Protecting Property: The Politics of Redistribution, Expropriation, and Market Openness*

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Abstract

This paper develops a formal model to disentangle the competing political incentives for redistribution, expropriation, and market openness. Although redistribution and expropriation are both types of government extraction, redistribution reallocates wealth within the citizenry, while expropriation reallocates wealth from citizens to the government. Representative political institutions increase redistribution and reduce expropriation. Market openness changes these incentives, as foreign investors prefer reductions in both redistribution and expropriation. When political institutions are representative, the government will rely more on reducing expropriation, rather than limiting redistribution, to attract foreign investment. Under representative institutions then, openness partially reinforces the preferences of voters rather than undermining them. In addition, market liberalization occurs only when the policy changes needed to attract foreign investment are relatively small. If existing policies are satisfactory to foreign investors, moves toward openness may be accompanied by greater redistribution and expropriation, as governments are tempted by a larger base for extraction. Thus, openness has ambiguous effects on economic policy, at times encouraging and at times constraining extraction.

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Research in political economy seems to have reached a consensus that property rights increase investment and improve prospects for economic growth (North and Weingast 1989, Acemoglu et al. 2001). The rationale for property rights provision is more contentious, and many studies rely on historical factors like colonization or factor endowment to explain property rights policies (Sokoloff and Engerman 2000, La Porta et al. 2000). While these explanations emphasize the durability of property rights, policymakers nevertheless have a great deal of autonomy over property rights policies during their tenure.[1] What then explains the property rights policies that they choose?

Drawing on standard accounts in the literature, Drazen (2000) defines property rights as investors' "ability to retain ownership of the accumulated factor and especially the returns to the factor" (459). This paper contends that two types of property rights violations are often conflated in the literature. While they are both forms of government extraction, they have very different implications for citizens. First, redistribution entails taxation that is levied on asset returns and then redistributed in equal, lump-sum transfers to every member of the population (Meltzer and Richard 1981, Persson and Tabellini 1994). Redistribution could also capture costly regulation that reduces investment returns but provides a public benefit to society overall. This type of extraction for redistribution will simply be called *redistribution* here. Preferences for redistribution depend on whether an individual pays more in taxes than he receives from the transfer.

Second, the government may expropriate asset returns for its own private benefit. This expropriation may be direct, involving seizure of an investment (Vernon 1971), or it may be indirect, including through corruption, currency depreciation, discriminatory legal decisions, or the imposition of regulations that reduce profits (Wellhausen 2015, Graham et al. 2015). This type of extraction for government rents will be called *expropriation* here. Expropriation is limited in countries that encourage transparency and accountability, enforce rule of law, and extend legal rights to all citizens.[2] Preferences for expropriation are simple:

[1] Haber et al. (2003) examine the credibility of selective property rights commitments.

[2] This definition of expropriation accords well with the empirical literature on violations of property rights

Expropriation benefits the government and its supporters, as they use the associated rents to enrich themselves. Domestic and international investors are harmed by expropriation, as is the public more generally through its impact on investment, wages, and economic growth.

Once these property rights violations are differentiated, it follows that the interests of the domestic public diverge in subtle ways from the interests of international investors. The median voter benefits from redistribution, while international investors do not. Alternatively, both the public and international investors benefit from protections against expropriation. While the interests of both actors often find expression in policy, the extent to which they do so depends on political institutions.

Prior to drawing any conclusions about the relative impact of the public and investors on property rights policy, we must first identify the conditions when governments open their markets to foreign investors, which is itself a political choice. Financial openness determines how closely the domestic economy is tied to the global economy. More open countries have policies that facilitate the movement of investment across their borders. The decision to maintain a closed market is not without costs, as foreign investment entry increases the capital invested in the country with associated increases in wages.

By accounting for the political incentives created by voters and by rent seeking, the paper identifies two contexts when the government will open the domestic market to foreign investment: First, when economic policies in the country are already sufficiently attractive to foreign investors that openness will trigger investment inflows, the government will open the market. In this case, openness will not necessarily reduce redistribution or expropriation, as many scholars maintain (Przeworski and Wallerstein 1988, Rudra 2008). Under these conditions, investment entry may increase property rights violations – of both types – because there is more revenue subject to government extraction.

Second, the government will open the market when the benefits of foreign investment entry overwhelm the costs of policy change. This is likely to hold when the policy reforms

(Barro 1991, North and Weingast 1989, North 1990, Acemoglu et al. 2001, Besley and Ghatak 2009).

needed to attract foreign investment are small and when the amount of international capital available for entry is substantial. If however the changes needed to attract foreign investment are too costly, then the government will maintain a closed market alongside its existing level of property rights protection, which is determined solely based on the interests and influence of domestic actors.

It is only in this second case where the government must make reforms to attract foreign investment that investors impose constraints on economic policy. Furthermore, because the government designs these reforms, the content of the reforms will depend on domestic political institutions. When institutions are representative and thus responsive to the interests of the median voter, the government will favor reductions in expropriation, over reductions in redistribution, to attract international investment. Under representative institutions then, the influence of international investors at least partially reinforces the interests of domestic citizens. Alternatively, when institutions are not representative, the government will favor reductions in redistribution, over reductions in expropriation, to meet the requirements of international investors. Under unrepresentative institutions therefore, the influence of international investors reinforces the policy choices of an already unrepresentative government.

The next section situates this paper in the broader literature. The following section presents a formal model that illustrates the domestic political incentives for expropriation and redistribution. The model is then extended to account for the interaction between expropriation, redistribution, and financial openness. The paper concludes with a set of illustrative anecdotes and thoughts for future work.

1 Literature

Although property rights are often discussed under the general definition of asset protection referenced above (Drazen 2000, 451), many scholars emphasize either redistribution (Adserá and Boix 2002, Boix 2003, Franzese and Hays 2008) or expropriation (Bates and Lien 1985,

North and Weingast 1989, Li and Resnick 2003). Conflating the policies or examining them individually makes it impossible to distinguish political incentives for each type of property rights violation; this is problematic when the median voter wants more redistribution and less expropriation, while international investors seek reductions in both policies.

To the extent that redistribution and expropriation are discussed, it is frequently assumed that they are the same.[3] However, many countries have high redistribution and low expropriation, or they have little redistribution and substantial expropriation. This relationship is observable in time-series, cross-sectional data. Figure 1 displays common measures of tax revenue and expropriation. The left panel plots the Political Risk Services Group's quality of governance indicator (PRS Group 2015), a common measure of protection against expropriation, against the World Bank's data on tax revenue as a percent of GDP (World Bank 2016) for 121 countries from 1990 to 2012. Governance quality is the mean of each country's scores on indicators for corruption, law and order, and bureaucratic quality – these indicators capture multiple facets of expropriation, including protection against corruption, the quality of contract enforcement, and access to legal redress. The revenue variable documents official state revenue, which entails some accountability as it is widely reported and thus harder to divert to government rents.[4] The figure also includes a linear fit to display the association between the policies. The line slopes upward, representing the positive correlation between quality of governance and tax revenue. This is consistent with a negative association between expropriation and redistributive taxation.

Because limitations on expropriation and the effectiveness of tax collection may be related to state capacity, one might think that the positive correlation between quality of governance and revenue is caused by economic development. The right panel plots the quality of governance indicator against tax revenue with the effect of GDP per capita netted out

[3]In Persson and Tabellini (1994), θ may be "interpreted as a proportional capital income tax" or it could "represent regulatory policy such as 'patent legislation' or 'protection of property rights' so that θ becomes an index of how well an individual can privately appropriate the returns on his investment" (602).

[4]Note that although expropriation could theoretically occur through taxation, it is often done informally and excluded from official accounts of government revenue.

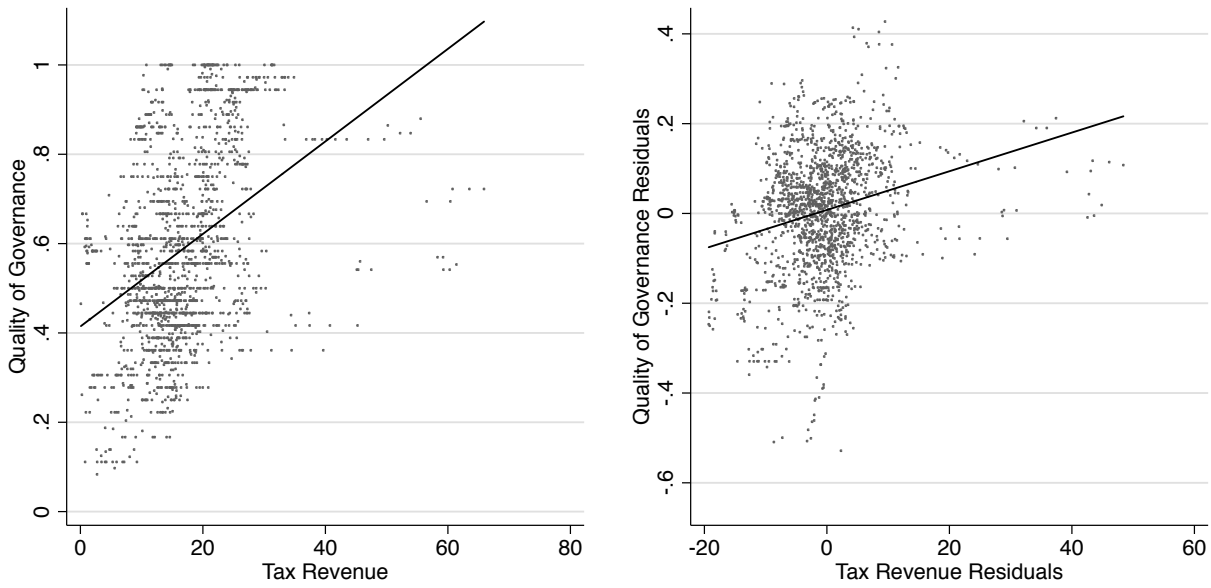


Figure 1: Quality of Governance and Tax Revenue

of both variables.[5] Once GDP is accounted for, a substantial amount of variation remains in the two policies. Indeed, if these policies are systematically related, the linear fit in the second graph presents a positive association between revenue and governance quality. This would again indicate a negative association between redistribution and expropriation.

