Cooperative Autocracies: Leader Survival, Creditworthiness and Bilateral Investment Treaties

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Abstract
Capital accumulation is essential for economic development, but investors face risk when committing their capital to productive use. Bilateral Investment Treaties (BITs) commit leaders to limit their takings of foreign assets and the revenues they generate. We offer theory and evidence that BITs enhance leader survival by more in autocracies than democracies. BITs improve the "investment climate" in signatory states, and do so by more in autocratic polities. Hazard models offer supporting evidence of improved autocratic leader survival. The improvement in the investment climate is evidenced by improvement of credit-worthiness scores and higher sovereign bond prices, again with greater effect in autocratic states. Autocratic leaders have the most to gain from importing property rights-enhancing institutions.

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While much is known about the determinants of international economic agreements, the fact that non-democracies are more cooperative than democracies in the international investment regime remains a puzzle. For instance, up until 2010, the average autocrat has been the target of less than one investment treaty claim, while democracies averaged almost three arbitrations. Countries like Qatar, Swaziland or Belarus have never been taken to court, while countries like India, Mexico, and Canada have been the target of arbitration 9, 19 and 15 times respectively (Poulsen and Aisbett 2013). Similarly, while the international investment regime has become a controversial issue – including withdrawals from the investment regime's central tribunal or revision of treaties – with diverse countries such as Brazil and Australia voicing their concerns, autocracies have been largely absent from these controversies (Pelc 2017). Autocratic leaders commit to the international investment regime more readily than their counterparts in democratic countries by, for instance, more frequently entering into bilateral investment treaties (BITs) (Rosendorff and Shin 2015) as well as seemingly complying more with them.[1]

This pattern of autocratic cooperation stands in contrast to the literature on the cooperative nature of democracies in the international arena (e.g., Bueno de Mesquita et al. 1999, Mansfield, Milner, and Rosendorff 2000, 2002, Martin 2000). It is more puzzling still given arguments that democratic and inclusive institutions lead to enhanced property rights protections for both domestic (Acemoglu, Johnson, and Robinson 2001, North and Weingast 1989) and foreign investors (Jensen 2003, 2006).[2] These theories would seem to posit that democracies are less likely than autocracies to violate the provisions of international investment agreements, hence they should be more willing than autocracies to enter into these agreements in the first place (Downs, Rocke, and Barsoom 1996).

We argue that this seeming paradox can be resolved if the international investment regime is viewed as a substitute for inclusive domestic institutions. From the perspective of an investor, both domestic and international institutions serve the same ends: stronger protections of property

[1]Table B1 in the online supplementary material shows systematic evidence supporting this claim. Note, however, that many of these investment claims are frivolous in nature (Pelc 2017).

[2]Though Graham, Johnston, and Kingsley (forthcoming) note that the marginal effect of democratically constrained domestic institutions is smaller for forms of takings (e.g., transfer risk) that do not involve the wholesale expropriation of investors.

rights. Consider the perspective of an investor, who is uncertain of the prospect that an investment opportunity will be subject to politically motivated takings. The investor can, however, observe domestic political institutions. If these are democratic, she might conclude that the risk of takings is small. Should this democracy sign a BIT, this risk might fall further still, but any decline in risk will be slight. In contrast, if the regime is autocratic, the investor might conclude the risk of takings is high. Should the autocracy tie its hands by signing a BIT, however, this risk will fall significantly. Since the BIT has a larger effect on risk in autocracies, it will also have a larger effect on investment inflows (for evidence of this relationship, see Rosendorff and Shin 2012).

If the economic effect of BITs is larger in autocracies, autocrats face particularly strong incentives to enter into these treaties. They can enjoy the economic benefits of investment without incurring the costs of building domestic institutional protections for property rights. Domestic institutions are particularly 'sticky,' and domestic institutional change requires relinquishing or reallocating power by or among members of the elite. Hence the possibility of importing credibility through international agreements is likely to be attractive. Domestic and international institutions act as substitutes and it is precisely those states that are least likely to be compliant with the international investment regime *ex ante* (i.e., autocracies) who are most likely to sign, turning the canonical logic of Downs, Rocke, and Barsoom (1996) on its head.

BITs credibly commit host governments to minimizing arbitrary and capricious policy shifts, punitive tax rates and outright expropriation, thus providing clear limits on policy-choices and predictable procedures for policy changes. BITs are legal instruments signed between states that take on the force of international law, and govern the rights and obligations of states that host foreign capital within their jurisdictions (Salacuse and Sullivan 2005). To varying degrees, BITs provide a compelling mechanism to credibly import a set of institutions that commit a state not to expropriate, over-regulate, over-tax, or otherwise excessively interfere in the market, and endangers the signatories with "swift, substantial compensation" in the instance of violation.

We present a formal model of the interaction between a leader and a multinational firm, and show that as the risk of takings rises, foreign firms are less inclined to invest absent improved property rights protections. The investment climate is improved when a polity with poor property

rights protections signs a BIT; the effect of BITs on the investment climate –if any– is much more modest in polities with stronger domestic property rights regimes. As such, the economic effects of BITs are largest in autocracies.

We then extend this logic to assess the effect of BITs on leader survival. Leaders survive in office more readily, both in democracies and autocracies, if the economy is performing well (e.g., Duch and Stevenson 2008). In autocracies, capital formation enhances economic performance which disproportionately benefits those affiliated with the regime leadership (Bueno de Mesquita et al. 2004, Pinto and Zhu 2016, Zhu 2017). FDI enables autocratic leaders to buy off elites, decreasing a coup threat and increasing leader survival (Bak and Moon 2016, Tomashevskiy 2017). For example, leaders can require that international investors establish joint ventures, typically with established domestic elites or require technology transfers to domestic companies affiliated with the regime. Similarly, uncertainties in the political or legal environment may lead foreign investors to choose to employ or partner with domestic officials or their families even absent overt government pressure to do so.[3] Overall, to the extent that foreign investment improves the economy, it also enhances the stability of the regime in power (Miller 2012). Consequently, the probability of leadership survival increases in BITs signing, and this benefit is greater for autocratic leaders.

We find substantial empirical evidence that BITs enhance leader survival, and by more in autocracies than democracies. We also test a novel underlying mechanism, namely improvements in the investment climate. BITs are shown to improve creditworthiness (using a variety of subjective and behavioral measures) as well as to increase bond prices (explored with daily prices in an event study analysis), but only in autocratic regimes.

1 Theoretical Motivation

Following North and Weingast (1989), the central dilemma for any leader is to credibly commit to limiting the coercive power of the state. The incentive to extract resources from investors, or

[3]Prominent anecdotal examples of this are SEC investigations of JP Morgan Chase's "Sons and Daughters" program – which involved the selective hiring of the children of prominent Chinese officials – for violations of the Foreign Corrupt Practices Act, underscoring the way in which foreign investment can selectively benefit ruling officials under autocratic rule.

to renege on commitments to repay loans may be large, especially when there are no penalties for doing so. Weak institutions fail to provide the venues to check the power of the leader (Gehlbach and Keefer 2011, 2012) or other insider actors (Jensen, Malesky, and Weymouth 2014), hence discouraging investment.[4] Moreover, institutional structures that fail to adequately reign in the extractive power of the state have a tendency to survive, making internal institutional change of the type North and Weingast (1989) describe, difficult or unlikely (Acemoglu, Johnson, and Robinson 2001).

Leaders however, often have more autonomy or discretion when it comes to international agreements. International agreements often incorporate, build or establish a set of rules, norms and behaviors that regulate international interactions. They generate focal points, coordinate expectations, reduce incomplete information, offer commitment devices, and act as a check on an autocrat's arbitrary power (Myerson 2008).

Bilateral investment treaties (BITs) are international legal instruments signed between states that govern the rights and obligations of states that host foreign capital within their jurisdictions. BITs enhance a leader's commitment to protecting property rights of foreign investors. They guarantee a high standard of treatment, offer legal protection under international law, provide access to international dispute resolution, and limit the policy shifts that governments can undertake. BITs offer *precision of obligations* along a variety of dimensions crucial to lowering the transactions costs of foreign investment: they require a well-defined standard of treatment, the free transfer of funds and repatriation of capital and profits, transparency of national laws, equal treatment across investors, compensation for war and other civil disturbances. Most significantly, they offer dispute-settlement provisions that permit both investor and state standing. The innovation that has given the BITs their bite is that both investor-state and state-state disputes can be brought before an international tribunal for adjudication, such as the World Bank Group's International Center for the Settlement of International Disputes (ICSID), or the International Chamber of Commerce (ICC). A decision to sign a BIT effectively imports a more credible system for limiting the state's capacity for uncompensated takings.

[4]In contrast, strong democratic institutions —specifically, their property rights protection— are associated with higher investment (Jensen 2003, Li and Resnick 2003).

We take as our premise that leaders choose policy in order to enhance their political support, and to improve their prospects for survival in office (Bueno de Mesquita et al. 2004). Leaders also (often) have private incentives to expropriate assets and extract revenue from productive activity; this, of course, reduces the willingness of domestic and foreign capital owners to invest in the first place, and harms economic growth and development. Survival in office is enhanced by economic development and wealth creation that accrues to the leader's core supporters, a group that may be smaller (as in autocracies) or larger (as in democracies).

The more accountable is the policymaker to a broad electorate, and the more the economy relies on foreign capital for the employment of domestic labor (as is the case in most developing countries), the more important is a reputation for protection rather than taking (regulatory or otherwise) of foreign capital. Workers in a capital poor democracy may apply electoral pressure to their leaders to encourage (labor-complementing) foreign capital to invest domestically, thereby increasing their marginal product and hence their wage (Pinto and Pinto 2008, Pinto 2013). Democracy (or at least polities with larger "winning coalitions") reduces the likelihood of unfair "takings" – reassuring capital owners that domestic labor will punish leaders at election time if they tax foreign capital excessively.[5]

Democratic states are also associated with institutions conducive to a hospitable investment climate, such as a functioning judiciary protecting the rule of law, and a well-behaved, less corrupt and functioning bureaucracy. Therefore, democratic leaders – requiring neither improved reputations nor improved institutional legitimacy – should find the benefits of importing added property rights institutions via BITs small, if any at all.

Autocrats have far fewer domestic institutional constraints that limit the reach of the grabbing hand.[6] Yet, as with democracies, autocratic leaders also have reason to be concerned with levels of economic growth. This might be because poor economic performance leads to generalized dissatisfaction among the populace, raising the risk of popular revolt and possible democratization (Przeworski et al. 2000). Or it may be that economic under-performance limits the number of

[5] A potential caveat: new democracies sometimes have trouble making credible commitments (Keefer and Vlaicu 2008).

[6] Autocrats might have *carte blanche* to create domestic institutions that limit the grabbing hand. Such gambits are rarely credible, for the power to create rules comes with the power to rewrite them.

resources that can be distributed as rents to regime elites, raising the risk of coup (Bak and Moon 2016). For some autocracies, and at some points of time, the marginal benefit from increasing takings exceeds that from promoting foreign investment. For other autocracies, or at other points of time, the reverse holds true. Critically, foreign investors struggle to discern authoritarian governments' preferences – these are not directly observable from from the institutional features of the regime.

BITs, however, serve as a readily observable means for a government – whether autocratic or democratic – to commit to respect foreign investors' property rights – or properly compensate otherwise. If investors believe there is significant risk of expropriation, the signing of a BIT allows those beliefs to be updated, leading to a concomitant rise in investment. Beliefs are modified most with regard to autocracies, which investors perceive as high risk environments.

In our theoretical model below, we treat capital inflows as boosting social welfare, and increases in social welfare as stabilizing to the government (e.g., Alfaro et al. 2010, Miller 2012). BITs have the largest effect on investor expectations with regard to *autocracies*. Consequently, we expect that it has the largest effect on *autocratic* leader survival.

Capital inflows might also boost government survival in other ways, particularly in autocracies. FDI may be sufficiently steerable that profits from such investment act directly as rents to winning coalition members – for instance, foreign investors felt constrained to enter into business arrangements with the family members of higher-ups in the Chinese Communist Party or of Indonesian dictator Suharto. To the extent these latter effects hold, our contention that BITs reduce autocratic leader's hazard of removal is further strengthened (Bak and Moon 2016, Pinto and Zhu 2016, Zhu 2017).

We do not mean to argue that a BIT is the only way for a target country to convey an enhanced commitment to property rights. States can take other measures to build trust – e.g., they can avoid egregious conduct, they could offer joint ventures with local firms, so that any taking would harm local interests, or bring in to the projects the international public agencies such as the World Bank. States could also make use of investment clauses in trade agreements or other international legal devices. So as Poulsen (2015) argues, BITs are not "the only instruments that could 'tie

governments to the mast' of international law (p. 7);" rather BITs offer a more high-powered set of incentives than these alternatives. Responding to these higher-powered incentives, we would be more likely to see (perhaps additional) effects.[7]

If BITs are good for FDI, it seems natural to explore whether BITs enhance leader survival, and more so, try to better understand the underlying mechanisms.

2 Theory

We consider a game between a home firm that exports capital to a host and the host government that chooses a tax rate on the exported capital. The firm decides whether or not to export a fixed amount of capital to the host, $k = \{0, K\}$. If $k = K$, the firm then employs labor L in the host to produce an intermediate good X according to a fixed proportions production function, $X = \min\{K, L\}$. The firm then brings the X it produced back home, and uses X as an input into the production of a final good, $F(X)$ which it sells at a constant unitary price.[8] We choose the units of labor such that the wage is also set at 1, and is constant. The cost of a unit of capital is κ, and $F'(\cdot) > 0, F''(\cdot) < 0$.

