *et al.* 2011; Yeyati and Panizza 2011; Cruces and Trebesch 2013; Gennaioli *et al.* 2014; Sandleris 2016). Finally, our paper is related to the finance literature on strategic defaults by households (e.g. Guiso *et al.* 2013) and corporations (e.g. Anderson and Sundaresan 1996; Mella-Barral and Perraudin 1997).

[5] We also differ from this literature because we model the revolt subgame as a global game (cf. Alkeson, 2000 and Edmond, 2013). See Morris and Shin (2003) for a review of static global games and Angelots *et al.* (2007) for the analysis of dynamic global games

[6] See also Cole and Kehoe (1998) for the reputational costs that a default may cause.

[7] For surveys on the extensive economic literature on sovereign defaults see Eaton and Fernandez (1995), Panizza, Sturzenegger and Zettelmeyer (2009) and Tomz and Wright (2013).

[8] On a complementary note, Amador, (2003) and Guembel and Sussman (2009) show that debt repayment may arise in the absence of default penalties for internal political reasons.

3 Some preliminary evidence

Our dataset collects information on 70 countries over the period 1950-2005, with a total of 3,808 country/year observations. It combines three different sources: the "Threats and Imposition of Sanction Database" on sanctions (henceforth, TISD); the Reinhart and Rogoff's Database on debt and financial crisis (henceforth RRD); the "Cross-National Time-Series Data Archive" on political institutions and political unrest (henceforth, CNTSDA). The Data Appendix provides a detailed description of these sources and precise definition of variables.[9] Table A1 in the Appendix reports the list of countries and the frequency of sanctions and external debt crisis.

Sanctions occur quite frequently. Countries are recorded to be under sanction in almost 25% of the sample. Sovereign debt crises are less frequent (15% of the sample), and in most cases (93.75%) they involve external debt. Out of 92 default episodes, 25 occur while the country is under a sanction. Moreover, the frequency with which countries enter an external debt crisis increases by almost 15% if they were subject to a sanction in the previous year. Thus, defaults are quite likely to happen *after* a sanction has been levied (see Tables A2-A4 in Appendix).

Table 1 shows that sanctioned countries are richer than countries under no sanction, while countries that default on external debt are poorer than non-defaulting countries. However, when it comes to political characteristics, sanctioned and defaulting countries are much more similar. The sanctioned countries are more likely to be ruled by a military junta and less likely to have an elective government, compared to countries under no sanction. They also experience a higher degree of internal political conflict (as measured by the frequency of riots and by the Conflict Index, which aggregates on a 0-100 scale information on riots, strikes, political assassinations, guerrilla warfare and other measures of political unrest). Similar political patterns characterize countries under an external debt crisis: lower frequency of elective institutions and stronger political conflict, compared to countries that service public debt.[10]

TABLE 1 HERE

[9] 3,808 is the number of observations for which data on all variables are available. In some of the regressions in Section 5, we supplement the dataset with public finance variables obtained from the World Bank World Development Indicators (henceforth, WDI). With the addition of this set of variables, the sample size shriks to 987 observations.

[10] All these differences are statistically significant at least at the 5% level. Not surprisingly, if we restrict the sample size to include additional variables, we further find that being in a default status is positively associated with a higher frequency of inflation crisis, lower reserves, higher stocks of external debt and higher payments on external debt (see Table A4 in Appendix). Similar patterns hold true for countries under sanction. Moreover, in this restricted sample, sanctions are still associated with greater political unrest, while the positive correlation between external debt crisis and poltical instability is weaker.

Thus, when considered in isolation, being subject to a sanction and being in an external debt crisis are both associated with higher internal political instability. Interestingly, however, when the two conditions occur jointly, political instability decreases substantially. Table 2 tells us that being in an external debt crisis *and* under sanction is significantly associated with a lower incidence of riots and with a lower Conflict Index.[11]

TABLE 2 HERE

This evidence represents the main motivation of the theoretical model we present in the next section. Defaulting on external debt is the mechanism through which a country that has been hit by a sanction may regain internal political stability.

4 The Model

A country is ruled by an office-motivated head of state, Player H, (or the leader, terms which we use interchangeably) who enjoys a benefit $\upsilon > 0$ from keeping his position. The country has an outstanding amount of external public debt equal to $B > 0$. This debt is financed through a government bond, which must be repaid, together with interests, at the end of the game. Thus, the total cost of servicing the public debt is $(1 + r) B$, where r is the interest rate paid on the government bond.

The population of the country is homogeneous in terms of income. We normalize income level to 1. Citizens belong to one of two possible groups, A and Z.

Individuals in group A are *Activists*. Each activist must independently choose whether to engage in a collective political attack against the leader in the attempt to overthrow him. The actual interpretation of such a choice may vary with the specific context we are analyzing. In autocratic regimes it often entails participating in a violent revolt against the dictator. In democratic regimes it may range from taking part in legal political movements or peaceful demonstrations to engaging in violent protests against the government. In either cases, the aim is weakening the political support of the ruling executive and thus favoring a parliamentary confidence crises.

Individuals in group Z, instead, do not directly take part in the revolt. To simplify the analysis, we assume that group A represents a negligible fraction of the total population, while group Z (and the country's population) has unit mass.

[11] As shown in Table 2, the differences in our measures of politically instability are both statistically significant when we condition to the sanction status, while only the difference in riots is statistically significant when we condition on the external debt crisis status.

Citizens' gross income (hence, the country's GDP) is affected by sanctions imposed by the International Community. A sanction equal to $\sigma \in [1, \bar{\sigma}]$ reduces the income of citizens to $y(\sigma) = 1/\sigma$. Thus, $\sigma = 1$ implies no sanction while $\bar{\sigma} > 1$ is the sanction's maximum level. One may think of $1/\bar{\sigma}$ as the per capita GDP if the country is totally banned from the International Community. Each sanctioning country within the International Community would draw an economic or political benefit from overthrowing the leader of the sanctioned country. But it would also bear a cost in the event of a default. Such cost is proportional to the amount of the country's external debt owned by the sanctioning country. Thus International Community members may have different views about how harsh the sanction should be. We assume that the level of sanction chosen by the International Community maximizes a weighted sum of members' utilities. Weights reflect their political influence within the International Community, capturing the idea that more powerful countries have a higher ability to affect the common decision in their favor (cf. Subsection 5.4 for additional details).

The utility of citizens in group Z depends on the sanction level, σ, and on the leader's decisions regarding taxation, τ, and default, δ:

$$u_Z(\sigma, \tau, \delta) = \frac{1-\tau}{\sigma} - \delta\ell, \tag{1}$$

In particular, $\delta \in \{0, 1\}$ is a binary choice variable describing whether the country defaults on the outstanding debt ($\delta = 1$) or not ($\delta = 0$), and $\tau \in [0, 1]$ is the proportional tax rate chosen by the leader to finance public expenditures (see subsection 5.2 below). ℓ is the cost incurred by citizens if a default takes place. As such, ℓ may capture different factors, such as capital losses in citizens' portfolios, systemic effects on the financial sector, loss of international credibility, or any other utility loss associated with the socioeconomic turmoil a default may cause. We assume that ℓ is uniformly distributed in the interval $[0, \ell_H]$. In particular, ℓ is realized before the leader chooses whether to default or not (and it is observable to him), but after the sanction is determined.[12]

The regime is overthrown if and only if the fraction of activists who revolt exceeds a critical threshold. The latter positively depends on the utility of citizens in group Z, $u_Z(\sigma, \tau, \delta)$. Intuitively, when the discontent among citizens is high, the regime is less stable and, consequently, fewer activists are needed to overthrow it.

If an activist revolts and the revolt succeeds, he enjoys a payoff $g > 0$. Such payoff can

[12] The randomness of ℓ at the time the sanction is levied seems realistic. Moreover, it "smooths" the binary decision to default into a probabilistic event. The assumption of uniform distribution is made to simplify computations but, qualitatively, none of our results hinges on it. In what follows, we further assume that ℓ_H is sufficiently high to guarantee that a strategic default occurs with probability strictly between 0 and 1 for any level of sanction $\sigma \in [1, \bar{\sigma}]$.

be seen as the sum of a hedonic benefit, due to taking part in a successful political action, and a monetary payoff possibly related to the value of office, υ. The idea is that those who participate in the political action overthrowing the regime not only are ideologically motivated, but they may also enjoy a material benefit from replacing the current ruling class. On the contrary, if the revolt fails each participating activist incurs a cost equal to the amount the leader invests in overthrow prevention, $\pi \geq 0$. One may think of π as the leader's investment in intelligence or riot police. In this interpretation, the activist's cost derives from a higher probability of being arrested or injured. The utility of an activist is thus given by:

$$u_A(\sigma, \tau, \delta, \pi) = \frac{1-\tau}{\sigma} - \delta\ell + g\Phi - \pi(1-\Phi), \tag{2}$$

where Φ is an indicator function that equals 1 if the activist participates in the revolt and it succeeds and 0 if he participates in it, but it fails. As we explain below, activists exhibit strategic complementarities in their behavior: the larger is the fraction of activists who revolt, the more each single activist has an incentive to revolt. This is because, as the revolt becomes larger in size, it also becomes more likely to succeed. Then, each activist faces a higher expected net benefit of revolting and this boosts his propensity to take part in the riot.

The investment in overthrow prevention, π, is financed through a proportional tax rate, τ, levied on citizens' income. Tax revenues must also service public debt if no default occurs (i.e. if $\delta = 0$):

$$\frac{\tau}{\sigma} = \pi + B(1+r)(1-\delta). \tag{3}$$

Given the sanction level, σ, and the interest rate, r, the leader chooses a policy vector $(\tau, \pi, \delta) \in [0,1] \times [0,1] \times \{0,1\}$ so as to maximize his probability to survive in office under a balanced budget constraint (3).

The interest rate r is an endogenous variable. It is determined by "financial markets" through a no-arbitrage condition against a risk-free interest rate, $\tilde{r}$. We say the *debt is priced* if there exists an interest rate r on the government bond that equates the expected return on the government bond (accounting for the risk of nonpayment) with the risk-free return:

$$(1+r)(1-F(\sigma \mid r)) = 1+\tilde{r}. \tag{4}$$

$F(\sigma \mid r)$ is the nonpayment probability, namely the probability with which Player H chooses to default when the sanction level is equal to σ and the interest rate is equal to r. Since the probability of a default depends on σ, the interest rate depends on the sanction level, $r = R(\sigma)$. If there is no r satisfying (4), we say the *debt is not priced* and we assume that a default happens with certainty. One might think of this as the case of a severe liquidity crisis. Thus, in our model, defaults can happen either because Player H decides so, or because risk premium is so high that default becomes inevitable. We refer to the former type of defaults as to *strategic defaults* and to the latter as to *automatic defaults*.

The timing of the events is the following (cf. Figure 1). In period 0, the International Community chooses the sanction level. In period 1, financial markets form rational expectations on the probability with which the country defaults given the level of sanctions σ, and interest rate r is determined. If the debt is priced, then in period 2 the leader chooses a policy vector (τ, π, δ). If the debt is not priced, the default occurs with certainty and the leader chooses a vector (τ, π). In period 3, activists decide whether to revolt or not and, in period 4, the outcome of the revolt is determined.

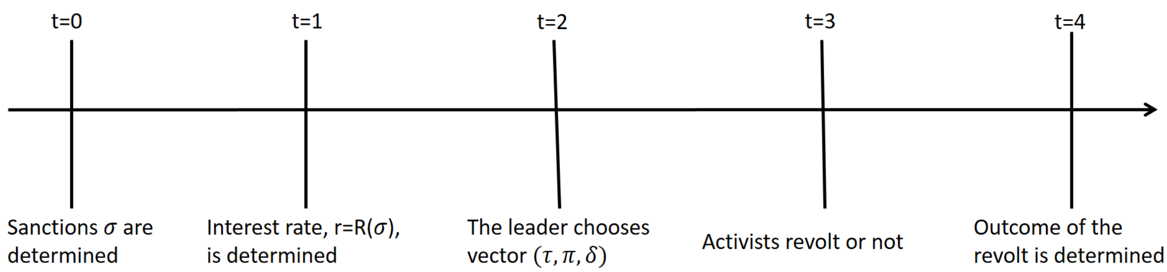

Figure 1: Timing of the Model.