In one of the few works that explicitly differentiates between expropriation and redistribution, Besley and Persson (2009) examine the political motivation for investing in 'legal' and 'fiscal capacity.' In contrast to previous work but consistent with the argument here, they find that both types of capacity increase in wealth, the demand for public goods, and the representativeness of political institutions. Only as the greater economic power of the ruling group increases do the incentives to invest in legal and fiscal capacity begin to diverge; legal capacity increases, while fiscal capacity decreases. In their model, the ruling group benefits from legal capacity, because legal capacity improves its ability to engage in market transactions. Besley and Persson (2009) exclude from their analysis one of the main downsides to developing property rights: legal recourse limits the government's ability to

[5] I first regress each variable on GDP per capita and then plot the residuals from both regressions. Thus, the plot captures the part of quality of governance and tax revenue that is not explained by GDP per capita.

expropriate. This paper begins with the observation that legal rights limit expropriation and proceeds to explore the varied political incentives for redistribution and expropriation.

If the ruling group is able to benefit itself and its supporters through expropriation, the moral hazard associated with these violations may outweigh the market benefits of strong legal rights. Consistent with this interpretation of legal rights, Acemoglu (2005) investigates contract enforcement and the tradeoff it poses for government expropriation and the functioning of the economy. He does not investigate the incentives for redistributive taxation. The contribution of this paper is at the nexus of these studies, emphasizing the political tradeoffs between government rents, citizen transfers, openness, and economic growth.

A number of works consider taxation in a way that speaks to both redistribution and expropriation. Perhaps most importantly are the seminal models of taxation and institutional change (Bates and Lien 1985, North and Weingast 1989, North 1990, Olson 1991, Ansell and Samuels 2010, 2014). According to these authors, democratization develops when the government relies on taxation as a revenue source, and asset owners are able to withhold their wealth from taxation. Under these conditions, asset owners demand political representation in exchange for their tax revenue. As the asset owners claim more political power, they are able to shift policy toward their own goals, which may mean an increase in public good provision, including goods like redistribution and protection from expropriation. Like Besley and Persson (2009), these models ignore that the economic elite in many authoritarian countries benefit directly from preferential government policies, which reduce or even eliminate any theoretical difference between government rents and elite returns (Pond 2017a).

While important from the perspective of domestic politics, property rights also have implications for development and financial liberalization. There is evidence that openness only produces investment inflows when economic policies, including contract enforcement and taxation, are attractive to foreign investors (e.g., Bekaert et al. 2005, Chinn and Ito 2006, Henry 2007, Prasad et al. 2007, Broner and Ventura 2010). Investors fear that the imposition of high taxes, often associated with populist pressure (Albornoz et al. 2012), or

expropriation (Vernon 1971, Jensen 2003, Li and Resnick 2003) will reduce the profitability of their investments and they then refrain from making investments in insecure markets. While acknowledging that both expropriation and redistribution are unattractive to foreign investors, this literature likewise investigates the two policies separately.

Due to pressure from investors then, policymakers may reform policy to make their country a more attractive destination for foreign investment. Theories of tax competition expect reduced taxation and spending under open markets: Once markets are open, policymakers compete with tax policies in other countries in order to attract and retain investment (Przeworski and Wallerstein 1988, Oatley 1999, Rudra 2008, Franzese and Hays 2008, Gallagher 2015).[6] Through competition for capital, openness pits the interests of citizens against the interests of international investors. Alternatively, theories of embedded liberalism anticipate increased social spending under openness, as policymakers use spending to sustain support for liberal economic policies (Ruggie 1982, Keohane 1984, Rodrik 1998, Hays 2009, Morrison 2016). Through embedded liberalism, openness is expected to benefit the public. In sum, some scholars expect openness to be accompanied by reduced spending while others anticipate a larger social safety net.

These considerations are further complicated by the fact that openness itself is the result of numerous policy decisions, for example about currency convertibility or the taxation or outright prohibition of financial flows (Quinn and Inclán 1997, Chinn and Ito 2006). Thus, openness is closely related to domestic policy, but scholars seldom consider the joint selection of international and domestic economic policies. Adserá and Boix (2002) and Rudra and Haggard (2005) provide notable exceptions; they argue that policymakers in democratic countries are more likely to provide the compensation associated with openness under embedded liberalism than their autocratic counterparts. They focus primarily on trade policy, and their analyses exclude concerns about tax competition, which is often associated

[6] Although some argue that policymakers have lost all policy autonomy (Cerny 1997), many see 'room to move' in how and when policymakers respond to pressure from firms (Garrett and Lange 1999, Mosley 2000, Basinger and Hallerberg 2004).

with financial openness. Because trade and financial openness have similar implications for factor returns (Frieden 1991) and often go hand in hand,[7] it is important to account for both tax competition and embedded liberalism. Their analyses also do not consider protection against expropriation. This is particularly important if limits on expropriation can be used as a concession to foreign investors, making reductions in redistribution less pronounced.

In sum, with a few notable exceptions, ideas about redistribution, expropriation, and openness have developed from different theoretical foundations, which often consider one or at most two of the policies simultaneously. Fundamentally, redistribution is concerned with how much revenue the government raises and how that revenue is distributed, while contract enforcement affects the government's ability to expropriate for its own benefit. Financial openness determines the ease with which investors can enter the market, which impacts how much influence they have on domestic policy. All three policies play a central role in attracting and deflecting foreign investment. This paper examines the connections between openness and property rights policies, exploring how the interests of domestic citizens and international investors interact under different political institutions.

2 Formal Model

The following formal model builds on Persson and Tabellini's model of taxation, inequality, and economic growth (1994).[8] Although the model presented here shares many characteristics with the seminal model, a number of important departures broaden the interest of the model for a political science audience.

First, in the model here, the government may manipulate not only redistribution, but also expropriation. Consistent with the discussion above, redistribution transfers income

[7] Trade openness will require financial liberalization to free up payments, ensure convertibility, and prevent imbalances due to surpluses or deficits. Some countries do liberalize the current account without liberalizing the capital account, but it is rare, and many measures of capital account openness include current account policy as a sub-indicator.

[8] The model follows Persson and Tabellini (1994) closely but uses the notation from Drazen (2000). The model was the first to formally show that if inequality increases redistribution and redistribution reduces investment in future consumption, then, by this mechanism, inequality reduces growth.

within the public – from citizens with above-average income to those with below-average income – while expropriation transfers income from the public to government actors. Thus, while both are extractive policies and are often thought of as violations of property rights, they have very different ramifications for the public and for the median voter in particular. As long as the median voter has less than average income, he prefers greater redistribution. In contrast, he always prefers less expropriation.

Second, unlike in Persson and Tabellini (1994), the model here does not assume that the government automatically implements the preferences of the median voter. Rather, the government values both the median voter's utility and the rents that the government receives from expropriation.[9] As institutions become more representative, the government weighs the median voter's preferences more highly. When institutions are less representative, the government favors rents for its own enrichment (Levi 1988). The weighted sum of median voter and interest group utility is frequently employed in political economy models (Grossman and Helpman 1994), and it is generally recognized that the median voter is more important under democratic political institutions (Acemoglu and Robinson 2001, 2006, Mansfield et al. 2000, 2002, Boix 2003, Kono 2006, Gawande et al. 2009) or within democracies as institutions become more representative (Rogowski 1987, Persson et al. 2000, Nielson 2003, Betz 2017).

Third, the government also has the ability to open the domestic financial market to foreign investors. Should policymakers choose to open the market, it opens the domestic economy to foreign investment inflows, which increase wages and capital accumulation. However, investment will only enter the market if domestic policies are sufficiently favorable to foreign investors, in the form of protection from expropriation and reduced redistribution. In equilibrium then, openness interacts with the policies laid out above.

[9]For ease of derivation, explicit functional form assumptions are made about the utility functions of the government and citizens.

2.1 Domestic Economy

In order to isolate the impact of market openness on economic policy, the baseline model establishes domestic political incentives for economic policy in the absence of openness. The subsequent section incorporates the option to open the market to foreign investment. This set-up facilitates the comparison of domestic and international political incentives, and it isolates the conditions when policymakers open the market.

The model uses the overlapping generations framework. The game is infinitely repeated, but each generation lives for only two periods. In each period a 'young' and an 'old' generation make consumption decisions. Young individuals earn wage income and choose the optimal mix of first period consumption and investment, while old individuals consume the returns on their prior investment, as well as a transfer from the government, which comes from a tax on all investment in the country.

The two generations are assumed to be of equal size. The workforce is represented by a continuum of young voters whose mass sums to one, while the old contribute no labor. Each individual maximizes her consumption over her lifetime, and her utility function takes the form of a logarithmic function, increasing at a decreasing rate in consumption,

$$u(c_1^i, c_2^i) = ln(c_1^i \times c_2^i). \tag{1}$$

c_1^i is the individual's consumption in the first period, and c_2^i is consumption in the second period. Each individual faces a first and second period budget constraint,

$$c_1^i = w_1^i - k_2^i, \tag{2}$$

$$c_2^i = (1 - \tau - \eta)Rk_2^i + v. \tag{3}$$

Her consumption in the first period cannot exceed her first period wages, w_1^i, less her savings for the second period, k_2^i. Her second period consumption depends on the pre-tax rate of

return on investment, R, which is constant; on the tax rate, $\tau \in (0,1)$; and on the rate of expropriation, $\eta \in (0,1)$. Both policies are observable to citizens.[10] The individual thus retains the share of her investment returns that are not extracted through taxation or expropriation. To prevent the government from extracting more than is produced, I also assume that $1 - \tau - \eta \geq 0$. v captures the redistribution of the tax revenue; it is a lump sum transfer from the government to each individual citizen, $v = \tau R k_2$, where k_2 is the average, individual savings rate.[11] Redistributive transfers are thus equal across members of the population and do not depend on the size of an individual's contribution.