The host government applies a tax t on every unit of capital that is employed. We model this in the "iceberg" form: for every K units of capital that is shipped to the host country, only $(1-t)K$ are available for production. The firm must still pay the cost $\kappa > 0$ for each unit of capital it ships.

2.1 Profit of firms

Profit for the firm is

$$\Pi(k) = \begin{cases} F(\min\{(1-t)K, L\}) - \kappa K - L & \text{if firm enters, } k = K \\ 0 & \text{if no entry, } k = 0 \end{cases}$$

[7] See also Mazumder (2016).

[8] Alternatively, one can interpret this as a model of horizontal rather than vertical FDI: the firm takes the finished good X and combines it with transportation and other distribution services (the function $F(\cdot)$) to sell the good on world markets.

Note that the firm must still pay the rental rate on the capital that is taxed away and no longer available for production (if it enters the foreign market). The higher is the tax on capital, the less capital is available for production, and therefore the less labor the firm will employ.

2.2 Government payoffs

The host country has no other production, and no domestic capital owners. Then given a unitary wage, social welfare is simply the number of workers employed, L. The political support received by the government (perhaps the probability of reelection), R is a linear function of social welfare L, with $R'(\cdot) = r > 0$, a constant. Moreover there is some exogenous benefit to holding office, B; we can think of this as the present value of the future streams of potential takings of rents.

In addition to the electoral returns from improving social welfare (weighted by $a \in \mathbb{R}_+$ which is defined below), the host government receives private benefits from taxing capital, tK. Government utility then is

$$G(t;a) = \begin{cases} aR(L)B + tK & \text{if firm enters} \\ 0 & \text{if no entry} \end{cases}$$

This political support function is analogous to government's objectives in similar political economy models of trade and investment in which the government has an incentive to raise revenue or political support from a particular policy action, be it a tariff that protects a domestic industry and raises revenue, or as in this case, taxing imported capital.[9] This policy choice comes at some cost to social welfare or national income – in the trade case, the tariff reduces social welfare in a small open economy, and this has political costs; in the investment case, a higher tax on imported capital reduces the amount of domestic labor employed, and hence reduces social welfare, national income, and the attendant political support.

[9] Grossman and Helpman (1994), Rosendorff (1996).

The national income term is weighted by a. We assume that a is private information - the host government knows a, but home firm does not. We denote the cumulative distribution of a as $\alpha(\cdot; d)$, with $\alpha' > 0$. High draws of a mean that the political influence exerted by the social welfare concerns is large relative to the political benefits of tax revenues. The cdf of a is parameterized by the variable d, intended to capture the regime type of the country. A country with a higher value of d is "more democratic" or more "accountable" to social welfare concerns and this implies that on average, the probability that a is large (a larger weight on social welfare) is higher. We model this by assuming that $\alpha_d < 0$.[10] More democratic states mean that the draw of higher values of a are more likely than in less democratic states.

2.3 Investor Protection

The general form of investor protection is a "promise" by the host government not to tax the home firm at any rate higher than $p \in (0, 1)$. If the host country breaks its promise and applies a tax rate larger than p, the home firm appeals to the relevant domestic institutions for arbitration. The domestic institutions rule in favor of the investing firm with probability $\pi \in [0, 1]$, in which case the host government will be required to, and will, reimburse the home firm for the excess takings. That is, the credibility or the strength of the domestic property rights institutions is captured by $\pi = \Pr(win|violation)$, which is exogenous. If a state behaves arbitrarily and capriciously by raising the tax rate t above that which is commonly expected or considered appropriate p, there is some probability π that the domestic institutions will reverse such behavior and enforce a tax rate of p rather than t. We assume no problem of enforcement of an institutional finding.[11]

2.4 The Game with Investor Protection

The sequence of moves is as follows:

1. Nature reveals the value of a to the host government. This is private to the host.
2. The home firm chooses k.

[10] More precisely, for $d' > d$, $\alpha(a; d') \leq \alpha(a; d)$ with strict inequality at some a. That is, we assume first-order stochastic dominance in d.

[11] Alternatively may consider π as the combined probability of both violation finding, and compliance by the host state with the ruling.

3. The host government chooses t.
4. If $t \leq p$, home firm employs local labor, production occurs and game ends.
5. If $t > p$, then foreign, host government is taken to court. Nature determines the outcome of the case with $\Pr(win|violation) = \pi$. If plaintiff wins, the tax rate reverts to p; if not, the tax rate that is applied is t. The home firm then employs local labor, production occurs and game ends.

2.5 Firm's Investment Decision

Notice that the firm makes its investment decision (how much capital and labor to employ in the host country) before it knows what the government is going to do with respect to the tax rate. Assume for the moment that the firm knows what the tax rate t will be, and takes that as given. If the firm enters it sets $X = (1-t)K = L$ (by profit maximization of a Leontieff production function), and therefore will enter if $\Pi(K) = F((1-t)K) - (1-t+\kappa)K > 0$. Entry is assured at $t = 0$ and entry is deterred at $t = 1$.

We can now write a complete specification for the host government's expected utility taking into account the firm's behavior, the institutional rules, and the probability the state is overruled if it expropriates, given that the host state has observed a, the domestic political weight on social welfare a it faces:

$$G(t;a) = \begin{cases} aR((1-t)K)B + tk & if \quad t \leq p, k = K \\ (1-\pi)\left[aR\left(K(1-t)\right)B + tK\right] + \pi\left[aR\left(K(1-p)\right)B + pK\right] & if \quad t > p, k = K \\ 0 & if \quad k = 0 \end{cases}$$

In the case where the host sets a tax rate below the promised threshold, the government receives the electoral benefit associated with social welfare and any takings. If, on the other hand, the applied tax is higher than promised, $t > p$, with probability π government will be restricted to a tax rate of p, and with probability $1-\pi$, the state gets away with the punitive tax, t.

The state observes k and must make a determination about how much to tax. The first lemma establishes that the optimal tax rate will depend on the realized value of the random variable a. Recall that the linearity of $R(\cdot)$ implies $R'(\cdot) = r$, a positive constant.

Lemma 1. *The government's optimal tax rate strategy (when the foreign firm enters) is*

$$\tilde{t} = \begin{cases} 0 \quad if & a > \frac{1}{rB} \\ 1 \quad otherwise & \end{cases}$$

If nature draws a type of host leader that puts large amounts of weight on social welfare, $a > \frac{1}{rB}$, then the marginal electoral returns of building social welfare are larger than the marginal benefits of takings. Hence the government acts to maximize social welfare by setting a tax rate of zero, and putting all the capital that was shipped to work, employing more domestic labor. If, on the other hand, the leader cares little for social welfare (a is low), then the marginal benefit of takings exceeds the marginal electoral benefit of social welfare enhancement, and the government expropriates entirely, and sets $t = 1$.[12]

Denote $Pr\{a < \frac{1}{rB}\} = \alpha$. Given this behavior by the host government, the firm knows that *ex ante* with probability $(1 - \alpha)$ the government sets $t = 0$ and with probability α, the government sets $t = 1$. The expected profit of the firm is then

$$\begin{aligned} E\Pi &= (1-\alpha)\left[F(K) - \kappa K - K\right] \\ &\quad +\alpha\left[(1-\pi)[-\kappa K] + \pi\left[F((1-p)K) - \kappa K - K(1-p)\right]\right] \\ &= (1-\alpha)F(K) + \alpha\pi F((1-p)K) - K(1 - \alpha + \alpha\pi(1-p) + \kappa) \end{aligned} \tag{1}$$

Proposition 1. *The equilibrium to the domestic protection game is* $\tilde{t} = \begin{cases} 1 \quad if \quad a \leq \frac{1}{rB} \\ 0 \quad if \quad a > \frac{1}{rB} \end{cases}$ *and*

[12] By adding more convexity to the government's payoff function we might have sought an interior solution, in which the tax rate doesn't end up at the corners. This structure keeps things simple, however.

$$\tilde{k} = \begin{cases} K & if\ (1-\alpha)F(K) + \alpha\pi F((1-p)K) \geq K(1-\alpha+\alpha\pi(1-p)+\kappa) \\ 0 & otherwise \end{cases}$$

Proofs are in the online supplementary material. Notice that while π is the exogenous probability of property rights enforcement after expropriation, $\psi(\pi, d) \equiv 1-\alpha(\frac{1}{rB}; d)+\pi\alpha(\frac{1}{rB}; d)(1-p)$ (which appears in the cost term of the investment decision in Equation (1)) is the effective, equilibrium ex ante probability that property rights will be enforced. That is, after taking account of government's incentive to expropriate. For the purposes of the home firm, this is the statistic that matters most: it tells them the likelihood that, in equilibrium, their investment will be protected. This statistic is a function of both the credibility of the domestic property rights environment π and the regime variable, d. We shall call $\psi(\pi, d)$ the *investment climate* (Rosendorff and Shin 2012).

3 Strengthening the Investment Climate

We now have a precise definition of the "investment climate" that emerges from the equilibrium behavior of firm and the state: $\psi(\pi, d) = 1 - \alpha(\frac{1}{rB}; d) + \pi\alpha(\frac{1}{rB}; d)(1-p)$. It is somewhat trivial to see that as the strength of the property rights enhancing institutions rises (π rises) so does the the investment climate. Slightly more subtle is the effect of democracy. An increase in d makes a larger value of a more likely. The probability that a is small falls with d, that is (by assumption) $\alpha_d < 0$. This leads to the following lemma:

Lemma 2. *The investment climate rises with improvements in credibility and with democracy. That is* $\psi_\pi = \frac{\partial\psi}{\partial\pi} > 0$ *and* $\psi_d = \frac{\partial\psi}{\partial d} > 0$.

3.1 A BIT Enhances the Investment Climate

For analytic clarity, we treat the signing of a BIT as exogenous in this model. Rosendorff and Shin (2015) construct a related model that does examine the decision to sign a BIT, and which finds that autocratic governments are, *ceteris paribus*, more willing enter into these treaties. The effects which we document here – that autocratic leaders enjoy a disproportional benefit to survival from

BIT entry – further reinforce this logic. Autocracies are more likely to select into BIT signing.

We assume that as before, the maximal tax rate (treated as given by national treatment or most favored nation treatment) is p. We assume that with a BIT, the probability of a finding by the (now international) arbitrator in the instance of a violation is $\pi^{BIT} > \pi$. We interpret the stronger credibility of the international arbitrator as a substitute for a less reliable, credible or transparent domestic investment climate.[13] We know from Lemma 2 that a rise in credibility improves the investment climate.

Corollary 1. *BITs improve the investment climate.*

Moreover the effect of signing a BIT on the investment climate is greater for less accountable polities. This occurs exactly for reasons we have laid out – at larger values of d, the drawn value of a is more likely to be below the threshold $1/rB$; hence further rises in π will have smaller effects on the investment climate.

Proposition 2. *BITs improve the investment climate by more in less accountable polities:* $\frac{\partial \psi_\pi}{\partial d} < 0$.

We empirically test Corollary 1 and Proposition 2 below.

4 Political Support and Leader Survival

Our primary concern is the effect of a BIT on *leader survival* and its differential effects across regime types. Propositions 3 and 4 describe our model's predictions with regard to these terms.

Signing a BIT improves the investment climate, which has the effect of enhancing the willingness of foreign firms to invest in the host country.[14] Increased investment (in expectation) leads to more domestic employment of labor and higher social welfare, which in turn enhances the political support received by the leader, and increases the probability of leader survival.

[13] Note that we do not require the enforceability of the international arbitrator's rulings to be perfect. All that we require is that these rulings are more credible than the rulings of domestic court, and hence more likely to be followed.

[14] Note that signing a BIT doesn't change the host state's behavior – it still sets the takings at 0 or 1 depending on whether the draw of the random variable a lies above or below $1/rB$. The effect of the BIT on the firm's willingness to invest emerges from the change in the probability of any takings being reversed by the investment court. This is consistent with the observation made by Poulsen (2015) and others related ISDS trends, that there is no discernible change in observed state behavior before and after signing BITs.

Proposition 3. *Political support (in expectation) is enhanced by BIT signing. That is* $\frac{dER}{d\pi} > 0$.

This effect is larger in less democratic polities. As outlined in Proposition 2, the signing of a BIT improves the investment climate most in the least democratic regimes (where d is low). This improvement leads to greater inward FDI flows, enhancing social welfare and stabilizing the regime. Because BITs' effect on the investment climate is greatest in the least accountable regimes, so too is their effect on leader survival. BITs increase leader survival, and have the largest marginal effect on survival in autocratic polities.

Proposition 4. *Political support is enhanced by BIT signing by more in less accountable polities. That is* $\frac{\partial}{\partial d}\frac{dER}{d\pi} < 0$

Propositions 3 and 4 motivate the core of our empirical investigation. We model the hazard of leader removal as a function of democracy, BIT signings, and their interaction. Proposition 3 tells us that the coefficient on BIT signings should be negative – leaders face a lower hazard of removal if they sign a BIT. Proposition 4 tells us that the coefficient on the interaction term should be positive. Investment treaties reduce the hazard of leader removal by more in autocratic, and less in democratic, countries.