5 The Analysis

This Section characterizes the equilibrium of the model. To ease the presentation, we proceed backward. First, we describe the revolt subgame. Then, we compute the optimal policy vector (τ, π, δ) and the interest rate, $R(\sigma)$. Finally, we analyze the choice of the sanction level by the International Community.

5.1 The Activists

At the beginning of period 3, each activist unilaterally decides whether to participate in a political attack against the leader (henceforth revolt).[13] The revolt succeeds and Player H is overthrown if and only if sufficiently many activists revolt. The revolt subgame among

[13]The coordination mechanism in a revolt (either peaceful or violent) is sufficiently general to be illustrative of other forms of collective political action against the regime.

activists exhibits strategic complementarities: if more activists participate in the revolt, each activist has an individually higher incentive to revolt. A possible interpretation is that the hedonic feeling of contributing to a meaningful event is greater if the chance of success is higher. The complementarity could also be on the cost side: the probability of being arrested or injured is smaller in a larger crowd.

To deal with equilibrium multiplicity that strategic complementarities may generate, we model the revolt as a global game (see Carlsson and van Damme, 1993, Morris and Shin, 1998, Atkeson, 2000, and Edmond, 2013). We assume that the fraction of activists needed to overthrow the regime is equal to $u_Z(\sigma, \tau, \delta) + \eta$. This is the citizens' degree of satisfaction with the regime. We refer to it as to the *regime stability.* Intuitively, a revolt succeeds more easily if it finds a larger support among citizens. This support is inversely related to their satisfaction with the current government, which depends both on their utility, $u_Z(\sigma, \tau, \delta)$, and on the realization of a random shock to the leader popularity, η. As such, η captures those factors which do not enter in the government budget constraint (3), but they still affect citizens' satisfaction with the regime (e.g., their affection to the leader or the effects of his rhetoric on them). The randomness of η is realistic, since the precise impact of these factors depends somehow on chance. Each activist shares a common prior that η is uniformly distributed in the interval $\left[\underline{\eta}, \overline{\eta}\right]$. Although η is realized at the beginning of period 3, activists may not be perfectly informed about its realization. They may have some private information, but it may be biased and it may fail to represent the actual support enjoyed by the leader. For instance, an activist may be able to assess the leader's popularity in his neighborhood or within his social network, but not in others. Formally, each activist i observes an independent signal ε_i uniformly distributed in the interval $\left[\eta - \frac{1}{2\psi}, \eta + \frac{1}{2\psi}\right]$.[14] After receiving their signals activists form their posteriors: a distribution over the leader's popularity that is conditional on the signal. Assumption 1 below guarantees that activists who receive sufficiently low (resp., high) signals, want to revolt (resp., not to revolt) independently of what other activists do. This assumption is standard in the global games literature and yields equilibrium uniqueness. To state it formally, let $\overline{u} = 1$ and $\underline{u} = -\ell_H$ be respectively the highest and lowest utility citizens can experience in the game.

Assumption 1 *Revolting is dominant (resp., dominated) if the popularity shock is suf-*

[14] By construction, ε_i can take values in the interval $\left[\underline{\eta} - \frac{1}{2\psi}, \overline{\eta} + \frac{1}{2\psi}\right]$. The posterior belief after signal ε_i can thus be determined through Bayes rule as follows. If $\varepsilon_i \in \left[\underline{\eta} + \frac{1}{2\psi}, \overline{\eta} - \frac{1}{2\psi}\right]$, then $\eta \mid \varepsilon_i \sim U\left[\varepsilon_i - \frac{1}{2\psi}, \varepsilon_i + \frac{1}{2\psi}\right]$. Instead, if $\varepsilon_i > \overline{\eta} - \frac{1}{2\psi}$ (resp., $\varepsilon_i < \underline{\eta} + \frac{1}{2\psi}$), then $\eta \mid \varepsilon_i \sim U\left[\varepsilon_i - \frac{1}{2\psi}, \overline{\eta}\right]$ (resp., $\eta \mid \varepsilon_i \sim U\left[\underline{\eta}, \varepsilon_i + \frac{1}{2\psi}\right]$).

ficiently low (resp., high): $\overline{u} + \underline{\eta} < 0$ *and* $\underline{u} + \overline{\eta} > 1$. *Equivalently,* $\overline{\eta} > 1 + \ell_H$ *and* $\underline{\eta} < -1$.

Proposition 1 states that the revolt subgame has an essentially unique equilibrium and characterizes the survival probability of the leader. The proof follows the same argument as in Morris and Shin, 2002 (see Appendix for details).

Proposition 1 *Under Assumption 1, there are unique* ε^* *and* η^* *such that in any equilibrium of the revolt subgame, (i) an activist revolts if and only if* $\varepsilon_i \leq \varepsilon^*$*, and (ii) the leader is overthrown if and only if* $\eta \leq \eta^*$.[15] *Furthermore, the leader's survival probability is given by*

$$S(\sigma, \tau, \pi, \delta) = \Pr\{\eta \geq \eta^*\} = 1 - \frac{1}{\overline{\eta} - \underline{\eta}} \left(\frac{g}{g+\pi} - u_Z(\sigma, \tau, \delta) \right). \tag{5}$$

Comparative statics are straightforward. The leader's chance to survive is larger when activists draw lower utility from overthrowing him (lower g) and when citizens' utility is higher (larger u_Z). On next sections we discuss the effect of the policy variables, σ, π, τ, and δ, on this survival probability.

5.2 The Leader

In period 2, Player H takes the level of sanctions σ as given and chooses the policy vector $(\tau, \pi, \delta) \in [0,1] \times [0,1] \times \{0,1\} \equiv C$ to maximize his probability to survive in office, $S(\sigma, \tau, \pi, \delta)$, subject to the government budget constraint. Thus, if the debt is priced, the budget constraint is (3), and the leader solves the following problem:

$$\max_{(\tau,\pi,\delta)\in C} \upsilon S(\sigma, \tau, \pi, \delta) \text{ s.t. } \quad \frac{\tau}{\sigma} = \pi + B(1+r)(1-\delta). \tag{6}$$

If the debt is not priced, the leader cannot service the debt. δ is no longer a choice variable, and the budget constraint is $\frac{\tau}{\sigma} = \pi$. Thus, the leader's problem becomes:

$$\max_{(\tau,\pi)\in[0,1]^2} \upsilon S(\sigma, \tau, \pi, 1) \text{ s.t. } \quad \frac{\tau}{\sigma} = \pi. \tag{7}$$

First, suppose the debt is priced. The investment in overthrow prevention, π, has two effects on survival probability (cf. expression (5)). On the one hand, survival probability increases because a higher π (e.g. stronger intelligence or police) makes it less worthwhile

[15] If $\varepsilon_i = \varepsilon^*$, activist i is indifferent between revolting or not. We break this indifference assuming that he revolts for sure.

to run the risk of revolting. Less activists are sucked into the revolt, thus overthrow becomes less likely. On the other hand, a higher investment in overthrow prevention implies higher taxes and lower $u_Z(\sigma, \tau, \delta)$. Citizens are less satisfied with the government and more prone to support the revolt by the activists.

Similarly, the decision to default has a two-fold effect on the leader's probability to survive in office. On the one hand, citizens suffer a cost equal to ℓ and their discontent with the current government goes up, dampening survival probability — see (1). On the other hand, a default eliminates the cost of servicing the public debt, thus enabling a tax reduction and an increase in $u_Z(\sigma, \tau, \delta)$, which boosts the leader's survival probability.

The optimal policy vector, $(\tau^*, \pi^*, \delta^*)$ solves the two trade-offs highlighted above. It is a function of the sanction level (σ), the realization of the default cost (ℓ), and the interest rate (r). However, as we clarify below, the interest rate is itself a function of σ. Thus we can write $\tau^* = T(\sigma, \ell \mid r)$, $\pi^* = P(\sigma, \ell \mid r)$, and $\delta^* = D(\sigma, \ell \mid r)$.

Importantly, the optimal policy vector further depends on whether constraint $\tau \leq 1$ binds or not — recall that $\tau \in [0, 1]$. If it binds, the choice of π and δ is shaped by an additional trade-off. If the leader chooses to service the debt ($\delta^* = 0$), then the investment in overthrow prevention must be chosen residually after setting taxation at the highest possible level ($\tau^* = 1$). Thus, π^* is lower than the level that would be chosen in the absence of constraint $\tau \leq 1$. On the contrary, if the leader insists on choosing overthrow prevention based on the trade-off described above, he must renege on the public debt ($\delta^* = 1$). In what follows, we assume that these two cases are exhaustive for the equilibrium analysis. This amounts to assuming that the tax base is high enough to either set overthrow prevention at its first-best level or to service public debt in the absence of default risk.[16]

First-best level of overthrow prevention solves (6) ignoring constraint $\tau \leq 1$. In particular, such level is equal to $\sqrt{g} - g \geq 0$ (cf. Lemma 9 in Appendix). The inequality tells us that the leader invests a (weakly) positive amount in revolt prevention only if the activists' benefit of a successful revolt is not too high ($g < 1$). If $g > 1$, the non-negativity constraint on π yields a corner solution: the leader finds it optimal not to invest at all.[17] In order to get rid of this corner solution we make the following assumption:

Assumption 2 *The activists' benefit of a successful revolt is not too high: $g < 1$.*

[16]Formally, $1/\bar{\sigma} \geq \max\left\{\sqrt{g} - g, B(1 + \tilde{r})\right\}$. This implies that, absent any strategic reaction by an office-motivated leader, sanctions cannot automatically lead to a default.

[17]Intuitively, if $g > 1$, the activits' benefit is so high that in order to discourage revolts the leader should "buy" the citizens' support with a negative π, which in turn implies negative taxes (hence, positive transfers). Since, in the interest of realism, we restrict the investment in overthrow prevention π to be positive, we ignore this case.

Based on Assumptions 1 and 2, Lemma 9 in the Appendix characterizes the equilibrium policy vector chosen by the leader. Moreover, exploiting the randomness in the cost of defaulting ℓ, we can compute the probability of a strategic default, as it is assessed by the International Community and by financial markets. Let this probability be $F(\sigma \mid r) = \int_0^{\ell_H} D(\sigma, \ell \mid r)$. The following proposition states an important result.[18]

Proposition 2 *For any value of the interest rate $r \geq \tilde{r}$, the probability of a strategic default, $F(\sigma \mid r)$, is increasing in σ.*

To understand why a harsher sanction is more likely to trigger a default, first observe that the leader's net benefit from defaulting is the sum of three separate forces.[19] First, a default enables him to reduce taxation, which makes citizens more satisfied. Revolts become more difficult, thus survival probability improves. Second, if the constraint $\tau \leq 1$ binds, a default frees resources that can now be invested to reach the optimal level of overthrow prevention. The leader can spend more money in, say, riot police, with a positive effect on his probability to survive in office. Third, a default yields a disutility for the citizens equal to ℓ. Citizens are less satisfied, with a negative impact on the leader's survival probability. Now, observe that an increase in the sanction level, σ, amplifies the first two positive forces, without affecting the third negative force. The reason being that a harsher sanction shrinks citizens' GDP per capita, $\frac{1}{\sigma}$, and, consequently, the country tax base. On the one hand, the reduction in GDP per capita makes citizens less satisfied and this pushes the leader to default, reduce taxation and improve in this way citizens' satisfaction. On the other hand, the reduction in the tax base makes the tax rate constraint, $\tau \leq 1$, more likely to be binding. Then, if the leader wants to choose the optimal level of overthrow prevention, he has to default more often. The joint effect of these two forces makes a default more appealing to the leader.

Turning our attention to the case in which the debt is not priced, notice that in these situations, servicing the debt is financially not sustainable. Thus, an automatic default occurs and the budget constraint becomes $\frac{\tau}{\sigma} = \pi$. Then, the leader chooses an amount of overthrow prevention equal to π^* and a level of taxation equal to $\sigma\pi^*$.

