Financial Liberalization: Stable Autocracies and Constrained Democracies

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Abstract

Why do autocratic rulers liberalize financial markets? This paper shows how autocrats use financial liberalization for two distinct purposes. First, autocrats may use liberalization to bolster the economy, making revolution less attractive to the political opposition and stabilizing the autocracy. Second, when stabilization of the autocracy is too costly, autocrats may use liberalization to make assets more mobile. Mobility provides asset owners with external investment options, which limit redistribution. When redistribution is the main fear associated with democratization, mobility makes direct control of political institutions through dictatorship unnecessary. Thus, autocrats use liberalization to stimulate the economy and stabilize their rule or to reduce redistribution in anticipation of future democratization. Suharto's policies in Indonesia and Pinochet's policies in Chile illustrate these two objectives of financial liberalization. A game theoretic model formalizes the logic of the theory and provides additional theoretical insights.

When do autocratic rulers liberalize financial markets and how does financial policy impact prospects for democratization? At various times, there have been 44 different autocratic countries with fully liberalized capital accounts.[1] Despite the presence of open financial markets in these autocracies, there are at least two compelling reasons why we would expect autocrats to engage in financial repression. First, financial repression is often used by autocrats to reduce competition and channel economic benefits to the government or its supporters (Johnson and Mitton 2001, Caprio et al. 2001, Menaldo 2015). Financial repression should be favored in particular by autocrats, as they are expected to prefer the private transfers facilitated by financial repression over the public good like benefits of financial liberalization (Lake and Baum 2001, Bueno de Mesquita et al. 2003).

Second, financial openness has been associated with democratization. When assets are mobile, the cost of democratization in terms of redistribution is lower (Boix 2003), and assets are more mobile when markets are open (Acemoglu and Robinson 2006, Ch. 10 and Freeman and Quinn 2012). Accordingly, when financial markets are open, democratization is more likely. Despite these costs of financial liberalization – both for autocratic rents and in terms of democratization – many autocrats have presided over partial or even full financial liberalization. Explaining liberal financial policies in autocracy, as well as their implications for democratization, is the purpose of this study.

The paper presents a formal model that demonstrates how political institutions and financial liberalization result from the bargaining power and outside options of domestic actors, including the political opposition's willingness to revolt and the autocratic elite's ability to suppress that revolt. The model integrates theories of democratization and factor mobility with the distributional consequences of openness to derive insights for regime change, redistributive policy, and inequality.

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[1]Countries with fully liberalized capital accounts have a Karcher and Steinberg (2013) value for capital account openness of 2.532, which is the highest score in the full sample, including democracies and OECD countries. Autocratic countries are identified by the binary coding from Cheibub et al. (2010). There are 34 fully liberalized states with a polity score less than six (Marshall et al. 2013).

The paper provides two explanations for financial liberalization in autocracy. When co-opting the political opposition and thereby deterring revolution is feasible, the autocratic elite use financial liberalization to prevent democratization. Financial liberalization functions as a transfer, because it benefits the economy as a whole at the expense of the autocratic elite. It facilitates the entry of foreign investment, which increases efficiency, grows the economy, and increases wages. Overall, these effects are costly for domestic financial actors, who would have benefited from financial repression, but they are beneficial for workers, for productivity, and for the economy as a whole.

In addition to these direct, distributional implications that make financial liberalization attractive as a transfer, liberalization has other consequences, which reinforce the transfer. Liberalization makes revolution more costly for the political opposition. Revolution disrupts the economy, and this disruption is more costly when the economy is functioning well. Financial liberalization also reduces the amount of redistribution in democracy, thereby making democracy less attractive to potential revolutionaries. The model thus demonstrates how autocrats use liberalization as a transfer to the population, undermining the political opposition, and stabilizing the autocracy. Contrary to existing studies emphasizing factor mobility and democratization, liberalization makes democratization less likely in these cases.

In other cases, the transfers needed to prevent revolution are prohibitively large, and, rather than trying to prevent revolution, the autocratic elite implement policies that will protect their wealth following democratization. In this context, financial liberalization may also be attractive as it fosters financial development, making assets more mobile and reducing future taxation. When financial markets are open, the choices of policymakers in democracy are constrained by the elite's ability to move their investment abroad and by the reliance of the economy on their continued investment. Even if policymakers would like to increase redistribution in democracy, they refrain from doing so when large-scale redistribution would discourage investment and weaken the econ-

omy.

In short, financial liberalization is attractive under two different political conditions: Liberalization is attractive as a transfer to the population in stable autocracies, because it makes revolution relatively more costly. Liberalization is also attractive prior to democratization, because it limits the redistribution often feared following democratization. Consequently, financial liberalization is present in many democracies *and* in many stable autocracies.

There are two strands of influential research that emphasize political institutions and financial policy. Neither explains financial liberalization in autocracies. One strand of research allows political institutions to change, but holds financial openness and asset mobility constant (Bates and Lien 1985; Boix 2003; and Acemoglu and Robinson 2006, Ch. 10). This research does not explore how policymakers manipulate financial policy for their own political purposes. However, we know from research in political economy that policymakers have a great deal of influence over financial markets and that they use liberalization to meet their political goals (e.g., Quinn and Inclán 1997, Brooks and Kurtz 2007). If openness has substantial consequences for incomes and for democratization, as outlined above, openness and consequently asset mobility should not be exogenous in our theories of regime change. Autocratic leaders must consider these effects when making financial policy.

The second strand of research exploring political institutions and financial policy largely holds institutions constant and investigates the political incentives for different economic policies. For example, financial liberalization is thought to be more attractive under democratic institutions, due to the public good type benefits engendered by efficient credit markets (e.g., Nelson et al. 2015, Brune et al. 2001). An extension of this work shows that democratic governments may be unable to implement these financial reforms if certain autocratic institutions endure into the democratic period (Menaldo and Yoo 2015). This research does not explore how policymakers might use financial policy to reinforce political institutions that are favorable to them. Taken

together these two strands of research raise a challenge to jointly consider economic policy and political institutions.

By allowing both institutions and economic policy to result from political interaction, this paper returns domestic power differentials to the forefront of democratization theories. Financial openness is not a panacea that makes democratization more likely. Rather, this paper shows how autocrats may liberalize financial markets to prevent democratization, or they may liberalize financial markets when democratization is inevitable. Liberalization in the former case undermines democratization. Liberalization in the latter case is the result of impending democratization, not the cause of the democratization.

The theory also raises theoretical and empirical challenges for research in financial liberalization and inequality. Financial liberalization has implications for factor returns and for redistributive policy. Under a set of simplifying assumptions, which are discussed in the text, liberalization reduces inequality through its effect on factor returns in developing countries. However, the total effect of liberalization could increase inequality if the limits on redistribution in democracy overwhelm the changes in factor returns. The theoretical model thus challenges researchers to acknowledge both effects of liberalization – for incomes and for policy – when analyzing the impact of financial liberalization on inequality.

The paper proceeds as follows. It first defines financial liberalization and provides some context for liberalization in autocracy. It then presents a theoretical model and identifies equilibrium economic policies and political institutions. Each equilibrium outcome and the model implications are briefly described in the text. Formal proofs are in the appendix. The insights from the model are then applied to Suharto's financial policies in Indonesia and Pinochet's policies in Chile. Suharto provides an example of an autocrat who uses financial policy for two goals: by implementing an intermediate level of liberalization, Suharto is able to benefit his political supporters, while simultaneously stimulating the economy and legitimizing his rule. Pinochet illustrates how autocrats

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use financial liberalization to increase asset mobility and prepare a constrained democracy. Additional predictions and implications from the model are then presented. The paper concludes with thoughts for future research.

Financial Liberalization in Autocracy

Before proceeding with the discussion, it is first necessary to define financial liberalization. Financial liberalization represents the removal of restrictions on international investment flows and the enforcement of investment contracts. Although these policies are often considered separately in the literature on democratization (e.g., North and Weingast 1989, Bates and Lien 1985), they are frequently pursued in tandem, as they are preconditions for the entry of foreign investment and the development of the financial market.[2] Without liberalization of restrictions on capital flows, investors would be unable to enter the market. Without contract enforcement, investors would be unwilling to enter the market: Investment would likely flow out of rather than into the country, as investors would worry that political actors would revise the investment contract when it serves their interests (e.g., Vernon 1971, Li 2009). This paper thus focuses on comprehensive policies of financial liberalization, which include openness to international financial flows and enforcement of investment contracts.

This type of financial liberalization has two consequential effects for this study. First, financial liberalization generates investment inflows. These inflows grow the economy directly and indirectly: They increase the demand for domestic labor, increasing wages and often improving working conditions (e.g., Stolper and Samuelson 1941, Frieden 1991, Jensen and Rosas 2007, Pinto 2013, Pandya 2014). They introduce additional financial competition, which hurts the providers

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[2]Researchers have shown that financial liberalization increases growth in particular in the presence of strong property rights or legal institutions (Edwards 2001, Chinn and Ito 2006, Prasad et al. 2007, Broner and Ventura 2010), which may be necessary to assure foreign investors that their rights will be respected.

of domestic financial services but benefits domestic borrowers. The economic elite in many countries benefit from closed, under-developed, uncompetitive capital markets, as they gain access to preferential borrowing rates or they charge higher premiums on their investments. Taken together, liberalization is costly for domestic financial actors, who would have benefited from financial repression, but it is beneficial for workers, for productivity, and for the economy overall.

The second effect emphasized here is that the financial development fostered by investment inflows makes the economy more responsive to government policy. Financial liberalization facilitates the liquidation of assets and their movement abroad. When markets are developed, investors may segment asset ownership into shares that can be bought and sold easily, allowing asset owners to liquify and diversify their holdings (Freeman and Quinn 2012). These liquid assets are more responsive to (expected) increases in the tax rate (Acemoglu and Robinson 2006, Ch. 10). When tax rates increase, investors will sell their assets, driving down their value and reducing economic growth. Even the value of seemingly immobile assets, like farming equipment and factories, becomes more mobile when these assets may be easily bought and sold in a securities market.[3] Additionally, when financial markets are open, investors will be able to move their assets overseas and out of the reach of domestic policymakers. In sum, financial liberalization facilitates investment flows, leading to financial market development and making the economy more responsive to government policy.

The redistributive policies proposed by French President François Mitterrand and the immediate response of financial actors illustrate the responsiveness of liberal financial markets. Mitterrand was elected in 1981 on a platform of redistributive economic policies, including increased tax rates and multiple nationalizations. Within days of his election, "the French stock market fell

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[3]One could also classify assets based on mobility. The constraints in democracy would then rely on the share of capital that can be made mobile being large enough to constrain redistribution in democracy. Because financial liberalization also leads to the development of the financial market, it would produce greater mobility through two channels: it facilitates outflows and at the same time increases the share of assets that are mobile (e.g., stocks and bonds).

20 percent" (Greenhouse 1988) and the French Franc lost 10 percent of its value (Brown 1996, 69). In response to these economic costs, Mitterand reversed his policies (Frieden 1991, 427). The investment flight and economic downturn triggered by Mitterrand's policies – and the subsequent reversal of those policies – demonstrate the constraints imposed by an open financial market. Although investment flight actually occurred in Mitterrand's case, it is often argued that the threat of flight, or of underinvestment in the future, is enough to persuade policymakers to select pro-investor policies (Block 1977, Lindblom 1977, Przeworski and Wallerstein 1988).

The type of liberalization discussed here shares many similarities with measures of capital mobility in other models. For example, Boix (2003) shows how capital mobility constrains tax rates; since his measure of capital mobility is exogenously determined, he finds that democratization is less costly and therefore more likely when assets are mobile. In Chapter 10 of their book, Acemoglu and Robinson (2006) consider the effect of trade and financial openness on democratization. They similarly find that both types of openness facilitate democratization and prevent reversal. Openness is exogenous in their model – they do not explore the political incentives for trade and financial policy. Bates and Lien (1985) use the elasticity of domestic production to increases in the tax rate as a determinant of political power. Democratization happens when production is responsive to changes in the tax rate, as the owners of mobile assets demand democratic institutions in exchange for their tax revenue. The innovation here is that the autocratic elite determine financial policy endogenously for their own political and economic benefit.

The concept of liberalization presented here also bears some resemblance to the investments in education presented by Bourguignon and Verdier (2000). Both policies have distributive effects and externalities, which affect regime transition. Financial liberalization increases wages, while decreasing investment returns. The externality associated with financial liberalization – reduced redistribution – benefits the elite at the expense of the poor. In the model here, financial liberalization is economically unattractive, but politically appealing, either because it provides an efficient

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transfer in autocracy or because it prevents redistribution in democracy.[4] Both policies, education investments and financial liberalization improve long-term economic outcomes.

How have we explained financial liberalization in autocracies? Many existing explanations for openness rely on conditionality from the International Monetary Fund (IMF) or the need to access international credit markets more generally; on political partisanship (Brooks and Kurtz 2007); on the necessity of interacting in a global market (Goodman and Pauly 1993, Haggard and Maxfield 1996); on foreign exchange scarcity (Betz and Kerner 2016), particularly in oil rich countries (e.g., Richter 2010); and relatedly on crisis; as well as on the presence of already competitive markets (Rajan and Zingales 2003) or strong fiscal capacity (Menaldo 2015). None of these explanations account for the specific political incentives faced by autocrats.

There are theoretical and empirical reasons to think that these explanations do not wholly account for financial policy in many autocracies. IMF conditionality is only weakly related to capital account openness in most regression analyses,[5] and conditionality is thought to be ineffective against U.S. allies and temporary members of the UN Security Council (Stone 2004, Dreher and Jensen 2007, Dreher et al. 2009). In cross-country regressions, democratization quickens the pace of capital account liberalization and autocracies generally have more closed capital markets (Brune et al. 2001). In autocratic countries, partisanship has limited explanatory power, as partisanship is unclear when party competition is limited or completely absent. Markets and fiscal capacity could just as easily develop in tandem with liberalization and the growth it engenders.[6]

Figure 1 plots the average values of the Financial Reform Index (Abiad et al. 2008) from

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[4]In the model by Bourguignon and Verdier (2000), education improves outcomes from the poor; the oligarchs pay for the education, but receive higher returns from their economic production. The externality associated with education in the model – increased political participation – benefits the newly-educated poor at the expense of the oligarchs. Education is economically attractive to the oligarchs but politically unappealing. Financial liberalization in contrast is economically unattractive but politically appealing.

[5]Mukherjee and Singer (2010) find a positive relationship, but only when IMF conditionality is accompanied by welfare spending.

[6]The absence of an exogenous source of variation in market competition and fiscal capacity makes causality difficult to ascertain.