In the empirical sections that follow, we also test the mediating mechanisms underpinning our theory. Recall that our model anticipates that BITs improve leader survival (diminish leader hazards) by virtue of their effect on improving the investment climate, as stated in Corollary 1. Moreover, the effect of BITs on the investment climate is greatest in autocratic regimes, following Proposition 2. We employ a variety of measures of the investment climate – sovereign credit ratings, capital intensive money in circulation, and sovereign bond returns – and test the relationship between these measures, BIT signings, democracy, and the BIT signing-democracy interaction. Our model tells us that BIT signings should improve these measures of the investment climate, and should have the largest effect in non-democracies.

5 Empirics: BITs, Leader Survival and Regime Type

A cursory examination of the data offers some initial confidence in our claim. Autocratic leaders sign many BITs: Hamad bin Isa Al Khalifa (Bahrain) signed 28, Qatar's Al Thani signed 49, and Belarus' Lukashenko signed 50. Democratic leaders in similar parts of the world at similar stages of development, such as Israel's Rabin (10) and Netanyahu (6), or Cypres' Clerides (11) or Bulgaria's Kostov (18) signed many fewer. Since we aim to isolate the behavior of a given leader, we focus on BITs signed, but results are robust to use BITs in force instead.

5.1 Data

Leader survival data is drawn from Archigos.[15] The unit of analysis is the leader-year, over the 1960-2013 period. Our theory presumes a developing country eager to have access to foreign capital; hence we restrict our sample to non-OECD countries, but include BITs signed with any partner.[16] We observe 143 countries with 1179 leaders, and once we incorporate our set of covariates, our full sample is comprised of 132 countries and 921 leaders.[17]

Our main regressor of interest is $log(\text{BITs signed} + 1)$, a logarithmic transformation of the number of BITs signed by a given leader between the time a given leader takes office and year t.[18] Our measure of democracy is taken from Polity IV. We use the cumulative polity score (*Polity2*). To test the conditional nature postulated above, we interact this value with BITs signed variable.

We incorporate a battery of controls, namely GDP per capita, the growth rate, population and aid inflows all drawn from the World Development Indicators (WDI), as well as oil and gas production. Finally, it is important to take into account how other international economic treaties influence leader survival (Hollyer and Rosendorff 2012). To avoid overlap with our BIT measure, we control for the logarithm of the number of PTAs without investment clauses that go into operation between the time a given leader takes office and year t (Dür, Baccini, and Elsig 2014). Finally, we control for the total number of BITs signed by the country, up to the previous leader.[19]

[15] Version 2.9, updated through 2013.
[16] Restricting partners to be OECD members does not change the results.
[17] When we impute missing data, we observe 1207 leaders in 143 countries.
[18] Using the absolute number instead yields almost identical results.
[19] Table B2 in the online supplementary material shows summary statistics.

5.2 Estimates

We first estimate a Cox proportional hazards model. The hazard rate, $h(t)$, represents the conditional probability of having an event at time t, conditional on having survived up to that time. In particular, the event we model is the removal of a given leader from office. In our estimates, we adjust for the shared frailty faced by leaders from a given country. This accounts for variations in electoral institutions, party systems, culture or other country-specific factors that are likely to be correlated with leader survival. We estimate the following model:

$$h_{l,c}(t) = h_0(t)e^{\mathbf{X}_{l,c}\beta+\theta_c+\epsilon_{l,c}} \tag{2}$$

where θ_c is a country-specific frailty parameter drawn from a log-Gamma distribution with mean zero. This is equivalent to estimating model with country-specific random effects in a more standard time-series-cross-section framework. Results are reported as Models 1 and 2 in Table 1.

While the basic Cox frailty model makes no assumption about the shape of the baseline hazard function $h_0(t)$, it does assume that hazard rates are proportional across units. We test this by using Grambsch-Therneau and Harrell's rho tests, which suggest that the marginal effect of both the log number of BITs signed and Polity change over time. As such, we interact these terms with time in office. Results are displayed as Models 3 and 4 in Table 1.

The evidence follows our expectations from Proposition 3 and 4. Signing BITs is associated with a lower risk of being removed from office. Examination of the time-interacted regressors in Models 3 and 4 suggests that this effect declines over a leader's tenure. The effect of each additional BIT signed is smaller the longer a leader is in office.

The main evidence is the interaction between BIT signing and democracy. Proposition 4 posits that the relationship between BITs and leader survival is stronger in autocracies than in democracies, i.e., we expect the interaction to be positive. Evidence from all models supports this claim.

This interaction term allows the marginal effect of signing a BIT to vary according to the level of democracy. That is, we can compare the estimated hazard for an autocratic leader who has signed one BIT to that of a similarly autocratic leader who has signed no BITs, or make the same

Table 1: **Cox Proportional Hazards Estimates: Leader Survival**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.21**	-0.34**	-0.29**	-0.47**
	(0.04)	(0.06)	(0.08)	(0.10)
BITs signed × Polity2	0.03**	0.04**	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.03**	-0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.04		0.08
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.08		0.06
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.06		0.04
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.03		-0.02
		(0.04)		(0.04)
BITs signed (country, $l-1$) (Ln)		-0.04		-0.00
		(0.04)		(0.04)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.01
			(0.01)	(0.01)
BITs signed × Polity2			-0.00	0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	7,145	5,083	7,145	5,083
Countries	143	132	143	132
# of subjects	1,179	921	1,179	921
# of failures	1,028	776	1,028	776
Frailty parameter	0.19	0.24	0.26	0.29

Models 3 and 4 include variables interacted with the natural logarithm of time in office..
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

comparison for a democratic leader who has signed a BIT to a democratic leader who has not. By virtue of the inclusion of the interaction term, the ratio of the hazard rates in the first comparison is not constrained to be the same as in the second. The negative coefficient on the BITs signed term implies that BITs reduce the hazard of leader removal when the *Polity2* score is equal to zero. The positive coefficient on the interaction implies that this effect grows larger as the *Polity2* score declines (countries grow more autocratic) and grows smaller as the *Polity2* score rises (countries

grow more democratic).

However, interpreting interactive terms in non-linear models is made more challenging by the fact that the estimating equation is not additively separable. To facilitate interpretation, we estimate the substantive effect of signing a BIT while in office and how it varies by regime type, examining the percentage change in the hazard of leader failure.[20] Figure 1 documents the percentage change in the hazard rate (measured on the y-axis) resulting from a change from zero BIT signings to one BIT signing. This comparison is conducted for all values of the *Polity2* score (measured on the x-axis). This figure demonstrates that the results are substantively meaningful. As expected, the change in hazard rates is larger and highly statistically significant for the most autocratic states, estimated at -87% [95 C.I.: -94 – -77%]. The marginal effect of the first BIT signing diminishes as countries grow more democratic, and is statistically indistinguishable from zero for Polity scores of 5 or greater. (We obtain the same substantive result if instead of Polity scores we use the binary classification from Democracy and Dictatorship; see Table B3)

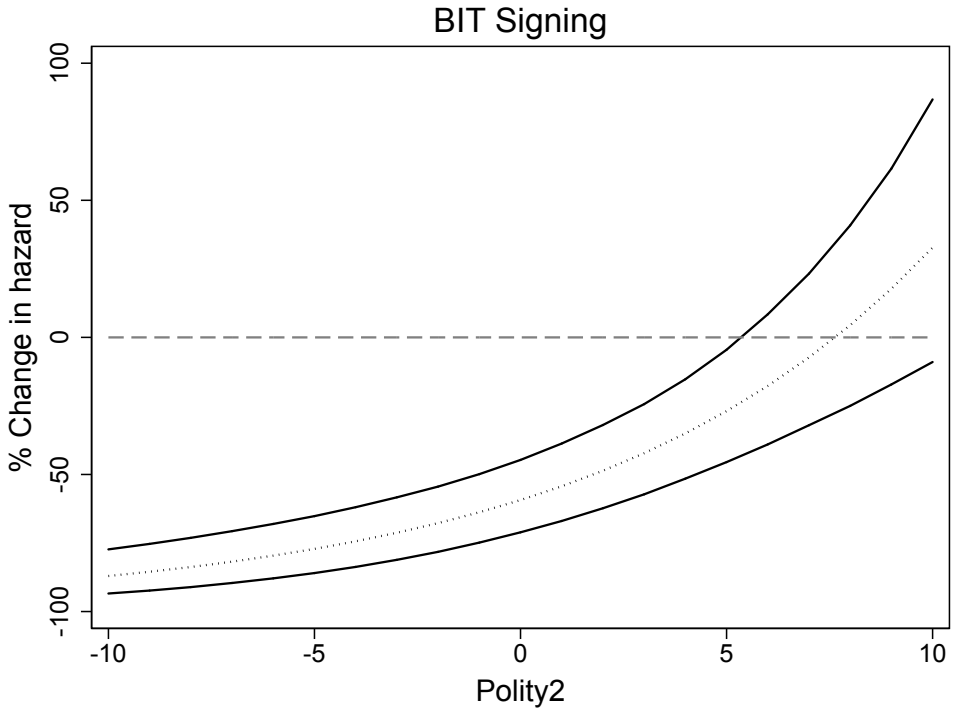
5.3 Robustness

Term limits are a democratic feature; when we split the sample by regime in Table B3 (in the online supplementary material), we see our results are not sensitive to such dynamics. We elaborate on this issue in Section 2.1 of the online supplementary material – our findings are robust to (i) dropping leaders who could not re-run for office due to term limits, (ii) flexibility control for institutional features related to term-limits, and (iii) re-coding leaders so to account for political dynasties and families as a strategy for avoiding term limits.

In light of an emerging literature on investment disputes (e.g., Aisbett, Busse, and Nunnenkamp 2017, Haftel and Thompson forthcoming) it is important to show that these are not influencing our results. We do this in several ways: (i) we control for the number of investor claims filed during the tenure of a given leader (Table B12), (ii) we restrict our analysis to leaders who did not receive any investment claims (Table B13), and (iii) we interact investor claims with our main variables,

[20] Estimates rely on simulations of 10,000 draws of the beta and variance-covariance matrices, and calculate the percentage change in the hazard as follows: $\%\Delta h(t) = \frac{exp(\beta X_2) - exp(\beta X_1)}{exp(\beta X_1)} \times 100$, where X_1 is the value of the variable before the change (0) and X_2 is the value after the change (1).

Figure 1: Percentage Change in the Hazard of Leader Failure Resulting from BIT signing



Note: Solid lines represent the 95% confidence intervals around the simulated estimates (dotted line).

thus allowing for differential effects (Table B14). In all cases, our main results are not affected.

Democracy is a multidimensional object, and different dimensions may have differing effects: property rights and the rule of law are associated with higher FDI (Li and Resnick 2003) rather than the accountability mechanism we describe here. We (i) replicate our main analysis controlling for Latent Judicial Independence (LJI) (Linzer and Staton 2015) as a proxy for law and order (Table B10) and (ii) use LJI as our main interaction variable (Table B11). These results provide strong support for our core theoretical argument.

Not all BITs are equal in value. Table B8 replicates our analysis where each BIT is weighted by the partner's logged GDP. Table B7 shows similar results when we use BITs in force instead.

When we remove leaders who (i) died in office from natural causes, (ii) were in office less than 1 year, or (iii) were in office less than 2 years, our results remain unchanged. Excluding China does

not affect our results (Table B9).

We also implemented a parametric Weibull model, obtaining similar results (Table B16). Table B15 shows that our results are essentially the same when we impute missing observations. To address the concern that our results are driven by imbalances in observables, we pre-processed the data via matching, obtaining even more precise results. (A detailed description is in Section 2.3 of the online supplementary material.). Unobservables could still drive such a relation, and endogeneity concerns might arise. We show (in Setion 2.4 of the online supplementary material) that our results are robust when we implement an instrumental variable strategy.

We also test an extension of our argument by exploring the variations in the effects of BIT signing on leader survival within autocracies —we further describe our design and results in Appendix 2.2, finding strong support for our claims.

6 Mechanisms

Two main mechanisms help explain our results. First, a direct effect via capital accumulation enhancing economic performance. Second, an indirect effect, via enhancing the overall investment climate and economic environment.

The direct effect has been largely discussed by the extant literature. There is an emerging consensus that FDI is enhanced by the presence of BITs. While early studies suggested BITs had little effect on FDI (Tobin and Rose-Ackerman (2005), for instance), using an instrumental variable approach, Kerner (2009) shows that BITs enhance FDI, while Kerner and Lawrence (2012) find that BITs primarily enhance foreign fixed-capital investment. Rosendorff and Shin (2012) find that BITs have a greater effect on FDI inflows in states with weaker domestic institutional environments, i.e. autocracies. This is consistent with our claim that BITs have the largest effect on investor expectations when the domestic investment environment is poor.

Such findings are complemented not only by arguments linking FDI to growth and economic performance in general (e.g., Alfaro et al. 2010) but also by evidence linking FDI with benefits to political elites and decreased likelihood of coup threats (Bak and Moon 2016, Pinto and Zhu 2016, Tomashevskiy 2017).

In contrast, the indirect effect is, to the best of our knowledge, a novel channel, and thus we turn our attention to it next.

6.1 Indirect Channel: An Enhanced Economic Environment

We posit that BITs lead to improvements in the investment climate in the broader domestic economy (Corollary 1), with larger effects in less accountable regimes (Proposition 2).

We proxy the investment climate with sovereign creditworthiness. There is evidence that creditworthiness matters for leader survival – Arias (2017) finds that cheaper credit increases the extent of patronage and leader survival. DiGiuseppe and Shea (2015) show that credit downgrades affect nondemocratic leaders' tenure more than democratic leaders' tenure. In a complementary piece, they find that better credit conditions improve survival as well, but this benefit is accrued *only* by autocratic regimes (DiGiuseppe and Shea 2016).