5.3 The Markets

In period 1, financial markets form rational expectations on the probability of a default, $F(\sigma \mid r)$, and they set the interest rate r on the government bond accordingly. The absence of arbitrage opportunities implies that the expected gross return on the government

[18] The proof in the Appendix contains details about the analytical derivation.

[19] See (15) in the Appendix for a formal characterization of these forces.

bond must equal the safe gross return that an investor can receive by investing in the risk-free asset. Formally:

$$(1+r)\,(1-F\,(\sigma \mid r)) = 1+\tilde{r}. \tag{8}$$

The Appendix shows that an increase in r increases both the yield on the government bond, $1+r$, and the probability of a strategic default, $F\,(\sigma \mid r)$. It also shows that equation (8) may admit up to two solutions. When such multiplicity arises, financial markets are indifferent between two values of the interest rate. For the sake of simplicity, we assume that in this case they pick the lowest value of r, which we denote with $R\,(\sigma)$. Obviously, $R\,(\sigma) \geq \tilde{r}$.

For some values of σ, equation (8) admits no solutions. In this case the debt is not priced. This happens when the amount of outstanding debt is so high that, independently of the level of the interest rate, setting taxation in order to service this debt would generate too much discontent among the population. Then, the leader always chooses not to service the debt.

The following Proposition states that debt is likely to be priced when defaulting generates large turmoil costs (high ℓ_H), or when the risk-free bond yields a low return (small $\tilde{r}$). Here is the intuition. As explained in the previous section, a high turmoil cost decreases the leader's net benefit of defaulting (see the discussion after Proposition 2). Then, markets are more likely to price the debt. Likewise, when the alternative risk-free investment is unattractive (low $\tilde{r}$), markets price the debt even if the default probability is relatively high. Furthermore, the proposition also states that, when debt is priced and r is endogenously determined, the default probability is increasing in the sanction level.

Proposition 3 *The debt is priced only if its amount B does not exceed a threshold $\bar{B} := \ell_H/[4\,(1+\tilde{r})]$. If debt is priced, the interest rate, $R\,(\sigma)$, is the lowest root of (8) and it is a continuous and differentiable function of the sanction. Moreover, there exists a $\hat{\sigma}$ such that $R\,(\sigma)$ is constant for $\sigma \leq \hat{\sigma}$ and increasing for $\sigma > \hat{\sigma}$. As a result, the probability of a strategic default, $F\,(\sigma \mid R\,(\sigma))$, is increasing in σ.*

Since the return on the government bond in determined by (8), we can totally differentiate such equation and conclude that $d\,((1+R\,(\sigma))\,(1-F\,(\sigma \mid R\,(\sigma))))\,/d\sigma = 0$. In other words, if the bond is priced and we marginally change the sanction level, the change in the yield on the government bond, $R\,(\cdot)$, and in the default probability, $F\,(\cdot)$, fully offset each other in order to preserve no-arbitrage.

Having endogenized the yield on the government bond, we are ready to define the leader's expected survival probability, $\hat{S}$, as it is assessed by the International Community in period 0. By the assumption on the distribution of ℓ, we get:

$$\hat{S}(\sigma) = \int_0^{\ell_H} \frac{S(\sigma, T(\sigma, \ell \mid R(\sigma)), P(\sigma, \ell \mid R(\sigma)), D(\sigma, \ell \mid R(\sigma)))}{\ell_H} d\ell \tag{9}$$

Expected survival probability is a function of σ. This is the case because, by Proposition 1, the probability to survive in office is a function of the policy vector and of the yield on the government bond, which in turn all depend on σ. Proposition 4 below states that $\hat{S}(\sigma)$ is decreasing in σ. This means that in this model, the traditional argument underlying the use of sanctions applies: sanctions weaken the leader and favor his overthrowing.

Proposition 4 *The expected survival probability of the leader, $\hat{S}(\sigma)$, is decreasing in the sanction level.*

To understand Proposition 4, first suppose that the equilibrium policy vector, (τ, π, δ), and the yield on the government bond, r, do not depend on the sanction level. In this case, by equations (1) and (5), an increase in the sanction level has only a "direct" effect: it lowers GDP per capita, which in turn reduces citizens' satisfaction and decreases the leader's survival probability. Furthermore, observe that (5) also implies that the survival probability of the leader increases with the investment in overthrow prevention, π, and decreases with the tax rate, τ, and with the decision to default, δ. Finally, since the service of debt is financed through taxation, an increase in the interest rate also leads to an increase in the tax rate and to a decrease in the leader's probability to survive in office.

Now, let us account for the fact that the policy vector and the yield on public bonds are themselves affected by the level of sanctions. Then, besides the direct impact on the GDP per capita described above, an increase in the sanction level has additional "indirect" effects. First, it leads to an increase in the yield $R(\sigma)$ (cf. Proposition 3) and to a related increase in the tax rate, which lowers the leader's survival probability. Second, a harsher sanctions lowers the tax base of the country, shrinking the resources the leader can spend in overthrow prevention. This also lowers the leader's survival probability. The leader may offset this latter effect by defaulting more often. Importantly, Proposition 4 says (and Appendix proves) that, independently of how frequently the leader reacts with a strategic default, the overall effect of an increase in the sanction level is always a decrease his expected survival probability.

5.4 The International Community

At the beginning of period 0, the International Community chooses the sanction level taking all economic and political consequences into account. Specifically, it computes the interest rate that markets will set in equilibrium and it forms rational expectations about the event of a sovereign default and the event of an overthrowing in the targeted country.

Let the International Community be a set $\Gamma = \{1, ..., n\}$ of member countries. Realistically, these countries have heterogeneous interests, not only in overthrowing the regime, but also in the repayment of the debt. On top of that, they may differ in their political influence when it comes to making a common decision about sanctions.

Suppose each country $j \in \Gamma$ enjoys a political and economic benefit k_j from overthrowing the leader from office but it also bears a cost if the country defaults. Benefits derive from the improvement in economic and diplomatic relationships that occurs if a new friendly government replaces the current regime. Moreover, independently of the effect on regime survival, sanctions often yield political benefits per se. Indeed, countries may find themselves in the position of punishing a hostile regime, as a politically meaningful action showing that the misconduct of the targeted regime cannot be tolerated. Such "expressive" return from punishment, call it g_j, positively depends on the sanction but is independent of whether the regime survives or not: $g_j = G_j(\sigma)$, with $G_j' > 0$. For simplicity, hereafter we assume that benefits are the same for all countries: $k_j = k$ and $G_j(\sigma) = G(\sigma)$ (for all j).

Let b_j be the amount of the target country's debt held by country j. The cost borne by j in case of a default includes both the loss $b_j(1 + r)$ that occurs when the debt is not serviced, and a cost c_j capturing all other negative externalities the default may have on country j's economy (e.g., domino effects on the domestic financial system, confidence disruption, higher instability, reduction in trading flows with the defaulting country,...). In this interpretation, we assume that c_j is positively related to the amount of debt: $c_j = C(b_j)$, with $C' > 0$ and $\bar{c} = \frac{1}{n}\sum_{j=1}^{n} c_j$.

Summing up, if a sanction σ is levied, country j's expected utility is given by

$$v(\sigma \mid b_j) = G(\sigma) + k \cdot \left(1 - \hat{S}(\sigma)\right) - C(b_j) \cdot F(\sigma \mid R(\sigma)) + b_j \cdot (1 + \tilde{r}) \qquad (10)$$

The first term in the LHS is the "expressive" return from punishing the regime. The second one is the expected "instrumental" return from overthrowing the leader. The third one is the expected cost associated with a default. The fourth term is the expected value of the bonds, $b_j \cdot (1 + r)(1 - F(\sigma \mid r)) = b_j \cdot (1 + \tilde{r})$. This equality derives from the no-arbitrage condition (8). It shows that such term is independent of the sanction because the bond yield automatically adjusts to include the default risk premium.

The normative benchmark is a sanction, σ^o, that maximizes the following Benthamite social welfare function,

$$W(\sigma \mid b) = \sum_{j \in \Gamma} v(\sigma \mid b_j), \tag{11}$$

where $b = \{b_1, ..., b_n\}$. The level σ^o would be the sanction chosen by a social planner which is benevolent towards all the International Community's members. Eventually, this planner is unaffected by the political power of any member. At σ^o the average marginal benefit from punishing the country and increasing the chance to overthrow the leader, $dG/d\sigma - k \cdot d\hat{S}(\sigma)/d\sigma$, equals the average marginal cost of a higher exposure to the risk of default, $\bar{c} \cdot dF(\sigma)/d\sigma$ (see Appendix for details).

Realistically, however, powerful countries may have the ability to influence the common decision in their favor. Let ϕ_j parametrize country j's "de facto" political power within the International Community. This parameter captures the diplomatic, military and institutional factors that make a country more or less influential in the decisions regarding sanctions. Without loss of generality, we normalize total political power to one, namely $\sum_{j=1}^{n} \phi_j = 1$. To account for power heterogeneity, we assume that the International Community chooses a "politically distorted" sanction, σ^*, which maximizes a "distorted" Benthamite social welfare function where each country's utility function is weighted by that country's political power. Let this distorted social welfare function be,[20]

$$\tilde{W}(\sigma \mid b, \phi) = \sum_{j \in \Gamma} \phi_j v(\sigma \mid b_j), \tag{12}$$

with $\phi = \{\phi_1, ..., \phi_n\}$. The next proposition advances the idea that, compared to the normative benchmark, the sanction is too harsh (resp., too mild) if on average the powerful countries are relatively unexposed (resp., exposed) to the default risk.

Proposition 5 *Let the unweighted average cost of a default be* $\bar{c} = \frac{1}{n}\sum_{j=1}^{n} C(b_j)$*, and let* $\bar{c}_\phi = \sum_{j=1}^{n} \phi_j C(b_j)$ *be the "power-weighted average cost".*
i) If $\bar{c}_\phi \leq \bar{c}$ *(resp.,* $\bar{c}_\phi \geq \bar{c}$*) then the equilibrium sanction* σ^* *is socially too harsh,* $\sigma^* \geq \sigma^o$ *(resp., too mild,* $\sigma^* \leq \sigma^o$*);*
Assume the relation between cost and debt is linear, $C(b_j) = \alpha + \beta b_j$*,* $(\beta > 0)$*. Let* $\bar{b}_\phi = \sum_{j=1}^{n} \phi_j b_j$ *be the "power-weighted average amount of debt", and let* $\bar{b} = \frac{B}{n}$ *be the unweighted average.*
ii) If $\bar{b}_\phi \leq \bar{b}$ *(resp.,* $\bar{b}_\phi \geq \bar{b}$*) then the sanction* σ^* *is socially too harsh (resp., too mild).*

This proposition points out that the source of political distortion in the choice of the sanction level is the uneven distribution of power within the International Community.

[20] Passarelli and Tabellini (2017) have a similar functional form to account for the influence of politically organized groups engaging in protests against the government.

When the more powerful members incur lower (resp., higher) costs in sanctioning a regime, the power-weighted average cost is smaller (resp., larger) than the unweighted average. Then the sanction is harsher (resp., milder) than the optimal level. Statement ii) points at the role of debt shares. The countries with lower amount of debt in their portfolios prefer harsher sanctions because they bear lower costs in case of default. If these countries are also the most powerful ones, the sanction will be too harsh (and vice versa). Specifically, if the default cost borne by each lender is linearly correlated to its amount of debt, then the condition for a "politically distorted" sanction becomes particularly simple: the sanction is too harsh (resp., too mild) if the power-weighted average debt share is smaller (resp., larger) than the unweighted average.

Summing up, a key message emerges from our theoretical analysis. Although sanctions shorten a regime's survival expectancy, they also increase the probability of a strategic default because the leader may use this political tool to restore some of his popularity. In our model, this is especially the case when imposing a sanction is an admonitory act with high political significance, or when the most powerful countries have little to lose from a default. In such situations the International Community, or at least its most powerful members, may find it profitable to trade an increase in the risk of default against the political return of an admonitory punishment.