1970 to 2005 in all autocracies (Cheibub et al. 2010),[7] as well as for Chile, Indonesia, and China. The Index captures reductions in restrictions on exchange rate convertibility, capital flows, the banking sector, and the securities market; higher values signify more liberal financial markets. The data points under the graph show the number of IMF loans (Dreher 2006) in place in each year.

The graph shows the dramatic, although incomplete, liberalization of Indonesia's financial market under the autocratic leadership of Suharto from the late 1970's to early 1990's. Indonesia did not receive an IMF loan during this time. Chile's liberalization is more consistent with the IMF thesis, although the financial reforms in Chile began under Pinochet in the mid-1970's before the IMF programs were implemented. In addition, the currency crisis in Chile during the 1980s actually resulted in greater closure, albeit briefly, rather than openness. China largely began its reform process after Deng Xiaoping rose to power in 1978. The reforms were initially accompanied by IMF loans, but China continued to open its market long after the IMF programs ended in 1988. Although these three countries have some resource wealth, none of them are examples of the petroleum states that many social scientists have in mind. All three countries underwent substantial liberalization, and the conventional wisdom provides limited explanatory power.

[Figure 1 about here]

Modeling Regime Change and Financial Openness

With a number of important departures, the model presented here will follow the framework presented by Acemoglu and Robinson (2001, 2006). The first point of departure is that the elite select both the tax rate and the amount of financial liberalization in autocracy. Financial liberalization will affect not only the autocrat's utility in autocracy but also the probability of democratization, as well as his utility under democratic institutions should they result. In Chapter 10 of their book,

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[7]The average measure includes all countries that are not coded as democracies.

Acemoglu and Robinson (2006) explore the impact of openness, but they take the amount of openness as given. They do not consider how autocrats might strategically open the market for political or economic gain. Second, in the model here, the overall level of inequality in the country is derived endogenously and depends on both factor returns and redistribution. The model assumes that prior to redistribution or financial liberalization the elites are wealthier than the poor. The third point of departure is that transition between the democratic and autocratic states may happen through revolution, democracy from below, or from elite extension of the franchise, democracy from above. In Acemoglu and Robinson's model, revolution is a terminal or absorbing state; they do not consider democracy from below (2001).[8] The conditions that induce revolution and elite extension of the franchise are similar in equilibrium, as the elite will not democratize unless there is pressure for democratization.

There are two actors in the model, the poor and the elite. Elites earn income from the returns on capital investments, while the poor's income comes from their wages. The model thus treats the elite and the poor as unitary actors. Although the opinions of the actors in each group are likely heterogeneous in many issue areas, their preferences for redistributive policy should be more homogenous. The elite do not want to see their income decline, while the poor would like the government to spend more to improve their quality of life. These assumptions for their redistributive preferences are consistent with a large body of work on class conflict in political science and economics.

In the model, the elite control policy in autocracy; they are both the economic and political elite. Economic elites often have disproportionate influence over policy decisions in an autocracy. Either they are political elites who amassed wealth through preferential policies,[9] or they are eco-

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[8]Because revolution cannot lead to democracy in their model, revolution is the absorbing state, while their democracy state is not absorbing. The actors in their model can revert from democracy to autocracy through coups or they can remain in democracy. The model presented here enables the actors to reach democracy through revolution, but, due to this structural change and the need for an absorbing state to solve the model, democracy becomes the absorbing state; democratization cannot be reversed.

[9]For instance, leaders with small winning coalitions provide more targeted transfers to their supporters according

nomic elites who buy political influence. The poor, who make up a majority of the population in the country, control policy decisions in democracy. Although economic elites also have political influence in democracy, their influence is exaggerated in autocracy where institutions provide fewer constraints.

The treatment of the economic and political elite as a single group in autocracy is an important assumption that can be used to distinguish different classes of models from one another in the literature on democratization. The first class of models, of which the study here is part, assumes that the economic and political elite are one in autocracy (prominently, Acemoglu and Robinson 2001, 2006, Boix 2003). This assumption allows the modeler to explore class conflict. It makes the most sense when the economic elite also have political power in autocracy – this should hold when economic conditions have been relatively stable, as the political elite have likely determined the best way to extract rents, thereby enriching themselves and their associates, and impoverishing those who do not follow their rules.

The second class of models distinguishes between the political and economic elite (North 1981, North and Weingast 1989, Bates and Lien 1985, Ansell and Samuels 2010, 2014) and emphasizes political competition among the extractive autocrat and the wealthy elite. These models thus anticipate that democratization occurs when the economic elite have more influence. For example, when their assets are elastic to taxes, they demand democratic institutions in exchange for tax revenue (Bates and Lien 1985).[10] This assumption makes the most sense when there is a strong economic elite that is not part of the political elite – this should hold during periods of rapid

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to selectorate theory (Bueno de Mesquita et al. 2003, 88 & 101). Over time, these transfers create a wealthy political elite.

[10]This class of models raises the question of why the political elite would then extend the franchise to the population as a whole – why not just incorporate the economic elite into the political elite and retain autocratic institutions? Democratization is particularly likely when there are commitment problems to incorporating the economic elite into the political elite (North and Weingast 1989), when there are high inefficiency costs of these new autocratic institutions, when inequality is low, when the economic elite is a sufficiently large group that incorporating them into the political elite is not much different from democratization, or when the policies generated by the newly extended franchise are actually attractive to the autocratic elite (Lizzeri and Persico 2004, Bourguignon and Verdier 2000).

economic transition where the autocratic government loses control of the means of production.

The model here emphasizes political conflict between the poor and the politico-economic elite in autocracy for two main reasons. The first is that in many stable autocracies, the political elite have become extremely wealthy through their manipulation of policy – for example, consider the Russian oligarchy's personal provision of property rights (Sonin 2003). Second, the effects of financial liberalization closely impact redistribution and factor returns. Financial liberalization thus speaks most directly to those cases where the central political cleavage falls on class lines. Liberalization would not resolve conflicts that come from other cleavages.

A third class of models allows for competition among members of the political elite (e.g., Myerson 2008, Svolik 2009, 2012). Svolik (2009) demonstrates that threats to autocrats' tenure frequently come from within the inner circle. Although the model here abstracts away from these challenges, responding to pressure from the autocrat's supporters would motivate him to channel economic benefits to his supporters using financial repression. These incentives are thus captured by the elite's utility function. The analysis here focuses on challenges from outside the autocrat's inner circle; these are the types of challenges that could result in democratization rather than political turnover.

The next section details the actors' utility functions. The subsequent sections describe the states and the strategies available to the actors in each state, the endogenous determination of their factor returns and factor mobility, the equilibrium of the game, and implications of the model. Proofs are provided in the Appendix.

Utility Functions

In the autocracy and democracy states, the economy functions, and the elite receive income from interest on their investments. The utility function of the elite in the democracy and autocracy states

is: $u_e = (1 - \tau)rk$, where r is the rate of return on their capital investment, k is the domestic capital endowment, and τ is the tax rate charged on the elite's income. The tax rate in the model is entirely redistributive from the elite to the poor: The elite retain $(1 - \tau)$ of their income and they transfer τ of their income to the poor. Foreign capital is not taxed.[11] After the transfer is made, the elite's remaining income is: $(1 - \tau)rk$. Based on their utility function alone, the elite would like to maximize investment returns and minimize transfers. However, due to the poor's threat of revolution, the elite may implement transfers even when they control policy in autocracy.

In the autocracy and democracy states, the poor receive income from their wages and tax transfers from the elite. The utility function of the poor is: $u_p = wl + \tau rk$, where w is the wage rate, l is the labor endowment in the country, and τrk is the poor's share of elite income. The poor would like to maximize wages and transfers. However, due to the elite's ability to move assets abroad in an open economy, the poor may refrain from redistribution when they control policy in democracy. The wage rate and the rate of return on investment are determined by the domestic economy, which is described in the following section.

In the revolution state, the economy stops and the elite and poor pay the cost of revolution in that period: $-c_e$ and $-c_p$ respectively. Revolution disrupts the economy, as the workforce may actively participate in the revolt or be unwilling to risk their lives to go to work. Although the costs of revolution are abstract in the model, they allow the costs for the elite and the poor to differ.[12] For example, if the population is diffuse throughout the country, creating collective action problems, then the cost of revolution for the poor might be much larger than the cost for the elite. The model uses the most straightforward way to capture that interaction, allowing consideration of

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[11]The relaxation of this assumption opens up the possibility that elites benefit from openness through taxation of foreign investment. However, many studies have demonstrated the difficulty of taxing mobile capital, and governments often provide tax incentives to attract investment (e.g., Li 2006, Desai et al. 2006).

[12]The same results, discussed below, apply if the economy continues to function during revolution, and the revolution instead destroys part of the elite's capital during the revolution period. A more complex model would be required to capture capital destruction that endures over time, as revolution is not a terminal state; the main insights of the model would carry over. Permanent capital destruction would heighten the implications of revolution for the poor and the elite, particularly if they value their future income highly.

the relevant costs in a specific context.

The cost parameters also capture another potential source of autocratic stability, repression (Wintrobe 1998). When the government has built up its repressive capacity, I expect the cost of revolution for the elite to be small and the cost of revolution for the poor to be large. Thus, the model incorporates standard ideas about the repressive capacity of the state, while focusing on the autocratic elite's choice of economic policy.

Markov States and Strategy Spaces

There are three states in the model: autocracy, revolution and democracy. One should think of the states as different institutional settings, where political institutions constrain behavior in various ways but the institutions are themselves the product of past interactions. This is an infinitely repeated game, where the payoffs of the actors and strategies available to them depend on the present state. The poor select the tax rate in democracy, while the elite select the tax rate in autocracy. Revolution is included as its own state in the model, because economic production is interrupted during periods of revolution, and the revolution state represents a period of institutional change. Neither democratic nor autocratic institutions govern behavior during revolution.

Movement between the states results from the strategies selected in each state. The game begins in autocracy and continues in autocracy if the poor concede to the elite's policies. Revolution results if the poor threaten revolution and the elite ignore their threat. The state returns to autocracy if revolution is unsuccessful. The state becomes democracy if the revolution is successful or if the elite extend the franchise. The sequence of play and strategy space is briefly described below.

Autocracy State
1. The elite select the tax rate, τ_e, and the level of financial liberalization, θ.
2. The poor decide to *threaten* revolution or to *concede*. If the poor concede, payoffs are

realized according to τ_e, θ, and the state remains autocracy.

3. If the poor threaten revolution, the elite decide whether to *democratize* the political system or to *ignore* the poor's threat. Regardless of the elite's decision, payoffs are realized according to τ_e, θ in the autocracy state. If the elite democratize, they proceed to democracy in the next period. If the elite ignore the threat, they proceed to revolution.

Revolution State

1. Nature determines whether the revolution is successful. With probability ρ, the revolution *succeeds*, and with probability $1 - \rho$, the revolution *fails*. Economic activity seizes during the revolution, and the elite and poor receive a payoff of $-c_e$ and $-c_p$ respectively. If the revolution fails, they proceed to autocracy. If the revolution succeeds, they proceed to democracy.

Democracy State

1. The poor, who hold political power in democracy, select the tax rate, τ_p.

2. After observing τ_p, the elite decide whether to *flee*, moving their assets out of the country, or to *stay*, retaining their current level of investment in the country. If the elite stay, their payoffs are realized according to τ_p. If the elite flee, they are no longer able to constrain taxes with the threat of flight, the poor seize their assets, and the elite only receive payment on their assets invested outside the country.

3. Democracy is an absorbing state: Once reached, the actors remain in democracy forever. The payoffs are realized according to τ_p, θ for infinite periods.

By setting up the game in this consecutive move manner, the elite's first move impacts not only their first-period payoffs but also the probability of transitioning between states and their payoffs in those states. Thus, the elite anticipate the response of the poor, as well as their own response to the threat of revolution, when they select the tax rate and level of financial liberalization. This structure enables the elite to use liberalization to prevent revolution or to constrain the anticipated tax rate in democracy.

While I assume that the elite control both the tax rate and financial liberalization in autocracy, the poor only control the tax rate in democracy. As a consequence, the amount of redistribution in democracy is constrained by the existing level of financial liberalization. Policy is only constrained when assets are mobile, and financial liberalization increases market development and produces more mobility. It is unlikely that democratic policymakers could revise the amount of liberalization

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rapidly enough to prevent flight, and even discussion of restrictions on mobility may be enough to trigger flight (Przeworski and Wallerstein 1988, 23). Flight is seldom observed, because, once markets are open, the threat of flight is often sufficient to constrain policymakers.[13] The concept of constrained democracy will therefore require that the market is sufficiently developed and linked to the global market that market closure or revision of redistributive policies is counterproductive.

In the Appendix, a model extension allows the poor to also manipulate financial policy in democracy. In this case, the model implications discussed below follow, as long as the elite's financial policies persist into democracy.[14] If the elite's policies are sufficiently enduring and the financial market sufficiently open, the poor will not increase redistribution in democracy for fear of flight. In this extension to the model, even if the poor prompt flight through redistribution, they will liberalize the financial market in the subsequent period. Following flight, the main cost of liberalization for the poor – the exit of investment – has already been realized, and the poor benefit from financial inflows and market development.

Factor Returns and Factor Mobility

In autocracy and democracy, the economy functions and the wage rate and the rate of return on investment are determined using the following Cobb-Douglas production function with constant returns to scale: $y = l^\beta K^{1-\beta}$, where l is the labor endowment, K is the total amount of capital in the country and $\beta < 1$. Although a competitive economy is not necessary for the results,[15] I assume that the domestic economy is competitive for ease of derivation. This implies that wages and investment returns are determined by the following equations: $w = \frac{\beta K^{1-\beta}}{l^{1-\beta}}$ and $r = \frac{(1-\beta)l^\beta}{K^\beta}$. Consequently, factor returns depend on the relative scarcity of capital and labor.

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[13]The threat of flight is particularly constraining as the capital market deepens and economic success in the country relies on investment (Tornell et al. 2003, Demirgüç-Kunt and Detragiache 2006, Mishkin 2007).

[14]The extension includes only one period of persistence.

[15]The findings require that financial openness facilitates investment inflows and outflows and that inflows increase wages, while outflows increase investment returns. The necessary assumptions are discussed in the Appendix.

The total amount of capital in the country depends on the capital endowment, which is owned by the elite, and the amount of foreign capital that enters the market. Entry of foreign investment depends on the level of financial liberalization, $\theta \in [0, 1]$. The total capital invested in the country is: $K = k + a\theta$, where k is the domestic capital endowment and a is a scalar that represents the attractiveness of the market. When a is large, more foreign capital seeks to enter the market. a could depend on considerations like the cost of production in the country, including the abundance of raw materials, infrastructure and the distance to market, as well as the availability of foreign capital.