While the link between BITs and creditworthiness has been ignored in the literature, we are not the first ones to suggest that sovereign creditworthiness is influenced by international agreements. Dreher and Voigt (2011) argue that membership into international organizations is linked to a boost in credibility, proxied by country risk ratings. Tomashevskiy and Kono (2015) focus on PTAs, showing that participation in PTAs also improves a country's credit rating.

We argue that BITs have similar consequences. First, they attract foreign direct investment (direct channel) and so enhance a source of government revenue. Second, they represent a commitment to market-friendly policies towards inward foreign direct investment (Kerner 2009), which is positively perceived by credit rating agencies. Third, some BITs create opportunities for bondholders to demand the same rights as foreign direct investors. This is a result of clauses that rely on open-ended definitions of investment that do not exclude sovereign debt. For instance, the BIT between Argentina and Italy influenced bondholders' legal resources after Argentina's 2001 default. In the case *Abaclat and Others v. Argentine Republic* (ICSID Case No. ARB/07/5) Italian bondholders who refused the debt-restructuring deal successfully argued that the Argentina-Italy BIT gave them the right to pursue compensation through investor-state arbitration at the ICSID.

6.2 TSCS Estimation: Error Correction Model

To examine the extent to which the domestic investment climate is enhanced by the signature of BITs we analyze three different indicators. First, and in order to assess sovereign creditworthiness, we rely on Standard & Poor's (S&P) sovereign ratings. S&P is one of the three major credit rating agencies, but offers the largest coverage. These ratings assess a country's creditworthiness, namely the ability and willingness to service its debt in full and on time. Published ratings take the form of ordinal letter grades, going from D (default category) to AAA (lowest default risk). We convert these into a 0 to 16 point scale, where higher values represent lower default risks.

While S&P ratings are a fairly standard proxy for creditworthiness, ratings for developing markets generally start only in the mid-1990s, and many states are not rated. As a second test, we make use of credit ratings published by *Institutional Investor (II)* magazine. *II* conducts semiannual credit surveys, collecting expert opinions to rank country creditworthiness on a scale of 0 to 100, where higher values represent more creditworthy states. We use the yearly average, which spans 1980 to 2009 and covers up to 111 developing countries in our sample.

Thirdly, we analyze a behavioral outcome relying on Contract Intensive Money (CIM) data. CIM is defined as the ratio of non-currency money to the total money supply, namely $\frac{M2-C}{M2}$, where $M2$ captures the (broad) money supply and C represents the currency outside banks. While not a measure of creditworthiness per se, as it does not measure default risk, it does captures an objective measure of enforceability of contracts in the domestic economy (i.e., economic risk) which has direct economic consequences (Clague et al. 1996). When economic agents are less confident that their assets in banks will not be confiscated, potential investors will be less likely to be willing to conduct business, and the investment climate is perceived to be weaker. A strong 'contract enforcement' environment is associated with a higher proportion of contract-intensive money. An additional advantage of the CIM is its coverage: Data is available since the beginning of our sample (i.e., 1960) for up to 120 developing countries.

The unit of analysis in this section is country-year. The key variables are the number of BITs signed by a country in a given year and the *Polity2* score in that given year.

We estimate an error correction model, which allows us to model both short- and long-run

effects. Since our key test relies on the interaction between BITs and democratic institutions, we simplify the interpretation of the results by estimating two separate models, one for autocratic regimes and one for democratic regimes. We estimate the following equation for autocratic and democratic countries separately:

$$\Delta Creditworthiness_{i,t} = \alpha Creditworthiness_{i,t-1} + \beta \Delta BIT_{i,t} + \gamma BIT_{i,t-1} + \Delta \mathbf{X}_{i,t}\phi + \mathbf{X}_{i,t-1}\rho + \delta_t + \tau_i + \epsilon_{i,t} \quad (3)$$

where *Creditworthiness* is measured by S&P, *II* ratings and CIM (as proxy for economic risk instead of default risk), where i is a given country and t a given year. While β captures the short-run effects, the long-run effects are captured by estimating the long run multiplier (LRM), $\frac{\gamma}{-\alpha}$. We include both country and year fixed effects as well as standard controls ($\mathbf{X}_{i,t}$), namely GDP, GDP per capita, Trade, ISDS claims, and PTAs signed without investment clauses. While we are splitting the sample based on *Polity2* values, we nonetheless control for the *Polity2* score. Finally, errors are clustered at the country level.[21]

Results are shown in Table 2. Columns 1 and 2 correspond to autocratic regimes while Columns 3 and 4 correspond to democratic regimes – without and with controls, respectively.

S&P Ratings These results are displayed in Panel A and the evidence strongly conforms with our theory. Countries that sign BITs see an improvement in their S&P credit rating, but this benefit is only robustly accrued by autocratic regimes. The coefficients of interest for autocracies are highly significant and stable across specifications (although only for short-run effects) while those for democracies are more unstable and not significant once we account for relevant covariates. Nonetheless, the limited sample size warrants caution when interpreting these results.

Institutional Investors In Panel B, we analyze our second measure of creditworthiness, *II* Ratings. The core finding is replicated. Columns 1 and 2 show large, significant and stable results for autocratic regimes (here in the long-run only). In contrast, Columns 3 and 4 show small,

[21] Table B22 displays summary statistics.

Table 2: **Regime Type, Creditworthiness & Economic Risk, and BITs**

	Autocracies		Democracies	
	Panel A: S&P Ratings			
	(1)	(2)	(3)	(4)
S&P Ratings$_{t-1}$	-0.14	-0.35**	-0.13**	-0.20**
	(0.08)	(0.11)	(0.05)	(0.03)
Δ BITs signed (Ln)	0.33*	0.36**	0.10*	0.03
	(0.15)	(0.11)	(0.05)	(0.04)
BITs signed$_{t-1}$ (Ln)	0.36*	0.39*	0.12	0.01
	(0.16)	(0.15)	(0.06)	(0.07)
LRM p-value	0.20	0.08	0.10	0.91
Observations	146	144	687	642
Countries	16	15	58	55
R^2	0.38	0.62	0.29	0.43
	Panel B: II Ratings			
	(1)	(2)	(3)	(4)
II Rating$_{t-1}$	-0.17**	-0.14**	-0.11**	-0.16**
	(0.04)	(0.03)	(0.02)	(0.02)
Δ BITs signed (Ln)	0.12	0.02	0.08	0.05
	(0.21)	(0.22)	(0.14)	(0.15)
BITs signed$_{t-1}$ (Ln)	0.89**	0.75**	0.06	-0.05
	(0.27)	(0.27)	(0.24)	(0.25)
LRM p-value	0.01	0.01	0.81	0.84
Observations	584	539	998	955
Countries	59	56	72	69
R^2	0.34	0.33	0.37	0.43
	Panel C: Contract Intensive Money			
	(1)	(2)	(3)	(4)
CIM$_{t-1}$	-0.24**	-0.28**	-0.17**	-0.20**
	(0.03)	(0.05)	(0.02)	(0.02)
Δ BITs signed (Ln)	0.34	0.53*	0.05	0.13
	(0.23)	(0.24)	(0.17)	(0.14)
BITs signed$_{t-1}$ (Ln)	0.30	0.54	0.07	0.26
	(0.32)	(0.31)	(0.30)	(0.18)
LRM p-value	0.37	0.10	0.82	0.18
Observations	1,900	1,465	1,569	1,446
Countries	84	76	84	81
R^2	0.17	0.22	0.14	0.19
Controls		✓		✓
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Columns 1 and 2 correspond to autocratic regimes while Columns 3 and 4 correspond to democratic. Controls: GDP, GDP per capita, Polity2, Trade, ICSID filings, and PTAs signed without investment clauses. Robust standard errors clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$

unstable and insignificant results when democratic leaders sign BITs.

Contract Intensive Money These are shown in Panel C. Again, the results support our expectations. We see a statistically significant short-run effect in autocracies (once we control for relevant covariates) but not in democracies.

Overall, the evidence confirms our theory: BITs are associated with an enhanced economic climate in autocracies but not in democracies.

6.3 Event Study Estimation

Capital markets are viewed as efficient with respect to public information – agents quickly adjust their expectations given new information, and the effect is quickly reflected in asset prices. If BITs improve the investment climate (at least in autocracies), we would expect BITs to increase the prices at which sovereign debt trades in secondary markets.

We use an event-study approach to assess the reaction of investors to BIT signing. We are interested in the effects of BIT signing on the abnormal returns (in sovereign debt bond indices) in event windows after signings, using a 'market model'.

Normal returns are estimated using an event window prior to the date of signing. We start by calculating the mean cumulative return of the target bond price within a window of days prior to the BIT signing dates. (Below, we show our results for different estimation windows, starting 60 days before and up until 10 days preceding the BIT signing.) The cumulative abnormal returns (CARs) sum the abnormal returns over the event window – the number of days after the BIT signing.

We specify $CAR_{it} = \beta + \mathbf{X}_{it} + \epsilon_{it}$, for country i over the event window t. The parameter of interest is the constant term, β, which captures the impact of the event on average returns. The vector $\mathbf{X}$ controls for *Polity2*, GDP (Ln), GDP growth, and Trade (% of GDP).

Let β_d denote the value of this parameter in a sample drawn from BIT signings by democratic states, and β_a denote value of the same drawn from an autocratic sample. Then Proposition 2 predicts that $\beta_a > \beta_d \geq 0$.

Data We rely on J.P. Morgan EMBI Global data, which consists of US dollar denominated and daily traded bond prices. These indices are constructed by measuring the price at which sovereign debt bonds are traded on secondary markets. If investors believe a nation is likely to default, its bonds trade at a discount. Changes in the value of the bond index provide a measure of market actors' perceptions about the likelihood of default. We use return on bonds to estimate market perceptions of default risk, that is, creditworthiness. We collect bond indices for all available nations, which provide us with closing index value for each trading day.[22]

Results We explore the effect of a BIT on the abnormal returns for a variety of estimation windows (for computing the normal returns). Table 3 displays panels for each event window: from 2-day in Panel A through 5-day in Panel D. To facilitate interpretation, we again split the sample between autocratic and democratic countries.

The results once again strongly support our predictions. Signing a BIT has a positive and a significant impact on bond indices for debt issued by autocratic countries, thus showing an improvement in creditworthiness. This is robust to different event and estimation windows. In contrast, when democratic leaders sign a BIT, they do not experience any improvement in bond prices.

7 Conclusion

A state's interactions with international institutions affects the tenure of leaders in those states, and the direction of this effect largely depends on the regime type of the country.

Here we have examined the link between BITs and leader survival, and the effect of these treaties is conditioned by regime type. Autocratic leader survival is enhanced by BIT signing to a larger degree than is democratic leader survival. Our explanation for this phenomenon is based on the role accountability plays in securing property rights. Autocracies are accountable to narrower bases of support than democracies, making commitments to protect property rights less credible. Improvements in these institutions from within are fraught with domestic political

[22]The sample begins January 1, 1986 for 10 countries, up to May 30, 2015 for 65 countries.

Table 3: **BITs & Cumulative Abnormal Returns by Regime Type**

	Cumulative Abnormal Returns					
	Estimation Window					
	-45 through -10		-60 through -10		-60 through -30	
	Aut.	Dem.	Aut.	Dem.	Aut.	Dem.
	Panel A: 2-day Window					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT	0.328*	-0.062	0.270*	-0.075	0.292*	-0.099
(2-day window)	(0.082)	(0.051)	(0.079)	(0.048)	(0.076)	(0.058)
R^2	0.62	0.35	0.66	0.32	0.60	0.22
	Panel B: 3-day Window					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT	0.379**	-0.023	0.300*	-0.041	0.331**	-0.075
(3-day window)	(0.088)	(0.065)	(0.085)	(0.057)	(0.080)	(0.067)
R^2	0.59	0.32	0.63	0.31	0.57	0.21
	Panel C: 4-day Window					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT	0.345**	-0.020	0.245*	-0.042	0.283**	-0.085
(4-day window)	(0.080)	(0.073)	(0.075)	(0.062)	(0.070)	(0.074)
R^2	0.55	0.30	0.60	0.28	0.53	0.19
	Panel D: 5-day Window					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT	0.364**	0.013	0.244*	-0.014	0.290**	-0.066
(5-day window)	(0.081)	(0.086)	(0.076)	(0.073)	(0.069)	(0.087)
R^2	0.54	0.25	0.60	0.23	0.52	0.15
Observations	140	979	140	979	140	979
Controls	✓	✓	✓	✓	✓	✓

Robust standard errors clustered at the country level in parentheses. (Standardized) Controls include: *Polity*2, GDP (Ln), GDP growth, and Trade (% of GDP), FDI inflows (Ln).
* $p < 0.05$, ** $p < 0.01$

challenges, and it is easier and simpler to import a set of rules and obligations from abroad that serve a similar, property-rights protecting purpose. A treaty, enforced by third party tribunals, where firms as well as governments have standing, reduces the incentives to engage in takings (regulatory and otherwise), and makes promises to foreigners to refrain from punitive taxation more credible. Hence autocratic leaders, eager to consolidate support among their coalition with foreign capital that complements local factors, are relatively more inclined to sign BITs. Democracies are characterized by domestic institutions that function to protect property from seizure by the state, and have less to gain from signing BITs.