6 Empirical Evidence

Defaulting on external debt may represent the regime's optimal reaction to a sanction. An empirically testable prediction of our theoretical model concerns timing: external debt crisis are likely to occur *after* sanctions. In order to test this prediction, we regress the external debt status of a country over the existence of a sanction against that country in the previous year. In order to account for the possibility that some sanctions were imposed against the country *because of* a previous debt crisis, we consider only those observations for which the country was not in an external default status in the two previous years. We further include a set of political and economic controls as well as country and year fixed effects. Results are reported in Table 3.

TABLE 3 HERE

Sanctions are positively and significantly associated with the entry in an external debt crisis one year later, providing an almost 2 percentage point increase in default probability. This evidence is consistent with Proposition 3 in the theoretical model. It holds true independently of whether economic and political variables are included among the controls (Columns 1 and 2) or whether we consider the restricted sample for which information on public finance variables are included (Column 3).[21]

Our data suggest that sanctions are likely to occur before defaults. This evidence is consistent with the causal link that our theoretical model puts forward (namely, sanctions cause external debt crises), but it is also consistent with an alternative explanation claiming that sanctions may represent preemptive punishments against governments that are expected to default on foreign holders. In this case, the casual link would go in the opposite direction. In order to account for this alternative story and provide further evidence in support of our model, in the Appendix we show that the positive correlation between lagged sanctions and debt crisis is robust to different specifications of the temporal lag (see Tables A5-A7). Thus, if the alternative explanation were true, it would imply that the International Community is able to predict that a country will default four years ahead, and punish that country quite long beforehand, which we deem unlikely.

In the Appendix (see Table A8), we ask whether there is a significant correlation between external debt crises starting at time t and sanctions occurring at $t+1$ or $t+2$, but we do not find evidence. Thus, there is no support in our data for the "gunboat diplomacy" explanation, which argues that sanctions typically represent the International Community's reaction to a default.

A second testable prediction of the model is that a default following a sanction dampens political instability and positively affects the regime's popularity. Thus one should observe lower political instability in countries that default after a sanction than in countries that do not default after being hit by a sanction. In order to test this implication, we regress measures of political instability against three dummies capturing (i) whether the country was under sanction in the previous two years, (ii) whether the country was in an external debt crisis in the previous two years, and (iii) whether in the two previous years the country was jointly in a sanction and in an external debt crisis, provided that the latter occurred one year *after* the former. This last interaction variable captures how the default decision correlates with the regime's stability when the country has been targeted by a sanction. A negative value of the coefficient would tell us that defaults following sanctions have a dampening effect on internal political tensions, as predicted by the model.

We consider two different measures of political instability: a dummy for the occurrence of riots and the Conflict Index defined in Section 3. For each of these measures we run

[21] Not surprisingly, richer countries (as measured by GDP per capita) and less indebted countries (as measured by the stock of external debt in percentage of GNI) are less likely to enter an external debt crisis.

two separate regressions: the first one uses the full sample and includes a set of political and economic controls as well as country and year fixed effects; the second one includes all previous variables plus additional public finance variables and it is thus restricted to the smaller sample for which all these information are available. Results are reported in Table 4.

TABLE 4 HERE

Columns (1)-(4) show that the interaction term between sanctions and external debt crises is associated with a decrease in the incidence of riots and in the Conflict Index. The latter decreases by 6.5 points, while the average incidence of riots decreases by more than 13 percentage points, a quite large effect (see columns (1) and (3)). These two patterns are statistically significant respectively at 5% and 10% level. The estimated coefficients are even larger if we consider the restricted sample for which information on public finance variables are available (cf. columns (2) and (4)).[22] As expected, the data also reveal that political instability tends to increase in adverse economic conditions (lower GDP per capita growth).

7 Conclusion

In this paper we studied the relationship between sanctions and defaults. The common view in the current literature is that sanctions are imposed to punish insolvent countries or to induce debt repayment. According to this literature, defaults cause sanctions. Here, we advanced an alternative explanation: a default is a defensive strategy aimed at regaining political support after a sanction. The main mechanism is simple: sanctions make it harder for the government to gather support and defaults relax the government's constraints. Thus, our explanation reverts the causal relationship between sanctions and defaults.

We did not find a clean instrument to establish causality. However, our explanation appears to be more in line with empirical evidence. We found that typically sanctions happen before defaults: the association between sanctions and lagged defaults is statistically significant, while there is no significant correlation between defaults and lagged sanctions.

Our empirical evidence on the link between sanctions, defaults, and political instability leads to the following considerations. Sanctions per se do not have a clear effect on political

[22]Table A9 in the Appendix shows that similar results hold true if we increase the temporal lag, although the statistical significance is somehow reduced.

instability. This result is consistent with our theoretical conjecture that sanctions are frequently subject to political distortions. They can be too harsh or too mild, thus their effect on the leader's stability is unclear.[23] However, the picture is different when it comes to defaulting on foreign debt. When the country in under a sanction, a default is significantly associated with a substantial reduction in the degree of political conflict. This result suggests, and this is our second consideration, that a sanction may give the government the pretext to default on foreign debt, with the final goal of regaining political support.

While the general evaluation of the political effects of sanction still remains a controversial issue, this paper suggests that a sanction is unlikely to undermine the stability of the ruling regime. It is instead likely to trigger an external debt crisis.

[23] The evidence is also consistent with a lack of consensus in the empirical literature about the effects of sanctions on the governments' popularity and stability.

8 Appendix

8.1 Proof of Proposition 1.

Fix a level of sanctions σ and a policy vector (τ, π, δ).. Pick any equilibrium of the revolt subgame and let $\alpha(\varepsilon_i)$ be the fraction of activists who attack after they receive signal ε_i. Define $Q(\eta, \alpha) = \psi \int_{\eta-\frac{1}{2\psi}}^{\eta+\frac{1}{2\psi}} \alpha(\varepsilon_i)\, d\varepsilon_i$; thus, $Q(\eta, \alpha)$ is the overall fraction of activists who revolt if the realization of the popularity shock is η. Finally, let $W(\alpha) = \{\eta : Q(\eta, \alpha) \geq \upsilon + \eta\}$ be the set of realizations of the popularity shock for which the revolt is successful.

Thus, we can summarize the payoff of each activist in the following table

	$\eta \in W(\alpha)$	$\eta \notin W(\alpha)$
Revolt	g	π
Not Revolt	0	0

As a result, the expected payoff of an activist who observes signal ε_i and decides to revolt is given by:

$$w(\varepsilon_i, \alpha) = \int_{\eta \in W(\alpha)} g dG(\eta \mid \varepsilon_i) - \int_{\eta \notin W(\alpha)} \pi dG(\eta \mid \varepsilon_i),$$

where $G(\eta \mid \varepsilon_i)$ denotes the conditional cdf of η given signal ε_i. On the contrary, if the activist does not participate in the revolt, he gets a safe payoff equal to 0. Since all activists are identical, in equilibrium:

$$\alpha(\varepsilon_i) = \begin{cases} 0 & \text{if } w(\varepsilon_i, \alpha) < 0; \\ x \in [0, 1] & \text{if } w(\varepsilon_i, \alpha) = 0; \\ 1 & \text{if } w(\varepsilon_i, \alpha) > 1. \end{cases}$$

Let ι_k be a cutoff strategy that prescribe to revolt if ε_i is below k and not to revolt if ε_i is above k. The next two lemmata proves some useful properties of $w(\varepsilon_i, \alpha)$.

Lemma 6 *If $\alpha_1(\varepsilon_i) \geq \alpha_2(\varepsilon_i)$ for every ε_i, then $w(\varepsilon_i, \alpha_1) \geq w(\varepsilon_i, \alpha_2)$ for every ε_i.*

Proof. *If $\alpha_1(\varepsilon_i) \geq \alpha_2(\varepsilon_i)$ for every ε_i (namely, for every signal ε_i, a higher fraction of activist revolts under α_1 than under α_2), we know that for every η, $Q(\eta, \alpha_1) \geq Q(\eta, \alpha_2)$. As a result, $W(\alpha_1) \supseteq W(\alpha_2)$. Thus, Player H is more likely to be overthrown if the revolting fraction of activists is given by $\alpha_1(\cdot)$ instead of $\alpha_2(\cdot)$. The statement of the lemma follows from the definition of $w(\varepsilon_i, \alpha)$ and the fact that $g > 0 > -\pi$.* ■

Lemma 7 *$w(k,\iota_k)$ is continuous and strictly decreasing in k.*
Proof. *By definition of ι_k and $Q(\eta,\iota_k)$, we have*

$$Q(\eta,\iota_k)=\begin{cases}0 & \text{if } \eta>k+\frac{1}{2\psi}\\ \frac{1}{2}-\psi(\eta-k) & \text{if } \eta\in\left[k-\frac{1}{2\psi},k+\frac{1}{2\psi}\right]\\ 1 & \text{if } \eta<k-\frac{1}{2\psi}\end{cases}$$

By Assumption 1, there is a unique value $\eta\in\left[k-\frac{1}{2\psi},k+\frac{1}{2\psi}\right]$ such that $Q(\eta,\iota_k)=\frac{1-\tau}{\sigma}-\delta\ell+\eta$. Define function $k\mapsto\varphi(k)\in\mathbb{R}$ as the mapping that associates to every k, the amount f that solves $Q(k+f,\iota_k)=\frac{1-\tau}{\sigma}-\delta\ell+k+f$. Intuitively, $\varphi(k)$ represents the increase (or decrease) with respect to the threshold k necessary to make the fraction of revolters exactly equal to the one needed to overthrow the regime. Then, if all activists follow cutoff strategy ι_k, the revolt succeeds in overthrowing Player H if and only if $\eta\in\left[\underline{\eta},k+\varphi(k)\right]$. As a result, $w(k,\iota_k)=\int_{k-\frac{1}{2\psi}}^{k+\varphi(k)}gd\varepsilon-\int_{k+\varphi(k)}^{k+\frac{1}{2\psi}}\pi d\varepsilon$. By construction, $w(k,\iota_k)$ is a continuous function. Since the solution to equation $Q(x,\iota_k)=\frac{1-\tau}{\sigma}-\delta\ell+x$ lies in the interval $\left[k-\frac{1}{2\psi},k+\frac{1}{2\psi}\right]$, we can write such equality as $\frac{1}{2}=\frac{1-\tau}{\sigma}-\delta\ell+k+(1+\psi)\varphi(k)$. Totally differentiating the previous expression, we obtain $\varphi'(k)=-\frac{1}{1+\psi}<0$. Thus $w(k,\alpha_k)$ is a continuous and strictly decreasing function of k. ■

The meaning of Lemma 7 is straightforward: if activists follow cutoff strategy ι_k, the utility of the "marginal revolter" (namely, the revolter who receives the cutoff signal k) is decreasing in the level of the cutoff. Indeed, if the cutoff is high, less people revolt and the utility of revolting is lower as well.