Note that wages increase as foreign capital enters the market, while investment returns decrease. The implications of liberalization for factor returns are consistent with existing work that shows that labor benefits directly from investment (e.g., Jensen and Rosas 2007, Pinto 2013, Pandya 2014). Labor may also benefit indirectly from investment: Borrowers benefit from access to cheaper credit from international lenders (Nelson et al. 2015, 10-11, and Henry 2007, 887). More generally, liberalization of the market fosters a more competitive business environment, which reduces prices and benefits consumers. Based solely on their utility functions, the poor prefer financial liberalization, while the elite prefer to limit liberalization and benefit from the relative scarcity of their capital. However, financial liberalization also has strategic implications. Liberalization makes assets more mobile and facilitates capital flight, which constrains taxation in democracy.

The preceding description applies to the total amount of capital invested in the country when capital stays in the country. Nevertheless, capital owners may decide to remove their capital from the country (called *flee* in the Democracy state). The flight of capital is likewise determined by the level of financial liberalization, θ. Following flight, the total capital invested in the country is: $(1 - \theta)K$. When capital markets are open, capital owners are able to invest and disinvest more of their capital from the market. Capital invested abroad receives an investment return of r_g, which is

assumed to be less than the domestic investment return, as many authoritarian countries are capital scarce.

The domestic rate of return when investment remains in the country is denoted: $r_s = \frac{(1-\beta)l^\beta}{(k+a\theta)^\beta}$ and the domestic rate of return following flight is: $r_f = \frac{(1-\beta)l^\beta}{[(k+a\theta)(1-\theta)]^\beta}$. The wage rate is affected by openness in a similar manner: $w_s = \frac{\beta(k+a\theta)^{1-\beta}}{l^{1-\beta}}$ and $w_f = \frac{\beta[(k+a\theta)(1-\theta)]^{1-\beta}}{l^{1-\beta}}$.[16] If the elite move their assets abroad, they have no way to constrain tax rates in democracy (their threat of flight is gone), so the poor seize the elite's remaining, domestic assets following flight. Then, the utility of the elite following flight is $r_g k\theta$, and the utility of the poor is $w_f l + r_f k(1-\theta)$. Recall that only $(1-\theta)$ of the elite's assets remain in the country after flight and θ of the elite's assets are invested abroad and receive the global rate of return. Only elite income earned domestically is susceptible to the government's tax. Figure 2 displays the structure of the game as well as the returns to both actors in each state.

[Figure 2 about here]

Equilibrium Analysis

The solution concept is Markov Perfect Equilibrium, which is appropriate when the game is infinitely repeated, involves numerous states, and includes endogenous transition probabilities. Although there is one, unique equilibrium for any given set of parameter values, there are three possible classes of equilibria that may result in this model: (1) democracy, where the elite extend the franchise in the first round; (2) stable autocracy, where the elite use liberalization, and if necessary tax transfers, to prevent revolution; and (3) revolutionary autocracy, where the elite do not prevent revolution and the poor revolt. Each of these classes may be further broken into specific

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[16]It is also useful to denote the domestic rates of return in the absence of openness, $r_d = \frac{(1-\beta)l^\beta}{k^\beta}$ and $w_d = \frac{\beta k^{1-\beta}}{l^{1-\beta}}$. By definition, $r_f \geq r_s$ and $r_d \geq r_s$, and $w_s \geq w_d$ and $w_s \geq w_f$, as long as $\theta \in [0,1]$. Although all are functions of θ, I denote them merely as r_s, r_f and r_d for brevity.
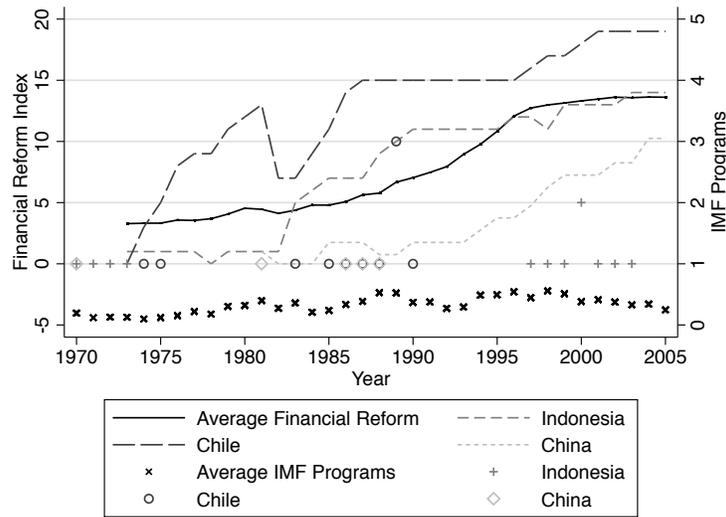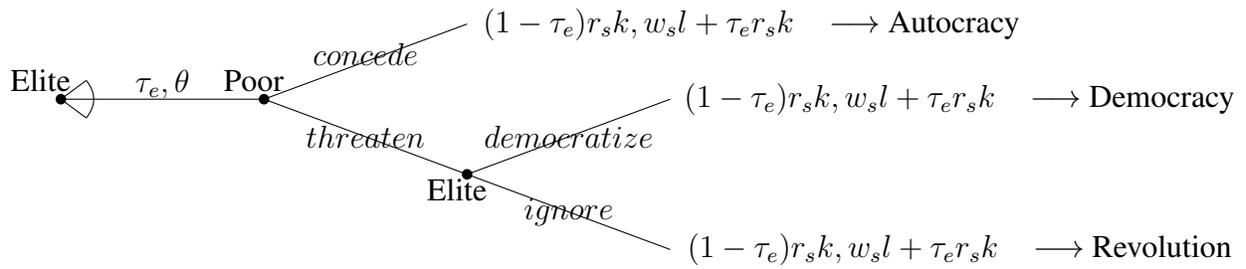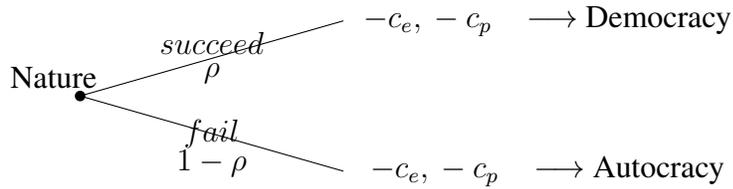
Figure 1: Financial Openness Over Time

Figure 1: Financial Openness Over Time

—— Average Financial Reform	– – – Indonesia
– – Chile	······· China
× Average IMF Programs	+ Indonesia
○ Chile	◇ China

Figure 2: Sequence of Play in Each State

Figure 2: Sequence of Play in Each State

Autocracy

Elite $\quad \tau_e, \theta \quad$ Poor

concede $\quad (1-\tau_e)r_s k, w_s l + \tau_e r_s k \quad \longrightarrow$ Autocracy

threaten $\quad$ Elite $\quad$ *democratize* $\quad (1-\tau_e)r_s k, w_s l + \tau_e r_s k \quad \longrightarrow$ Democracy

ignore $\quad (1-\tau_e)r_s k, w_s l + \tau_e r_s k \quad \longrightarrow$ Revolution

Revolution

Nature

succeed $\rho \quad -c_e, -c_p \quad \longrightarrow$ Democracy

fail $1-\rho \quad -c_e, -c_p \quad \longrightarrow$ Autocracy

Democracy

Poor $\quad \tau_p \quad$ Elite

flee $\quad k r_g \theta, w_f l + r_f k(1-\theta) \quad \longrightarrow$ Terminally

stay $\quad (1-\tau_p)r_s k, w_s l + \tau_p r_s k \quad \longrightarrow$ Terminally
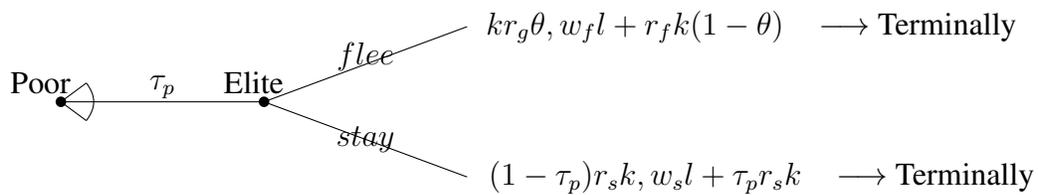
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outcomes depending on the amount of financial liberalization selected by the elite, which determines whether flight occurs in democracy. Figure 3 provides a simplified graphical representation of the differences between the equilibrium outcomes. The figure presents every logically possible equilibrium. The discount factor, δ, and the probability of revolution success, ρ, distinguish the possible equilibrium outcomes. Each equilibrium is briefly described below. The full proofs and definitions of the cut-points are available in the appendix.

[Figure 3 about here]

There are two possible equilibrium outcomes where democracy results from the elite's voluntary extension of the franchise: *constrained democracy* and *unconstrained democracy*. These outcomes illustrate democracy from above. In both outcomes, revolution is sufficiently likely to be successful that the elite cannot credibly commit not to democratize when the poor threaten revolution. Anticipating the elite's democratization, the poor threaten revolution. Knowing that democracy is inevitable, the elite provide no tax transfers to the poor in the first and only period of autocracy. The main difference between the two outcomes stems from the elite's discount factor. *Constrained democracy* results when the elite value future payoffs and open the capital market to protect their wealth in democracy, $\theta = 1$. Because the elite have liberalized, redistribution is limited, and the poor select the highest tax rate that retains the elite investment in democracy, $\tau_p = \bar{\tau}_p$. *Unconstrained democracy* results when the elite do not value future payoffs; they maximize their first period payoff in autocracy and do not liberalize the capital market, $\theta = 0$. Because they fail to liberalize markets, the poor seize all of the elite's income in democracy, $\tau_p = 1$.

There are three possible *stable autocracy* outcomes. In these outcomes, the elite pursue policies that prevent the poor from mobilizing for revolution, and democracy is never reached in equilibrium. The main difference between them is the size of the transfers necessary to prevent the poor from mobilizing. As the probability of revolution success increases, the size of the transfers needed to prevent revolution likewise increases. The elite prefer to use financial liberalization over

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tax transfers to prevent revolution, so they first exhaust liberalization before turning to tax transfers. Although democracy does not actually occur in these equilibria, *liberal stable autocracy* results when the amount of liberalization necessary to prevent revolution, θ^i, would also be sufficient to constrain the tax rate in democracy, $\tau_p = \bar{\tau}_p$. *Illiberal stable autocracy* occurs when the amount of liberalization necessary to prevent revolution, θ^{ii}, is not sufficient to prevent expropriation in democracy, $\tau_p = 1$. *Stable autocracy without transfers* results when revolution is so unlikely to be successful that the poor cannot credibly threaten revolution, and the elite provide no transfers of any sort, $\theta = 0$ and $\tau_e = 0$.

The final two *revolutionary autocracy* outcomes are marked by revolutions in equilibrium. These are the types of autocracies where uprisings occur but are often unsuccessful. Democracy is reached with some positive probability in these cases, but democracy is preceded by revolution. These outcomes illustrate democracy from below. Revolutionary autocracy results at intermediate values of ρ, as revolutions must be sufficiently likely to be successful that the poor are willing to threaten revolution and sufficiently unlikely to be successful that the elite do not prevent the threat or extend the franchise. The main difference between the two revolutionary outcomes is what happens when revolutions are successful and democracy results. In *revolutionary autocracy with the threat of redistribution*, the elite do not liberalize the capital market, $\theta = 0$; the poor seize the elite's income, $\tau_p = 1$, and the elite flee in democracy. In *revolutionary autocracy without the threat of redistribution*, the elite liberalize the capital market, $\theta = 1$. Because flight is costly, the poor select the highest tax rate in democracy that retains elite investment, $\tau_p = \bar{\tau}_p$.

In sum, there are two overarching goals to financial liberalization in autocracy. The first goal is to prepare for democratization. The policies implemented by General Augusto Pinochet of Chile are outlined below. Because Pinochet seized power from a democratically elected ruler, he likely knew that his tenure in office was limited. Since democratization seemed inevitable, one of his main objectives was to implement policies that reduced the costs of democracy for his

supporters. Pinochet and his advisors liberalized the financial market, making the success of the domestic economy contingent on continued international investment. In this way, Pinochet tied the hands of his democratic successors. The second goal of financial liberalization is to prevent democratization. In these equilibria, the autocrat balances two conflicting incentives. The liberalization is as small as possible to stimulate the economy and undermine the political opposition, while at the same time maintaining some financial repression in order to provide economic benefits to his political supporters. These policies of liberalization in stable autocracy are illustrated by General Suharto in Indonesia. Chile and Indonesia are attractive examples, because their is ample documentation and consensus about financial policy and political change in the two countries.

Although the model presented here does not explore democratic reversal, Chilean democracy during the early 1970's serves as a powerful example of the redistributive policies, feared by the elite, in *unconstrained democracy*. Salvador Allende was elected president of Chile in 1970. When Allende became president, the state already controlled over half of GDP and 75 percent of gross domestic investment (Roberts 1998, 111). Allende sought further nationalizations in copper and banking, and he pursued widespread reform of land ownership (Roberts 1998, 92). Allende's reforms were unpopular among the economic elite, many of whom would later align themselves with the military junta.

In 1973, Pinochet seized power in a military coup. He remained in office until 1990, when he negotiated the transition to democracy after losing a national plebiscite in 1988. During his years as head of the Chilean government, Pinochet pursued a policy of 'apertura', or opening, which entailed complete liberalization of the Chilean economy. Pinochet implemented Decree Law 600 in 1974, which aimed to increase foreign capital inflows (Oppenheim 2006, 95) and guaranteed investors access to the foreign exchange market. Figure 4 diagrams Chile's financial policies using the Financial Reform Index (Abiad et al. 2008), and the lending interest rate.[17] The figure also

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[17]The interest rate is from the World Bank World Development Indicators. Lower interest rates indicate more liberal and developed markets.

includes markers during the years that Chile was under an IMF program (Dreher 2006). Aggregate, time-series data reflect the liberalization and development of the financial market during the dictatorship.

[Figure 4 about here]

Pinochet and his advisors sought to create an economic order that was so liberal and strong that it would survive the creation of a new, democratic political order: "This was to be a 'protected and authoritarian democracy' with limited pluralism, under the guardianship of the armed forces, that would continue to function once the military returned to their barracks" (Huneeus 2007, 478). In other words, liberalization laid the groundwork for the *constrained democracy* that many scholars observe in Chile today. According to one historian, "In Chile's open, internationally integrated economy, the government's policy options are constrained by its dependence on foreign investment and the opportunities for capital flight" (Roberts 1998, 153).