Individual specific wages are $w_t^i = (w + \xi^i)k_t$, which are determined by a market wage rate, w, and an individual-specific component, ξ^i, which could correspond to education or skill.[12] ξ^i has a mean of zero and a median below zero and is distributed according to a known distribution $F(\xi)$. The average wage is $w_t = wk_t$. Because wages increase in investment, citizens benefit from capital accumulation even if they do not own any investment themselves.

The amount of inequality in the model is captured by the degree to which the median voter's wage component, ξ^m, deviates from zero. When ξ^m is close to zero, the income distribution is relatively equal. When ξ^m is very small and substantially below zero, the country is highly unequal. As ξ^m decreases, inequality increases. This is consistent with a left-skewed income distribution, where the accumulation of wealth in the right or high income tail comes at the expense of a disproportionate number of individuals with relatively low incomes. In other words, there are more citizens with below average income than with above average income, and median income is below mean income.

The government maximizes the following objective function,

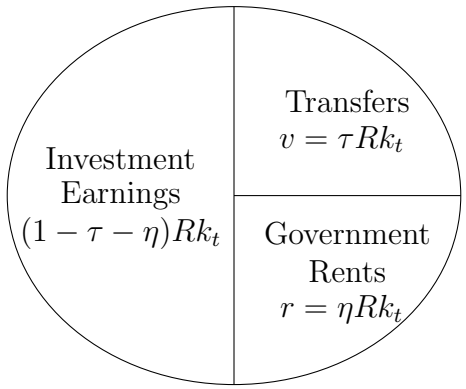
$$\Theta = \alpha ln(c_1^m \times c_2^m) + r, \tag{4}$$

[10] Similar results would follow from allowing the government to choose some level of extraction and then dedicate a share of this extraction to transfers and another share to rents.

[11] Because the mass of workers sums to one, k_t also captures the total capital invested in the country at time t, and w_t is the total wage income.

[12] w is sufficiently large that $w + \xi^i > 0 \ \forall i$; otherwise workers would be unwilling to participate in the workforce.

Figure 2: Distribution of Total Investment Returns, Rk_t



Note: Investment owners retain the share of investment earnings that are not taxed or expropriated, $(1 - \tau - \eta)Rk_t$. The taxed share is redistributed as a lump-sum transfer to the population, $v = \tau Rk_t$. The expropriated share is retained by the government as rents, $r = \eta Rk_t$.

where $ln(c_1^m \times c_2^m)$ is the median voter's utility function and r are government rents. The government retains the income (per capita), which is extracted from investment through expropriation, in rents, $r = \eta Rk_2$. Like redistributive transfers, rents are consumed and are not re-invested into the economy. The value that the government places on the median voter's utility is exogenous in the model and parameterized by α. The government wants to stay in power and to enrich itself and its closest supporters (Levi 1988, Bueno de Mesquita et al. 2003). The policies selected to meet these objectives depend on domestic political institutions. When political institutions are more representative, α is large and the government is more responsive to the interests of the median voter. When political institutions are less representative, α is small, and the government uses rents to cater to a small group of privileged supporters. α thus captures the representativeness of political institutions.

These utility functions are consistent with the policy effects identified above. Redistribution affects the distribution of income within the citizenry. Expropriation determines the amount of rents that the government extracts for its own benefit. Figure 2 depicts the allocation of the average investment income that accrues to the owner of the asset, to each individual through the redistributive transfer, and to the government in rents.

The government is somewhat short sighted in that it only looks ahead for two periods. However, two periods in the model here represent an entire life span. Two periods are also as

far ahead as the median voter looks. If policymakers respond to political incentives created by voters and interest groups, it is unlikely that they would have interests that surpass the longevity of these groups.

The sequence of play is as follows:

1. The government selects economic policies, τ and η.
2. The citizens make their consumption decisions, c_1^i and c_2^i.

The equilibrium is derived in the Appendix and proceeds via backwards induction with the citizens choosing consumption levels to maximize their utility function. The government selects expropriation and tax policy to maximize its utility function, considering how these policies impact the median voter's consumption and the government's rents.

The costs of the extractive policies partially stem from their impact on wages and economic growth.

Lemma 1. *Wages and economic growth decrease in redistribution and expropriation.*

Increases in the tax rate or rate of expropriation reduce future investment. Because wages increase in capital accumulation and the extractive policies deter accumulation, these policies likewise reduce wages. The growth rate also reflects the rate of capital accumulation in this economy, as capital accumulation increases consumption through wages and investment returns, so the reductions in capital accumulation associated with extractive policies likewise reduce the growth rate.

Importantly, both types of extraction have the same impact on investment: Because investors expect to receive a smaller share of their investment returns as extraction increases, they reduce their investment and instead consume more when they are young. Policymakers anticipate these effects of redistribution and expropriation, and they limit their rates of extraction accordingly (see also Przeworski and Wallerstein 1988).

The proposition follows from the equilibrium policy selections in the domestic model.

Proposition 1. *Redistribution increases and expropriation decreases as political institutions become more representative.*

More representative institutions are more responsive to the preferences of the median voter. The median voter prefers redistribution, as her income is lower than the mean income, so she gains more from the transfer than she pays to fund it.[13] The government balances the median voter's preference for redistribution against the cost of redistribution for investment. Increasing redistribution reduces investment and thereby reduces future income for redistribution and expropriation. If the government did not value the median voter's welfare, it would decrease redistribution in order to accumulate a larger capital base for expropriation.

Expropriation decreases as institutions become more representative, because the public benefits from protection against government predation. The gains from government rents accumulate at the expense of citizen income: Any gain in rents is taken from citizens. In addition and as described above, expropriation deters investment. Thus, in selecting the level of expropriation, the government considers the costs for citizen utility against the value of its rents. If the government valued only citizen utility, it would not expropriate. As political institutions become less representative, the government increases expropriation.

In sum, redistribution is not equivalent to expropriation, although they are often both described as violations of property rights. Redistribution is higher and expropriation lower under more representative institutions. Under unrepresentative institutions, redistribution is low and expropriation high. The public prefers more redistribution and stronger protections against expropriation, and political institutions that represent the public provide it.

Taken together, Lemma 1 and Proposition 1 have implications for the effect of political institutions on growth rates. Both types of institutions lead to government extraction that limits growth rates, but these types of extraction have vastly different effects for the country's citizens. Representative or democratic institutions increase redistribution, which limits growth but also benefits the majority of citizens – who have below-mean income. Unrepresentative institutions increase expropriation, which likewise limits growth and it reduces

[13] This is true until the point when the reduction in investment, which is deterred by taxation, overwhelms the transfer benefit.

returns to all citizens, through its associated effect on wages and on investment income.

2.2 Global Economy

This section explores the government's incentive to open the market, as well as the preferences and influence of foreign investors on domestic economic policy. The government's decision to open the market depends on whether foreign investors are willing to invest in the country, which in turn depends on the government's own policy choices. By modeling first the closed economy and then adding the option to open the economy, we observe how policy incentives change in response to foreign investment.

A foreign investor will only enter the market if his return from investing in the country, R, less what he loses from taxation and expropriation, $1-\tau-\eta$, exceeds his expected return in the global marketplace, G,[14]

$$(1-\tau-\eta)R \geq G. \tag{5}$$

Equation 5 is the *investment constraint*. It may be expressed as an upper bound on expropriation, $\bar{\eta} = 1-\tau-\frac{G}{R}$, or on the tax rate, $\bar{\tau} = 1-\eta-\frac{G}{R}$. If the investment constraint is met, the foreign investor makes a lump sum investment, f_t, in the country. In the period when the investment is made, the stock of capital in the country increases to $k_t + f_t$. Following the initial investment period, the growth rate remains the same, as foreign investment responds to policy incentives in the same way as domestic investment, decreasing in both redistribution and expropriation, $\frac{\partial f_t}{\partial \tau} = \frac{\partial k_t}{\partial \tau}$ and $\frac{\partial f_t}{\partial \eta} = \frac{\partial k_t}{\partial \eta}$. This assumption accords with recent findings that domestic and international firms are closely associated through global production networks (Johns and Wellhausen 2016) and that domestic and foreign investors behave similarly once markets are open (Freeman and Quinn 2012).

From the government's perspective, investment entry has two benefits. It increases the size of the economy subject to extraction, as the government may tax foreign and domestic

[14] G includes considerations about tax rates in other countries - to recover results about competitive taxation, explicitly include a foreign government's tax rate here.

investment returns: $r = \eta R(k_2 + f_2)$ and $v = \tau R(k_2 + f_2)$. In addition, entry increases wages: $w_2^i = (w + \xi^i)(k_2 + f_2)$. These effects are consistent with the large literature on the benefits of foreign investment entry (Jensen and Rosas 2007, Pinto 2013, Pandya 2014) and with findings that it is unusual to extend differential policy to foreign and domestic investors.[15]

The investment constraint reflects a challenge faced by the government. Because foreign investors seek reduced redistribution and expropriation, any increase in redistribution must be offset by a reduction in expropriation in order to meet the investment constraint. The relative attractiveness of each policy will be important as the government determines how best to meet the constraint.

When the government decides whether to open markets, it faces two possible situations. Either the investment constraint is satisfied by existing, closed-economy policy selections and foreign investors want to enter the market, $(1-\tau^*-\eta^*)R \geq G$; or the investment constraint is not met and foreign investors do not want to enter the market, $(1-\tau^*-\eta^*)R < G$, where τ^* and η^* are the equilibrium policy selections under a closed market. The next sections explore the government's incentive to open the market and assess how its selection of redistribution and expropriation change in conjunction with the decision to open markets.

2.3 Investment Constraint Satisfied

The first possible case is that the government's policies in the domestic, closed-economy equilibrium are sufficiently favorable to the foreign investor that he would like to invest in the country. When the investment constraint is already satisfied by the optimal policies in the closed market, the government benefits from opening the market due to the effects on wages, rents, and transfers. The Lemma follows.

Lemma 2. *If the investment constraint is met by existing closed market policies, the government opens the market.*

[15] In practice, policy toward resident and non-resident capital (this is sometimes called outflows and inflows, but the underlying data are coded using ownership) are highly correlated, with a correlation coefficient of between 0.7 and 0.8 (Quinn and Toyoda 2008, Pond 2017b).