Lemma 8 *There is a unique ε^* such that in any equilibrium of the revolt subgame, an activist revolts if and only if $\varepsilon_i<\varepsilon^*$.*
Proof. *First, notice that there is a unique ε^* such that $w(\varepsilon^*,\iota_{\varepsilon^*})=0$. Indeed, by the previous lemma, $w(k,\iota_k)$ is continuous and strictly decreasing in k. If $k<\underline{\eta}-\frac{1}{2\psi}$, each activist knows that by revolting Player H will be overthrown. Thus, $w(k,\iota_k)=g>0$. Instead, if $k>\overline{\eta}+\frac{1}{2\psi}$, the activist knows that the revolt fails even if all activists revolt. Thus $w(k,\iota_k)=-\pi<0$. As a result, we can find a unique ε^* such that $w(\varepsilon^*,\iota_{\varepsilon^*})=0$. Now, pick any equilibrium of the revolt subgame and let $\alpha(\cdot)$ describe the fraction of activists who revolt in such equilibrium. Define:*

$$\begin{aligned}\underline{\varepsilon}&=\inf\{\varepsilon_i\mid\alpha(\varepsilon_i)<1\},\\ \overline{\varepsilon}&=\sup\{\varepsilon_i\mid\alpha(\varepsilon_i)>0\},\end{aligned}$$

By definition, $\bar{\varepsilon} \geq \sup\{\varepsilon_i \mid \alpha(\varepsilon_i) \in (0,1)\} \geq \inf\{\varepsilon_i \mid \alpha(\varepsilon_i) \in (0,1)\} \geq \underline{\varepsilon}$*. If* $\alpha(\varepsilon_i) < 1$*, activists must weakly prefer not revolting than revolting. By continuity, the same holds at* $\underline{\varepsilon}$*. Thus,* $w(\underline{\varepsilon}, \alpha) \leq 0$*. Consider* $w(\underline{\varepsilon}, \iota_{\underline{\varepsilon}})$*. By definition of* $\underline{\varepsilon}$*,* $\iota_{\underline{\varepsilon}} < \alpha$*. Lemma 6 thus implies* $w(\underline{\varepsilon}, \iota_{\underline{\varepsilon}}) \leq w(\underline{\varepsilon}, \alpha) \leq 0$*. Since we know that* $w(\varepsilon^*, \iota_{\varepsilon^*}) = 0$*, Lemma 7 implies that* $\underline{\varepsilon} \geq \varepsilon^*$*. A symmetric argument implies that* $\bar{\varepsilon} \leq \varepsilon^*$*. Thus* $\underline{\varepsilon} \geq \varepsilon^* \geq \bar{\varepsilon}$*. We conclude that* $\underline{\varepsilon} = \bar{\varepsilon} = \varepsilon^*$*. Thus,* $\alpha(\cdot)$ *is equal to the cutoff strategy with cutoff* ε^**.* ■

Lemma 8 implies that the fraction of activists who revolt in state η is given by:

$$Q(\eta, \iota_{\varepsilon^*}) = \begin{cases} 0 & \text{if } \eta > \varepsilon^* + \frac{1}{2\psi} \\ \frac{1}{2} - \psi(\eta - \varepsilon^*) & \text{if } \eta \in \left[\varepsilon^* - \frac{1}{2\psi}, \varepsilon^* + \frac{1}{2\psi}\right] \\ 1 & \text{if } \eta < \varepsilon^* - \frac{1}{2\psi} \end{cases}$$

Obviously, $Q(\eta, \iota_{\varepsilon^*})$ is decreasing in η and strictly decreasing in the interval $\left[\varepsilon^* - \frac{1}{2\psi}, \varepsilon^* + \frac{1}{2\psi}\right]$. Instead, $\frac{1-\tau}{\sigma} - \delta\ell + \eta$ is strictly increasing in η. Thus, the two curves cross only once. Let η^* be the realization of η at which this happens.

By definition, in equilibrium if an activist receives signal ε^*, he is indifferent between revolting or not. Thus, the following equation must hold:

$$\int_{\varepsilon^* - \frac{1}{2\psi}}^{\eta^*} \psi g d\eta - \int_{\eta^*}^{\varepsilon^* + \frac{1}{2\psi}} \psi \pi d\eta = 0. \tag{13}$$

Moreover, Player H survives if and only if the realization of η is below the value η^* that satisfies the following equation:

$$\int_{\eta^* - \frac{1}{2\psi}}^{\varepsilon^*} \psi dz = \frac{1-\tau}{\sigma} - \delta\ell + \eta^*. \tag{14}$$

Equation 14 says that when the realization of η is η^*, the fraction of individuals who revolt (i.e., the fraction of individuals who observe a signal below ε^*) is exactly equal to the fraction needed to overthrow the regime.

Equations (13) and (14) define a system of two equations in two unknowns (ε^* and η^*). The solution of such system is

$$\eta^* = \frac{g}{g+\pi} - \frac{1-\tau}{\sigma} + \delta\ell,$$
$$\varepsilon^* = \frac{g-\pi}{2\psi(g+\pi)} + \frac{g}{g+\pi} - \frac{1-\tau}{\sigma} + \delta\ell.$$

The expression of $S(\sigma, \tau, \pi, \delta)$ follows from the fact that η is uniformly distributed in the interval $\left[\underline{\eta}, \overline{\eta}\right]$. ∎

8.2 Proof of Proposition 2 and the Optimal Policy Vector.

Define $\bar{y}(r) := \sqrt{g} - g + B(1+r)$. In words, $\bar{y}(r)$ is the cutoff level on citizens' income that determines whether the constraint $\tau \leq 1$ binds or not. Let $\pi^*_{|\delta=1}$ and $\tau^*_{|\delta=1}$ (resp., $\pi^*_{|\delta=0}$ and $\tau^*_{|\delta=0}$) be the optimal level of revolt prevention and taxation conditional on Player H choosing to default (resp., not to default). Formally, these values solve (6) if we set $\delta = 1$ (resp., $\delta = 0$). In line with the discussion in the main text

$$\pi^*_{|\delta=1} = \sqrt{g} - g \geq \pi^*_{|\delta=0} = \begin{cases} \sqrt{g} - g & \text{if } \frac{1}{\sigma} \geq \bar{y}(r) \\ \max\left\{0, \frac{1}{\sigma} - B(1+r)\right\} & \text{if } \frac{1}{\sigma} < \bar{y}(r) \end{cases}$$

and

$$\tau^*_{|\delta=0} = \begin{cases} \sigma\left[\sqrt{g} - g + B(1+r)\right] & \text{if } \frac{1}{\sigma} \geq \bar{y}(r) \\ 1 & \text{if } \frac{1}{\sigma} < \bar{y}(r) \end{cases} > \tau^*_{|\delta=1} = \sigma\left[\sqrt{g} - g\right]$$

Thus, a default leads to a (weak) increase in the amount invested in revolt prevention and to a decrease in the level of taxation.

Let $\Delta(\sigma, \ell \mid r)$ be Player H's benefit from defaulting when the level of sanctions is σ, the cost of defaulting is ℓ and the level of interest rate is equal to r. Formally, $\Delta(\sigma, \ell \mid r) = v\Big[S\left(\sigma, \tau^*_{|\delta=1}, \pi^*_{|\delta=1}, 1\right) - S\left(\sigma, \tau^*_{|\delta=0}, \pi^*_{|\delta=0}, 0\right)\Big]$. Exploiting Proposition 1, we get:

$$\Delta(\sigma, \ell \mid r) = \frac{v}{\overline{\eta} - \underline{\eta}} \cdot \left[\frac{\tau^*_{|\delta=0} - \tau^*_{|\delta=1}}{\sigma} + \frac{g \cdot \left(\pi^*_{|\delta=1} - \pi^*_{|\delta=0}\right)}{\left(g + \pi^*_{|\delta=1}\right)\left(g + \pi^*_{|\delta=0}\right)} - \ell\right]. \tag{15}$$

By looking at the squared bracket in (15), we can identify the three separate forces we discuss in the main text. First, a default enables Player H to reduce taxation. Second, a default enables Player H to increase the investment in revolt prevention (notice that this second channel is at play only if $\pi^*_{|\delta=1} > \pi^*_{|\delta=0}$, namely only if $\tau \leq 1$ is binding). Third, a default generates a disutility for the citizens equal to ℓ.

Substituting for $\left(\pi^*_{|\delta=1}, \pi^*_{|\delta=0}, \tau^*_{|\delta=1}, \tau^*_{|\delta=0}\right)$ in (15), we can further conclude that

$$\Delta(\sigma, \ell \mid r) = \begin{cases} \frac{v}{\overline{\eta} - \underline{\eta}} \cdot \left[B(1+r) - \ell\right] & \text{if } \frac{1}{\sigma} \geq \bar{y}(r) \\ \frac{v}{\overline{\eta} - \underline{\eta}} \cdot \left[\frac{g}{g + \frac{1}{\sigma} - B(1+r)} - 2\sqrt{g} + \frac{1}{\sigma} + g - \ell\right] & \text{if } \frac{1}{\sigma} < \bar{y}(r) \end{cases}$$

Obviously, $\Delta(\sigma, \ell \mid r)$ is decreasing in ℓ. Moreover, observe that (i) $\Delta(\sigma, \ell \mid r)$ is piecewise increasing in r, (ii) $\bar{y}(r)$ is increasing in r, and (iii) $\Delta(\sigma,\ell \mid r)$ is higher if $\frac{1}{\sigma} < \bar{y}(r)$ than if $\frac{1}{\sigma} \geq \bar{y}(r)$.[24] Then, $\Delta(\sigma,\ell \mid r)$ is increasing in r.

The optimal policy vector for Player H is described in the following proposition

Lemma 9 *Suppose the debt is priced and Assumptions 1 and 2 hold. Then, the optimal policy vector* $(T(\sigma,\ell \mid r), P(\sigma,\ell \mid r), D(\sigma,\ell \mid r))$ *is given by:*[25]

$$P(\sigma,\ell \mid r) = \begin{cases} \max\left\{0, \frac{1}{\sigma} - B(1+r)\right\} & \text{if } \frac{1}{\sigma} < \bar{y}(r) \text{ and } \Delta(\sigma,\ell \mid r) \leq 0; \\ \sqrt{g} - g & \text{otherwise.} \end{cases} \quad (16)$$

$$D(\sigma,\ell \mid r) = \begin{cases} 0 & \text{if } \Delta(\sigma,\ell \mid r) \leq 0; \\ 1 & \text{if } \Delta(\sigma,\ell \mid r) > 0. \end{cases} \quad (17)$$

$$T(\sigma,\ell \mid r) = \sigma\left[P(\sigma,\ell \mid r) + B(1+r)(1 - D(\sigma,\ell \mid r))\right] \quad (18)$$

Proof. *Recall that Player H faces program (6). Substituting for $S(\sigma,\pi,\delta,\tau)$ in the objective function and exploiting the budget constraint, we can immediately conclude that the objective function is strictly concave in π. Indeed, the first order condition is given by $\frac{\upsilon}{\bar{\eta}-\underline{\eta}}\left(\frac{g}{(g+\pi)^2} - 1\right)$, while the second order condition is equal to $-\frac{2\upsilon}{\bar{\eta}-\underline{\eta}}\frac{g}{(g+\pi)^3} < 0$. Thus, if we ignore the fact that $\tau \leq 1$, we get $\pi^* = \sqrt{g} - g$.*
If Player H defaults ($\delta = 1$), level $\sqrt{g} - g$ of overthrow prevention can always be attained. Moreover, since taxation does not entail any benefit per se, it will be set equal to the lowest value that finances $\sqrt{g} - g$. As a result, $\pi^*_{|\delta=1} = \sqrt{g} - g$ and $\tau^*_{|\delta=1} = \sigma\pi^*_{|\delta=1}$. Now, suppose that Player H does not default ($\delta = 0$). Then, level of overthrow prevention $\sqrt{g} - g$ can be attained if and only if $1/\sigma \geq \bar{y}(r)$. In this case, $\pi^*_{|\delta=0} = \sqrt{g} - g$ and the tax rate will be set residually in order to finance both $\sqrt{g} - g$ and the service of public debt, $\tau^*_{|\delta=0} = \sigma\left[\sqrt{g} - g + B(1+r)\right]$. Instead, if $1/\sigma < \bar{y}(r)$, the first-best investment in revolt prevention cannot be attained. Thus, (6) is solved by choosing the highest possible tax rate and by setting the investment in revolt prevention residually. Formally, $\tau^*_{|\delta=0} = 1$ and $\pi^*_{|\delta=0} = \max\left\{0, \frac{1}{\sigma} - B(1+r)\right\}$. Obviously, Player H defaults if and only if the benefit from doing so, $\Delta(\sigma,\ell \mid r)$, is positive. Furthermore, the optimal level of revolt prevention can be derived noticing that the first-best level is attainable if either Player H defaults or she does not default, but the income level of voters is sufficiently high to finance π^*. Finally, the optimal tax rate is obtained by (3). ■

Then, a strategic default occurs if $\Delta(\sigma,\ell \mid r) \geq 0$. As a result, the probability of

[24] To see this last result, observe that if $\frac{1}{\sigma} \leq \bar{y}(r)$, the differences $\tau^*_{|\delta=0} - \tau^*_{|\delta=1}$ and $\pi^*_{|\delta=1} - \pi^*_{|\delta=0}$ are both larger than in the case in which $\frac{1}{\sigma} > \bar{y}(r)$.