These policy constraints are often blamed for "the lack of more progressive taxation" (Solimano 2012, 86) and the "persistent long-term disparities in income and wealth distribution" (Solimano 2012, 34). In fact, comparing income distributions between 1987 and 1998 show "that inequality has increased slightly since 1994" (Camhi and Kast Rist 2003, 110). The policies of the democratic leaders of Chile are largely consistent with the *constrained democracy* equilibrium presented here. The theory provides an explanation for the lack of redistribution – despite high inequality – in Chile. The Chilean economy is intimately tied to the global economy, and Chile's democratic leaders are constrained by the country's need for investment.

General Suharto used financial policy to balance the demands of his supporters and the public during his rule of Indonesia (1967-1998). Limited financial repression was used to benefit his supporters, while some liberalization – and the inflows of foreign investment it engendered – contributed to popular support for his regime and helped *stabilize the autocracy*. According to Mackie, "Indonesia is one of the most striking examples in the Asia-Pacific region of a low-

Figure 3: All Possible Equilibria (values of τ_e, θ, τ_p in parentheses)
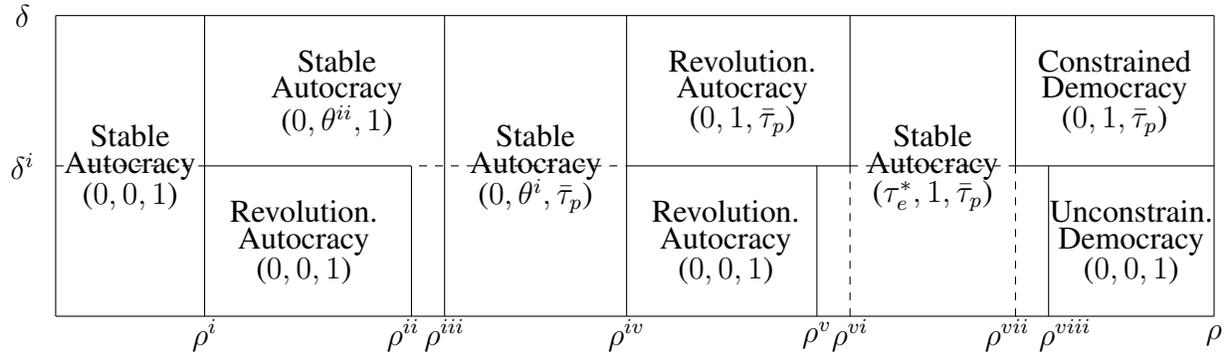
Note: the x-axis displays ρ, the probability of revolution success. The y-axis displays δ, the discount factor. Parentheses denote policies as follows: (τ_e, θ, τ_p). The following inequalities hold: $0 \leq \theta^{ii} < \bar{\theta} \leq \theta^i \leq 1$; $0 \leq \tau \leq 1$. $\bar{\theta}$ is the minimum amount of openness that prompts $\bar{\tau}_p$ in democracy, where $\bar{\tau}_p$ is the maximum tax rate that prevents elite flight. The figure provides a simplified representation of all possible equilibria. The presence of each equilibrium and the slope of the cut-points between them depend on parameter values.

Figure 4: Financial Market Policy & Outcomes in Chile
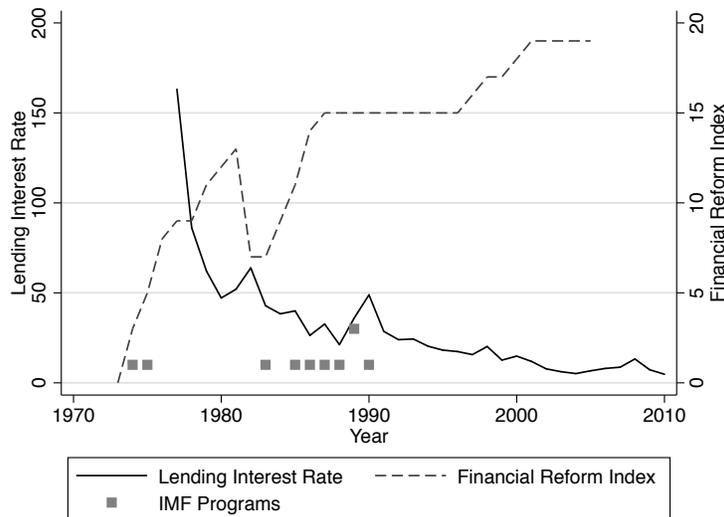
income country whose rapid economic growth since 1966-67 has pushed its political system not toward democratization but toward authoritarianism and a powerful, autonomous state" (Mackie 1993, 123). Suharto initially used oil revenue to buy support and ensure his political success. The decline and then collapse of oil prices during the 1980s limited that revenue source, and Suharto more actively sought foreign investment as a source of growth and political legitimacy. Over time, Suharto's political strategy evolved to include: "a calculation that a commitment to economic development could be an effective legitimating principle and at the same time a source of support from many groups, including the military, the civilian bureaucracy, and various groups in society" (Liddle 1991, 413).

Suharto implemented policies that opened Indonesia to foreign investment, while at the same time ensured that the investment was channeled through institutions controlled by his political supporters (Pepinsky 2013). "Since 1986, Indonesia has experienced very rapid economic growth and major structural changes, due mainly to a vigorous push toward deregulation of markets and a fundamental transition toward export-oriented industrialization" (Mackie 1993, 133). In 1988, Suharto pursued "sweeping liberalization of banking regulations" (Vatikiotis 1998, 41), which was part of a broad reform package aimed at attracting foreign financing. While he liberalized many policies, he simultaneously maintained strict controls on foreign entry into the banking sector (Hanson 2001, 237-239). These controls enabled him to provide preferential access to financing and to channel benefits, including jobs, to his political supporters (Vatikiotis 1998, 43-45). Although the reforms prompted investment, they often lacked enforcement, as the finance minister and central bank were highly politically dependent (Hamilton-Hart 2008, 51-52).

Figure 5 depicts Indonesia's financial policies using the Financial Reform Index (Abiad et al. 2008). Because the lending interest rate is unavailable during Suharto's rule, the figure includes Indonesia's GDP logged in billions of U.S. dollars (also from Abiad et al. 2008).[18] GDP and

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[18]To illustrate the close relationship between the Financial Reform Index and the lending interest rate in Asia, the two variables are plotted in the Appendix for South Korea, Malaysia, Singapore, Thailand, and the Philippines.

liberalization were closely associated in Indonesia. As before, the figure includes markers during the years that Indonesia was under an IMF program (Dreher 2006). The unprecedented market openness and growth of Indonesia under Suharto helped undermine support for political opponents and create a *stable autocracy*.

[Figure 5 about here]

Ultimately, the openness and weak domestic regulation created by Suharto would undermine his regime. The Asian financial crisis "stripped the government of its legitimacy-enhancing claim to economic success and pushed much of the political elite and the broader middle class to join the students and urban poor in seeking an end to Suharto's regime" (MacIntyre 2003, 140). Because Suharto's political legitimacy was closely tied to economic success, the crisis undermined his position and he was forced to step down. That said, the crisis was an unintended consequence of Indonesia's dependence on foreign investment, accompanied by weak regulation of the domestic banking and financial sector - the very same weak regulation that Suharto supporters and family members used to enrich themselves. Few economists or politicians foresaw the crisis, and the crisis itself does not seem to have undermined liberal market policies and the growth they engender. The crisis has spurred domestic and international institutional reforms, particularly focused on access to foreign reserves to stave off future crisis (MacIntyre et al. 2008, 14). Whether these policies will be sustainable or effective is a question for future research. The point here is that partial financial liberalization was used to engender the economic growth that stabilized Suharto's regime for over 30 years.

Model Propositions

This section presents additional implications of the formal model. Full proofs are in the Appendix. Lemmas provide intermediate findings of some interest, while propositions provide the core in-

sights from the model.

PROPOSITION 1. *The probability of democratization is not monotonically increasing in liberalization.*

Although financial liberalization is an effective way for the elite to protect their wealth following democratization, democratization is not always more likely following liberalization. Liberalization may be used to stabilize autocracy. By stimulating the economy and increasing wages for workers, liberalization makes revolution less attractive to the poor. Proposition 1 is a particularly important result for the literature on democratization. Previous theories have posited that democratization is more likely when factors are mobile, which is augmented by open markets. Factor mobility either causes democratization by limiting redistribution (Boix 2003, Acemoglu and Robinson 2006) or by forcing rulers to respond to asset owners, as rulers make concessions in exchange for tax revenue (Bates and Lien 1985, Ansell and Samuels 2010, 2014).

Contrary to these theories, the model shows that if the people who own the capital have power in autocracy, greater mobility will not increase the probability of democratization. In fact, financial liberalization may even reinforce the political power of the elite in autocracy. Liberalization makes revolution, which disrupts the economy, relatively more costly. In addition, liberalization reduces the benefits associated with democratization, as it makes assets more mobile and thereby constrains redistributive policy. Thus, autocrats may use financial liberalization to consolidate their rule.

Although China maintains some investment restrictions, particularly on outflows, Chinese politicians have used liberalization to consolidate their political power: "They know that the CCP's [Chinese Communist Party's] continued leadership vitally depends on its ability to improve the Chinese people's standard of living" (Zhao 2000, 10). China has liberalized its market, particularly for foreign investors (Wang 2014), in order to attract and retain foreign investment.

PROPOSITION 2. *As long as the elite value their future payoffs sufficiently, financial liberalization is weakly increasing in the probability of revolution success, whether democracy results or not.*

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Figure 6 illustrates Proposition 2. The figure plots the equilibrium amount of financial liber-alization for each value of the probability of revolution success. Even as the equilibrium changes, financial liberalization weakly increases in the probability of revolution success. The intuition for the finding is that financial liberalization may be used in autocracy to constrain tax rates prior to democratization or it may be used as a transfer to undermine the opposition and preserve the cur-rent regime. For either purpose liberalization is increasing in the probability of revolution success. In autocracy, a higher likelihood of revolution success means that a larger transfer is necessary to prevent the poor from revolting. When the probability of revolution success is sufficiently high, the elite liberalize financial markets to prevent redistribution in democracy. As long as the elite value their future payoffs, they liberalize the market to prevent redistribution, prior to democratization. Consequently, as the probability of revolution success increases, so to does the amount of financial liberalization.

[Figure 6 about here]

LEMMA 1. *The equilibrium tax rate selected by the poor in constrained democracy is decreasing in the level of financial liberalization, the domestic capital endowment, the amount of foreign capital seeking to enter the market, and the global rate of return on capital.*

Lemma 1 is consistent with the literature on tax competition across countries (e.g., Oat-ley 1999, Basinger and Hallerberg 2004, Rudra 2008, Franzese and Hays 2008, Gallagher 2015). When the elite have the ability to move their assets abroad, through liberalized financial markets, policymakers must offer a lower tax rate in order to retain investment. This relationship is even more pronounced when other investment options are attractive, as policymakers must make larger concessions in order to attract or retain investment. Other investment options are attractive in the model when global investment returns are high. Then, liberalized capital markets and attractive international investment options reduce redistribution in democratic countries.

The attractiveness of the market may also be thought of as the amount of foreign capital

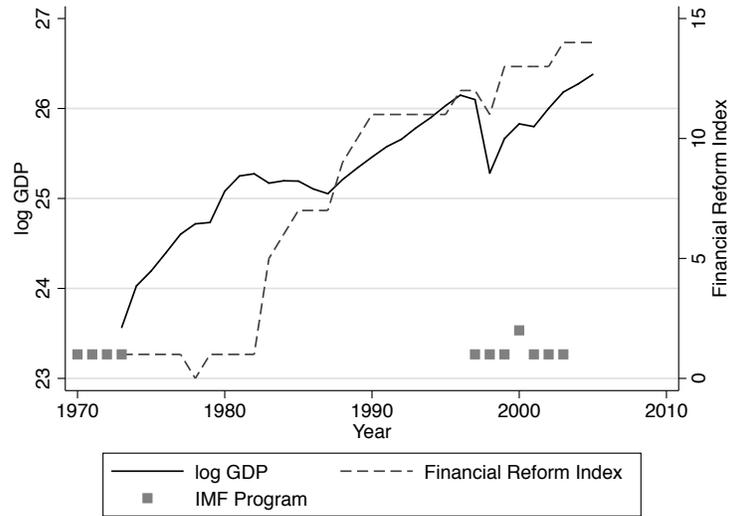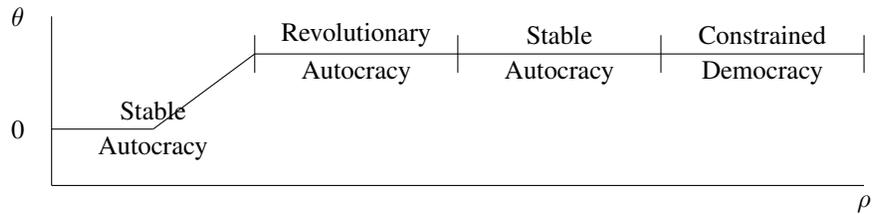Figure 5: Financial Market Policy & Outcomes in Indonesia

Figure 6: Equilibrium Value of Liberalization (for large δ)

Note: δ is the actors' discount factor; θ is the level of financial liberalization; ρ is the probability of revolutionary success.

seeking to enter the market: when the market is extremely attractive or there is an increase in available foreign investment, for instance as pension funds accumulate, the tax rate selected by the poor in democracy decreases. The results for the capital endowment and the attractiveness of the market capture the idea that returns are lower in the country when capital is abundant. As capital accumulates, through financial liberalization and the attractiveness of the market, the difference between the investment rate of return in the country if capital stays and the global rate of return, $r_s - r_g$, decreases. In other words, the relative attractiveness of investing elsewhere increases as the capital presence increases. Anything that makes investing abroad more attractive forces the poor to implement more favorable tax rates in order to retain investment. In addition, when the capital endowment is larger, liberalizing financial markets is less costly for the elite. Crucially, the elite never actually have to move their assets out of the country. The threat of flight is sufficient to constrain tax rates.

To derive model implications for inequality, I make the following Assumption.

ASSUMPTION 1. *Reductions in elite income and increases in poor income decrease inequality, while increases in elite income and decreases in poor income increase inequality.*

In the model, the elite derive their income from interest on their capital, while the poor derive their income from payment for their labor and tax transfers from the elite. Assumption 1 implies that the elite are wealthier than the poor and that reductions in elite income and increases in poor income decrease inequality. The assumption is consistent with the characterization of the elite as wealthy capital owners and the poor as wage earners. The model does not take the level of inequality as exogenous (as in Acemoglu and Robinson 2001, 2006, Boix 2003). Rather, inequality is derived endogenously due to differences in factor returns and policy.

The derivation of the inequality results will also require that wages increase in financial liberalization. This assumption has come under scrutiny recently, as labor is a heterogenous group that includes skilled and unskilled workers and liberalization is a complex, multi-faceted concept.