These findings contribute and speak to several larger issues in the fields of international and comparative political economy. First, our argument draws on, and offers a further piece of evidence in support of, a lengthy literature documenting the role of political institutions in states' credible commitment to secure property rights. Our evidence further supports long-standing contentions that democratic domestic institutions foster commitments to investors, both domestic (e.g. North and Weingast 1989) and international (e.g. Jensen 2006).

However, our findings also indicate that international agreements may substitute for domestic institutions when it comes to securing investor property rights. Given the comparative ease of entry into such agreements, relative to changing domestic political institutions, international enforcement is likely to be highly attractive to autocratic leaders. The normative implications of this finding are complex: On the one hand, international agreements may help to alleviate the economic implications of poor institutions, which have the potential to hinder development even over very long time horizons (Acemoglu, Johnson, and Robinson 2001). On the other, since international agreements diminish the economic and political costs associated with autocratic institutions, the presence of such agreements may diminish the incentives for leaders to move in a democratic direction.

Our findings, particularly when coupled with recent pieces by Rosendorff and Shin (2012, 2015), also speak to a prominent debate in international relations: When and why do governments enter into treaties? In typical settings, governments are most likely to enter into treaties if their behavior is already compliant with treaty terms (Downs, Rocke, and Barsoom 1996). Consequently, empirical estimates of treaty compliance tend to over-state the effects of the treaty (von Stein 2005, Simmons and Hopkins 2005). However, we document that when treaties substitute for domestic institutions or policies, the typical intuition may not hold (Hollyer and Rosendorff 2011). In this instance, the greatest political and economic benefits of the treaty are enjoyed by those governments who were *least* likely to be in compliance *ex ante*. Contrary to the conventional wisdom, autocratic states have the strongest incentive to engage with the international investment regime.

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Supplementary Material: "Cooperative Autocracies: Leader Survival, Creditworthiness and Bilateral Investment Treaties"

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1 Proofs

Lemma 1. *The government's optimal tax rate strategy (when the foreign firm enters) is*

$$\tilde{t} = \begin{cases} 0 & if \qquad a > \frac{1}{rB} \\ 1 & otherwise \end{cases}$$

Proof. If $t \leq p \in (0,1), k = K$:

$$\begin{aligned} G &= aR(K(1-t))B + tK \\ G_t &= K - aKR'(K(1-t))B \\ &= K - aKrB \\ \tilde{t} &= \begin{cases} 0 & if \qquad a > \frac{1}{rB} \\ p & otherwise \end{cases} \end{aligned}$$

If $t \geq p \in (0,1), k = K$:

$$\begin{aligned} G &= (1-\pi)aR\left(K(1-t)\right)B + \pi aR\left(K(1-p)\right)B + (1-\pi)tK + \pi pK \\ G_t &= (1-\pi)K - (1-\pi)R'(K(1-t))aKB \\ &= (1-\pi)K\left[1 - raB\right] \\ \tilde{t} &= \begin{cases} p & if \qquad a > \frac{1}{rB} \\ 1 & otherwise \end{cases} \end{aligned}$$

If $k = 0$, then $G = 0$ for all t and any t is an optimal strategy. □

Proposition 1. *The equilibrium to the domestic protection game is* $\tilde{t} = \begin{cases} 1 & if \quad a \leq \frac{1}{rB} \\ 0 & if \quad a > \frac{1}{rB} \end{cases}$ *and*

$$\tilde{k} = \begin{cases} K & if\ (1-\alpha)F(K) + \alpha\pi F((1-p)K) \geq K(1-\alpha+\alpha\pi(1-p)+\kappa) \\ 0 & otherwise \end{cases}$$

Proof. From Lemma 1 we have the government's optimal strategy. The expected profit of the firm given the host government's equilibrium strategy (Equation 1) is $E\Pi(K) = (1-\alpha)F(K) + \alpha\pi F((1-p)K) - K(1-\alpha+\alpha\pi(1-p)+\kappa)$. Then the firm invests, consistent with its equilibrium strategy, whenever $E\Pi(K) > \Pi(0) = 0$. □

Recall the definition of the investment climate: $\psi(\pi, d) \equiv 1 - \alpha(\frac{1}{rB}; d) + \pi\alpha(\frac{1}{rB}; d)(1-p)$

Lemma 2. *The investment climate rises with improvements in credibility and with democracy. That is* $\psi_\pi = \frac{\partial\psi}{\partial\pi} > 0$ *and* $\psi_d = \frac{\partial\psi}{\partial d} > 0$.

Proof. $\frac{\partial\psi}{\partial\pi} = \alpha\left(\frac{1}{rB}; d\right)(1-p) > 0$. And $\frac{\partial\psi}{\partial d} = \alpha_d\left(\pi(1-p) - 1\right) > 0$ since $\pi, p < 1$ and $\alpha_d < 0$. □

Proposition 2. *BITs improve the investment climate by more in less accountable polities:* $\frac{\partial \psi_\pi}{\partial d} < 0$.

Proof. $\frac{\partial \psi_\pi}{\partial d} = \alpha_d(1-p) < 0$ □

Proposition 3. *Political support (in expectation) is enhanced by BIT signing. That is* $\frac{dER}{d\pi} > 0$.

Proof. Ex ante expected probability of survival before a is revealed is

$$\begin{aligned} ER &= \left(1 - \alpha\left(\frac{1}{rB}; d\right)\right) R(K) + \alpha\left(\frac{1}{rB}; d\right) \left[\pi R\left(K(1-p)\right)\right] \\ \frac{dER}{d\pi} &= \alpha\left(\frac{1}{rB}; d\right) \left[R\left(K(1-p)\right)\right] > 0 \end{aligned}$$

□

Proposition 4. *Political support is enhanced by BIT signing by more in less accountable polities. That is* $\frac{\partial}{\partial d}\frac{dER}{d\pi} < 0$

Proof.

$$\frac{\partial}{\partial d}\frac{dER}{d\pi} = \alpha_d\left(\frac{1}{rB}; d\right) \left[R\left(K(1-p)\right)\right] < 0$$

Since $\alpha_d(\cdot) < 0$ and $R(\cdot) > 0$. □

2 Empirical Appendix

Table B1: **Regime Type & Investor Claims**

	Panel A: Investor Claims			
	(1)	(2)	(3)	(4)
Democracy	0.056**	0.034*	0.023*	0.028*
	(0.019)	(0.015)	(0.012)	(0.013)
R^2	0.01	0.04	0.05	0.07
Outcome mean	0.04	0.04	0.04	0.05
Outcome std. dev.	0.38	0.38	0.38	0.42
	Panel B: At least one claim			
	(1)	(2)	(3)	(4)
Democracy	0.029**	0.015*	0.011	0.014*
	(0.008)	(0.006)	(0.006)	(0.007)
R^2	0.01	0.08	0.10	0.13
Outcome mean	0.03	0.03	0.03	0.03
Outcome std. dev.	0.16	0.16	0.16	0.18
Observations	6,832	6,832	6,784	5,532
Countries	170	170	169	162
Year FE		✓	✓	✓
Region FE			✓	✓
Controls				✓

Unit of analysis: country-year. Controls: GDP, GDP per capita, Trade, Growth and Total BITs signed. Robust standard errors clustered at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$

Figure B1 plots the hazard rate based on estimates from Model 2, Table 1. We calculate the estimated hazard rates for a pure autocracy (i.e., minimum *Polity2* score of -10) and for a pure democracy (i.e., maximum *Polity2* score of 10), at different tenures, while keeping all other covariates at their sample means. In both cases, we illustrate the estimated hazard rate when the number of BITs signed is zero, one, and the maximum value in the sample. The evidence confirms our interpretation: autocratic leaders benefit greatly from signing BITs whereas this is not the case for leaders in democratic regimes.

2.1 Term-limits

We implement several robustness checks to make sure that our findings are not spuriously driven by term-limit dynamics.

Table B2: **Summary Statistics**

Variable	Mean	Std. Dev.	Min.	Max.	N
BITs signed (leader tenure)	3.391	8.473	0	95	7,145
BITs signed (leader tenure) (Ln)	0.72	1.033	0	4.564	7,145
Polity2	-0.729	6.933	-10	10	7,145
GDPpc (Ln)	7.195	1.256	3.913	11.314	5,940
Growth (% of GDP)	3.904	8.19	-64.047	189.83	5,996
Trade (% of GDP)	71.232	47.891	0.309	531.737	5,945
Population (Ln)	15.813	1.526	11.689	21.029	7,083
Foreign Aid (Ln)	19.228	1.495	9.904	23.273	6,415
Oil and Gas Prod. (Ln)	10.472	10.592	0	27.012	6,867
PTAs signed (leader tenure)	0.171	0.424	0	2.485	7,145
BITs signed (country, $l-1$) (Ln)	0.905	1.235	0	4.86	7,145

The unit is leader-year. *BITs signed* is the cumulative number of BITs signed by the leader up until that point. The maximal value of 95 *BITs signed* refers to Egypt's Mubarak over his entire tenure.

Figure B1: Estimated Leader Hazard Rates by Year for Different Levels of BITs Signed (Ln)

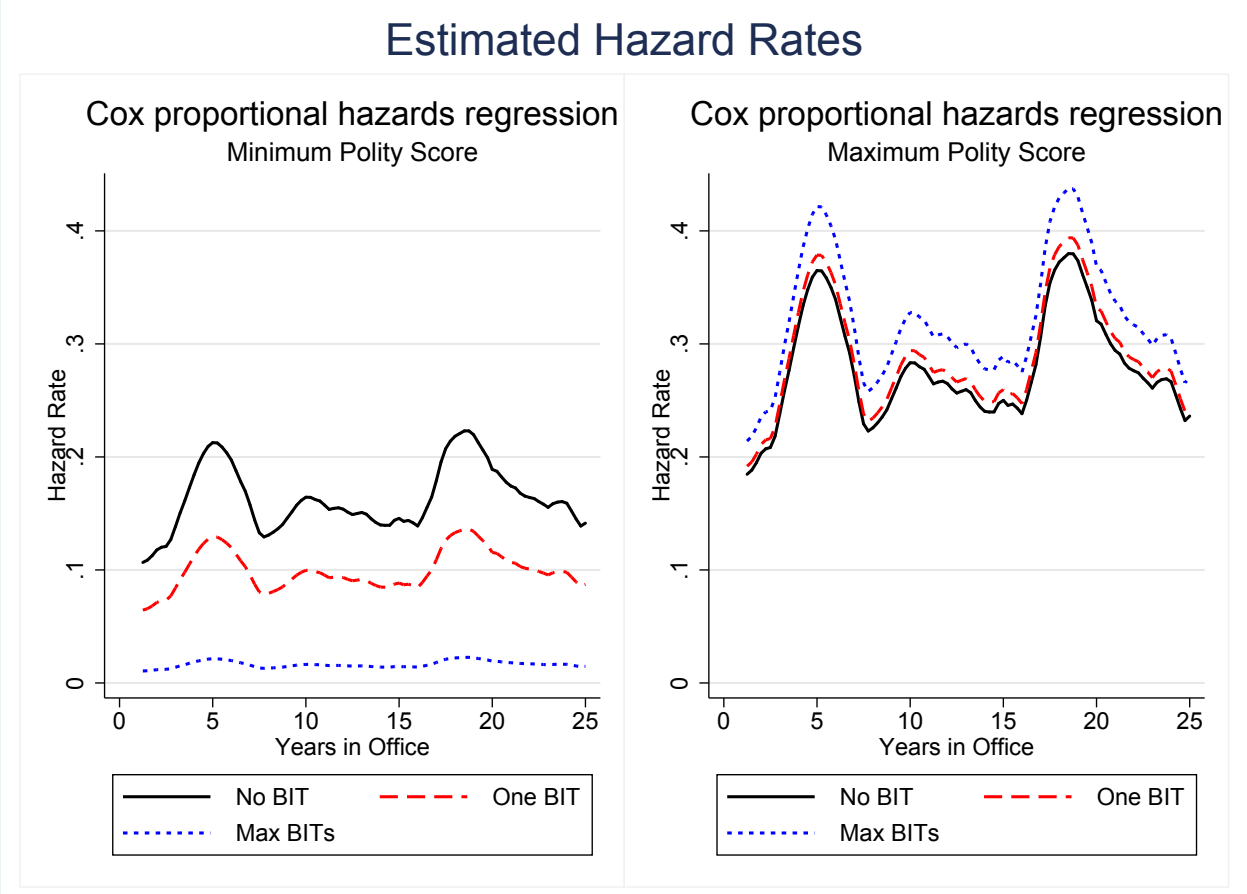

Table B3: **Cox Proportional Hazards Estimates, by regime type as classified by DD**

	Autocracies		Democracies	
	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.26**	-0.19*	-0.09	-0.19
	(0.10)	(0.09)	(0.10)	(0.12)
GDPpc (Ln)		0.16		0.11
		(0.08)		(0.10)
Growth (% of GDP)		-0.04**		-0.02*
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.11		0.06
		(0.08)		(0.09)
Oil and Gas Prod. (Ln)		-0.02*		0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		-0.13		0.08
		(0.24)		(0.14)
Foreign Aid (Ln)		0.01		-0.04
		(0.06)		(0.07)
BITs signed (country,$l-1$) (Ln)		-0.06		0.08
		(0.08)		(0.06)
Time-interacted variables				
BITs signed (leader tenure) (Ln)	0.01		-0.01	-0.01
	(0.01)		(0.02)	(0.02)
Observations	4,517	3,121	2,030	1,709
Countries	119	108	82	73
# of subjects	672	513	566	495
# of failures	524	376	444	382
Frailty parameter	0.32	0.32	0.32	0.35

Models 3 and 4 include variables interacted with the natural logarithm of time in office.
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

First, relying on data from the DPI we identified 53 leaders in 17 countries who survived until their end of the term and could not run for office again.[23] We then re-run our analysis, dropping the observations at time of failure –i.e., treating them as if they were right-censored. Table B4 shows that our findings are not affected.