Investment entry requires no policy concessions in this case, so there are only benefits to opening the market. These benefits include an increase in wages and government revenues.

With the additional investment in the country however, the government may choose to alter its policies, and we must also solve for the optimal policies once foreign investment enters the country (these are reported in Equilibrium 2, Case 1 in the Appendix). A comparison of the open-economy and the closed-economy policies provides a notable insight:

Lemma 3. *When closed market policies are already attractive to foreign investors, the effect of market openness on the government's allocation of redistribution and expropriation is ambiguous. Either policy may increase or decrease after foreign investment enters. The changes will be bounded by the investment constraint.*

Openness may increase or decrease redistribution and expropriation, because openness has two effects on government utility. Openness increases the size of the economy and therefore the revenue base accessible to the government for extraction. At the same time, foreign capital entry increases the marginal cost of raising the rates of extraction, as higher redistribution and expropriation deter future domestic *and* foreign investment. The optimal rates of extraction in this case will not go above $\bar{\tau}$ or $\bar{\eta}$, as those selections would prevent foreign capital entry, and we have shown that, when the investment constraint is met by existing policies, the government benefits from opening markets.

In this case then, the presence of new investment will result in different policy choices for redistribution and expropriation, even though the government's policies in the domestic equilibrium would be sufficient to attract foreign investment. The government is not coerced to change the policies, rather it does so because opening the market changes the relative costs and benefits of its economic policies. In other words, market openness is not constraining policy choices per se, but it nonetheless affects them.

2.4 Investment Constraint Not Satisfied

In the second case, the equilibrium amount of redistribution and expropriation in the closed market are not sufficiently attractive to foreign investors to spur the entry of investment. In other words, the investment constraint is not met by closed market policies. In this case, merely opening the market would not attract foreign investment. However, the government may change policy to satisfy the investment constraint.

The government will weigh the cost of making its policies amenable to foreign investors against the benefits of foreign capital entry. The costs are from the reduced extraction that comes with decreasing tax and expropriation rates to meet the investment constraint. The benefits come from the increased size of the tax base, both for redistribution and for rents, and from increased wages. Accordingly, the government's decision will depend on whether its utility is larger with a closed market and the corresponding expropriation and redistribution, η^* and τ^*, or whether its utility is larger with an open market and the corresponding open market policies, call them η' and τ'.[16] The government will open the market when the following equation is met,

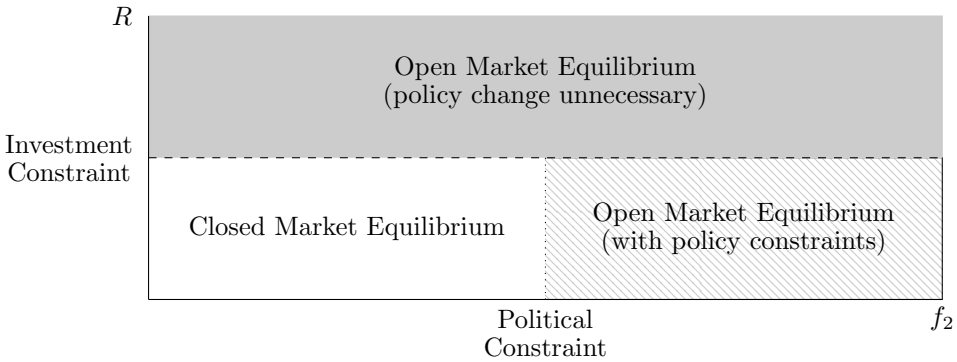
$$\alpha u[c_1^m \times c_2^m(\tau', \eta')] + \eta' R[k_2(\tau', \eta') + f_2(\tau', \eta')] \geq \alpha u\,[c_1^m \times c_2^m(\tau^*, \eta^*)] + \eta^* R k_2(\tau^*, \eta^*). \quad (6)$$

Let Equation 6 be the *political constraint*. If the left hand side of the equation is larger, the political constraint is satisfied; the government opens the market and switches its policies to τ' and η'. If the right hand side of the equation is larger, the government maintains the closed market with the corresponding rates of redistribution and expropriation, τ^* and η^*.

Figure 3 displays the different equilibrium outcomes depending on investment returns, R, and the size of the foreign investment that seeks to enter the market, f_2. When the investment constraint is met by optimal policies under openness, the government opens the market and institutes these policies. This is true when the domestic rate of return on

[16] The necessary policies for investment entry are $\bar{\tau}$ and $\bar{\eta}$, therefore $\tau' \leq \bar{\tau}$ and $\eta' \leq \bar{\eta}$.

Figure 3: Equilibria for Different Parameter Values



Note: The horizontal, dashed line represents the investment constraint, $R = \frac{G}{1-\tau'-\eta'}$. If the domestic rate of return, R, is sufficiently high, then policy changes are not needed to attract foreign investment, and the government always opens the market. The vertical, dotted line represents the political constraint; this is the level of f_2 identified when Equation 6 is met with equality. If a sufficient amount of foreign funds, f_2, seeks to enter the market, then the government will make the policy changes needed to attract foreign investment.

investment, R, is sufficiently high, making entry into the country relatively more attractive. If the investment constraint is not met, the government must decide whether to change policies to meet the investment constraint.

The government will change policies if the political constraint is met, in other words if the benefits of foreign investment entry are sufficiently large. The benefits of investment entry are increasing in the size of the investment that will enter the market, f_2, as this investment increases wages and can be used for redistribution and expropriation. Thus, openness is attractive under both representative and unrepresentative institutions but for different reasons. Investment entry benefits governments under representative institutions due predominantly to its impact on wages and transfers. Entry benefits governments with unrepresentative institutions, as foreign investment is subject to expropriation. If the political constraint is not met, the government will maintain the closed market and the associated extractive policies.

Importantly, when the government changes policy in response to pressure from investors, it may meet the investment constraint using different combinations of redistribution and expropriation. The investment constraint represents a set of possible policy pairs that incentivize foreign investment entry. The government will optimize its utility such that the

constraint is met, but it tailors the optimal policy mix to its domestic political incentives.

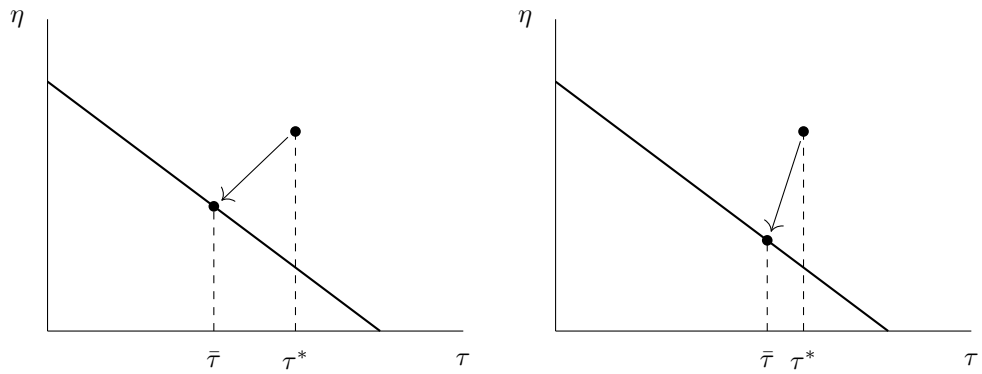
Recall that redistribution increases while expropriation decreases in the representativeness of political institutions. This is true in both open and closed markets. The changes needed to meet the investment constraint are decreases in redistribution and expropriation. Thus, both investors and the general public prefer less expropriation, while investors alone want reduced redistribution. The proposition follows from the relative costs of these policy reforms under different domestic political institutions.

Proposition 2. *As political institutions become more representative, the government favors reductions in expropriation over reductions in redistribution in order to attract foreign investment.*

In short, the more the government values the median voter's utility, the less the policy changes will come from reduced redistribution and the more changes will come from reduced expropriation. Thus, when political institutions represent the voters' interests, the demands of foreign investors at least partially reinforce the preferences of the public, leading to greater contract enforcement and less expropriation. The reverse also holds. When political institutions are not representative of voters' interests, the government's response to the demands of foreign investors will instead favor limits on redistribution at the expense of reductions in expropriation, undermining the public's preferences.

Figure 4 plots the change in the tax rate from the closed economy equilibrium rate to the rate needed to satisfy the investment constraint. The solid, downward sloping line represents the investment constraint. The dots represent the optimal policy combinations, first under a closed market and also when the government changes policy to attract foreign investment. The left plot shows policy change under relatively unrepresentative political institutions, while the right plot shows change under more representative institutions. Under representative institutions, the government is willing to give up less redistribution, and thus the difference between τ^* and $\bar{\tau}$ is smaller, and instead favors limits on expropriation, so the difference between η^* and $\bar{\eta}$ is larger, to attract foreign investment.

Figure 4: Meeting the Investment Constraint

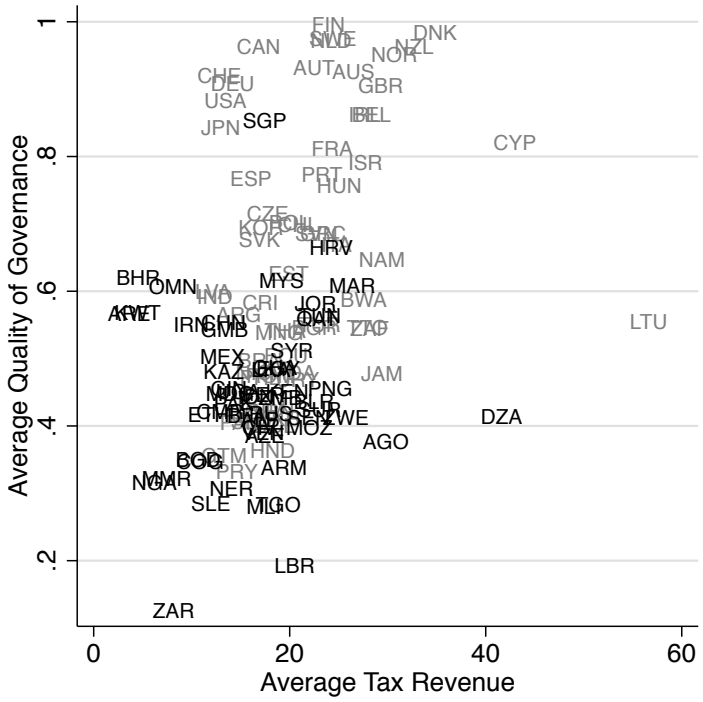


Note: The figures plot the investment constraint (the downward sloping line) and the equilibrium policies used to meet the constraint. The change from the left panel to the right shows how an increase in the representativeness of political institutions, α, impacts redistribution and expropriation. As α increases, the government favors reductions in expropriation over redistribution to meet the constraint.