[25] In Lemma 9, we assume that, whenever indifferent between defaulting or not, Player H does not default. None of our results hinges on this tie-breaking rule.

a strategic default is equal to $F(\sigma \mid r) = \Pr\{\Delta(\sigma, \ell \mid r) \geq 0\}$. Since $\Delta(\sigma, \ell \mid r)$ is decreasing in ℓ, we can have two cases (it is immediate to verify that $\Delta(\sigma, 0 \mid r) > 0$). If $\Delta(\sigma, \ell_H \mid r) \geq 0$, then defaulting is always profitable and, consequently, a strategic default happens with probability 1. As discussed in Footnote 12, we rule out this case assuming that ℓ_H is sufficiently high. Instead, if $\Delta(\sigma, \ell_H \mid r) < 0$, a strategic default takes place (resp., does not take place) if ℓ is sufficiently low (resp., high). In this last case, exploiting the distributional assumption on ℓ, we can conclude that $F(\sigma \mid r) = \ell^*$, where ℓ^* is the unique solution ℓ of $\Delta(\sigma, \ell \mid r) = 0$. As a result,

$$F(\sigma \mid r) = \begin{cases} \frac{1}{\ell_H} B(1+r) & \text{if } \frac{1}{\sigma} \geq \bar{y}(r) \\ \frac{1}{\ell_H}\left[\frac{1}{\sigma} + g\left(\frac{1}{g+\frac{1}{\sigma}-B(1+r)}+1\right) - 2\sqrt{g}\right] & \text{if } \frac{1}{\sigma} < \bar{y}(r) \end{cases}$$

We can immediately conclude that $\partial F(\sigma \mid r)/\partial r > 0$ and $\partial F(\sigma \mid r)/\partial \sigma \geq 0$. To see why, observe that if $1/\sigma \geq \bar{y}(r)$, then $F(\sigma \mid r)$ is constant in σ, while if $1/\sigma < \bar{y}(r)$, then $\frac{\partial F(\sigma|r)}{\partial \sigma} = -\frac{1}{\sigma^2} + g\left(\frac{\frac{1}{\sigma^2}}{\left(g+\frac{1}{\sigma}-B(1+r)\right)^2}\right) > -\frac{1}{\sigma^2} + \frac{1}{\sigma^2} = 0$, where the inequality follows from observing that, since $1/\sigma < \bar{y}(r)$, we have $0 < g + 1/\sigma - B(1+r) < \sqrt{g}$.[26] ∎

8.3 Proof of Proposition 3.

By definition, $R(\sigma)$ is the lowest root r of equation $1+\tilde{r} = (1+r)(1-F(\sigma \mid r))$.

Suppose first that $\frac{1}{\sigma} \geq \sqrt{g} - g + B(1+R(\sigma))$. In this case, $F(\sigma \mid R(\sigma)) = \frac{B(1+R(\sigma))}{\ell_H}$. Thus, the no-arbitrage condition yields a solution if and only if $B \leq \ell_H/[4(1+\tilde{r})]$, in which case

$$R(\sigma) = \ell_H\left(\frac{1-\sqrt{1-\frac{4B(1+\tilde{r})}{\ell_H}}}{2B}\right) - 1. \tag{19}$$

Substituting for $R(\sigma)$, inequality $\frac{1}{\sigma} \geq \pi^* + B(1+R(\sigma))$ becomes $\sigma \leq 2/[2(\sqrt{g}-g) + \ell_H\left(1-\sqrt{(1-4B(1+\tilde{r}))/\ell_H}\right)] := \hat{\sigma}$. Thus, if $\sigma \leq \hat{\sigma}$ and $B \leq \ell_H/[4(1+\tilde{r})]$, the debt is priced and the interest rate is constant and equal to (19). Instead, if $\sigma \leq \hat{\sigma}$ and $B > \ell_H/[4(1+\tilde{r})]$, the debt is not priced.

Now suppose that $\frac{1}{\sigma} < \sqrt{g} - g + B(1+R(\sigma))$. Then, the equilibrium interest rate is

[26] $g + 1/\sigma - B(1+r) > 0$ holds as we are assuming that the debt is priced, thus $1/\sigma \geq B(1+r)$. If this inequality were not satisfied, the country would have no possibility to repay the outstanding debt and an automatic default would occur.

given by the lowest value of σ that solves

$$(1+r)\left(1-\frac{\frac{1}{\sigma}+\frac{g}{g+\frac{1}{\sigma}-B(1+r)}+g-2\sqrt{g}}{\ell_H}\right)-(1+\tilde{r})=0. \tag{20}$$

It is easy to show that if $\sigma \rightarrow \hat{\sigma}$, the interest rate coincides with (19). Let $Q(\sigma, r)$ be the left-hand side of (20). By the implicit function theorem, (20) defines r as a function of σ, $R(\sigma)$. Moreover, $\frac{dR(\sigma)}{d\sigma} = -\frac{\partial Q(\sigma,r)}{\partial \sigma} / \frac{\partial Q(\sigma,r)}{\partial r}$. $\frac{\partial Q(\sigma,r)}{\partial \sigma}$ has the same sign of $(1-1/[g+1/\sigma-B(1+r)])$. Since we are considering the case in which $\frac{1}{\sigma} < \sqrt{g} - g + B(1+R(\sigma))$, we have that $(1-1/[g+1/\sigma-B(1+r)]) < 1-1/g < 0$. Thus, $\frac{\partial Q(\sigma,r)}{\partial \sigma} < 0$. Thus, $\frac{dR(\sigma)}{d\sigma}$ is positive if and only if $\frac{\partial Q(\sigma,r)}{\partial r} > 0$, which holds for the lowest root of (20) as (20) has two roots and $Q(\sigma, \tilde{r}) < 0$.

Now we show that the probability of a strategic default, $F(\sigma \mid R(\sigma))$, is weakly increasing in σ. If $\sigma \leq \hat{\sigma}$, $R(\sigma)$ is constant in σ. Furthermore, as we have shown in the proof of Proposition 2, $F(\sigma \mid R(\sigma)) = B(1+R(\sigma))/\ell_H$. Then it is immediate to see that, in this case, $F(\sigma \mid R(\sigma))$ is constant in σ. Now suppose that $\sigma > \hat{\sigma}$ (so that, $\frac{1}{\sigma} \leq \sqrt{g} - g + B(1+R(\sigma)))$. Then, $R(\sigma)$ is increasing in σ and

$$F(\sigma \mid R(\sigma)) = \frac{1}{\ell_H}\left[\frac{1}{\sigma}+g\left(\frac{1}{g+\frac{1}{\sigma}-B(1+R(\sigma))}+1\right)-2\sqrt{g}\right]$$

As a result,

$$\frac{dF(\sigma \mid R(\sigma))}{d\sigma} = \frac{1}{\ell_H}\left[-\frac{1}{\sigma^2}+g\left(\frac{\frac{1}{\sigma^2}+B\frac{dR(\sigma)}{d\sigma}}{\left(g+\frac{1}{\sigma}-B(1+R(\sigma))\right)^2}\right)\right]$$

Since $B\frac{dR(\sigma)}{d\sigma} \geq 0$, we can reason as at the end of the proof of Proposition 2 and conclude that $\frac{dF(\sigma|R(\sigma))}{d\sigma} > 0$. Moreover, $\lim_{\sigma\rightarrow\hat{\sigma}^+} R(\sigma) = \frac{\ell_H}{2B}\left(1-\sqrt{1-\frac{4B(1+\tilde{r})}{\ell_H}}\right)-1$. We conclude that $F(\sigma \mid R(\sigma))$ is weakly increasing in σ. ∎

8.4 Proof of Proposition 4.

Exploiting equations (1), (3) and (5), we can rewrite the expected survival probability as:

$$\begin{aligned}\hat{S}(\sigma) \;=\; \int_0^{\ell_H} \Bigg[1-\frac{1}{\overline{\eta}-\underline{\eta}}\Bigg(&\frac{g}{g+P(\sigma,\ell \mid R(\sigma))}-\frac{1}{\sigma}+ \\ &+P(\sigma,\ell \mid R(\sigma))+(1+R(\sigma))(1-D(\sigma,\ell \mid R(\sigma)))+\delta\ell\Bigg)\Bigg]\frac{d\ell}{\ell_H}\end{aligned}$$

By definition, $\int_0^{\ell_H} (1+R(\sigma))(1-D(\sigma,\ell \mid R(\sigma)))\frac{d\ell}{\ell_H} = (1+R(\sigma))(1-F(\sigma \mid R(\sigma)))$. Furthermore, by (8), we know that $d(1+R(\sigma))(1-F(\sigma \mid R(\sigma)))/d\sigma = 0$. Therefore

$$\begin{aligned}\frac{d\hat{S}(\sigma)}{d\sigma} &= \frac{d}{d\sigma}\left(\int_0^{\ell_H}\left[1-\frac{1}{\overline{\eta}-\underline{\eta}}\left(\frac{g}{g+P(\sigma,\ell \mid R(\sigma))}-\frac{1}{\sigma}+P(\sigma,\ell \mid R(\sigma))+\delta\ell\right)\right]\frac{d\ell}{\ell_H}\right) = \\ &= \int_0^{\ell_H}\frac{1}{\overline{\eta}-\underline{\eta}}\left[-\frac{1}{\sigma^2}-\left(1-\frac{g}{(g+P(\sigma,\ell \mid R(\sigma)))^2}\right)\frac{\partial P(\sigma,\ell \mid R(\sigma))}{\partial\sigma}\right]\frac{d\ell}{\ell_H}\end{aligned}$$

Obviously, if $\frac{1}{\sigma} \geq \bar{y}(r)$, then $\frac{\partial P(\sigma,\ell|R(\sigma))}{\partial\sigma} = 0$ and $\frac{d\hat{S}(\sigma)}{d\sigma} = -\frac{1}{\sigma^2(\overline{\eta}-\underline{\eta})} < 0$.

Instead, if $\frac{1}{\sigma} < \bar{y}(r)$, then

$$\frac{d\hat{S}(\sigma)}{d\sigma} = -\frac{1}{\sigma^2(\overline{\eta}-\underline{\eta})} - \int_{\ell^*}^{\ell_H}\frac{1}{\overline{\eta}-\underline{\eta}}\left(1-\frac{g}{(g+P(\sigma,\ell \mid R(\sigma)))^2}\right)\frac{\partial P(\sigma,\ell \mid R(\sigma))}{\partial\sigma}\frac{d\ell}{\ell_H}$$

Moreover, if $\ell < \ell^*$, then $P(\sigma,\ell \mid R(\sigma)) = \sqrt{g}-g$ and $\frac{\partial P(\sigma,\ell|R(\sigma))}{\partial\sigma} = 0$, while if $\ell > \ell^*$, then $P(\sigma,\ell \mid R(\sigma)) = \frac{1}{\sigma}-(1+R(\sigma))B$ and $\frac{\partial P(\sigma,\ell|R(\sigma))}{\partial\sigma} = -\frac{1}{\sigma^2}-B\left(1+\frac{dR(\sigma)}{d\sigma}\right) < 0$. In the former case, we can replicate the analysis carried out for the case $\frac{1}{\sigma} \geq \bar{y}(r)$ and conclude that $\frac{d\hat{S}(\sigma)}{d\sigma} < 0$. In the latter case, $0 < P(\sigma,\ell \mid R(\sigma)) \leq \sqrt{g}-g$. Therefore $\frac{g}{(g+P(\sigma,\ell|R(\sigma)))^2} \geq \frac{g}{\left(g+\sqrt{g}-g\right)^2} = 1$. Thus, $\frac{d\hat{S}(\sigma)}{d\sigma} < 0$ even if $\frac{1}{\sigma} < \bar{y}(r)$.