Secondly, we once again rely on data from the DPI to construct variables to be included as controls in our analysis. Specifically, we coded three variables. First, *Finite Term* is an indicator that takes the value of 1 when there is a constitutional limit on the number of years the executive can serve before new elections must be called, 0 otherwise. Second, *Years Left* is a variable that counts the number of years left in the current term, with a -999 value when this is not applicable. Because of that, we introduce each value of this variable as a dummy in our model. Third, *Multiple* is an indicator variable that takes the value of 1 if the executive can serve multiple terms, 0 otherwise. To fully and flexibly control for these institutional features, we include them interactively in our specification. That is, we control for all combinations of the interaction term: (Finite $\text{Term}_{it} \times$ $\text{Years Left}_{it} \times \text{Multiple}_{it}$). Table B5 displays the results, showing that our results hold.

Finally, we made sure that our results were not driven by political dynasties and families avoiding term limits. Here, we re-coded the data such that the new dynastic leader is treated as if there was no leader change. We re-coded 20 leaders in 10 countries, namely Cristina Kirchner as the continuation of Nestor Kirchner in Argentina, Ilham Aliyev as the continuation of Heydar Aliyev in Azerbaijan, Hamad bin Isa Al Khalifa as the continuation of Isa bin Salman Al Khalifa in Bahrain, Jigme Singye Wangchuck as the continuation of Jigme Dorji Wangchuck in Bhutan, Raúl Castro as the continuation of Fidel Castro in Cuba, Rajiv Gandhi as the continuation of Indira Ghandi in India, Abdullah II as the continuation of Hussein in Jordan, Birendra as the continuation of Mahendra in Nepal, Tamim bin Hamad Al Thani as the continuation of Hamad bin Khalifa Al Thani in Qatar, Bashar al-Assad as the continuation of Hafez al-Assad. Monarchies of Kuwait, Morocco, Saudia Arabia, United Arab Emirates are dropped from the analysis (and the findings are also robust to dropped some of the previous leaders who were under a monarchy). Table B6 shows that our findings still hold.

[23] Countries are Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Lebanon, Mali, Mexico, Paraguay, Peru, Philippines and Venezuela.

Table B4: **Cox Proportional Hazards Estimates: Robustness to drop last year of term-limited incumbents**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.19**	-0.32**	-0.28**	-0.45**
	(0.04)	(0.06)	(0.08)	(0.10)
BITs signed × Polity2	0.03**	0.04**	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.03**	-0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.02		0.06
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.05		0.03
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.10		0.08
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.03		-0.02
		(0.04)		(0.04)
BITs signed (country,$l-1$) (Ln)		-0.04		0.00
		(0.04)		(0.04)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.01
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs signed × Polity2			-0.00	0.00
			(0.00)	(0.00)
Observations	7,093	5,032	7,093	5,032
Countries	143	132	143	132
# of subjects	1179	921	1179	921
# of failures	976	725	976	725
Frailty parameter	0.20	0.25	0.26	0.30

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B5: **Cox Proportional Hazards Estimates – Robustness to term-related controls**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.22**	-0.32**	-0.33**	-0.51**
	(0.05)	(0.07)	(0.09)	(0.11)
BITs signed × Polity2	0.03**	0.04**	0.04**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.05**	0.04**	0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.03		0.08
		(0.07)		(0.07)
Growth (% of GDP)		-0.03**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.10		0.08
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		0.00		0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.09		0.07
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.00		0.02
		(0.05)		(0.05)
BITs signed (country, $l-1$) (Ln)		-0.03		0.02
		(0.04)		(0.05)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.01	0.02*
			(0.01)	(0.01)
BITs signed × Polity2			-0.00	-0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	5,016	4,008	5,016	4,008
Countries	135	127	135	127
# of subjects	863	728	863	728
# of failures	720	590	720	590
Frailty parameter	0.18	0.22	0.27	0.27
Term-related controls	✓	✓	✓	✓

Models 3 and 4 include variables interacted with the natural logarithm of time in office.
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B6: **Cox Proportional Hazards Estimates: Robustness to leaders as family dynasties**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.23**	-0.32**	-0.25**	-0.42**
	(0.05)	(0.06)	(0.08)	(0.10)
BITs signed × Polity2	0.04**	0.04**	0.03*	0.03*
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.03**	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.05		0.09
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.07		0.05
		(0.05)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.03		0.02
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.03		-0.03
		(0.04)		(0.04)
BITs signed (country,$l-1$) (Ln)		-0.04		0.01
		(0.04)		(0.04)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.01
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs signed × Polity2			0.00	0.00
			(0.00)	(0.00)
Observations	6,867	4,971	6,867	4,971
Countries	138	128	138	128
# of subjects	1,150	906	1,150	906
# of failures	1,005	764	1,005	764
Frailty parameter	0.16	0.20	0.24	0.27

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B7: **Cox Proportional Hazards Estimates using BITs in force**

	(1)	(2)	(3)	(4)
BITs in force (leader tenure) (Ln)	-0.12	-0.13	-0.30	-0.28**
	(0.10)	(0.13)	(0.18)	(0.06)
BITs in force × Polity2	0.04**	0.05**	0.04	0.04
	(0.01)	(0.02)	(0.02)	(0.03)
Polity2	0.05**	0.04**	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.01		0.08
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00**		-0.00**
		(0.00)		(0.00)
Population (Ln)		0.01		0.01
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		-0.12		0.02
		(0.10)		(0.11)
Foreign Aid (Ln)		-0.05		-0.03
		(0.04)		(0.04)
BITs in force (country,$l-1$) (Ln)		0.11		0.21*
		(0.08)		(0.08)
Time-interacted variables				
BITs in force (leader tenure) (Ln)			0.02	0.03*
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs in force × Polity2			-0.00	0.00
			(0.00)	(0.00)
Observations	7,145	5,083	7,145	5,083
Countries	143	132	143	132
# of subjects	1,179	921	1,179	921
# of failures	1,028	776	1,028	776
Frailty parameter	0.20	0.24	0.27	0.30

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B8: **Cox Proportional Hazards Estimates using Weighted BITs**

	(1)	(2)	(3)	(4)
Weighted BITs signed (leader tenure) (Ln)	-0.10**	-0.15**	-0.11**	-0.18**
	(0.02)	(0.02)	(0.03)	(0.04)
Weighted BITs signed × Polity2	0.01**	0.02**	0.01**	0.02**
	(0.00)	(0.00)	(0.00)	(0.00)
Polity2	0.04**	0.03**	0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.05		0.08
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.08		0.05
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.06		0.02
		(0.10)		(0.11)
Foreign Aid (Ln)		-0.02		-0.02
		(0.04)		(0.04)
BITs signed (country, $l-1$) (Ln)		-0.04		0.00
		(0.04)		(0.04)
Time-interacted variables				
Weighted BITs signed (leader tenure) (Ln)			0.00	0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	7,145	5,083	7,145	5,083
Countries	143	132	143	132
# of subjects	1,179	921	1,179	921
# of failures	1,028	776	1,028	776
Frailty parameter	0.19	0.25	0.26	0.30

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B9: **Cox Proportional Hazards Estimates: Excluding China**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.23**	-0.36**	-0.32**	-0.49**
	(0.05)	(0.06)	(0.08)	(0.10)
BITs signed × Polity2	0.03**	0.05**	0.04**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.03**	-0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.04		0.08
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.07		0.05
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.07		0.05
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.03		-0.02
		(0.04)		(0.04)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.01
			(0.01)	(0.01)
BITs signed × Polity2			-0.00	0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	7,086	5,052	7,086	5,052
Countries	142	131	142	131
# of subjects	1,173	918	1,173	918
# of failures	1,023	774	1,023	774
Frailty parameter	0.19	0.24	0.27	0.29

Models 3 and 4 include variables interacted with the natural logarithm of time in office.
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

2.2 Non-Democratic Regimes Extension: Personalistic versus Instituionalized

Empirically we can also make use of the observed variation across types of autocratic regimes. Different autocratic regimes face varying constraints and incentives, thus influencing foreign economic policies. Indeed, the political environment and economic uncertainty vary with the degree of institutionalization surrounding the leader, and consequently its inner circle. In more institutionalized regimes, such as those with multiple political parties exercising a role in a legislature, autocratic leaders have less discretion and must rely on a broader coalition than other autocratic leaders in

Table B10: **Cox Proportional Hazards Estimates: Robustness to controlling for Judicial Independence**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.24**	-0.45**	-0.31**	-0.54**
	(0.07)	(0.10)	(0.12)	(0.15)
BITs signed × Polity2	0.04**	0.06**	0.04**	0.07**
	(0.01)	(0.01)	(0.02)	(0.02)
Polity2	0.09**	0.07**	0.04*	0.02
	(0.01)	(0.02)	(0.02)	(0.02)
Latent Judicial Independence	-1.90**	-1.41**	-1.67**	-1.15*
	(0.41)	(0.53)	(0.41)	(0.52)
GDPpc (Ln)		0.01		0.02
		(0.10)		(0.10)
Growth (% of GDP)		-0.03**		-0.03**
		(0.01)		(0.01)
Trade (% of GDP)		0.00		0.00
		(0.00)		(0.00)
Population (Ln)		-0.04		-0.06
		(0.08)		(0.08)
Oil and Gas Prod. (Ln)		0.00		0.01
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.25		0.24
		(0.17)		(0.17)
Foreign Aid (Ln)		-0.05		-0.03
		(0.06)		(0.06)
BITs signed (country,$l-1$) (Ln)		-0.15*		-0.13*
		(0.06)		(0.06)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.01
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs signed × Polity2			-0.00	-0.00
			(0.00)	(0.00)
Observations	3,130	2,279	3,130	2,279
Countries	63	57	63	57
# of subjects	530	421	530	421
# of failures	466	360	466	360
Frailty parameter	0.23	0.28	0.21	0.22

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B11: **Cox Proportional Hazards Estimates: Robustness to Judicial Independence as moderator**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.54**	-1.00**	-0.80**	-1.36**
	(0.11)	(0.16)	(0.17)	(0.24)
BITs signed × Latent Judicial Independence	1.04**	1.72**	1.29**	2.22**
	(0.21)	(0.28)	(0.31)	(0.42)
Latent Judicial Independence	-0.09	-2.69**	-0.15	-2.78**
	(0.28)	(0.56)	(0.35)	(0.65)
Polity2		0.11**		0.11**
		(0.02)		(0.02)
GDPpc (Ln)		0.00		-0.01
		(0.10)		(0.10)
Growth (% of GDP)		-0.03**		-0.03**
		(0.01)		(0.01)
Trade (% of GDP)		0.00		0.00
		(0.00)		(0.00)
Population (Ln)		-0.05		-0.05
		(0.08)		(0.08)
Oil and Gas Prod. (Ln)		0.01		0.01
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.23		0.22
		(0.17)		(0.17)
Foreign Aid (Ln)		-0.03		-0.04
		(0.06)		(0.06)
BITs signed (country, $l-1$) (Ln)		-0.16**		-0.16**
		(0.06)		(0.06)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.02	0.03*
			(0.01)	(0.02)
BITs signed × Latent Judicial Independence			-0.01	-0.05
			(0.03)	(0.05)
Latent Judicial Independence			0.00	0.01
			(0.06)	(0.08)
Observations	3,171	2,279	3,171	2,279
Countries	63	57	63	57
# of subjects	539	421	539	421
# of failures	478	360	478	360
Frailty parameter	0.28	0.27	0.29	0.25

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B12: **Cox Proportional Hazards Estimates: Robustness to controlling for Investor Claims**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.26**	-0.35**	-0.35**	-0.46**
	(0.05)	(0.06)	(0.08)	(0.10)
BITs signed × Polity2	0.03**	0.04**	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.05**	0.04**	0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Investor claims (leader tenure)	-0.01	0.16	-0.03	0.03
	(0.13)	(0.16)	(0.14)	(0.16)
GDPpc (Ln)		0.04		0.09
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.08		0.06
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.03		0.01
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.04		-0.03
		(0.04)		(0.04)
BITs signed (country, $l-1$) (Ln)		-0.03		0.02
		(0.04)		(0.05)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.01	0.01
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs signed × Polity2			-0.00	-0.00
			(0.00)	(0.00)
Observations	6,479	4,869	6,479	4,869
Countries	137	127	137	127
# of subjects	1,078	883	1,078	883
# of failures	934	743	934	743
Frailty parameter	0.25	0.26	0.31	0.31

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B13: **Cox Proportional Hazards Estimates – Robustness to leaders with no ISDS claims**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.12*	-0.26**	-0.15	-0.35**
	(0.05)	(0.07)	(0.08)	(0.10)
BITs signed × Polity2	0.03**	0.04**	0.03**	0.03*
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.03**	0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.01		0.05
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.07		0.05
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		0.00		0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.08		0.06
		(0.13)		(0.13)
Foreign Aid (Ln)		-0.03		-0.03
		(0.04)		(0.04)
BITs signed (country,$l-1$) (Ln)		0.04		0.08
		(0.05)		(0.05)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			-0.00	0.01
			(0.01)	(0.02)
BITs signed × Polity2			-0.00	0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	6,166	4,274	6,166	4,274
Countries	141	129	141	129
# of subjects	1,061	809	1,061	809
# of failures	937	703	937	703
Frailty parameter	0.20	0.22	0.28	0.28