Financial liberalization may not lead to reductions in inequality, if, for example, foreign investors only hire highly-skilled workers (e.g., Jaumotte et al. 2008, Feenstra and Hanson 1997) or if other market restrictions substitute for financial restrictions to privilege domestic financial actors (Pepinsky 2013, Claessens and Perotti 2007). For example, bank entry restrictions may force investors to channel all their investment through domestic intermediaries who charge high premiums on these transactions.[19] Foundational theories have suggested that development – often associated with globalization – increases inequality initially, as rural and uneducated workers relocate to the city, but that eventually these workers will be incorporated into the workforce and receive the same benefits as more established laborers (Kuznets 1955).[20]

The final two propositions will proceed from the simple, standard assumption that labor is a homogenous group that benefits from financial liberalization. To the extent that this assumption is violated, we would not expect the results to hold. Due to these limitations, strong inferences should not be drawn for inequality. Instead, the model raises a challenge for empirical work to incorporate both effects of financial liberalization – for factor returns and for tax policy – into studies of inequality.[21] In short, liberalization affects wages, investment returns, and redistribution.

PROPOSITION 3. *In democracy, the effect of liberalization for inequality is ambiguous. The elite's income, in democracy, is increasing in liberalization. The change in the poor's income, in democracy, depends on whether the wage increase or the reduction in tax transfers from liberalization dominates.*

Proposition 3 captures the two effects of financial liberalization in democracy. Liberalization in this simple model has a direct income effect, increasing wages and decreasing investment re-

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[19]The latter concern is somewhat alleviated when the entry of foreign banks is also liberalized, which is captured by some measures of financial liberalization, like the Financial Reform Index (Abiad et al. 2008).

[20]Milanovic (2005) provides some recent evidence that inequality increases and then decreases with openness as countries develop.

[21]Reuveny and Li (2003) begin to take these concerns seriously, but they do not consider that the effect of liberalization could be contingent on financial openness.

turns, which decreases income inequality.[22] At the same time, liberalization has an indirect income effect: It provides the elite with a credible exit option, which reduces the tax rate and thereby limits the reduction in inequality. In democracy, the elite's income is increasing in liberalization, because liberalization limits redistribution. The effect on the poor's overall income depends on the relative size of the increase in the wage rate versus the decrease in tax transfers. When the elite's income is increasing at a faster rate, inequality increases. When the poor's income is increasing at a faster rate, inequality decreases.

The implications of liberalization for inequality in autocracy are more straightforward, although they share the same limitations outlined above.

PROPOSITION 4. *In autocracy, liberalization reduces inequality in equilibrium.*

Financial liberalization decreases inequality by providing a transfer from the elite to the poor in autocracy. Liberalization decreases the returns to the elite by decreasing investment returns, and, at the same time, it increases the returns to the poor by increasing wages. Since the elite are assumed to be wealthier than the poor, this transfer reduces inequality.[23] The main insight provided by Propositions 3 and 4 is that the effect of openness on after-tax inequality is conditional on political institutions. In capital-scarce countries, openness is expected to decrease inequality or decrease the rate of increase in inequality. However, because openness also reduces redistribution in democracy, the total effect of openness in democracy is ambiguous.

Proposition 4 sheds some light on the high levels of inequality and the seeming absence of redistributive pressure in many democracies. According to seminal models in political science and economics, as long as the median voter earns less than the mean income, policymakers in democracy should implement redistribution, and that redistribution should increase the more unequal the society (Meltzer and Richard 1981, Persson and Tabellini 1994, Acemoglu and Robinson 2001). In

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[22]If inequality is already increasing, the effect of liberalization would be to decrease the rate of increase in inequality.

[23]These propositions do not provide information on the relative amount of inequality in autocracies versus in democracies. Rather, the claim is that open autocracies have lower inequality than closed autocracies.

addition, democratization should be more common in countries with little inequality, as the costs of redistribution are likewise smaller (Boix 2003). Despite these theoretical predictions, high inequality persists in many democracies (Kaufman 2009, Albertus and Menaldo 2013, Bonica et al. 2013), and distributive demands are often absent from democratization (Haggard and Kaufman 2012).[24]

This paper speaks to this gap between theory and evidence. The model implications suggest that democratization occurs when the elite have found ways to undermine redistribution. Financial liberalization is one tool used to prevent redistribution: Autocratic elites liberalize financial markets, making their threat of capital flight credible and preventing the new democratic leaders from implementing redistributive policies. Left parties – who are thought to prefer more redistribution – will refrain from making distributive demands that would undermine future investment and growth. In other words, liberalization makes democracy compatible with inequality, which in turn makes democracy palatable to the autocratic elite.

Conclusion

The model presented in this paper has provided two rationales for financial liberalization in autocracy. When preventing revolution is feasible, autocrats liberalize financial markets to stimulate the economy and provide a transfer to the poor, undermining the political opposition and stabilizing the autocracy. This avoidance of revolution using financial liberalization as a transfer is consistent with the seminal literature on cooptation in autocracy (e.g., O'Donnell 1979, Wintrobe 1998, Gandhi and Przeworski 2006), as well as the legitimacy that autocrats derive from economic success (e.g., Zhao 2000, Bueno de Mesquita et al. 2003, Clark et al. 2010, Steinberg and Malhotra 2014). Liberalization as cooptation helps explain the existence of many stable, open autocracies.

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[24]Some recent research has produced evidence consistent with the Meltzer and Richard (1981) model, by differentiating between pre- and post-tax income (Jonathan D. Ostry 2014, Houle 2015).

Alternatively, when democratization is inevitable, autocrats liberalize financial markets and extend the franchise, thereby limiting future redistribution and protecting their wealth. The constraints provided by financial liberalization rely on close ties between the domestic economy and international economy and on the mobility of financial assets; these conditions ensure that flight is sufficiently costly to prevent widespread redistribution in democracy. This explanation is consistent with the empirical absence of large scale redistribution during democratization (Haggard and Kaufman 2012), as well as in many open democracies (e.g., Kaufman 2009, Bonica et al. 2013), and with theories of tax competition and policy constraints under openness (e.g., Oatley 1999, Basinger and Hallerberg 2004, Franzese and Hays 2008). The idea of autocrats using economic policy to prepare for democratization complements existing studies that show how autocrats use institutional design to protect their wealth and political influence (Baldez and Carey 1999, Carey 2002, Albertus and Menaldo 2013, Menaldo and Yoo 2015), although the mechanism by which the elite maintain control comes from informal, economic power rather than formal, political power.

In addition to laying out these two motivations for financial liberalization and their implications for regime change, the model provides novel insights. First, the probability of democratization is not increasing in liberalization as previously thought. Liberalization may make democratization less likely, as it stimulates the economy in autocracy and reduces redistribution in democracy. Both effects make democratization less attractive. This proposition helps explain the presence of politically stable and financially open autocracies. Second, financial liberalization has two effects on inequality. It increases market efficiency and wages and it reduces economic rents. In democracy, liberalization has these same distributional effects, but it also reduces redistributive taxation. Thus, empirical work on liberalization and inequality should consider both effects, as well as their relevance under different political institutions.

The theory also has implications for existing theoretical research. First, if asset owners control policy in autocracy, there is no reason to suspect that asset mobility would foster democ-

ratization through the channels identified by North (1981), North and Weingast (1989), Bates and Lien (1985), and Ansell and Samuels (2010, 2014). According to their theories, asset owners are able to secure democratic political institutions when their assets are mobile. Asset mobility allows them to withhold their resources from the government unless the government implements their preferred policies. The logical conclusion of the theories relies on asset owners being distinct from autocratic elites. At many different times in history, asset owners were likely distinct from autocratic political elites. For example, during periods of rapid social change – like the emergence of a large, merchant class at the end of the medieval period or of the industrialist during the industrial revolution – the autocratic elite lost control of the economy. When the autocratic [political] elite and the economic elite are distinct, these theories provide a great deal of purchase.

However, in many autocratic countries, the elite have both political power and economic power. Autocratic elites often use policy to enrich themselves and their supporters, rapidly accumulating assets. Or, economic elites buy political influence in autocracies, where there are relatively few institutional constraints on their power. Accordingly, when the economic elite are also the political elite in autocracy, they will not use their mobile assets to demand democratic political institutions. More democratic political institutions would likely privilege the interests of more numerous – and less wealthy – political groups (Meltzer and Richard 1981, Acemoglu and Robinson 2001, 2006, Boix 2003), whose policy preferences directly oppose the economic elite's preferences. When wealthy asset owners control policy in autocracy, greater asset mobility will merely reinforce their political control.

The model does elucidate the case where wealthy asset owners, with political control in autocracy, implement democratic political institutions: They democratize the country when they no longer need political control, because economic policy is constrained to meet their preferences by the dependence of the economy on their future investment and their ability to relocate that investment elsewhere. Under these conditions, democracy is no longer the result of the triumph of

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labor or the middle class; rather democracy results from the redundancy of political and economic power.

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1 Appendix

The Appendix first provides the proofs of the Equilibria and then proofs of Propositions and Lemmas. The model is then extended to the use of a more general model of the economy and to account for financial policy in democracy. Financial policy in Asia is displayed in Figures 7 to 11.

1.1 Equilibria Proofs

1.1.1 Constrained Democracy

In the constrained democracy equilibrium, the elite select: $\tau_e = 0$, $\theta = 1$ and democratize in autocracy. The poor threaten revolution in autocracy. In democracy, the poor select $\tau_p = \bar{\tau}_p$. The elite stay as long as $\tau_p \leq \bar{\tau}_p$. Constrained democracy results when $\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p}$ and $\rho \geq \frac{k(1-\beta)l^\beta[\tau_p(1+\delta)-1]-c_e(k+a)^\beta}{k(1-\beta)l^\beta \tau_p \delta}$.

Proof. Check for profitable deviations.

In democracy, the elite prefer to stay as long as their value function for stay is at least as large as their value function for flee: $V_e^D(stay) \geq V_e^D(flee) \iff \frac{(1-\tau_p)r_s k}{1-\delta} \geq \frac{\theta k r_g}{1-\delta}$ where $\delta \in [0,1]$ is the discount factor. The poor would want to make the tax rate as high as possible so the elite's incentive compatibility constraint is met with equality. I define $\bar{\tau}_p$ as the maximum tax rate that is incentive compatible with stay for the elite. Simplifying the equation reveals:

$$\bar{\tau}_p = \frac{(1-\beta)l^\beta - \theta r_g(k+a\theta)^\beta}{(1-\beta)l^\beta} \tag{1}$$

$\theta = 1$ in this equilibrium, so this may be simplified to: $\bar{\tau}_p = \frac{(1-\beta)l^\beta - r_g(k+a)^\beta}{(1-\beta)l^\beta}$. In equilibrium, $\tau_p = \bar{\tau}_p$, so elite stay is the best response.

In democracy, the poor select the tax rate. The poor's utility is increasing in the tax rate, but he must consider the elite's response to his tax. If the poor select $\tau_p = 1$, the elite flee. If the poor select $\tau_p = \bar{\tau}_p$, the elite stay. The poor's value function for $\tau_p = \bar{\tau}_p$ must be at least as large as his value function for $\tau_p = 1$: $V_p^D(\bar{\tau}_p) \geq V_p^D(1) \iff \frac{r_s k \bar{\tau}_p + w_s l}{1-\delta} \geq \frac{r_f k(1-\theta)+w_f l}{1-\delta}$. Because $\theta = 1$ in this equilibrium, the inequality holds (recall that $w_f \leq w_s$ and $\bar{\tau}_p \geq 0$).

In autocracy, the elite must prefer to play democratize in response to threat: $V_e^A(dem - ocratize) \geq V_e^A(ignore) \iff r_s k + \frac{\delta r_s k(1-\tau_p)}{1-\delta} \geq \frac{r_s k(1-\delta)-c_e \delta(1-\delta)+\rho(1-\tau_p)r_s k \delta^2}{(1-\delta^2(1-\rho))(1-\delta)}$. Simplification reveals the following inequality:

$$\rho \geq \frac{k(1-\beta)l^\beta[\tau_p(1+\delta)-1]-c_e(k+a)^\beta}{k(1-\beta)l^\beta \tau_p \delta} \tag{2}$$

In autocracy, the poor would not deviate from threatening revolution. Their value for threatening revolution is: $V_p^A(threaten) = w_s l + \delta \left[\frac{r_s k \tau_p + w_s l}{1-\delta}\right]$. Their value for conceding is: $V_p^A(concede)$ $= \frac{w_s l}{1-\delta}$. Because τ_p is greater than zero in equilibrium, $V_p^A(threaten)$ is greater than $V_p^A(concede)$.

In autocracy, the elite would play $\tau_e = 0$ when they are going to democratize. τ_e does not affect their future payoffs or transition probabilities, so there is no reason to transfer any income to the poor.

The elite's selection of θ depends on his discount factor. In democracy, the poor will select τ_p to make the elite indifferent between stay and flee, so the elite's expected income in democracy will be: $\theta r_g k$. Thus, the elite's income is increasing in θ in democracy. In autocracy, the elite's income is decreasing in θ; the elite's expected income is: $\frac{(1-\beta)l^\beta k}{(k+a\theta)^\beta}$. Therefore, if the elite care a sufficient amount about their income in democracy, they select $\theta = 1$. If the elite do not value future payoffs in democracy, they select $\theta = 0$.

The incentive compatibility condition for the elite to select $\theta = 1$ is therefore: $V_e^A(1) \geq V_e^A(0) \iff r_s k + \delta \left[\frac{(1-\tau_p)r_s k}{1-\delta}\right] \geq r_d k$. Further simplification reveals:

$$\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \bar{\tau}_p} \tag{3}$$

Equations 2 and 3 must be met for constrained democracy.

$\square$

1.1.2 Unconstrained Democracy

In the unconstrained democracy equilibrium, the elite make no transfers to the poor: $\tau_e, \theta = 0$ and they democratize in autocracy. The poor threaten revolution in autocracy. In democracy, the poor select $\tau_p = 1$ and the elite flee. This equilibrium results when: $\delta < \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p}$ and $\rho \geq \frac{(1-\beta)l^\beta k^{1-\beta}\delta - c_e}{(1-\beta)l^\beta k^{1-\beta}\delta}$.

Proof. In democracy, the elite flees, because $\tau_p = 1$ is larger than $\bar{\tau}_p$ (see equation 1 above).

In order for the poor to select $\tau_p = 1$: $V_p^D(1) \geq V_p^D(\bar{\tau}_p) \iff \frac{r_d k(1-\theta)+w_d l}{1-\delta} \geq \frac{r_s k(1-\bar{\tau}_p)+w_s l}{1-\delta}$. Recall that $\theta = 0$, so $r_d = r_s$ and $w_d = w_s$, and that $\bar{\tau}_p > 0$. The inequality holds.