Proposition 2 is consistent with cross-national findings about the impact of openness on government spending. Empirical studies find mixed evidence for reduced tax rates accompanying openness in developed democracies (Basinger and Hallerberg 2004), and they find that democratic governments do not reduce government spending when markets open while autocratic governments do (Adserá and Boix 2002, Rudra and Haggard 2005). The model shows how the demands of foreign investors are filtered by the preferences of voters under different political institutions. Consistent with voter interests, representative or democratic governments are more likely to respond to pressure from investors by reducing expropriation and improving contract enforcement, rather than reducing redistribution. In less representative political systems, the government will rely more on reductions in redistribution, rather than reductions in expropriation, to meet the demands of investors.

These insights help explain the presence of tax competition and embedded liberalism. Tax competition is more pronounced in countries that lack representative institutions. In these countries, policymakers reduce redistribution in response to pressure from investors. Embedded liberalism is more relevant in countries with representative political institutions, as policymakers rely more on limits on expropriation rather than on redistribution in response to pressure from investors. The theory thus provides an analog to Selectorate theory

Figure 5: Quality of Governance and Tax Revenue by Country



Note: The governance and revenue data are averaged from the available, joint sample of 1980 to 2012. The labels are World Bank country codes. The codes are gray for democratic countries, defined as those with an average Polity score of six or higher. Black labels indicate autocratic countries.

(Bueno de Mesquita et al. 2003); if electoral concerns are paramount for the government, they cannot sacrifice on redistribution, which is similar to public good provision, to please investors. If responding to their small group of supporters is instead essential, they cannot give up elite expropriation. This is not to say that tax competition is only present under unrepresentative political institutions or that embedded liberalism is only present under representative institutions, rather the model shows that the factors that cause these outcomes are mediated by political institutions, which may magnify or reduce their influence.

3 Examples

The model anticipates that redistribution and expropriation move in opposite directions in response to domestic political pressure, with redistribution increasing and expropriation

decreasing when political institutions are representative. Under some conditions, foreign investment partially reinforces these domestic political incentives, as foreign investors seek reductions in both redistribution and expropriation. When policy change is needed and political institutions represent the mass public, the government will favor reductions in expropriation over redistribution in responding to foreign investors – these changes reinforce the domestic political incentives that are privileged under representative institutions. This section draws on four examples to assess the plausibility of the theory.

Similar to Figure 1, Figure 5 depicts quality of governance (PRS Group 2015) and tax revenue as a percent of GDP (World Bank 2016) for all available countries from 1980 to 2012. To facilitate the identification of specific countries, data are averaged during the sample period and World Bank country codes are used to identify the resulting observations.[17] The codes are gray for democratic countries, defined as those with an average Polity score of six or higher. Black labels indicate autocratic countries.

Those countries where governance quality and redistribution go together, and thus expropriation and redistribution diverge, are consistent with the theory and represent ideal cases to explore the model implications. This section will draw on two of these ideal cases, Denmark and Russia, to illustrate the model propositions. Those countries where governance quality and redistribution diverge are harder cases for the theory to explain. This section also discusses the model implications in the context of these more challenging cases. In Bahrain for example quality of governance is relatively high (and thus expropriation low) and redistributive taxation is low. In Lithuania quality of governance is somewhat low (and thus expropriation feasible) and redistributive taxation is high. In Bahrain and Lithuania the theory alone cannot explain economic policy.

Denmark is a case where redistribution and expropriation diverge, and this pattern likely holds in many democracies, particularly those with more representative political institutions. Denmark's average tax revenue as a percent of GDP from 1990 to 2012 was 31.5

[17] When annual observations are missing, the average is calculated using all available data.

percent, well above the sample average of 16.8 percent. Denmark's top marginal personal income tax rate has historically remained around 60 percent (Tax Policy Center 2014).[18] Denmark simultaneously earns a quality of governance rating of 0.99, which is one of the highest ratings given by foreign investors and indicates the absence of widespread expropriation.[19]

Denmark is a parliamentary democracy where representatives are appointed in proportion to their party's vote share. Proportional representation systems have been identified, within the set of democracies, as being more responsive to the interests of the public than are majoritarian or "winner take all" systems (Rogowski 1987, Persson et al. 2000, Nielson 2003, Betz 2017). Consistent with these theories, Denmark has more redistribution and stronger governance quality than countries with majoritarian institutions, like the United States.[20]

Denmark has long facilitated the movement of capital flows across its borders. Denmark's capital account has been completely open since 1988, with only small restrictions like exchange control on capital flows since 1961 (Quinn 1997, Quinn et al. 2011).[21] Quality of governance continues to make Denmark an attractive investment destination despite relatively high taxation rates. In Denmark, it is likely that domestic political incentives shaped the policies used to attract foreign investment. To the extent that policymakers respond to pressure from international investors, they favor limits on expropriation and improvements in governance rather than reductions in redistribution.

There are other countries where the government seizes citizen wealth and redistributes very little of it back to the population. Russia has little redistributive taxation and extensive state-supported expropriation. Russia's average tax revenue as a percent of GDP is 14.7 percent, and Russia has an average quality of governance rating of 0.42. Although elections

[18]There was a short-lived increase to 70 percent in the early 1980s and then decline to 39 and then 22 percent in the mid-1980s. Since 1988, the tax rate has remained relatively stable between 55 and 68 percent. In Denmark, income from investments is added to wage income before taxes (SKAT 2016), so looking at top marginal tax rates is a useful way to get a sense of capital taxation and is commonly used in the literature (Basinger and Hallerberg 2004).

[19]The mean sample quality of governance rating was 0.56.

[20]In the U.S., the average quality of governance score is 0.88 and the average tax revenue is 10.2.

[21]The current account has similar levels of openness.

are held in Russia, it is increasingly recognized that political power is concentrated with Russian President Vladimir Putin. Since the fall of the Soviet Union, Russia's polity score has averaged 4.4 (Marshall et al. 2013), and Russia is frequently identified as an autocracy (Cheibub et al. 2010), particularly since Putin's rise to power (Boix et al. 2013). Even before Putin's accession, however, Russian oligarchs had disproportionate influence over the outcomes of elections.[22]

Russia's markets opened substantially following the fall of the Soviet Union in 1991 with subsequent movements towards greater capital account openness in 1998, 2006, 2008, and 2009 (there was a slight reversal in 2000, which was liberalized in 2002; Quinn 1997, Quinn et al. 2011). Despite openness, contract enforcement remained effectively non-existent. According to former C.I.A. Russia chief of station Richard Palmer, "For the United States to be like Russia is today, ... *The legal system would have to nullify most of the key provisions against corruption, conflict of interest, criminal conspiracy, money laundering, economic fraud, and weaken tax evasion laws*" (Orth 2000, 14-15, emphasis added). To the extent that Russian politicians responded to pressure from international investors, they largely did so using tax policy: "Putin has also introduced a new supply-side economic plan for Russia, featuring a radical tax-reform package to attract Western investment, the cornerstone of which is a simplified flat tax of 13 percent to encourage the wealthy to pay at least something" (Orth 2000, 6). Thus, in Russia, domestic political incentives have meant that policymakers favor tax incentives over reductions in expropriation to attract investment.

Denmark and Russia show that expropriation and redistribution are different types of extraction that can and should be distinguished theoretically and empirically. Denmark and Russia have opened their markets to foreign investment inflows, but the ways in which they attract foreign investment have taken dramatically different forms, which were shaped by domestic political institutions.

Although Figure 5 is more consistent with a positive association between quality of gov-

[22]The oligarchs, who had enriched themselves during the privatization of Soviet assets, came together in the so called 'deal with the devil' to reelect Prime Minister Boris Yeltsin in 1996 (Browder 2015, 91).

ernance and redistribution, there remain substantial departures from this pattern. Bahrain for example has better than average quality of governance ratings, which signify fewer opportunities for expropriation, and little redistributive taxation. Bahrain's quality of governance rating is 0.62 and tax revenue is 1.2 percent of GDP. This policy mix seems to illustrate a broad trend in other oil-producing states that include Kuwait, the United Arab Emirates, Oman, Iran, Indonesia, and Nigeria. These countries have likely experienced a unique set of conditions that led to the development of their economic policy.

Bahrain is usually characterized as a monarchy with autocratic political institutions and weak constraints on the executive (Cheibub et al. 2010, Marshall et al. 2013, Boix et al. 2013), where leadership secession comes from within the royal family (Svolik 2012). Given these unrepresentative political institutions, the theory anticipates high expropriation and low redistribution and that openness should further reduce redistribution. Bahrain's policies are only partially consistent with these expectations. Bahrain does have little redistribution, but it simultaneously implements little expropriation and receives a slightly above average quality of governance rating. The lack of widespread expropriation is likely attributable to the substitution of resource revenue for expropriation from citizens. Although Bahrain has modest oil reserves relative to some of its neighbors, oil continues to comprise 86 percent of government revenues (CIA 2016). Bahrain, like other resource rich countries, make themselves attractive to foreign investors through reduced expropriation and reduced redistribution.[23] Thus, these oil exporters are outliers in Figure 5, but they seem to be well explained by the substitution of natural resource revenue for expropriated assets.

Lithuania likewise provides a challenging case for the theory. It has a middling level of quality of governance, signifying the presence of expropriation, and above average redistributive taxation.[24] Lithuania's average quality of governance score is 0.56 while tax revenue is

[23]Bahrain's capital account is relatively open for the entire period when data is available, 1971-2007, with only minor restrictions (Quinn 1997, Quinn et al. 2011). Except for a brief moment in 1988, the current account is completely open.