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B14: **Cox Proportional Hazards Estimates – Robustness to ISDS claims**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.27**	-0.36**	-0.35**	-0.45**
	(0.05)	(0.07)	(0.09)	(0.10)
BITs signed × Polity2	0.03**	0.04**	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.05**	0.04**	0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Investor claims (leader tenure)	-0.39	-0.26	-0.32	-0.29
	(0.47)	(0.49)	(0.49)	(0.51)
BITs signed × ISDS claims	0.19	0.18	0.12	0.08
	(0.19)	(0.19)	(0.20)	(0.21)
Polity2 × ISDS claims	0.03	0.06	0.01	0.05
	(0.06)	(0.07)	(0.08)	(0.08)
BITs signed × Polity2 × ISDS claims	-0.01	-0.02	-0.02	-0.01
	(0.03)	(0.03)	(0.04)	(0.04)
GDPpc (Ln)		0.04		0.09
		(0.06)		(0.07)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.08		0.06
		(0.06)		(0.06)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.03		0.01
		(0.11)		(0.11)
Foreign Aid (Ln)		-0.04		-0.03
		(0.04)		(0.04)
BITs signed (country, $l-1$) (Ln)		-0.03		0.02
		(0.04)		(0.05)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.01	0.01
			(0.01)	(0.01)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
BITs signed × Polity2			-0.00	0.00
			(0.00)	(0.00)
BITs signed × ISDS claims			0.01	0.01
			(0.01)	(0.01)
BITs signed × Polity2 × ISDS claims			-0.00	-0.00
			(0.00)	(0.00)
Observations	6,479	4,869	6,479	4,869
Countries	137	127	137	127
# of subjects	1,078	883	1,078	883
# of failures	934	743	934	743
Frailty parameter	0.25	0.25	0.31	0.30

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B15: **Cox Proportional Hazards Estimates – Robustness to multiple imputation**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.22**	-0.21**	-0.28**	-0.27**
	(0.04)	(0.05)	(0.08)	(0.08)
BITs signed × Polity2	0.03**	0.03**	0.03**	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.04**	0.04**	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.01		0.03
		(0.04)		(0.05)
Growth (% of GDP)		-0.03**		-0.03**
		(0.00)		(0.00)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.03		0.03
		(0.04)		(0.05)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.03		0.03
		(0.09)		(0.09)
Foreign Aid (Ln)		0.03		0.03
		(0.03)		(0.03)
BITs signed (country, $l-1$) (Ln)		-0.06*		-0.03
		(0.03)		(0.03)
Time-interacted variables				
BITs signed (leader tenure) (Ln)			0.00	0.00
			(0.01)	(0.01)
BITs signed × Polity2			-0.00	-0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	7,456	7,456	7,456	7,456
Countries	143	143	143	143
# of subjects	1,207	1,207	1,207	1,207
# of failures	1,063	1,063	1,063	1,063

Models 3 and 4 include variables interacted with the natural logarithm of time in office.
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table B16: **Parametric Weibull Regressions**

	Full Sample		Matched Sample	
	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.11**	-0.20**	-0.10	-0.22**
	(0.04)	(0.06)	(0.06)	(0.07)
BITs signed × Polity2	0.02**	0.03**	0.02*	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	-0.01	-0.02	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.05		0.01
		(0.05)		(0.06)
Growth (% of GDP)		-0.04**		-0.03*
		(0.00)		(0.01)
Trade (% of GDP)		-0.00*		-0.00
		(0.00)		(0.00)
Population (Ln)		0.03		0.04
		(0.05)		(0.06)
Oil and Gas Prod. (Ln)		0.00		0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.13		0.10
		(0.10)		(0.12)
Foreign Aid (Ln)		0.01		-0.01
		(0.04)		(0.05)
BITs signed (country, $l-1$) (Ln)		-0.04		0.01
		(0.04)		(0.04)
Constant	-1.21**	-1.83	-1.43**	-1.83
	(0.08)	(1.11)	(0.12)	(1.32)
Ancillary parameter				
Polity2	0.03**	0.03**	0.03**	0.03**
	(0.00)	(0.01)	(0.01)	(0.01)
Constant	-0.26**	-0.19**	-0.23**	-0.18**
	(0.03)	(0.04)	(0.05)	(0.05)
Observations	7,145	5,083	4,610	4,122
Countries	143	132	129	126
# of subjects	1,179	921	735	695
# of failures	1,028	776	630	578

Clustered standard errors at the country level in parentheses. * $p < 0.05$, ** $p < 0.01$

more personalistic regimes, where those (potential) checks are absent.

We have argued above that democracies, by virtue of the larger and more dispersed support coalition, are more likely to see property rights protected. There is also variation in the size of the underlying support coalition across autocratic types. As a further robustness test of our argument, we explore whether those autocrats in more institutionalized regimes will see smaller gains from BIT signings, and whether more personalization autocrats leaders, who are the arguably least credible, experience the greatest benefit from BITs in terms of survival.

To operationalize the institutionalization level of autocratic leaders we rely on the *de facto* existence of political parties. Institutionalized autocratic leaders are characterized by a larger core of supporters and the presence of multiple political parties, and we predict that among autocratic types, the survival benefits of BITs is smallest for these institutionalized leaders. In contrast, personalistic regimes are characterized by small inner circles and core support bases, and the complete absence of political parties; there are few constraints to expropriation. Survival however relies on the continued and repeated care and feeding of the core support base, and expropriation cuts off the resources necessary to reward those supporters (investment dries up). These autocratic variants are in the direst need of credible commitments to protect property rights; leaders in personalistic autocracies, we predict, have the most to gain in terms of survival by signing BITs.

Hypothesis 1 (Regime Type: Across Autocratic Types)**.** *The effect on leader survival of BIT signing will be greater among more personalistic autocratic leaders than among more institutionalized autocratic leaders.*

To proxy for the degree of institutionalization we rely on the *de facto* existence of political parties, drawn from the Democracy and Dictatorship dataset. As before, results from survival analysis strongly support our arguments. Using different proxies such as *de jure* status of political parties, parties within the legislature, or the status of the legislature itself provide similar results.

To analyze our hypotheses about different autocratic regime types, we re-estimate a Cox proportional hazards model from the previous section but restrict our attention to non-democratic regimes.[24] Instead of focusing on the level of democracy, we focus on the moderating role of the

[24]Specifically, we restrict our sample to cases where *Polity2* is lower than 5. Nonetheless, we get similar results on

degree of institutionalization of the regime. To do so, we construct two variables. Our first measure of *Institutionalization* ranges from 0 to 2, 0 being the case where there are de facto no political parties, 1 where there exist one party, and 2 where multiple parties exist. For robustness, we use a second measure, *Institutionalization dummy*, which takes the value of 1 where there exists at least one party, and 0 where there are no parties.

As before, the main estimand of interest corresponds to the interaction of the institutionalization and BITs variables. Here, personalistic regimes represent the baseline category (i.e., Institutionalization = 0), and thus, as before, we expect a negative coefficient on the BITs signed variable and a positive coefficient on the interaction term. Results are reported in Table B17.

The evidence follows our expectations. Signing BITs is negatively and significantly correlated with leader survival for personalistic leaders. In contrast, as the interaction terms show, BITs offer fewer gains to more institutionalized leaders.

2.3 Cox Frailty Model: Matching Estimates

Endogenous selection into BIT signings is likely to create an imbalance in covariates between "treated" leaders (signatories) and "non-treated" leaders (non-signatories). Regression methods can address this imbalance only under restrictive assumptions regarding the functional form of the selection process. Matching relaxes these functional form assumptions.

The logic behind propensity score matching is straightforward. It pairs units that enter into the so called 'treatment condition' – in our case, BIT signing – with similar units that remain in the so-called 'control' condition. This process is done in two steps. First, the probability that a given unit enters into treatment is estimated. Then, treated and control units are matched according to these estimated probabilities. While there has been a burgeoning literature on matching algorithms, research on panel matching techniques is still in its early stages. The key complication is that we need to match on leaders (a single country for multiple years - time series), not leader-years (individual observations). To address this, we follow the approaches taken by Simmons and Hopkins (2005) and Hollyer and Rosendorff (2012). For any given leader l who did not sign a BIT, we take

the full sample, or using different cutoffs.

Table B17: **Cox Proportional Hazards Estimates: Leader Survival & Institutionalized Politics in Non-Democratic Regimes**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.51**	-0.82**	-0.62**	-1.13**
	(0.18)	(0.25)	(0.21)	(0.31)
BITs signed × Institutionalization	0.19	0.30*		
	(0.11)	(0.14)		
BITs signed × Institutionalization Dummy			0.49*	0.91**
			(0.23)	(0.32)
Institutionalization	0.10	0.02		
	(0.08)	(0.11)		
Institutionalization dummy			-0.13	-0.22
			(0.16)	(0.20)
Polity2		-0.01		-0.00
		(0.02)		(0.02)
GDPpc (Ln)		0.12		0.12
		(0.09)		(0.09)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.01*		-0.01*
		(0.00)		(0.00)
Population (Ln)		-0.01		-0.00
		(0.08)		(0.08)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.10		0.02
		(0.26)		(0.26)
Foreign Aid (Ln)		-0.02		-0.02
		(0.06)		(0.06)
BITs signed (country, $l-1$) (Ln)		-0.11		-0.12
		(0.09)		(0.09)
Time-interacted regressors				
Institutionalization	-0.02*	-0.07**		
	(0.01)	(0.01)		
Institutionalization dummy			-0.07**	-0.14**
			(0.02)	(0.03)
Polity2		0.02**		0.02**
		(0.00)		(0.00)
Observations	4,328	2,975	4,328	2,975
Countries	119	105	119	105
# of subjects	653	494	653	494
# of failures	506	366	506	366
Frailty parameter	0.30	0.24	0.41	0.27

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$

the mean of our set of covariates for every period under observation. For all leaders who signed a BIT in a given year t, we take the mean of the set of covariates for all years prior to t. Hence, the unit of analysis in this new data is the leader – and not leader-year. We then implement our

matching strategy, to later 'decompress' our matched data, into the leader-year format once again.

To create our matched data set, we employ a nearest-neighbor matching algorithm with a caliper of .5 standard deviations, and without replacement. The full final matched data contains 369 BIT signatories that are paired with 369 non-signatories. Below we show additional details about the improvement in covariate balance and other diagnostics.

Results for this new data are reported in Table B18. The information in Models 1 through 4 is analog to the corresponding Models 1–4 in Table 1.

The result of these matched estimations in all models follows closely the evidence from the unmatched estimates. As expected, BIT signing is associated with a lower risk of removal from office, and this effect decreases over time in office. Furthermore, the interaction between BITs and democracy is always positive. As before, instead of relying simply on the estimated coefficients, we estimate the hazard rates for the set of covariates of interest. Estimates from Model 2 are presented graphically in Figure B2.

Again we estimate the hazard for democratic and autocratic leaders, for different cases of BIT signing. Again, the evidence strongly supports our theory. While BIT signing is associated with a lower risk of removal from office, this benefit is only accrued by autocratic leaders.

We also present propensity score matching estimates for the non-democratic regimes analysis (i.e., analyzing the level of personalism and institutionalization of non-democratic leaders). Here, we follow a similar procedure as delineated before, but instead of matching on the mean of democracy variable, we matched on the median of our institutionalization dummy.[25] Results for these estimations are reported in the Table B19. The estimation using the matched data follows closely the evidence from the full data. As expected, the interaction between BITs and non-democratic institutionalization is positive.

2.4 Instrumental Variable Estimates

We implement an instrumental variable probit model, which estimates two equations simultaneously via maximum likelihood: first, a selection equation estimates a leader's likelihood of signing a BIT

[25] Results do not change if we matched on *Polity2* as in the previous section.