8.5 Proof of Proposition 5.

To prove the statement of the proposition, first notice that for any profile of political weight $\phi = (\phi_1,...,\phi_n)$, maximizing $\tilde{W}(\sigma \mid b,\phi)$ is equivalent to maximize (10) for a country j whose cost c_j and level of debt b_j are respectively given by $\bar{c}_\phi$ and $\bar{b}_\phi$. Obviously, if $\phi = \left\{\frac{1}{n},\frac{1}{n},...,\frac{1}{n}\right\}$, our argument still holds and $\bar{c}_\phi = \bar{c}$ and $\bar{b}_\phi = \bar{b}$. Statement i) in the proposition would then follow if we show that the optimal level of sanctions for a country is decreasing in $\bar{c}_\phi$. Suppose not. Then, we can find two profiles of political powers $\bar{c}'_\phi$ and $\bar{c}''_\phi$, with $\bar{c}'_\phi < \bar{c}''_\phi$ and two levels of sanctions σ' and σ'' with $\sigma' < \sigma''$ such that:

$$\sigma' \in \arg\max_{\sigma\in[1,\bar{\sigma}]} G(\sigma)+k\cdot\left(1-\hat{S}(\sigma)\right)-\bar{c}'_\phi\cdot F(\sigma \mid R(\sigma))+b_\phi\cdot(1+\tilde{r}) \quad (21)$$

$$\sigma'' \in \arg\max_{\sigma\in[1,\bar{\sigma}]} G(\sigma)+k\cdot\left(1-\hat{S}(\sigma)\right)-\bar{c}''_\phi\cdot F(\sigma \mid R(\sigma))+b_\phi\cdot(1+\tilde{r}) \quad (22)$$

(the actual value of b_ϕ plays no role in our argument as it does not effect the maximization).

Since σ' is a maximand when the weighted cost is given by $\bar{c}'_\phi$, we know that $G(\sigma')+k\cdot\left(1-\hat{S}(\sigma')\right)-\bar{c}'_\phi\cdot F(\sigma' \mid R(\sigma'')) \geq G(\sigma'')+k\cdot\left(1-\hat{S}(\sigma'')\right)-\bar{c}'_\phi\cdot F(\sigma'' \mid R(\sigma''))$ or equivalently

$$k \cdot \left[\hat{S}(\sigma'') - \hat{S}(\sigma')\right] - \left[G(\sigma'') - G(\sigma')\right] - \bar{c}'_{\phi} \cdot \left[F(\sigma' \mid R(\sigma')) - F(\sigma'' \mid R(\sigma''))\right] \geq 0. \quad (23)$$

Similarly, since σ'' is a maximand when the weighted cost is given by c''_{ϕ}, we have:

$$0 \geq k \cdot \left[\hat{S}(\sigma'') - \hat{S}(\sigma')\right] - \left[G(\sigma'') - G(\sigma')\right] - \bar{c}''_{\phi} \cdot \left[F(\sigma' \mid R(\sigma')) - F(\sigma'' \mid R(\sigma''))\right]. \quad (24)$$

Since $F(\sigma \mid R(\sigma))$ is weakly increasing in σ, we can have one of two possible cases: (i) $F(\sigma' \mid R(\sigma')) = F(\sigma'' \mid R(\sigma''))$, or (ii) $F(\sigma' \mid R(\sigma')) < F(\sigma'' \mid R(\sigma''))$. In the former case, because $\hat{S}(\sigma)$ is weakly decreasing in σ and $G(\sigma)$ is strictly increasing in σ, $k \cdot \hat{S}(\sigma') - G(\sigma') - \bar{c}'_{\phi} \cdot F(\sigma' \mid R(\sigma')) < k \cdot \hat{S}(\sigma'') - G(\sigma'') - \bar{c}'_{\phi} \cdot F(\sigma'' \mid R(\sigma''))$, which contradicts (24). In the latter case, $F(\sigma' \mid R(\sigma')) < F(\sigma'' \mid R(\sigma''))$ and then

$$\begin{aligned} 0 &\leq k \cdot \left[\hat{S}(\sigma'') - \hat{S}(\sigma')\right] - \left[G(\sigma'') - G(\sigma')\right] - \bar{c}'_{\phi} \cdot \left[F(\sigma' \mid R(\sigma')) - F(\sigma'' \mid R(\sigma''))\right] < \\ &< k \cdot \left[\hat{S}(\sigma'') - \hat{S}(\sigma')\right] - \left[G(\sigma'') - G(\sigma')\right] - \bar{c}''_{\phi} \cdot \left[F(\sigma' \mid R(\sigma')) - F(\sigma'' \mid R(\sigma''))\right] \end{aligned}$$

contradicting again (24). Statement ii) follows applying the same steps, once we substitute in the previous expression for $\bar{c}_{\phi} = a + \bar{b}_{\phi}$. ∎

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Table 1. Summary Statistics (full sample)

Variable		Full Sample	Not under sanction	t-test	Under sanction	Not in an external debt crisis	t-test	In an external debt crisis
GDP pc	mean	3.855	3.423	***	5.142	4.309	***	1.166
	s.d.	(6.887)	(6.326)		(8.207)	(7.335)		(1.009)
GDP pc growth	mean	.068	.068		.067	.074	***	.031
	s.d.	(.112)	(.110)		(.117)	(.101)		(.159)
Military	mean	.044	.038	***	.063	.044		.044
	s.d.	(.205)	(.190)		(.244)	(.205)		(.206)
Elective	mean	.830	.852	***	.766	.844	***	.751
	s.d.	(.376)	(.356)		(.423)	(.363)		(.434)
Riots	mean	.247	.224	***	.316	.240	**	.289
	s.d.	(.432)	(.417)		(.465)	(.427)		(.454)
Conflict Index	mean	12.330	11.245	***	15.558	11.930	***	14.632
	s.d.	(22.058)	(21.061)		(24.519)	(22.350)		(20.088)
N. Observations		3,133	2,345		788	2682		451

Notes: A country is defined to be under sanction if it is targeted by at least one sanction in a given year. GDP per capita is reported in thousand units. "Military" is a dummy variable for the country being ruled by a military junta. "Elective" is a dummy for (directly or indirectly) elective institutions. "Change in executive" is a dummy for the change in executive power. "Riots" is a dummy for at least one riot event. Conflict index is a measure of political unrest computed by the CNTSDA and it is measured on the 0-100 scale. ***: difference in means is statistically significant at 1% level in a one-tailed t-test. **: the difference in means is statistically significant at 5% level in a one-tailed t-test.

Table 2. Summary Statistics conditional on sanction and external debt crisis status (full sample)

Variable		Under sanction at time t			In external debt crisis at t		
		Not under external debt crisis at t	t-test	Under external debt crisis at t	Not under sanction at t	t-test	Under sanction at t
GDP pc at t+1	mean	6.057	***	1.564	1.020	***	1.564
	s.d.	(8.928)		(1.330)	(.903)		(1.330)
GDP pc growth	mean	.066		.057	.030	**	.057
at t+1	s.d.	(.107)		(.165)	(.146)		(.165)
Riots at $t+1$	mean	.321	***	.218	.292	**	.218
	s.d.	(.467)		(.414)	(.455)		(.414)
Conflict Index at $t+1$	mean	16.291	**	12.947	15.012		12.947
	s.d.	(26.559)		(16.634)	(21.471)		(16.634)
N. Observations		616		156	288		156

Notes: Variables are defined as explained in Table 1. The number of observations for GDP and GDP growth (in parenthesis) are lower than those on the other variables (not in parenthesis). ***: the difference in means is statistically significant at 1% level in a one-tailed t-test. **: the difference in means is statistically significant at 5% level in a one-tailed t-test. *: the difference in means is statistically significant at 10% level in a one-tailed t-test.

Table 3. Regression of sanctions on external default.

	Dependent Variable: Dummy for External Debt Crisis		
	(1)	(2)	(3)
At least one sanction in previous year	0.0188**	0.0170**	0.0424**
	(0.0086)	(0.0075)	(0.0196)
Years since last external debt crisis	0.0006	0.0011**	0.0009
	(0.0005)	(0.0005)	(0.0011)
GDP pc in previous year		-0.0020**	0.0391
		(0.0009)	(0.0340)
GDP pc growth in previous year		-0.0737	-0.1870
		(0.0601)	(0.1129)
No inflation crisis in previous two years		-0.0223	-0.0078
		(0.0151)	(0.0292)
Elective		-0.0072	0.0466
		(0.0164)	(0.0535)
Military		0.0266	0.1348*
		(0.0465)	(0.0746)
Population		-0.0003***	-0.0007*
		(0.0001)	(0.0004)
Reserves			-0.0006
			(0.0004)
Stock external debt			0.0024**
			(0.0012)
Interest payment pc on			-0.0007
external debt			(0.0008)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	2344	2344	521

Notes: Variables are defined as explained in Table 1. Observations are excluded if the country was under a banking crisis, a domestic debt crisis or and external debt crisis in any of the two previous years. Standard errors (in parenthesis) are clustered at the country level.

Table 4. Sanctions, External Debt Crisis and Political Unrest

	Dependent Variable: Dummy for riots		Dependent Variable: Conflict Index	
	(1)	(2)	(3)	(4)
External debt crisis in previous two years	0.0335	0.0659	0.3168	0.8770
	(0.0347)	(0.0598)	(2.1912)	(3.4379)
At least one sanction in previous two years	-0.0101	0.0606	0.6083	3.0206
	(0.0229)	(0.0475)	(1.8002)	(3.4068)
Interaction sanction and external debt crisis	-0.1314**	-0.1751**	-6.4869*	-10.4488**
in previous two years	(0.0579)	(0.0667)	(3.4551)	(4.9630)
GDP pc in previous year	-0.0051	-0.0369	-0.6350***	1.8240
	(0.0038)	(0.0492)	(0.2095)	(3.7077)
GDP pc growth in previous year	-0.1870***	-0.1562	-7.6267**	-14.0580**
	(0.0666)	(0.1376)	(2.9823)	(6.0194)
Elective	-0.0333	-0.0972	-7.8059***	-8.2562*
	(0.0497)	(0.0899)	(2.7223)	(4.3710)
Military	-0.0166	-0.0797	-2.2995	-5.1639
	(0.0860)	(0.1463)	(3.3417)	(4.5885)
# coups	-0.0034	-0.0291	-1.6325	-2.5702
	(0.0162)	(0.0531)	(1.0754)	(2.7051)
No inflation crisis in previous two years	-0.0233	0.0340	-3.4585**	-0.1260
	(0.0347)	(0.0415)	(1.3054)	(1.6090)
Years since last executive change	-0.0014	0.0010	-0.3621***	-0.4281***
	(0.0020)	(0.0030)	(0.0941)	(0.1476)
Population	-0.0003	-0.0005	-0.0508***	-0.0313
	(0.0004)	(0.0009)	(0.0108)	(0.0525)
Reserves		-0.0006		0.0110
		(0.0010)		(0.0257)
Stock external debt		0.0009***		0.0261***
		(0.0002)		(0.0078)
Interest payment pc		0.0004		-0.0587
on external debt		(0.0009)		(0.0447)
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	2928	978	2927	977

Notes: Standard errors (in parenthesis) are clustered at the country level. The variable interaction is a dummy for the fact that in the last two years the country was both under sanction and in an external debt crisis provided that the former status occured before the latter. # coups measures the number of coups experienced by the country in the period 1945-2005. Other variables are defined as described in Table 1.