[24]Their are also countries with low quality of governance and high taxation, but they seem to be better explained by lack of development. High taxation as a percent of GDP may stem from low GDP rather than substantial redistribution. These could include Democratic Republic of Congo, Liberia, Algeria, and Angola.

53.6 percent of GDP. The policies in Lithuania are also plausibly similar to a broader set of countries depicted in the graph, although Lithuania is truly exceptional in terms of revenue as a percent of GDP. There are many former Soviet Republics, particularly those in Eastern Europe, the Baltic, and the Caucuses, that have middling levels of redistribution with relatively low governance quality.[25] The low reported values for quality of governance may result from decades of state control in the economy.

Lithuania emerged from the Soviet system as a full-fledged democracy (in 1991 for Cheibub et al. 2010 and in 1992 for Boix et al. 2013), with the highest possible polity score of 10. The Soviet Union hovered around -7 for most of its existence with movements toward democratization in the late 1980s culminating with a score of 0 in 1990. Upon independence, Lithuania already had substantial revenues for redistribution, so the theory would anticipate movement towards reduced government expropriation and therefore stronger governance quality. Quality of governance indicators do not reflect this change; they have remained relatively constant since the dissolution of the Soviet Union. However, governance indicators may move too slowly to capture reforms in Lithuania.

Drawing on Transparency International's Corruption Perception Index, Lithuania experienced a steady reduction in corruption from 1999, when Lithuania entered the dataset, to 2016. The index is coded using survey data from analysts, business owners, and experts, and thus plausibly responds more quickly to conditions on the ground.[26] This data is consistent with the reduction in expropriation that the theory would anticipate in Lithuania.

In addition, because Lithuania's property rights policies at independence cut against the preferences of investors, who want less redistribution and expropriation, this is a prime example to look for policy change in conjunction with movement toward openness. Lithuania's capital account has been mostly open since it recovered policy autonomy in the 1990s

[25]Similar countries could include Estonia, Latvia, Belarus, Moldova, Ukraine, Armenia, and Azerbaijan.

[26]Lithuania had a corruption score of 38 in 1999 and a score of 61 in 2016; the scale ranges from 0 to 100 where higher numbers represent less corruption (TI 2016). There were small increases in corruption in 2004, 2008, and 2011, which were reversed in the subsequent year; all other years were associated with reduced corruption.

with movement to complete openness in 2001.[27] The reduction in corruption reported by Transparency International accords with investor demands and the democratic institutions in the country, which make reductions in redistribution relatively less attractive. Lithuania joined the European Union in 2004, which will plausibly reinforce movements toward representative political institutions, market openness, and contract enforcement. The theory anticipates that to the extent that Lithuania, and the other Soviet successor states, adopt and preserve their representative political institutions, we should continue to see openness accompanied by movement toward stronger protections against government expropriation.

4 Conclusion

The model presented here has simultaneously explored the political incentives for and relationships between redistribution, expropriation, and market openness. To the extent that redistribution and expropriation are differentiated in existing work, scholars often assume that expropriation and redistribution work in the same direction, both representing government extraction that undermines investment and reduces growth rates. By contrast, the paper presents a unified framework that shows why, when political institutions are representative, policymakers implement more redistribution and less expropriation. The model thus provides a justification, which does not rely on state capacity, for the relative absence of expropriation alongside substantial redistributive taxation. Representative political institutions reduce expropriation and increase redistribution, as discussed in Denmark. When political institutions are not representative, they result in weak protections against expropriation and low tax rates, as visible in Russia. The nature of this association is incompatible with a literature that conflates expropriation and redistribution.

The model also identifies the effects of market openness for redistribution and expropriation. The ability to open markets has different effects depending on domestic political institutions and on the existing property rights policies in the country. If policies are al-

[27] Current account policies liberalized more quickly even.

ready acceptable to foreign investors [in the absence of open markets], then the government will always open the market to foreign investment. However, that market liberalization may not constrain economic policies, as existing scholarship often maintains. Liberalization may instead be accompanied by increases in redistribution or expropriation. The former is consistent with the empirical foundation of embedded liberalism, although the intuition is somewhat different. According to the model here, the government does not increase spending in order to protect citizens from the vagaries of the international market. Rather, the government increases spending, because there is a larger pot of money from which to extract.

If the redistribution and expropriation policies in the country are not acceptable to foreign investors, there are two possible outcomes. The first possibility is that the benefits of the foreign investment overwhelm the cost of the policy changes needed to attract foreign investment. In this case, the government opens the market and reduces tax and expropriation rates. Here, the government is constrained in its policy selections by the need to attract foreign investment. The second possibility is that the costs of the policy changes needed to attract foreign investment are too great, and they overwhelm the benefits associated with foreign investment. In this case, the government retains a closed market and the existing levels of redistribution and expropriation. Thus, it is only in the intermediate range of tax and expropriation rates that we can say openness has a constraining effect on domestic policy, decreasing redistribution and expropriation.

The distinction between redistribution and expropriation also demonstrates how openness may magnify the effects of the political system. Under representative political institutions, openness at least partially reinforces the demands of the population; the government favors reductions in expropriation over reductions in redistribution to meet the demands of investors. Under unrepresentative institutions, openness undermines the demands of the population, as the government favors reductions in redistribution over reductions in expropriation to meet investor demands. These insights are possible, because we distinguished redistributive taxation from expropriation in the theoretical model. Otherwise, governments

would have to respond to openness using the same policy concession regardless of domestic political institutions.

The distinction further allows identification of the effect of political institutions on the stability of the regime. If representative institutions – be they democratic or proportional representation within democracies – produce higher levels of redistribution, then they will plausibly also produce a more equal distribution of income. Recent scholarship has argued that equality may be necessary for the stability of democratic institutions (Bartels 2008, Piketty 2014). Through their effects for economic policy then, democratic institutions will likely become more stable over time. The opposite logic holds for autocratic institutions. Under unrepresentative institutions, we expect high levels of expropriation. These policies likely produce a small and entrenched economic and political elite in many autocracies. If these economic elite in autocracy fear democratization for the redistribution it will entail, then high levels of inequality in autocracy will make democratization less likely (Acemoglu and Robinson 2001, 2006, Boix 2003).[28] These economic policies then are not only important for their immediate effects on citizen welfare, they may continue to replicate these effects far into the future.

[28]For responses, see Kaufman 2009, Ansell and Samuels 2010, 2014, Haggard and Kaufman 2012, Freeman and Quinn 2012.

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5 Appendix

Equilibrium 1 (Domestic Equilibrium)**.** *In the domestic economy,*

- *each citizen's equilibrium level of consumption and investment is:*

$$\begin{aligned} c_1^i &= \frac{(1-\tau-\eta)w_1^i + \tau k_2}{2(1-\tau-\eta)}, \\ c_2^i &= (1-\tau-\eta)Rc_1^i, \\ k_2^i &= \frac{(1-\tau-\eta)w_1^i - \tau k_2}{2(1-\tau-\eta)}; \end{aligned} \tag{7}$$

- *the government's equilibrium combination of redistribution and expropriation are implicitly defined by the following first order conditions:*

$$\frac{\partial\Theta}{\partial\tau} = \frac{\alpha}{c_2^m}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right] + \eta\frac{\partial k_2}{\partial\tau} = 0, \tag{8}$$

$$\frac{\partial\Theta}{\partial\eta} = \frac{\alpha}{c_2^m}\left[-k_2^m + \tau\frac{\partial k_2}{\partial\eta}\right] + k_2 + \eta\frac{\partial k_2}{\partial\eta} = 0. \tag{9}$$

Equilibrium 1 Proof. The citizens' optimization problem is similar to the optimization in Persson and Tabellini (1994) and Drazen (2000), as the changes to the model impact their incentives through similar mechanisms. Maximization of the citizens' utility function subject to the budget constraints yields the following first order condition.[29]

$$\frac{c_2^i}{c_1^i} = (1-\tau-\eta)R \tag{10}$$

Combining the citizens' first order condition and the budget constraints, Equations 2, 3, and 10, yields the equilibrium levels of consumption and investment described by Equation 7.

The government optimizes his utility with respect to both the tax rate and property rights. Accordingly, his first order conditions may be written as above, in Equations 8 and 9, where the effects of τ and η on the median voter are both captured by their impact on consumption in the second period.[30]

To find the average capital investment by a member of the population, let $k_2 = k_2^i$ and $w_1 = w_1^i$ in $k_2^i = \frac{(1-\tau-\eta)w_1^i - \tau k_2}{2(1-\tau-\eta)}$ and solve for k_2. The average capital investment is $k_2 = \frac{(1-\tau-\eta)w_1}{2-\tau-2\eta}$. In order to calculate the equilibrium allocation of tax policies and to verify

[29] Write the constrained maximization problem as: $L = ln(c_1^i \times c_2^i) + \lambda\left[(1-\tau-\eta)R(w_1^i - c_1^i) + \tau k_t R - c_2^i\right]$. Budget constraints bind, because individuals only live for two periods and their utility is strictly increasing in consumption. They consume their total income in the two periods. Combine first order conditions to derive the result.