Table B18: **Cox Frailty Proportional Hazards Estimates: Leader Survival – Matched Data**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.26**	-0.40**	-0.28**	-0.44**
	(0.06)	(0.07)	(0.10)	(0.11)
BITs signed × Polity2	0.04**	0.05**	0.04**	0.05**
	(0.01)	(0.01)	(0.01)	(0.01)
Polity2	0.05**	0.04**	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (Ln)		0.03		0.06
		(0.07)		(0.08)
Growth (% of GDP)		-0.04**		-0.04**
		(0.01)		(0.01)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.12		0.10
		(0.07)		(0.07)
Oil and Gas Prod. (Ln)		-0.00		-0.00
		(0.01)		(0.01)
PTAs signed (leader tenure)		0.06		0.04
		(0.12)		(0.12)
Foreign Aid (Ln)		-0.07		-0.07
		(0.05)		(0.05)
BITs signed (country, $l-1$) (Ln)		0.01		0.03
		(0.04)		(0.04)
Time-interacted variables				
BITs signed			0.00	0.00
			(0.01)	(0.01)
BITs signed × Polity2			-0.00	-0.00
			(0.00)	(0.00)
Polity2			0.01**	0.01**
			(0.00)	(0.00)
Observations	4,610	4,122	4,610	4,122
Countries	129	126	129	126
# of subjects	735	695	735	695
# of failures	630	578	630	578
Frailty parameter	0.32	0.30	0.35	0.34

Models 3 and 4 include variables interacted with the natural logarithm of time in office. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

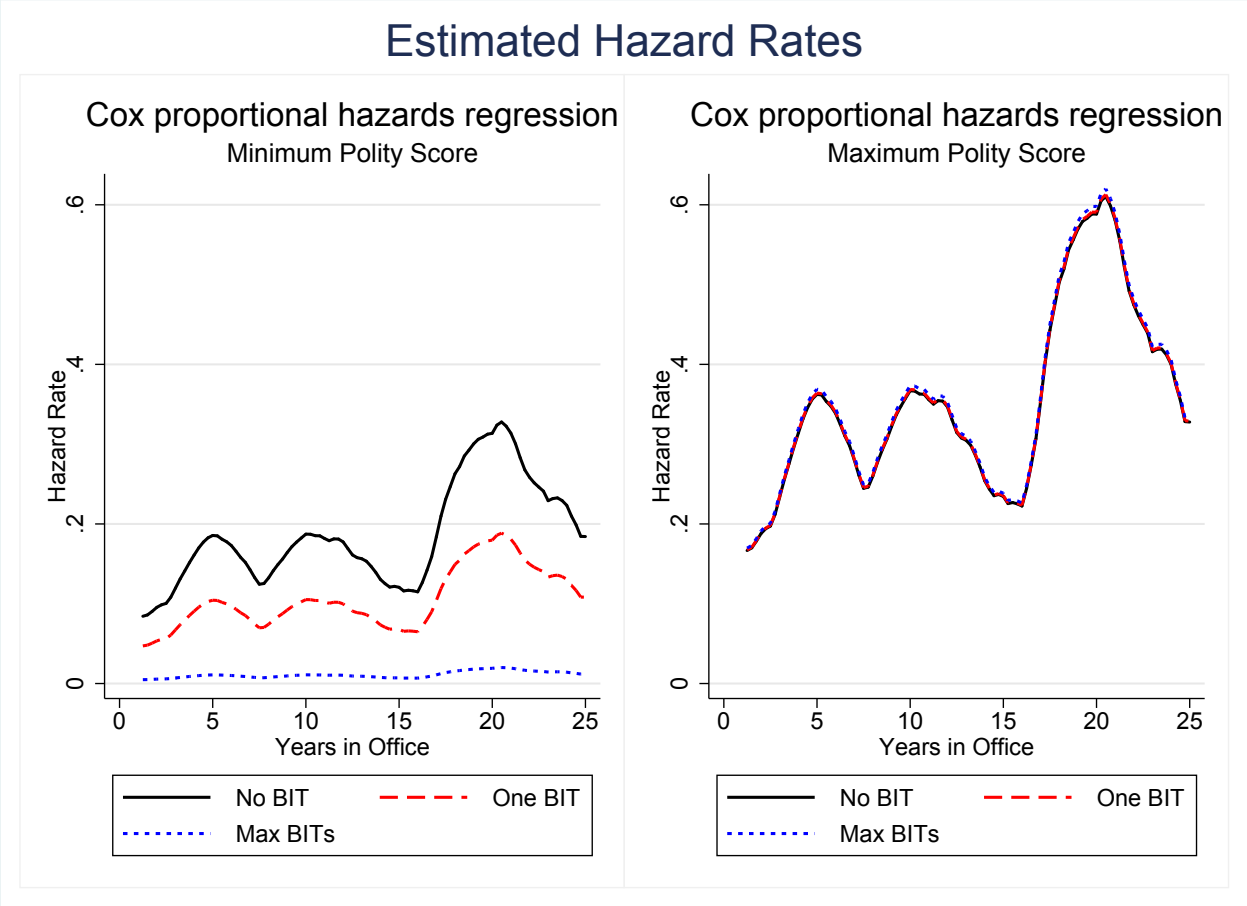

Figure B2: Estimated Leader Failure Rates by Year for Different Levels of BITs Signed (Ln) - Matched sample

Table B19: **Cox Proportional Hazards Estimates: Leader Survival & Institutionalized Politics in Non-Democratic Regimes – Matched Data**

	(1)	(2)	(3)	(4)
BITs signed (leader tenure) (Ln)	-0.79*	-1.13**	-1.54**	-1.83**
	(0.31)	(0.35)	(0.48)	(0.50)
BITs signed × Institutionalization	0.37*	0.41*		
	(0.17)	(0.19)		
BITs signed × Institutionalization dummy			1.53**	1.52**
			(0.49)	(0.51)
Institutionalization	0.11	0.06		
	(0.12)	(0.15)		
Institutionalization dummy			-0.10	-0.18
			(0.24)	(0.27)
Polity2		-0.02		-0.01
		(0.03)		(0.03)
GDPpc (Ln)		0.08		0.10
		(0.13)		(0.14)
Growth (% of GDP)		-0.04*		-0.04*
		(0.02)		(0.02)
Trade (% of GDP)		-0.00		-0.00
		(0.00)		(0.00)
Population (Ln)		0.04		0.06
		(0.11)		(0.12)
Oil and Gas Prod. (Ln)		-0.01		-0.02
		(0.02)		(0.02)
PTAs signed (leader tenure)		0.31		0.33
		(0.35)		(0.35)
Foreign Aid (Ln)		-0.06		-0.05
		(0.09)		(0.09)
BITs signed (country, $l-1$) (Ln)		0.09		0.08
		(0.12)		(0.12)
Time-interacted variables				
Institutionalization	-0.04*	-0.08**		
	(0.02)	(0.02)		
Institutionalization dummy			-0.14**	-0.17**
			(0.04)	(0.04)
Polity2		0.02**		0.02**
		(0.00)		(0.00)
Observations	2,422	2,120	2,422	2,120
Countries	100	96	100	96
# of subjects	353	332	353	332
# of failures	240	224	240	224
Frailty parameter	0.80	0.68	1.07	0.77

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$

for any given leader-year, and then, the outcome equation estimates the effect of BIT signing on the probability that the leader is removed from office.[26]

To do so, we borrow from the extant literature. **?** uses the number of UNESCO World Heritage sites as an instrument for the effects of EU accession on spreads on government bonds. Following Rosendorff and Shin (2012) we use the cumulative number of non-economic UNESCO conventions the leader is party to instrument for BIT accession.[27]

The unit of analysis remains leader-year. The outcome variable is an indicator of whether the leader was removed from office that year, or not. To account for time-dependence, we include cubic polynomial of the years the leader has been in office. The key variable of interest is *BITs signed* which is (the log of) the number of BITs signed between the time a given leader takes office and year t. In the selection equation, the main variable is the logarithm of the cumulative number of UNESCO conventions a leader has signed over her tenure. The economic controls are the same from the main analysis. We include both region and year fixed effects, and cluster the standard errors at the leader level.

Results are presented in Table B20. The first two columns display the estimation for Autocracies, while the last two do so for Democracies. Evidence from the selection equation is consistent with the literature finding that UNESCO conventions predict BIT signings. The outcome equation provides support for our arguments. BIT signings have a strong and negative effect on leader failure – i.e., increase leader survival – of autocratic leaders. On the other hand, BIT signing has no discernible effect on the survival of democratic leaders.

[26]Similar to other types of selection models, the estimate ρ represents the correlation between the error terms of the two equations, effectively accounting for selection, and facilitating the unbiased estimations of the effect of BITs on leader survival.

[27]The UNESCO reports the list of conventions each state is party to and their date of signing and ratification. These include, for instance, The Protocol to the Convention for the Protection of Cultural Property in the Event of Armed Conflict, and Convention on Wetlands of International Importance Especially as Waterfowl Habitat. A full list can be found in Table B21.

Table B20: **IV Probit Estimates**

	Autocracies		Democracies	
	(1)	(2)	(3)	(4)
Outcome Equation				
BITs signed (leader tenure) (Ln)	-1.10**	-1.11**	-0.13	-0.28
	(0.30)	(0.36)	(0.20)	(0.22)
GDPpc (Ln)	0.22*	0.21	0.01	0.03
	(0.11)	(0.12)	(0.06)	(0.06)
Growth (% of GDP)	-0.02**	-0.03**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)
Trade (% of GDP)	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Population (Ln)	0.06	0.04	0.06	0.06
	(0.07)	(0.07)	(0.06)	(0.05)
Oil and Gas Prod. (Ln)	0.00	0.01	-0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
PTAs signed (leader tenure)	1.12**	0.63	-0.15	-0.18
	(0.40)	(0.36)	(0.11)	(0.10)
Foreign Aid (Ln)	0.03	0.07	0.02	0.04
	(0.06)	(0.07)	(0.04)	(0.04)
BITs signed (country, $l-1$) (Ln)	0.13	-0.04	0.03	0.06
	(0.10)	(0.09)	(0.04)	(0.05)
Cubic time pol.	✓	✓	✓	✓
Region FE	✓	✓	✓	✓
Year FE		✓		✓
Selection Equation				
UNESCO Sign (Ln)	0.17*	0.16*	0.30**	0.27**
	(0.07)	(0.07)	(0.08)	(0.07)
GDPpc (Ln)	0.17*	0.17*	0.11*	0.14**
	(0.08)	(0.08)	(0.05)	(0.05)
Growth (% of GDP)	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Trade (% of GDP)	-0.00	-0.00*	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Population (Ln)	0.03	0.03	0.12**	0.08
	(0.05)	(0.04)	(0.05)	(0.04)
Oil and Gas Prod. (Ln)	0.00	0.00	-0.01	-0.00
	(0.01)	(0.01)	(0.00)	(0.00)
PTAs signed (leader tenure)	1.06**	0.72**	0.41**	0.29**
	(0.15)	(0.14)	(0.10)	(0.09)
Foreign Aid (Ln)	0.05	0.08**	0.02	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
BITs signed (country, $l-1$) (Ln)	0.20**	0.07	0.14**	0.02
	(0.05)	(0.06)	(0.03)	(0.04)
Cubic time pol.	✓	✓	✓	✓
Region FE	✓	✓	✓	✓
Year FE		✓		✓
ρ	0.82*	0.68*	0.03	0.07
	(0.35)	(0.34)	(0.14)	(0.15)
Observations	2,014	1,931	2,051	1,993
Clusters	317	317	534	534
Log-Likelihood	-2,544.37	-2,272.64	-3,210.83	-2,931.77

Robust standard errors clustered at the leader level in parentheses.
Autocracies: *polity2* score ≤ -5. Democracies: *polity2* score ≥ 5.
* $p < 0.05$, ** $p < 0.01$

Table B21: UNESCO Conventions, by Year

Conventions	Year
Revised Convention on the Recognition of Studies, Certificates, Diplomas, Degrees and Other Academic Qualifications in Higher Education in African States	2014
Asia-Pacific Regional Convention on the Recognition of Qualifications in Higher Education	2011
Convention on the Protection and Promotion of the Diversity of Cultural Expressions	2005
International Convention against Doping in Sport	2005
Convention for the Safeguarding of the Intangible Cultural Heritage	2003
Convention on the Protection of the Underwater Cultural Heritage	2001
Convention on the Recognition of Qualifications concerning Higher Education in the European Region	1997
Convention on Technical and Vocational Education	1989
Regional Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in Asia and the Pacific	1983
Regional Convention on the Recognition of Studies, Certificates, Diplomas, Degrees and other Academic Qualifications in Higher Education in the African States	1981
Convention on the Recognition of Studies, Diplomas and Degrees concerning Higher Education in the States belonging to the Europe Region	1979
Multilateral Convention for the Avoidance of Double Taxation of Copyright Royalties, with model bilateral agreement and additional Protocol.	1979
Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in the Arab States	1978
Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in the Arab and European States Bordering on the Mediterranean	1976
Regional Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in Latin America and the Caribbean	1974
Convention relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite	1974
Convention concerning the Protection of the World Cultural and Natural Heritage	1972
Universal Copyright Convention as revised at Paris on 24 July 1971, with Appendix Declaration relating to Article XVII and Resolution concerning Article XI	1971
Convention on Wetlands of International Importance especially as Waterfowl Habitat	1971
Convention for the Protection of Producers of Phonograms against Unauthorized Duplication of their Phonograms	1971
Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property	1970
Protocol Instituting a Conciliation and Good offices Commission to be Responsible for Seeking the settlement of any Disputes which may Arise between States Parties to the Convention against Discrimination in Education.	1962
International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations	1961
Convention against Discrimination in Education	1960
Convention concerning the Exchange of Official Publications and Government Documents between States	1958
Convention concerning the International Exchange of Publications	1958
Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention	1954
Universal Copyright Convention, with Appendix Declaration relating to Articles XVII and Resolution concerning Article XI	1952
Agreement on the Importation of Educational, Scientific and Cultural Materials, with Annexes A to E and Protocol annexed	1950
Agreement For Facilitating the International Circulation of Visual and Auditory Materials of an Educational, Scientific and Cultural character with Protocol of Signature and model form of certificate provided for in Article IV of the above-mentioned Agreement	1948

Table B22: **Summary statistics: Credit Ratings & Economic Risks**

Variable	Mean	Std. Dev.	Min.	Max.	N
S&P Rating	6.308	3.879	0	16	1,111
Institutional Investor (II) Rating	31.516	17.445	4.05	91.5	2,215
Contract intensive money (CIM, %)	73.851	16.805	17.504	100	4,617
BITs signed (Ln)	0.261	0.515	0	2.89	6,300
Polity2	-1.09	6.927	-10	10	6,191
GDPpc (Ln)	7.213	1.251	3.913	11.314	5,218
GDP (Ln)	23.08	1.792	18.461	29.213	5,228
ISDS Claims	0.046	0.316	0	12	6,300
PTA (without Inv. clause)	0.063	0.292	0	5	6,300
Trade (% of GDP)	72.476	48.9	0.309	531.737	5,214