Table A1. Countries and Frequency of Sanctions and External Debt Crisis

Country	Freq. Sanctions	Freq. Ext. Debt Crisis	Country	Freq. Sanctions	Freq. Ext. Debt Crisis
Algeria	.143	.107	Malaysia	.125	0
Argentina	.411	.500	Mauritius	0	0
Australia	.304	0	Mexico	.411	.161
Austria	.054	.054	Morocco	.018	.107
Belgium	.107	0	Myanmar	.161	.071
Bolivia	.125	.304	Netherlands	.286	0
Brazil	.321	.268	New Zeland	.232	0
Canada	.375	0	Nicaragua	.339	.482
Central Africa Republic	.054	.429	Nigeria	.196	.250
Chile	.214	.250	Norway	.054	0
China	.786	0	Panama	.286	.250
Colombia	.125	0	Paraguay	.054	.196
Costa Rica	.161	.232	Peru	.268	.357
Denmark	.054	0	Philippines	.018	.214
Dominican Republic	.250	.250	Poland	.339	.304
Ecuador	.446	.375	Portugal	.446	0
Egypt	.589	.018	Romania	.268	.232
El Salvador	.125	0	Russia	.607	.839
Finland	.054	0	Singapore	.054	0
France	.500	0	South Africa	.929	.089
Germany	.125	.071	Spain	.214	0
Ghana	0	.089	Sri Lanka	.054	.071
Greece	.089	.268	Sweden	.054	0
Guatemala	.464	.036	Switzerland	.036	0
Honduras	.214	.446	Taiwan	.321	0
Hungary	.429	.321	Thailand	.115	0
Iceland	0	0	Tunisia	.071	.125
India	.589	.125	Turkey	.286	.107
Indonesia	.286	.161	United Kingdom	.482	0
Ireland	.107	0	United States	.696	0
Italy	.482	0	Uruguay	.143	.143
Ivory Coast	.036	.393	Venezuela	.196	.214
Japan	.554	.054	Zambia	.161	.214
Kenya	.018	.179	Zimbabwe	.464	.286

Table A2. Sanction Status

	Obs.	Frequency
Not under sanction	2,857	75.03%
Under Sanction	951	24.97%
Total	3,808	100%

Table A3. Debt Crisis Status

	Not in an external debt crisis	In an external debt crisis	Total
Not in a domestic or external debt crisis	3,232 100%	0 0%	3,232 84.87%
In a domestic or external debt crisis	36 6.25%	540 93.75%	576 15.13%
Total	3,268	540	3,808

Table A4. Entries in External Debt Crisis and Sanctions

	No sanction in previous year	At least one sanction in previous year	Total
No entry in external debt crisis	2,804 97.67%	912 97.33%	3,716 97.58%
Entry in external external debt crisis	67 2.33%	25 2.67%	92 2.42%
Total	2,871	937	3,808

Notes: An entry in external debt crisis at time t occurs if the country is in external debt crisis at time t and it was not in an external debt crisis at time $t-1$.

Table A4. Summary Statistics (restricted sample)

Variable		Total	Not under sanction	t-test	Under sanction	Not in an external debt crisis	t-test	In an external debt crisis
GDP pc	mean	1.120	1.016	***	1.410	1.147	**	1.046
	s.d.	(.904)	(.767)		(1.158)	(.963)		(.711)
GDP pc growth	mean	.058	.058		.059	.073	***	.016
	s.d.	(.138)	(.135)		(.146)	(.123)		(.166)
Inflation crisis	mean	.292	.265	***	.364	.233	***	.456
	s.d.	(.455)	(.442)		(.482)	(.423)		(.499)
Reserves	mean	24.651	24.740		24.405	29.918	***	9.966
	s.d.	(31.640)	(33.789)		(24.820)	(35.167)		(7.235)
Stock external debt	mean	61.740	59.257		68.590	44.078	***	110.974
	s.d.	(81.921)	(53.926)		(131.109)	(28.850)		(140.923)
Interests external debt pc	mean	30.994	29.004	***	36.484	27.690	***	40.207
	s.d.	(32.496)	(29.809)		(38.495)	(29.979)		(37.200)
Military	mean	.074	.065	**	.100	.078		.066
	s.d.	(.263)	(.247)		(.300)	(.268)		(.248)
Elective	mean	.813	.808		.828	.806		.834
	s.d.	(.390)	(.394)		(.378)	(.396)		(.373)
Riots	mean	.238	.211	***	.310	.224	*	.274
	s.d.	(.426)	(.408)		(.464)	(.417)		(.447)
Conflict Index	mean	15.021	13.324	***	19.704	14.888		15.392
	s.d.	(22.618)	(19.977)		(28.190)	(23.678)		(19.398)
N. Observations		981	720		261	722		259

Notes: Variables are defined as discussed in Table 1. Inflation crisis is a dummy for the country being in an inflation crisis. “Reserves” is the % of reserves with respect to the stock of external debt. “Stock external debt” is the % of external debt with respect to the Gross National Income. “Interest external debt pc” are the per capita interest payments on the external debt.

Table A5. Regression of sanctions (in previous two years) on external default.

	Dependent Variable: Dummy for External Debt Crisis		
	(1)	(2)	(3)
At least one sanction in previous two years	0.0180**	0.0161**	0.0648**
	(0.0086)	(0.0079)	(0.0295)
Years since last external debt crisis	0.0011*	0.0018***	0.0012
	(0.0006)	(0.0006)	(0.0012)
GDP pc in previous year		-0.0026**	0.0550
		(0.0010)	(0.0391)
GDP pc growth in previous year		-0.0782	-0.1159
		(0.0584)	(0.1188)
No inflation crisis in previous two years		-0.0222	-0.0112
		(0.0155)	(0.0320)
Elective		-0.0147	0.0547
		(0.0163)	(0.0661)
Military		0.0276	0.1165
		(0.0516)	(0.0910)
Population		-0.0002**	0.0010**
		(0.0001)	(0.0004)
Reserves			-0.0002
			(0.0005)
Stock external debt			0.0030**
			(0.0013)
Interest payment pc			-0.0014*
on external debt			(0.0008)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	2240	2240	477

Notes: Variables are defined as explained in Table 1. Observations are excluded if the country was under a banking crisis, a domestic debt crisis or and external debt crisis in any of the three previous years. Standard errors (in parenthesis) are clustered at the country level.

Table A6. Regression of sanctions (in previous three years) on external default.

	Dependent Variable: Dummy for External Debt Crisis		
	(1)	(2)	(3)
At least one sanctions in previous three years	0.0185**	0.0170**	0.0607**
	(0.0091)	(0.0083)	(0.0278)
Years since last external debt crisis	0.0019***	0.0027***	0.0027**
	(0.0004)	(0.0005)	(0.0012)
GDP pc in previous year		-0.0032***	0.0370
		(0.0011)	(0.0395)
GDP pc growth in previous year		-0.0702	-0.1170
		(0.0605)	(0.1074)
No inflation crisis in previous two years		-0.0234	-0.0245
		(0.0174)	(0.0382)
Elective		-0.0203	0.0503
		(0.0162)	(0.0584)
Military		0.0133	0.0541
		(0.0513)	(0.0827)
Population		-0.0002***	0.0008*
		(0.0001)	(0.0004)
Reserves			0.0002
			(0.0004)
Stock external debt			0.0034**
			(0.0015)
Interest payment pc			-0.0017*
on external debt			(0.0009)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	2150	2150	446

Notes: Variables are defined as explained in Table 1. Observations are excluded if the country was under a banking crisis, a domestic debt crisis or and external debt crisis in any of the four previous years. Standard errors (in parenthesis) are clustered at the country level.

Table A7. Regression of sanctions (in previous four years) on external default.

	Dependent Variable: Dummy for External Debt Crisis		
	(1)	(2)	(3)
At least one sanction in previous four years	0.0202**	0.0180**	0.0603**
	(0.0082)	(0.0073)	(0.0261)
Years since last external debt crisis	0.0020***	0.0028***	0.0027
	(0.0006)	(0.0007)	(0.0018)
GDP pc in previous year		-0.0032***	0.0414
		(0.0012)	(0.0508)
GDP pc growth in previous year		-0.0732	-0.0871
		(0.0620)	(0.1192)
No inflation crisis in previous two years		-0.0345*	-0.0297
		(0.0180)	(0.0404)
Elective		-0.0141	0.0527
		(0.0149)	(0.0619)
Military		0.0394	0.0573
		(0.0379)	(0.0837)
Population		-0.0003***	0.0008*
		(0.0001)	(0.0004)
Reserves			0.0002
			(0.0005)
Stock external debt			0.0040**
			(0.0017)
Interest payment pc			-0.0020*
on external debt			(0.0010)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	2069	2069	422

Notes: Variables are defined as explained in Table 1. Observations are excluded if the country was under a banking crisis, a domestic debt crisis or and external debt crisis in any of the five previous years. Standard errors (in parenthesis) are clustered at the country level.

Table A8. Regression of external default on sanctions in following years.

	Dep. Variable: At least one sanction in following year.		Dep. Variable: At least one sanction in following two years.	
	(1)	(2)	(3)	(4)
Dummy for external debt crisis	0.0597	0.0809	0.0479	0.0753
	(0.0490)	(0.0655)	(0.0666)	(0.1045)
GDP pc in previous year	0.0027	0.0342	0.0030	-0.0213
	(0.0057)	(0.0978)	(0.0056)	(0.1059)
GDP pc growth in previous year	0.1057	0.2846*	0.0277	0.0791
	(0.1098)	(0.1577)	(0.1090)	(0.1384)
Years since last external debt crisis	-0.0006	-0.0011	-0.0016	-0.0001
	(0.0029)	(0.0038)	(0.0030)	(0.0041)
No inflation crisis in previous two years	-0.0251	0.0031	-0.0338	-0.0074
	(0.0357)	(0.0617)	(0.0329)	(0.0550)
Elective	-0.0720	0.0067	-0.0210	0.0700
	(0.0647)	(0.1226)	(0.0572)	(0.0872)
Military	0.1844**	0.2498*	0.1465*	0.2569**
	(0.0881)	(0.1408)	(0.0742)	(0.1241)
Population	0.0004	0.0006	0.0005*	0.0010
	(0.0003)	(0.0010)	(0.0003)	(0.0011)
Reserves		-0.0014**		-0.0011
		(0.0006)		(0.0006)
Stock external debt		-0.0041**		-0.0027
		(0.0015)		(0.0017)
Interest payment pc		0.0042*		0.0044*
on external debt		(0.0022)		(0.0025)
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	2344	521	2344	521

Notes: Variables are defined as explained in Table 1. Observations are excluded if the country was under a banking crisis, a domestic debt crisis or and external debt crisis in any of the five previous years. Standard errors (in parenthesis) are clustered at the country level.

Table A9. Sanctions, External Debt Crisis and Political Unrest, longer time lag.

	Dependent Variable: Dummy for riots (1)	(2)	Dependent Variable: Conflict Index (3)	(4)
External debt crisis in previous three years	0.0151	0.0348	-0.9592	-0.9260
	(0.0307)	(0.0534)	(2.0817)	(3.6017)
At least one sanction in previous three years	-0.0216	0.0081	1.0100	1.8404
	(0.0223)	(0.0443)	(1.6731)	(2.7322)
Interaction sanction and external debt crisis	-0.1019	-0.1719**	-7.2384	-10.2027*
in previous three years	(0.0789)	(0.0811)	(4.6275)	(5.2559)
GDP pc in previous year	-0.0043	-0.0319	-0.6324***	1.9317
	(0.0037)	(0.0488)	(0.2137)	(3.9776)
GDP pc growth in previous year	-0.1920***	-0.1526	-8.5546***	-13.8762**
	(0.0708)	(0.1375)	(3.1990)	(6.0702)
Elective	-0.0365	-0.1140	-7.7217***	-9.1485**
	(0.0505)	(0.0921)	(2.7574)	(4.2438)
Military	-0.0180	-0.0770	-1.9133	-5.3719
	(0.0851)	(0.1484)	(3.4240)	(4.3745)
# coups	-0.0007	-0.0186	-1.7390	-1.9704
	(0.0165)	(0.0535)	(1.1237)	(2.7457)
No inflation crisis in previous two years	-0.0148	0.0366	-3.3294**	0.0747
	(0.0334)	(0.0422)	(1.3198)	(1.6487)
Years since last executive change	-0.0013	0.0011	-0.3597***	-0.4225***
	(0.0021)	(0.0031)	(0.0951)	(0.1527)
Population	-0.0002	-0.0003	-0.0513***	-0.0218
	(0.0004)	(0.0009)	(0.0110)	(0.0522)
Reserves		-0.0007		0.0076
		(0.0009)		(0.0255)
Stock external debt crisis		0.0008***		0.0221**
		(0.0002)		(0.0084)
Interest payment pc		0.0006		-0.0487
on external debt		(0.0010)		(0.0455)
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	2928	978	2927	977

Notes: Standard errors are clustered at the country level. The variable interaction is a dummy for the fact that in the last three years the country was both under sanction and in an external debt crisis provided that the former status occurred before the latter. # coups measures the number of coups experienced by the country in the period 1945-2005. Other variables are defined as described in Table 1.