[30] Recall $c_2^m = (1-\tau-\eta)k_2^m R + \tau k_2 R$.

that the allocations are maxima, we must derive $\frac{\partial k_2}{\partial \tau}$ and $\frac{\partial^2 k_2}{\partial \tau^2}$;[31]

$$\frac{\partial k_2}{\partial \tau} = \frac{-w_1(1-\eta)}{(2-\tau-2\eta)^2} < 0, \tag{11}$$

$$\frac{\partial^2 k_2}{\partial \tau^2} = \frac{-2w_1(1-\eta)}{(2-\tau-2\eta)^3} < 0, \tag{12}$$

as well as $\frac{\partial k_2}{\partial \eta}$ and $\frac{\partial^2 k_2}{\partial \eta^2}$;

$$\frac{\partial k_2}{\partial \eta} = \frac{-w_1\tau}{(2-\tau-2\eta)^2} < 0, \tag{13}$$

$$\frac{\partial^2 k_2}{\partial \eta^2} = \frac{-4w_1\tau}{(2-\tau-2\eta)^3} < 0. \tag{14}$$

Both policy selections are optimal, because the second order conditions are negative ($\frac{\partial k_2}{\partial \tau}$, $\frac{\partial^2 k_2}{\partial \tau^2}$, $\frac{\partial k_2}{\partial \eta}$, and $\frac{\partial^2 k_2}{\partial \eta^2}$ are negative).

$$\frac{\partial^2 \Theta}{\partial \tau^2} = -\frac{\alpha}{(c_2^m)^2}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial \tau}\right]^2 + \frac{\alpha}{c_2^m}\left[2\frac{\partial k_2}{\partial \tau} + \tau\frac{\partial^2 k_2}{\partial \tau^2}\right] + \eta\frac{\partial^2 k_2}{\partial \tau^2}, \tag{15}$$

$$\frac{\partial^2 \Theta}{\partial \eta^2} = -\frac{\alpha}{(c_2^m)^2}\left[-k_2^m + \tau\frac{\partial k_2}{\partial \eta}\right]^2 + \frac{\alpha}{c_2^m}\left[\tau\frac{\partial^2 k_2}{\partial \eta^2}\right] + 2\frac{\partial k_2}{\partial \eta} + \eta\frac{\partial^2 k_2}{\partial \eta^2}. \tag{16}$$

□

Equilibrium 2 (Equilibrium with Openness Option)**.** *In this model, there are four possible forms that the equilibrium can take. Each will be discussed in turn.*

Case 1. *If Equation 5, the investment constraint, is satisfied by closed market policies, then*

- *the government opens the market and its equilibrium policies are τ' and η', which are either defined by the following equations,*

$$\frac{\partial \Theta}{\partial \tau} = \frac{\alpha}{c_2^m}\left[-k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial \tau}\right] + 2\eta\frac{\partial k_2}{\partial \tau} = 0, \tag{17}$$

$$\frac{\partial \Theta}{\partial \eta} = \frac{\alpha}{c_2^m}\left[-k_2^m + 2\tau\frac{\partial k_2}{\partial \eta}\right] + k_2 + f_2 + 2\eta\frac{\partial k_2}{\partial \eta} = 0 \tag{18}$$

  or they are $\bar{\tau}$ and $\bar{\eta}$,[32] *if the policies identified by Equations 17 and 18 do not meet the investment constraint;*
- *the foreign investor invests f_2 in the country; and*
- *the citizen's equilibrium consumption and investment are characterized by the following*

[31] Note also that $2-\tau-2\eta > 0$, because $1-\tau-\eta > 0 \Rightarrow 2-2\tau-2\eta > 0 \Rightarrow 2-\tau-2\eta > 2-2\tau-2\eta > 0$.

[32] $\bar{\tau}$ and $\bar{\eta}$ designate a range of possible policy bundles that meet the investment constraint; see Equations 21 and 22 for the specific equilibrium bundles.

equations:

$$\begin{aligned} c_1^i &= \frac{(k_2+f_2)\left[(1-\tau-\eta)(w+\xi^i)+\tau\right]}{2(1-\tau-\eta)}, \\ c_2^i &= (1-\tau-\eta)Rc_1^i, \\ k_2^i &= \frac{(k_2+f_2)\left[(1-\tau-\eta)(w+\xi^i)-\tau\right]}{2(1-\tau-\eta)}; \end{aligned} \tag{19}$$

Case 1 Proof. When the participation constraint is already satisfied by existing policies, the government's utility is strictly increasing in market openness, so he will open the market. Recall that the government's utility comes from the utility of the median voter and his rents. The utility of the median voter increases with openness, as his first and second period consumption are both increasing in openness, as openness allows foreign investment, f_2, to enter: $\frac{\partial c_1^m}{\partial f_2} = \frac{(1-\tau-\eta)(w+\xi^m)+\tau}{2(1-\tau-\eta)} > 0$ and $\frac{\partial c_2^m}{\partial f_2} = (1-\tau-\eta)R\frac{\partial c_1^m}{\partial f_2} > 0$, and the government's rents are increasing in openness, $\frac{\partial r}{\partial f_2} = \eta R > 0$.

Although this analysis has held redistribution and expropriation constant, both policies may change with openness. The changes will be bounded from above by $\bar{\tau}$ and $\bar{\eta}$, which are less than extractive policies under closure, τ^* and η^*, so, even if the government did not move his policies to benefit from openness further, he would still have an incentive to open the market. The ability to manipulate redistribution and expropriation (up until the investment constraint) makes opening the market that much more attractive, as the government would only change the policies if they yield him a higher utility (and the lower utility associated with openness at τ^* and η^* has already been shown to be sufficient to incentivize opening the market).

The government's optimal policies follow from maximization of Θ; the investor's optimal policy follows from his participation constraint, and the citizens' optimal selections follow as before from the maximization of their utility functions subject to budget constraints. □

Case 2. *If Equation 5, the investment constraint, is not satisfied by closed market policies, but it is satisfied by the open market policies defined by Equations 17 and 18, and if Equation 6, the government's political constraint, is also satisfied by the open market policies, then:*

- *the government opens the market and its equilibrium policies are characterized by Equations 17 and 18;*
- *the foreign investor invests f_2 in the country; and*
- *the citizen's equilibrium consumption and investment are characterized by Equation 19.*

Case 2 Proof. When the participation constraint is not satisfied by closed market policies but is satisfied by open market policies defined by Equations 17 and 18, and if Equation 6, the government's participation constraint, is also satisfied, then the equilibrium conditions are just the maxima defined in Equilibrium 2. In this case, no bounds are needed on η and τ, because $\eta \leq \bar{\eta}$ and $\tau \leq \bar{\tau}$ by the conditions of the proof ('when the participation constraint is . . . satisfied by open market policies defined by Equations 17 and 18').

As before, the government's optimal policies follow from maximization of Θ; the investor's optimal policy follows from his participation constraint, and the citizens' optimal

selections remain the same. □

Case 3. *If Equation 5, the investment constraint, is not satisfied by closed market policies or by the open market policies defined by Equations 17 and 18, and if Equation 6, the government's political constraint, is satisfied, then*

- *the government opens the market and the equilibrium policies are $\bar{\tau}$ and $\bar{\eta}$;*[33]
- *the foreign investor invests f_2 in the country; and*
- *the citizen's equilibrium consumption and investment are characterized by Equation 19.*

Case 3 Proof. In this equilibrium the government's optimal policies in response to domestic considerations are insufficient to meet the demands of foreign investors. Thus, the policies selected by the government must meet the investment constraint, and the government has a constrained optimization problem. We know that the constraint is met with equality, because the government prefers higher levels of extraction, and he will not give up more extraction than necessary to meet the constraint (Case 2 captures the outcome when the constraint is met without equality).

The government has the following constrained maximization problem:

$$L = \alpha u(c_1^m \times c_2^m) + r + \lambda[(1-\tau-\eta)R - G] \tag{20}$$

Solving the problem and plugging in the solutions for λ, the government's optimal policies are defined by the following equations,[34]

$$\frac{\alpha}{c_2^m}\left[k_2 + f_2 + 2\tau\left(\frac{\partial k_2}{\partial \tau} - \frac{\partial k_2}{\partial \eta}\right)\right] - k_2 - f_2 + 2\eta\left(\frac{\partial k_2}{\partial \tau} - \frac{\partial k_2}{\partial \eta}\right) = 0 \tag{21}$$

$$(1-\tau-\eta)R - G = 0. \tag{22}$$

The equations reflect the challenge faced by the government. Because foreign investors seek limitations on expropriation and redistribution, any increase in redistribution must now be offset by a decrease in expropriation in order to meet the investment constraint. Any increase in expropriation must be offset by a decrease in redistribution.

The investor's optimal policy follows, because his participation constraint is satisfied, and the citizens' optimal selections remain the same. □

Case 4. *If Equation 6, the government's political constraint, is not satisfied, then*

- *the government maintains a closed market and his equilibrium policies are implicitly defined by Equations 8 and 9;*
- *the foreign investor does not invest; and*
- *the citizen's equilibrium consumption and investment are characterized by Equation 7.*

Case 4 Proof. The final equilibrium captures those cases where the benefits of foreign in-

[33] $\bar{\tau}$ and $\bar{\eta}$ represent a range of policies; the functions implicitly defining the optimal selection of $\bar{\tau}$ and $\bar{\eta}$ are defined in the appendix.

[34] The problem can also be solved by plugging the constraint, defined in terms of τ or η, into the government's utility function and maximizing with respect to the other policy, η or τ. It may be easier to interpret Equation 21 before simplification, $\alpha[\frac{\partial u^m}{\partial \tau} - \frac{\partial u^m}{\partial \eta}] + \frac{\partial r}{\partial \tau} - \frac{\partial r}{\partial \eta} = 0$, where u^m designates the utility of the median voter.

vestment entry are insufficient to produce openness. If Equation 6, the government's participation constraint, is not satisfied, then he keeps a closed market, and his policies are consistent with Equations 8 and 9. The investor does not invest, because his participation constraint is not satisfied. The citizens' optimal selections remain the same. □

5.1 Proofs of Lemmas and Propositions

Proposition 1 Proof. To find the effect of α on the tax rate, apply the Implicit Function Theorem (IFT) to the optimal tax rate. The IFT in this case: $-\left[\frac{\partial^2\Theta}{\partial\tau\partial\alpha}\right] / \left[\frac{\partial^2\Theta}{\partial\tau^2}\right]$. The numerator, $\frac{\partial^2\Theta}{\partial\tau\partial\alpha} = \frac{1}{c_2^m}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right]$, is always positive - this can be verified using the first order condition (because the optimal policy is selected s.t. $\frac{\alpha}{c_2^m}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right] + \eta\frac{\partial k_2}{\partial\tau} = 0$ and $\eta\frac{\partial k_2}{\partial\tau} < 0$). The denominator is always negative (see Equation 15). Thus, the overall effect is positive.