In autocracy, the elite must be willing to democratize: $V_e^A(democratize) \geq V_e^A(ignore) \iff r_d k \geq \frac{r_d k - \delta c_e}{1-\delta^2(1-\rho)}$. Simplification reveals:

$$\rho \geq \frac{(1-\beta)l^\beta k^{1-\beta}\delta - c_e}{(1-\beta)l^\beta k^{1-\beta}\delta} \tag{4}$$

The poor threaten revolution if their value from threaten is larger than their value from concede:

$V_p^A(threaten) \geq V_p^A(concede) \iff w_d l + \frac{\delta(w_d l + r_d k)}{1-\delta} \geq \frac{w_d l}{1-\delta}$. The inequality holds; as long as the elite will democratize, the poor will threaten revolution.

The elite never make a tax transfer in autocracy knowing that they will democratize later in the game, therefore: $\tau_e = 0$. To incentivize $\theta = 0$, the following incentive compatibility constraint must hold: $V_e^A(0) \geq V_e^A(1)$, which may be simplified in the following way:

$$\delta < \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p} \tag{5}$$

Equations 4 and 5 must hold for unconstrained democracy.

□

1.1.3 Illiberal Stable Autocracy

The illiberal stable autocracy occurs when the elite select a low level of financial liberalization, $\theta = \theta^{ii}$, and no tax transfers to purchase the poor's support, $\tau_e = 0$; as well as ignore in autocracy. The poor concede as long as $\theta \geq \theta^{ii}$. In democracy, which is not reached in equilibrium, the poor select $\tau_p = 1$ and the elite flee. This equilibrium holds when $\theta^{ii} < \bar{\theta}$ and
$\frac{(1-\delta)(k+a\theta)^\beta\left[(1-\beta)l^\beta k^{1-\beta} - c_e\delta\right] - (1-\beta)l^\beta k(1-\delta^2)}{(1-\beta)l^\beta k\delta^2} \leq \rho \leq \frac{(1-\beta)l^\beta k(1-\delta) - r_g k(k+a\theta)^\beta\theta - c_e(k+a\theta)^\beta(1-\delta)}{(1-\beta)l^\beta k\delta(1-\delta) - r_g k(k+a\theta)^\beta\theta\delta(1-\delta)}$.

Proof. In democracy, the elite flee, as the poor select $\tau_p = 1$ which is greater than $\bar{\tau}_p$.

The poor select $\tau_p = 1$ when: $V_p^D(1) \geq V_p^D(\bar{\tau}_p) \iff \frac{r_f k(1-\theta) + w_f l}{1-\delta} \geq \frac{r_s k(1-\bar{\tau}_p) + w_s l}{1-\delta}$, which may be rewritten as:

$$0 \geq (1-\beta)l^\beta k(1 - \bar{\tau}_p - (1-\theta)^{1-\beta}) + \beta l^\beta(k+a\theta)(1 - (1-\theta)^{1-\beta}) \tag{6}$$

When $\theta = 0$, the inequality holds. When $\theta = 1$, it does not hold. As θ increases, the equation becomes less likely to hold. I define the maximum amount of liberalization that still triggers capital flight as $\bar{\theta}$. $\bar{\theta}$ is implicitly defined by equation 6 when it is met with equality. The first requirement for this equilibrium is that the necessary amount of transfers, θ^{ii}, that prevent threaten are less than $\bar{\theta}$.

In autocracy, the elite must ignore the poor's threat: $V_e^A(ignore) \geq V_e^A(democratize) \iff$
$\frac{(r_s k - \delta c_e)(1-\delta) + \delta^2 \rho r_g k\theta}{(1-\delta)(1-(1-\rho)\delta^2)} \geq r_s k + \frac{\delta r_g k\theta}{(1-\delta)}$, which may be rewritten as:

$$\rho \leq \frac{(1-\beta)l^\beta k(1-\delta) - r_g k(k+a\theta)^\beta\theta - c_e(k+a\theta)^\beta(1-\delta)}{(1-\beta)l^\beta k\delta(1-\delta) - r_g k(k+a\theta)^\beta\theta\delta(1-\delta)} \tag{7}$$

The elite will make a transfer to the poor that incentivizes the poor to concede: $V_p^A(concede) \geq V_p^A(threaten)$. Before turning to this constraint, we evaluate how that transfer would be made. The poor prefer to use θ to make this transfer rather than τ_e. The price of τ_e can be thought of as the marginal cost divided by the marginal benefit of an increase in τ_e. Both are linear, so the price of increasing τ_e is 1. The marginal cost of increasing θ is the decrease in income accruing to the elite: $\frac{\partial r_s k}{\partial \theta} = \frac{-\beta(1-\beta)l^\beta ak}{(k+a\theta)^{1+\beta}}$. The marginal benefit of increasing θ is the increase in income accruing to the poor: $\frac{\partial w_s l}{\partial \theta} = \frac{\beta(1-\beta)al^\beta}{(k+a\theta)^\beta}$. The price is again the cost divided by the benefit. The price of increasing θ is: $\frac{k}{k+a\theta}$. As long as $\theta \geq 0$, increases in θ are cheaper than increases in τ_e:

$$\frac{k}{k+a\theta} \leq 1 \tag{8}$$

In this equilibrium, the transfers are sufficiently small that the elite use only capital market openness, $\tau_e = 0$, and the level of openness is insufficient to prevent flight in equilibrium, $\theta^{ii} < \bar{\theta}$.[25]

Now, we can return to the constraint: $V_p^A(concede) \geq V_p^A(threaten) \iff \frac{w_s l}{1-\delta} \geq \frac{(w_s l - \delta c_p)(1-\delta) + \delta^2 \rho(r_f k(1-\theta) + w_f l)}{(1-\delta)(1-\delta^2(1-\rho))}$. Simplification yields:

$$c_p(1-\delta)(k+a\theta)^\beta \geq \delta\rho l^\beta(1-\theta)^{1-\beta}[(1-\beta)k + \beta(k+a\theta)] - \beta l^\beta(k+a\theta)(1-\delta(1-\rho)) \tag{9}$$

When equation 9 is met with equality, it implicitly identifies the level of transfers necessary to prevent the poor from mobilizing for revolution. Equation 9 is met when $\theta = 1$ and may be but is not necessarily met when $\theta = 0$. The elite will not transfer more than necessary, so equation 9 binds. I call the necessary level of transfers θ^{ii}. θ^{ii} is defined by equation 9 when it is met with equality.

The transfers, θ^{ii}, must be incentive compatible for the elite: $V_e^A(0, \theta^{ii}) \geq V_e^A(0,0) \iff \frac{r_s k}{1-\delta} \geq \frac{r_d k - \delta c_e}{1-\delta^2(1-\rho)}$. Simplification yields:

$$\rho \geq \frac{(1-\delta)(k+a\theta)^\beta[(1-\beta)l^\beta k^{1-\beta} - c_e\delta] - (1-\beta)l^\beta k(1-\delta^2)}{(1-\beta)l^\beta k\delta^2} \tag{10}$$

$\square$

1.1.4 Liberal Stable Autocracy

In the liberal stable autocracy, the elite select τ_e^*, θ^i and ignore in autocracy. The poor concede as long as $\tau_e \geq \tau_e^*$ and $\theta \geq \theta^i$ in autocracy. In democracy, the poor select $\bar{\tau}_p$ and the elite stay. Liberal stable autocracy without the threat of redistribution results when the following conditions

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hold: $\rho \geq \frac{(1-\delta)[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e\delta(k+a)^\beta(k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta(1+\delta)]}{\delta^2(1-\beta)l^\beta k[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta]}$,

$\rho \geq \frac{(1-\delta)[(1-\beta)l^\beta k^{1-\beta}(k+a\theta)^\beta - c_e(k+a\theta)^\beta\delta - (1-\tau_e)(1-\beta)l^\beta k(1+\delta)]}{(1-\tau_e)(1-\beta)l^\beta k\delta^2}$, $\rho \leq \frac{(1-\beta)l^\beta k[\tau_p(1+\delta)-1-\tau_e\delta]-c_e(k+a\theta)^\beta}{(1-\beta)l^\beta k\delta[\tau_p-\tau_e]}$, and

$\theta^i \in [\bar{\theta}, 1]$.

Proof. In democracy, the highest tax rate the poor can select and still retain investment makes the elite indifferent between stay and flee: $V_e^D(stay) = V_e^D(flee) \iff \frac{(1-\tau_p)kr_s}{1-\delta} = \frac{\theta kr_g}{1-\delta}$. Substitution reveals:

$$\bar{\tau}_p = \frac{(1-\beta)l^\beta - \theta r_g(k+a\theta)^\beta}{(1-\beta)l^\beta} \tag{11}$$

This is the optimal τ_p for the poor when θ is sufficiently large to prevent $\tau_p = 1$. I now solve for that sufficient level of θ.

The poor's value function for $\tau_p = \bar{\tau}_p$ must be at least as large as his value function for $\tau_p = 1$: $V_p^D(\bar{\tau}_p) \geq V_p^D(1) \iff \frac{r_s k\bar{\tau}_p + w_s l}{1-\delta} \geq \frac{r_f k(1-\theta) + w_f l}{1-\delta}$. Recall that $\bar{\theta}$ makes the poor indifferent between $\tau_p = 1$ and $\tau_p = \bar{\tau}_p$. Thus, in this equilibrium, the amount of financial liberalization necessary to buy the poor's support is: $\theta^i \in [\bar{\theta}, 1]$ and the poor select $\bar{\tau}_p$.[26] Because θ is a less expensive source of transfers than τ_e (see equation 8), τ_e is only used when $\theta = 1$ is insufficient to prevent the threat.

In autocracy, the elite must be willing to ignore the threat made by the poor: $V_e^A(ignore) \geq V_e^A(democratize) \iff \frac{r_s k(1-\tau_e)(1-\delta) - \delta c_e(1-\delta) + \delta^2 \rho r_s k(1-\tau_p)}{(1-\delta)(1-(1-\rho)\delta^2)} \geq r_s k(1-\tau_e) + \frac{\delta r_s k(1-\tau_p)}{(1-\delta)}$. Simplification yields:

$$\rho \leq \frac{(1-\beta)l^\beta k[\tau_p(1+\delta) - 1 - \tau_e\delta] - c_e(k+a\theta)^\beta}{(1-\beta)l^\beta k\delta[\tau_p - \tau_e]} \tag{12}$$

Equation 12 is a more general version of the cut point in equation 2.

The elite will not provide more transfers to the poor than are necessary to prevent the threat, which means the elite make the poor indifferent between threaten revolution and concede: $V_p^A(concede) = V_p^A(threaten) \iff \frac{w_s l + \tau_e r_s k}{1-\delta} = \frac{(w_s l + \tau_e r_s k - \delta c_p)(1-\delta) + \delta^2 \rho(w_s l + \tau_p r_s k)}{(1-\delta)(1-\delta^2(1-\rho))}$. There are two possible cases. Recall that τ_e is only used when θ is exhausted. The first case occurs when $\theta \in [\bar{\theta}, 1]$ is sufficient to prevent the threat. The second case occurs when $\theta = 1$ is insufficient to prevent the threat and τ_e must be used as well.

In the first case, $V_p^A(concede) \geq V_p^A(threaten)$ is met using exclusively θ ($\tau_e = 0$). In this case, the necessary θ, which I call θ^i, is defined by the following equation met with equality:

$$\beta(k+a\theta^i)l^\beta(1-\delta) \geq \delta\rho k[(1-\beta)l^\beta - \theta^i r_g(k+a\theta^i)^\beta] - c_p(1-\delta)(k+a\theta^i)^\beta \tag{13}$$

Note, that as θ increases, the left hand side gets larger and the right hand side gets smaller. If $\theta = 1$ and the inequality still isn't met, then the elite would need to use taxes and financial liberalization in order to prevent democratization.

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[26]In the previous equilibrium, I solved for the case where $\theta \in [0, \bar{\theta}]$.

I now turn to the second case where the elite must use $\theta = 1$ and $\tau_e > 0$. I solve for τ_e in the incentive compatibility condition ($V_p^A(concede) = V_p^A(threaten)$) above:

$$\tau_e = \frac{\rho(1-\beta)kl^\beta\delta - \beta(k+a)l^\beta(1-\delta) - c_p(k+a)^\beta(1-\delta) - \rho\delta k r_g(k+a)^\beta}{(1-\beta)l^\beta k(1-\delta(1-\rho))} \tag{14}$$

Equation 14 identifies the level of transfers necessary to prevent the poor from mobilizing; I call these transfers τ_e^*.

τ_e^* and θ^i must be incentive compatible for the elite. The first possible deviation would be to make no transfer at all knowing that the poor will then threaten revolution: $V_e^A(0,0) = \frac{r_d k - c_e \delta}{1 - \delta^2(1-\rho)}$. The elite's value of following the equilibrium is: $V_e^A(\tau_e^*, \theta^i) = \frac{(1-\tau_e^*)r_s k}{1-\delta}$. Then, τ_e^* and θ^i are incentive compatible for the elite when:

$$\rho \geq \frac{(1-\delta)\Big[(1-\beta)l^\beta k^{1-\beta}(k+a\theta)^\beta - c_e(k+a\theta)^\beta\delta - (1-\tau_e)(1-\beta)l^\beta k(1+\delta)\Big]}{(1-\tau_e)(1-\beta)l^\beta k \delta^2} \tag{15}$$

Another possibility is that the elite deviate to $\tau_e = 0$ and $\theta = 1$. If the elite were to deviate, the poor would threaten revolution (if the poor concedes then either $\tau_e^* = 0$ and $\theta^i = 1$ or the elite would want to make the allocations τ_e^* and θ^i as those allocations maximize his utility). τ_e^*, θ^i must be incentive compatible: $V_e^A(\tau_e^*, \theta^i) \geq V_e^A(0,1) \iff \frac{(1-\tau_e^*)r_s(\theta^i)k}{1-\delta} \geq \frac{(r_s(1)k - \delta c_e)(1-\delta) + \delta^2\rho(1-\tau_p)r_s(1)k}{(1-\delta)(1-\delta^2(1-\rho))}$. The elite's value of following the equilibrium is. Simplification yields the following incentive compatibility constraint:

$$\rho \geq \frac{(1-\delta)\Big[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e\delta(k+a)^\beta(k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta(1+\delta)\Big]}{\delta^2(1-\beta)l^\beta k\Big[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta\Big]} \tag{16}$$

$\square$

1.1.5 Revolutionary Autocracy with the Threat of Redistribution

In the revolutionary autocracy with threat of redistribution equilibrium, the elite select $\tau_e, \theta = 0$ and ignore in autocracy. The poor choose to threaten revolution in autocracy. In democracy, the poor select $\tau_p = 1$ and the elite flee. When the following conditions are met, autocracy without liberalization results: $\delta < \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta\tau_p}$, $\frac{(1-\delta)(\beta l^\beta k^{1-\beta}+c_p)}{\delta(1-\beta)l^\beta k^{1-\beta}} \leq \rho \leq \frac{\delta(1-\beta)l^\beta k^{1-\beta} - c_e}{\delta(1-\beta)l^\beta k^{1-\beta}}$, and $\rho \leq \frac{(1-\delta)[(1-\beta)l^\beta k^{1-\beta}(k+a\theta)^\beta - c_e\delta(k+a\theta)^\beta - (1-\beta)l^\beta k(1+\delta)]}{(1-\beta)l^\beta k\delta^2}$.

Proof. In democracy, the poor play $\tau_p = 1$ and the elite flee. $\tau_p = 1$ is incentive compatible, because $\theta = 0$.

In autocracy, ignoring the poor's threat must be incentive compatible for the elite: $V_e^A(ignore) \geq V_e^A(democratize) \iff \frac{r_d k - \delta c_e}{1 - \delta^2(1-\rho)} \geq r_d k$. Therefore, the following inequality must hold:

$$\rho \leq \frac{\delta(1-\beta)l^\beta k^{1-\beta} - c_e}{\delta(1-\beta)l^\beta k^{1-\beta}} \tag{17}$$

The poor must be willing to threaten revolution: $V_p^A(threaten) \geq V_p^A(concede) \iff \frac{w_d l(1-\delta) - c_p \delta(1-\delta) + \rho \delta^2(w_d l + r_d k)}{(1 - \delta^2(1-\rho))(1-\delta)} \geq \frac{w_d l}{1-\delta}$. Simplification yields the following:

$$\rho \geq \frac{(1-\delta)(\beta k^{1-\beta}l^\beta + c_p)}{\delta(1-\beta)k^{1-\beta}l^\beta} \tag{18}$$

The elite would play $\theta = 0$ when reaching democracy is sufficiently unlikely that they do not protect their profit in the case of autocracy: $V_e^A(0) \geq V_e^A(1) \iff$ $\frac{r_d k - \delta c_e}{1 - \delta^2(1-\rho)} \geq \frac{r_s k(1-\delta) - \delta c_e(1-\delta) + \delta^2 \rho(1-\tau_p)r_s k}{(1-\delta^2(1-\rho))(1-\delta)}$. Simplification leads to the following inequality condition:

$$\delta < \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p} \tag{19}$$

The elite must not be willing to provide transfers to deter revolution. When $\theta^{ii} \leq \bar{\theta}$, the elite must prefer revolutionary autocracy to stable autocracy with the threat of redistribution, $V_e^A(0,0) \geq V_e^A(0,\theta^{ii})$:

$$\rho \leq \frac{(1-\delta)\Big[(1-\beta)l^\beta k^{1-\beta}(k+a\theta)^\beta - c_e \delta(k+a\theta)^\beta - (1-\beta)l^\beta k(1+\delta)\Big]}{(1-\beta)l^\beta k \delta^2} \tag{20}$$

If this constraint holds than the constraint that prevents the elite from providing transfers, τ_e^*, θ^i, likewise holds, as those transfers are larger.

$\square$

1.1.6 Revolutionary Autocracy without the Threat of Redistribution

In the revolutionary autocracy without threat of redistribution equilibrium, the elite select $\tau_e = 0$, $\theta = 1$ and ignore in autocracy. The poor choose to threaten revolution in autocracy. In democracy, the poor select $\tau_p = \bar{\tau}_p$ and the elite stay. revolutionary autocracy without threat of redistribution results when: $\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p}$, $\frac{(1-\delta)[c_p(k+a)^\beta + \beta l^\beta(k+a)]}{\delta(1-\beta)l^\beta k(1-\tau_p)} \leq \rho \leq \frac{k(1-\beta)l^\beta[\tau_p(1+\delta)-1] - c_e(k+a)^\beta}{k(1-\beta)l^\beta \tau_p \delta}$, and $\rho \geq \frac{(1-\delta)[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e \delta(k+a)^\beta(k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta(1+\delta)]}{\delta^2(1-\beta)l^\beta k[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta]}$.

Proof. In democracy, the poor would select $\tau_p = \bar{\tau}_p$, as $\theta = 1$, and the elite would stay, as $\tau_p = \bar{\tau}_p$.

In autocracy, ignoring the threat must be incentive compatible for the elite: $V_e^A(ignore) \geq V_e^A(democratize) \iff \frac{r_s k(1-\delta) - \delta c_e(1-\delta) + \delta^2 \rho(1-\tau_p)r_s k}{(1-\delta^2(1-\rho))(1-\delta)} \geq r_s k + \frac{\delta(1-\tau_p)r_s k}{1-\delta}$. Simplification yields:

$$\rho \leq \frac{k(1-\beta)l^\beta \left[\tau_p(1+\delta) - 1\right] - c_e(k+a)^\beta}{k(1-\beta)l^\beta \tau_p \delta} \tag{21}$$

The poor must be willing to threaten revolution: $V_p^A(threaten) \geq V_p^A(concede) \iff \frac{w_s l(1-\delta) - c_p \delta(1-\delta) + \delta^2 \rho[(1-\tau_p)r_s k + w_s l]}{(1-\delta)(1-\delta^2(1-\rho))} \geq \frac{w_s l}{1-\delta}$. Simplification reveals:

$$\rho \geq \frac{(1-\delta)\left[c_p(k+a)^\beta + \beta l^\beta(k+a)\right]}{\delta(1-\beta)l^\beta k(1-\tau_p)} \tag{22}$$

$\theta = 1$ must be incentive compatible for the elite: $V_e^A(1) \geq V_e^A(0) \iff \frac{r_s k(1-\delta) - \delta c_e(1-\delta) + \delta^2 \rho(1-\tau_p)r_s k}{(1-\delta^2(1-\rho))(1-\delta)} \geq \frac{r_d k - \delta c_e}{1-\delta^2(1-\rho)}$. Plugging in values and simplifying leads to the following inequality condition:

$$\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p} \tag{23}$$

We also need to verify that the elite would not be willing to purchase the poor's support using transfers. We do not need to check for the deviation to stable autocracy with the threat of redistribution. If stable autocracy with the threat of redistribution were possible, $\theta = 1$ would be more than enough to prevent revolution. The revolutionary autocracy without threat of redistribution equilibrium assumes that $\theta = 1$ is insufficient to prevent the threat: $\theta^{ii} > \bar{\theta}$, so I need only check deviations to the θ^i equilibrium.

The elite must be unwilling to prevent revolution using transfers in stable autocracy without the threat of redistribution: $V_e^A(0,1) \geq V_e^A(\tau_e^*, \theta^i)$. Simplification reveals:

$$\rho \geq \frac{(1-\delta)\left[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e\delta(k+a)^\beta(k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta(1+\delta)\right]}{\delta^2(1-\beta)l^\beta k\left[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta\right]} \tag{24}$$

□

1.1.7 Stable Autocracy without Transfers

In the stable autocracy without transfers equilibrium, the elite select $\tau_e, \theta = 0$ and ignore in autocracy. The poor concede. In democracy, which is never reached, the poor select $\tau_p = 1$ and the elite flee. Stable autocracy without transfers results when $\rho \leq \frac{(1-\beta)l^\beta k^{1-\beta}\delta - c_e}{(1-\beta)l^\beta k^{1-\beta}\delta}$ and $\rho \leq \frac{(1-\delta)[c_p + \beta l^\beta k^{1-\beta}]}{\delta(1-\beta)l^\beta k^{1-\beta}}$.

Proof. In democracy, the elite flee, because $\tau_p = 1$, which is greater than $\bar{\tau}_p$. The poor select $\tau_p = 1$, because $\theta = 0$, which is less than $\bar{\theta}$.

In autocracy, the elite ignore as long as $V_e^A(ignore) \geq V_e^A(democratize)$. Then, the following inequality must hold:

$$\rho \leq \frac{(1-\beta)l^\beta k^{1-\beta}\delta - c_e}{(1-\beta)l^\beta k^{1-\beta}\delta} \tag{25}$$

The poor must be unwilling to threaten revolution: $V_p^A(concede) \geq V_p^A(threaten)$. Simplification reveals:

$$\rho \leq \frac{(1-\delta)[c_p + \beta l^\beta k^{1-\beta}]}{\delta(1-\beta)l^\beta k^{1-\beta}} \tag{26}$$

The elite would not provide any transfers as long as the poor do not threaten revolution: $\tau_e, \theta = 0$.

□

1.2 Proofs of Lemmas and Propositions

Proof. PROPOSITION 1. By contradiction. Assume the probability of democratization is increasing in financial liberalization. In a stable autocratic equilibrium capital markets are open, and the probability of democratization is zero. In unconstrained democracy and revolutionary autocracy with the threat of redistribution, capital markets are closed and democracy results with positive probability. Thus, capital markets may be more liberalized in an equilibrium where the probability of democratization is zero than in an equilibrium where the probability of democratization is positive. This is a contradiction. □

Proof. PROPOSITION 2. For low values of ρ, stable autocracy without transfers results and $\theta = 0$. As ρ increases, the size of the transfers needed to prevent revolution and, therefore, θ, increases: first to θ^{ii}, then to θ^i, and, finally, to 1. θ^{ii} is increasing in ρ: Using the Implicit Function Theorem, we know: $\frac{d\theta^{ii}}{d\rho} = -\frac{\partial G(\theta^{ii},\rho)}{\partial(\rho)}/(\frac{\partial G(\theta^{ii},\rho)}{\partial\theta^{ii}})$. θ^{ii} is implicitly defined by the following equation: $G = -\delta c_p(1-\rho) + \delta^2\rho(r_f k(1-\theta) + w_f l) - w_s l(1 + \delta + \delta^2\rho)$ (Equation 9 in the Appendix). $\frac{\partial G(\theta^{ii},\rho)}{\partial\theta^{ii}}$ is negative, and $\frac{\partial G(\theta^{ii},\rho)}{\partial(\rho)}$ is positive, as long as $r_f k(1-\theta) + w_f l - w_s l \geq 0$. This condition holds in the stable autocracy with the threat of redistribution equilibrium; otherwise, the poor would be unwilling to revolt and the elite would provide no transfers. θ^i is increasing in ρ: Again using the Implicit Function Theorem, we have: $\frac{d\theta^i}{d\rho} = -\frac{\partial F(\theta^i,\rho)}{\partial(\rho)}/(\frac{\partial F(\theta^i,\rho)}{\partial\theta^i})$. θ^i is implicitly defined by the following equation: $F = -(w_s l + \tau_e r_s k)(1+\delta) - \delta c_p(1-\delta) + \delta^2\rho(\tau_p r_s k - \tau_e r_s k)$ (Equation 13 in the Appendix). $\frac{\partial F(\theta^i,\rho)}{\partial\theta^i}$ is negative, and $\frac{\partial F(\theta^i,\rho)}{\partial(\rho)}$ is positive, so θ^i is increasing in ρ (θ only varies when $\tau_e = 0$, so those terms drop out). As ρ increases and stable autocracy is no longer possible, θ is set to one in equilibrium. □

Proof. LEMMA 1. Take the derivative of $\bar{\tau}_p = \frac{(1-\beta)l^\beta - \theta r_g (k+a\theta)^\beta}{(1-\beta)l^\beta}$ with respect to θ, k, a and r_g. $\quad\square$

Proof. PROPOSITION 3. The elite's income in democracy is: θr_g, so their income increases in θ.[27] The poor's income in democracy depends on whether the elite stay or flee. If the elite stay, the poor's income is: $r_s k - \theta r_g + w_s l$, which may be rewritten as: $\frac{(1-\beta)kl^\beta}{(k+a\theta)^\beta} - \theta k r_g + \beta(k+a\theta)^{1-\beta}l^\beta$. Then, the effect of θ is: $\frac{\partial U_p}{\partial \theta} = -\frac{a\beta(1-\beta)kl^\beta}{(k+a\theta)^{1+\beta}} - r_g k + \frac{a\beta(1-\beta)l^\beta}{(k+a\theta)^\beta}$. The first two terms capture the reduction in the tax transfer, while the third term captures the increase in wages due to an increase in openness. If the elite flee, the poor's income is: $r_f k(1-\theta) + w_f l$, which may be rewritten as: $\frac{(1-\beta)k(1-\theta)^{1-\beta}l^\beta}{(k+a\theta)^\beta} + \beta[(k+a\theta)(1-\theta)]^{1-\beta}l^\beta$. The effect of θ is: $\frac{\partial U_p}{\partial \theta} = -\frac{(1-\beta)^2 kl^\beta}{[(k+a\theta)(1-\theta)]^\beta} - \frac{a\beta(1-\beta)k(1-\theta)^{1-\beta}l^\beta}{(k+a\theta)^{1+\beta}} + \frac{a\beta(1-\beta)(1-\theta)^{1-\beta}l^\beta}{(k+a\theta)^\beta} - \frac{\beta(1-\beta)(k+a\theta)^{1-\beta}l^\beta}{(1-\theta)^\beta}$. The first two terms capture the effect of θ on the transfer, while the third and fourth terms capture the effect of θ on wages. The total effect is ambiguous. $\quad\square$

Proof. PROPOSITION 4. The elite's income in autocracy, $(1-\tau_e)\frac{(1-\beta)l^\beta}{(k+a\theta)^\beta}k$, is decreasing in θ. The poor's income in autocracy, $\beta l^\beta (k+a\theta)^{1-\beta} + \tau_e \frac{(1-\beta)l^\beta}{(k+a\theta)^\beta}k$, is weakly increasing in θ in equilibrium (recall that $\tau_e = 0$ in all autocratic equilibria, unless $\theta = 1$ is insufficient to deter the poor from revolting; then, the elite will use both θ and τ_e). The elite prefer to use θ over τ_e as a transfer. The price, marginal cost over marginal benefit, to the elite of using τ_e as a transfer is: 1. The price of using θ as a transfer is: $\frac{k}{k+a\theta}$. The price of θ is less than the price of τ_e. See Equation 8 in the Appendix. Whenever θ varies in equilibrium, increases in θ transfer wealth from the elite to the poor. $\quad\square$

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[27]The elite may only guarantee themselves θr_g through flight, and, even if they do not flee, the poor make the elite indifferent between flight and stay, so their expected payoff is nonetheless θr_g.

1.3 Competitive Market

Rather than using the Cobb-Douglas production function, which relies on a completely competitive market to derive results, it is also possible to derive the results with specific assumptions about market returns and the impact of openness. The following assumptions are sufficient for the results in the paper.

1. The poor's utility, modeled as wages here, increases in inflows of foreign investment and decreases in outflows of investment.

2. The autocratic elite's utility, modeled as returns on investment, decreases in inflows of foreign investment and increases in outflows of investment.