To find the effect of α on the expropriation rate, apply the IFT to the optimal expropriation rate. The IFT in this case: $-\left[\frac{\partial^2\Theta}{\partial\eta\partial\alpha}\right] / \left[\frac{\partial^2\Theta}{\partial\eta^2}\right]$. The numerator, $\frac{\partial^2\Theta}{\partial\eta\partial\alpha} = \frac{1}{c_2^m}\left[-k_2^m + \tau\frac{\partial k_2}{\partial\eta}\right]$, is always negative, because $\frac{\partial k_2}{\partial\eta} < 0$. The denominator, is always negative (see Equation 16). Thus, the overall effect is negative. □

Lemma 1 Proof. Wages are $w_1^i = (w + \xi^i)k_2$; wages change with τ in the following way: $\frac{\partial w_1^i}{\partial\tau} = (w + \xi^i)\frac{\partial k_2}{\partial\tau}$. The change is negative, because $\frac{\partial k_2}{\partial\tau} < 0$ and $w + \xi^i > 0$. η follows a similar pattern, with: $\frac{\partial w_1^i}{\partial\eta} = (w + \xi^i)\frac{\partial k_2}{\partial\eta}$ and $\frac{\partial k_2}{\partial\eta} < 0$.

The effects to economic growth accrue through a similar mechanism. As in Persson and Tabellini (1994), the aggregate production function of the economy in per capita terms in each period is, $y_t = w_t + Rk_t$, and the growth rate is, $\hat{y}(\tau,\eta) \equiv \frac{k_2}{k_1} - 1$.[35] The growth rate thus corresponds to the growth in capital from one period to the next. Plugging in equilibrium investment choices, the growth rate is: $\hat{y}(\tau,\eta) = \frac{(1-\tau-\eta)w_1}{2-\tau-2\eta} - 1$ with $\frac{\partial\hat{y}}{\partial\tau} = \frac{-w_1(1-\eta)}{(2-\tau-2\eta)^2} < 0$ and $\frac{\partial\hat{y}}{\partial\eta} = \frac{-w_1\tau}{(2-\tau-2\eta)^2} < 0$. □

Lemma 2 Proof. This follows from the behavior of the government in Equilibrium 2, Case 1. If the investment constraint is met by existing policies, there are only benefits to opening the market: more capital for growth and wage increases, more rents from expropriation, more revenue for redistribution, and the potential to revise expropriation and redistribution rates (up to the investment constraint) to further benefit citizens and the government. □

Lemma 3 Proof. Opening markets has two effects when the investment constraint is satisfied: It increases consumption by adding f_2 to the capital invested in the country, and it intensifies the effect of property rights violations, through $\frac{\partial f_2}{\partial\tau}$ and $\frac{\partial f_2}{\partial\eta}$, as now foreign and domestic investment are deterred.

To find the direct effect of adding f_2, I again use the IFT. It requires the computation of the second order conditions and the partial derivatives with respect to f_2. Both second order conditions are negative: $\frac{\partial^2\Theta}{\partial\tau^2} < 0$ and $\frac{\partial^2\Theta}{\partial\eta^2} < 0$ (see equations 15 and 16). The partial derivatives are below.

[35] See Drazen (2000) for the derivation (464).

$$\frac{\partial^2\Theta}{\partial\tau\partial f_2} = \frac{\alpha}{c_2^m} - \frac{\alpha}{(c_2^m)^2}\left[-k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial\tau}\right]\tau \lesseqgtr 0, \tag{23}$$

$$\frac{\partial^2\Theta}{\partial\eta\partial f_2} = 1 > 0 \tag{24}$$

To find the indirect effect of adding f_2, I again use the IFT. Now, we need the partial derivative with respect to the elasticity of investment, $\frac{\partial f_2}{\partial\tau}$ and $\frac{\partial f_2}{\partial\eta}$, to sign the indirect effect.

$$\frac{\partial^2\Theta}{\partial\tau\partial(\frac{\partial f_2}{\partial\tau})} = \frac{2\tau\alpha}{c_2^m} + 2\eta > 0, \tag{25}$$

$$\frac{\partial^2\Theta}{\partial\eta\partial(\frac{\partial f_2}{\partial\eta})} = \frac{2\tau\alpha}{c_2^m} + 2\eta > 0 \tag{26}$$

Thus, adding foreign investment increases the magnitude of the reduction in investment associated with increasing redistribution and expropriation. This increase in magnitude signifies a larger negative effect on government utility.

The overall effect of openness on the policies will depend on which effect dominates. Openness puts upward pressure on both τ and η, because there is more investment subject to the government's extraction. At the same time, openness puts downward pressure on the two policies, because they reduce future investment. □

Proposition 2 Proof. In order to prove that, as institutions become more representative, the government favors decreases in expropriation over decreases in redistribution in response to constraints from international investors, we must look to the difference in policy under closed and open markets. We first examine redistribution; this is Equation 8 minus Equation 21:

$$\frac{\alpha}{c_2^m}\left[-f_2 - k_2^m - \tau\frac{\partial k_2}{\partial\tau} + 2\tau\frac{\partial k_2}{\partial\eta}\right] + k_2 + f_2 - \eta\frac{\partial k_2}{\partial\tau} + 2\eta\frac{\partial k_2}{\partial\eta} = 0 \tag{27}$$

The Proposition identifies how this difference changes as one increases α, so we take the derivative of Equation 27 with respect to α.

$$\frac{1}{c_2^m}\left[-f_2 - k_2^m - \tau\frac{\partial k_2}{\partial\tau} + 2\tau\frac{\partial k_2}{\partial\eta}\right] \tag{28}$$

The proposition anticipates that Equation 28 is less than zero, because the reduction in redistribution in response to international investors should be smaller when institutions are representative. Equation 28 is less than zero as long as: $f_2 + k_2^m + \tau\frac{\partial k_2}{\partial\tau} - 2\tau\frac{\partial k_2}{\partial\eta} > 0$, which is always true when the government is constrained by open markets.

To verify, recall that the government is only constrained by international markets when $\tau' > \bar{\tau}$. This means that there is a $\tau' > \bar{\tau}$ that is implicitly defined by Equation 17, $\frac{\partial\Theta}{\partial\tau} = \frac{\alpha}{c_2^m}\left[-k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial\tau}\right] + 2\eta\frac{\partial k_2}{\partial\tau} = 0$. This equation only identifies a positive value of τ' when $-k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial\tau} > 0$. Now, we just need to do some algebra to show that: $f_2 + k_2^m + \tau\frac{\partial k_2}{\partial\tau} - 2\tau\frac{\partial k_2}{\partial\eta} > -k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial\tau} > 0$.

$$
\begin{aligned}
f_2 + k_2^m + \tau\frac{\partial k_2}{\partial \tau} - 2\tau\frac{\partial k_2}{\partial \eta} &> f_2 + k_2^m + 2\tau\frac{\partial k_2}{\partial \tau} - 2\tau\frac{\partial k_2}{\partial \eta} && \left[\text{as } \frac{\partial k_2}{\partial \tau} < 0\right] \\
f_2 + k_2 - k_2^m + \tau\frac{\partial k_2}{\partial \tau} - 2\tau\frac{\partial k_2}{\partial \eta} &> f_2 + k_2 - k_2^m + 2\tau\frac{\partial k_2}{\partial \tau} - 2\tau\frac{\partial k_2}{\partial \eta} && [\text{add } k_2 - 2k_2^m]
\end{aligned}
$$

The right hand side of the equation, $-k_2^m + f_2 + k_2 + 2\tau\frac{\partial k_2}{\partial \tau} - 2\tau\frac{\partial k_2}{\partial \eta}$, is greater than $-k_2^m + k_2 + f_2 + 2\tau\frac{\partial k_2}{\partial \tau} > 0$ as $\frac{\partial k_2}{\partial \eta} < 0$, which completes the proof. We have now demonstrated that the reduction in redistribution associated with open markets is smaller when institutions are representative.

We also need to show that the reduction in expropriation is larger when institutions are representative. Because this smaller reduction in redistribution accompanies representative institutions, the reduction in expropriation must be larger, because any increase in redistribution must be offset by a decrease in expropriation. This comes from Equation 22, $(1 - \tau - \eta)R - G = 0$, which in turn follows from the investment constraint.

□

5.2 Proof of Corollaries Discussed Informally in the Text

Corollary 1. *The tax rate is increasing in inequality, because the optimal tax rate decreases in ξ^m (as ξ^m increases, the country becomes more equal; recall $\xi^m < 0$).*

Corollary 1 Proof. Apply the IFT to the optimal tax rate. The IFT in this case is: $-\left[\frac{\partial^2\Theta}{\partial\tau\partial\xi^m}\right] / \left[\frac{\partial^2\Theta}{\partial\tau^2}\right]$. Using the optimal tax rate as defined by Equation 8, the numerator of the IFT is:

$$
\frac{\partial^2\Theta}{\partial\tau\partial\xi^m} = -\frac{\alpha(1-\tau-\eta)}{(c_2^m)^2}\frac{\partial k_2^m}{\partial\xi^m}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right] - \frac{\alpha}{c_2^m}\frac{\partial k_2^m}{\partial\xi^m}. \tag{29}
$$

The numerator of the IFT is negative, because $\frac{\partial k_2^m}{\partial\xi^m} = \frac{k_1}{2} > 0$ and $\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right] > 0$, because the optimal policy is selected s.t. $\frac{\alpha}{c_2^m}\left[-k_2^m + k_2 + \tau\frac{\partial k_2}{\partial\tau}\right] + \eta\frac{\partial k_2}{\partial\tau} = 0$. As before, the denominator, $\frac{\partial^2\Theta}{\partial\tau^2}$, is always negative (Equation 15). □

Corollary 2. *Open markets are more likely as the amount of foreign investment seeking to enter the market, f_2, increases and as the domestic rate of return on investment, R, increases.*

Corollary 2 Proof. For openness to result in equilibrium, the political and investment constraints must both be met.

As f_2 increases, the political constraint, Equation 6, is more likely to be satisfied. The left hand side is increasing in f_2, as f_2 increases median voter utility – through its effect on wages and transfers – and f_2 increases the size of government rents. f_2 does not affect the investment constraint.

As R increases, the investment constraint, Equation 5, is more likely to hold. The left hand side is increasing in R. R cancels out of the political constraint. □