3. Financial liberalization facilitates inflows of foreign investment in autocracy (with Assumptions 1 and 2, Assumption 3 motivates openness as a transfer to poor in autocracy).

4. Financial liberalization facilitates the flight of domestic and foreign investment.[28]

The notation used to solve the model in the Appendix is first reported generally, using just r_i and w_i where $i \in \{f, s, d\}$, to denote returns. Thus, the solution to this more general model is also traced out in the Appendix. Although the values of the cut-points differ (they cannot be simplified in the same way), the same set-up and comparative statics are similar.

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[28]It is necessary that the effect of openness on flight and therefore on investment returns - increasing them - is overwhelmed by the effect of openness for redistribution in democracy. It is not necessary to make this assumption here, because the structure of the game makes this true: The poor are unconstrained once capital flees, prompting $\tau_p = 1$. Even absent flight, the poor select τ_p to make the elite indifferent between stay and flee. Thus, the elite's income is strictly increasing in liberalization in democracy.

1.4 Financial Policy in Democracy

This section extends the model to account for democratic policymakers' ability to manipulate openness [in addition to the tax rate]. The elite's ability to influence policy in democracy using openness depends on the stickiness of financial policy. As long as the elite's policies sufficiently affect the poor's decision-making in democracy, the results in the paper hold. To illustrate this idea, the elite's policies affect openness for one period in democracy in this extension - one period enables the elite to flee in democracy without preventing the poor from opening or closing the financial market in the future. Thus, the interest rate and ability to flee are determined by the elite's financial policy for one period, denoted $r_s(\theta_e)$ for example. The interest rate is determined by the poor's financial policy in subsequent periods, denoted $w_f(\theta_p)$. The poor's redistributive policy, τ_p, is applied immediately.

θ_e signifies the elite's financial policy selection, while θ_p signifies the poor's selection. Payoffs in the democracy state for the poor and elite follow. If the elite stay, the elite receive,

$$V_e^D(stay) = (1 - \tau_p)r_s(\theta_e)k + \frac{\delta(1 - \tau_p)r_s(\theta_p)k}{1 - \delta}.$$

If they flee, their payoffs are again limited to returns on the assets that they are able to disinvest, as they are unable to constrain the poor's tax policy without the flight threat,

$$V_e^D(flee) = \frac{r_g\theta_e k}{1 - \delta}.$$

As before, these equations allow us to compute a maximal tax rate that prompts the elite to stay,

$$\bar{\tau}_p = \frac{r_s(\theta_e)(1 - \delta) + r_s(\theta_p)\delta - r_g\theta_e}{r_s(\theta_e)(1 - \delta) + r_s(\theta_p)\delta}. \tag{27}$$

Note that the maximum tax rate that retains the elite's investment is decreasing in the global returns to capital - in short, the poor have to provide a lower tax rate to compete with other investment options. The maximum tax rate that retains investment is also decreasing in the elite's selection of financial openness - openness makes flight less costly. The maximum tax rate is also decreasing in the poor's selection of financial openness. Openness makes the country a less attractive investment location, because the returns on investment are lower with the entry of foreign investment.

The poor's payoffs likewise depend on whether the elite will stay or flee. The poor's payoffs if the elite stay are,

$$V_p^D(\tau_p \leq \bar{\tau}_p) = w_s(\theta_e)l + \tau_p r_s(\theta_e)k + \frac{\delta w_s(\theta_p)l}{1 - \delta} + \frac{\delta \tau_p r_s(\theta_p)k}{1 - \delta},$$

and the poor's payoffs if the elite flee are,

$$V_p^D(\tau_p > \bar{\tau}_p) = w_f(\theta_e)l + \tau_p r_f(\theta_e)k(1 - \theta_e) + \frac{\delta w_p(\theta_p)l}{1 - \delta} + \frac{\delta \tau_p r_p(\theta_p)k(1 - \theta_e)}{1 - \delta},$$

where $w_p(\theta_p)$ and $r_p(\theta_p)$ are the wage and interest rate under the poor's financial policies following elite flight. The returns are assumed to increase and decrease respectively in liberalization (much like the returns do in autocracy).

As before, there are two possible equilibrium outcomes in this sub-game. The poor select τ_p and θ_p to prompt the elite to stay (call this "constrained democracy" as before) or they select the policies and produce flight (call this "populist democracy"). The outcome that gives the poor higher utility will be selected.

In constrained democracy, the poor select θ_p to maximize their utility subject to the constraint that $\tau_p = \bar{\tau}_p$, which can be plugged into the poor's utility function. We know the constraint is met with equality, because the only cost to taxation in this model is the elite's flight threat.[29]

$$\max_{\theta_p} \left[w_s(\theta_e)l + \bar{\tau}_p r_s(\theta_e)k + \frac{\delta w_s(\theta_p)l}{1 - \delta} + \frac{\delta \bar{\tau}_p r_s(\theta_p)k}{1 - \delta} \right]$$

The maximization problem yields the following first order condition, which defines the equilibrium financial policy, θ_p.

$$\frac{\partial V_p^D}{\partial \theta_p} = \frac{\partial \bar{\tau}_p}{\partial \theta_p} r_s(\theta_e)k + \frac{\delta}{1 - \delta} \left[\frac{\partial w_s}{\partial \theta_p} l + \frac{\partial \bar{\tau}_p}{\partial \theta_p} r_s(\theta_p)k + \bar{\tau}_p \frac{\partial r_s}{\partial \theta_p} k \right] = 0. \tag{28}$$

The solution sets the marginal benefit of openness, $\frac{\partial w_s}{\partial \theta_p} > 0$, equal to the marginal cost, $\frac{\partial \bar{\tau}_p}{\partial \theta_p} r_s(\theta_e)k < 0$, $\frac{\partial \bar{\tau}_p}{\partial \theta_p} r_s(\theta_p)k < 0$, and $\frac{\partial r_s}{\partial \theta_p} k < 0$.

In sum, one equilibrium outcome of the subgame, called constrained democracy, results when the poor select $\bar{\tau}_p$, as defined in Equation 27, and θ_p, as defined in Equation 28. The elite then retain their investment in the country.

In the other equilibrium outcome, called populist democracy, the poor select $\tau_p = 1$, as flight is the only limit on redistribution for the poor. Thus the elite maximize the following utility function,

$$\max_{\theta_p} \left[w_f(\theta_e)l + r_f(\theta_e)k(1 - \theta_e) + \frac{\delta w_p(\theta_p)l}{1 - \delta} + \frac{\delta r_p(\theta_p)k(1 - \theta_e)}{1 - \delta} \right],$$

which produces the first order condition

$$\frac{\partial V_p^D}{\partial \theta_p} = \frac{\delta}{1 - \delta} \left[\frac{\partial w_p}{\partial \theta_p} l + \frac{\partial r_p}{\partial \theta_p} k(1 - \theta_e) \right] = 0. \tag{29}$$

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[29]We could introduce a deadweight loss to taxation (for example $c(\tau_p) = -\tau_p^2$), but it would just shift the equilibrium tax policy downward.

As long as the poor are not punished by foreign investors for their expropriation of domestic investment returns, they will open the market in democracy, recall that wages increase in openness, $\frac{\partial w_p}{\partial \theta_p} l$. The only limit on openness is the cost that they pay in terms of investment returns, which make up their tax revenue in democracy, $\frac{\partial r_p}{\partial \theta_p} k(1 - \theta_e) < 0$. This cost approaches zero when the autocrat opened the market, $\theta_e \to 1$. Ironically, when the poor seize the elite's assets, they begin to behave like the elite, as they want to protect investment returns.

Thus, the other equilibrium outcome, populist democracy, results where the poor select $\tau_p = 1$ and θ_p as defined by Equation 29.

Which equilibrium will result in the game? It is again the case that when the elite completely open the market, $\theta_e = 1$, the payoff to the poor of constrained democracy is always greater than the payoff to the poor of populist democracy, $V_p^D(\bar{\tau}_p, \theta_p) > V_p^D(1, \theta_p)$. So, by opening markets in autocracy, the elite can induce constrained democracy. Furthermore, since the elite's payoff in democracy is always increasing in θ_e – recall that the poor select $\bar{\tau}_p$ to make the elite indifferent between stay and flee – the elite will select $\theta_e = 1$ in autocracy, as long as democracy is sufficiently likely to result (ρ sufficiently large) and they value their future payoffs enough (δ sufficiently large). Thus, the intuition for the extension is very similar to the game presented in the paper.

Although in the populist democracy equilibrium we only see flight once, the equilibrium still points to the possibility of cycles. In the model, high inequality drives the poor to redistribute. Following redistribution, the poor open the market. It is not in the model, but if inequality were to increase again, we could see the whole sequence play out once more.

The limitations of the extension presented here are that the poor only select the tax rate once and the poor's actions are only constrained by the threat of flight in the first period of democracy. Another extension would allow the poor to select a new tax rate after the initial period with the openness imposed by the elite as a constraint. The results from the paper would then require that this new tax rate is again constrained by flight threat – although this threat would emerge from the poor's selection of openness. We would then get substitution between openness and redistribution – in constrained democracy, we would observe openness and low tax rates; in populist or unconstrained democracy, we would observe closure and high tax rates. Closure in unconstrained democracy is still short lived, as taxation would accomplish the redistribution and then closure limits growth. Following redistribution, openness is an attractive way to increase growth. The results could also be recovered under these conditions, as long as the autocratic elite are able to make the economy dependent on international financial flows to a sufficient extent prior to democratization.

1.5　Financial Liberalization in Asia

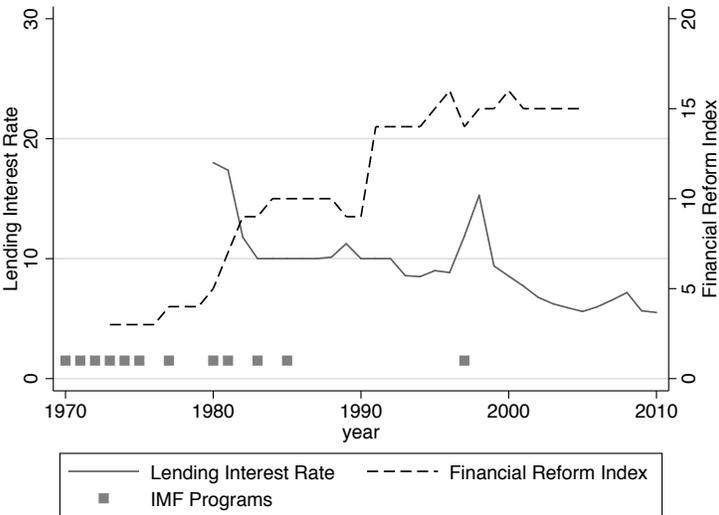Figure 7: Financial Market Policy & Outcomes in Korea

Figure 8: Financial Market Policy & Outcomes in Malaysia
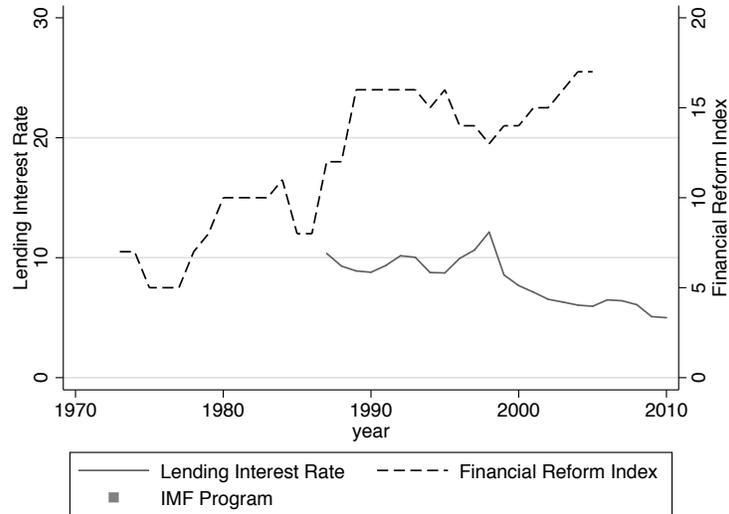

Figure 9: Financial Market Policy & Outcomes in Singapore
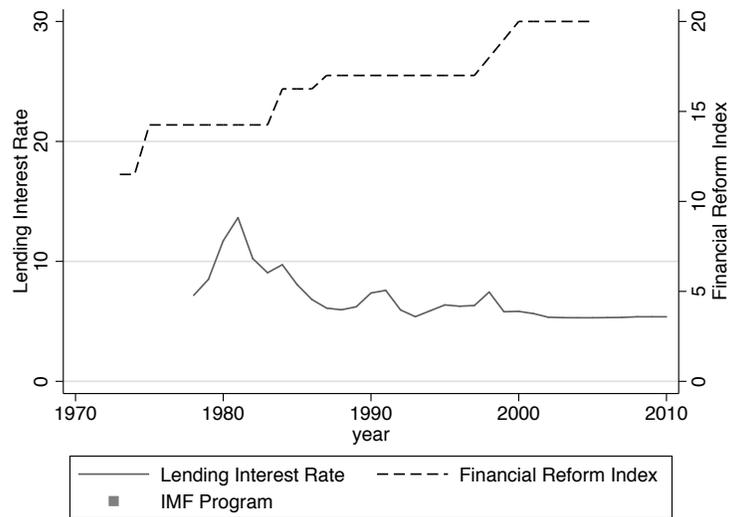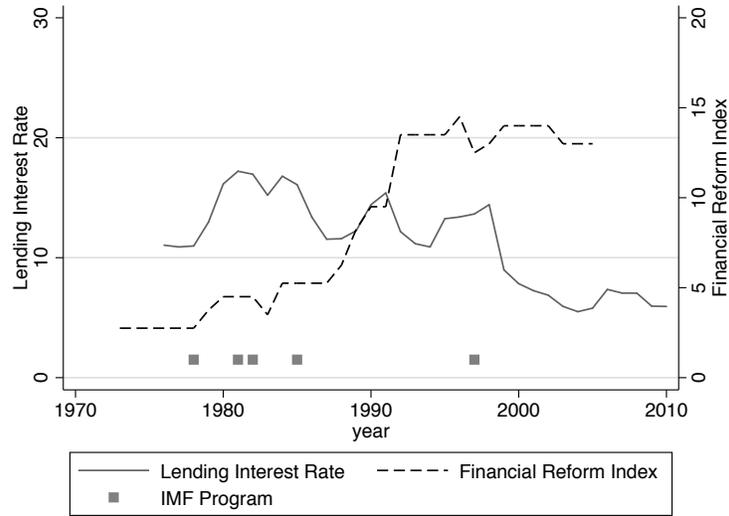
Figure 10: Financial Market Policy & Outcomes in Thailand

Figure 11: Financial Market Policy & Outcomes in Philippines