

The Political Economy of Market Liberalization

by

Amy Pond

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Doctoral Committee:

Professor William R. Clark, Co-Chair
Professor James D. Morrow, Co-Chair
Professor Kathryn M. Dominguez
Professor Robert J. Franzese, Jr.

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For Mary Anne Pond who always encouraged me
to ask questions and to find the tools to answer them.

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ABSTRACT

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Chairs: William R. Clark and James D. Morrow

In the dissertation I explore the political sources of market liberalization and market protection. In Chapter II, I argue that autocratic leaders use liberalization either to stimulate the economy in their country and thereby preserve their autocracy, or, when preservation is prohibitively costly, they use liberalization to constrain future tax rates and protect their wealth in democracy. In stable autocracies, liberalization bolsters the economy, thereby making revolution less attractive to the political opposition. In democracy, liberalization makes assets more mobile and provides asset owners with a credible exit option, thereby limiting redistribution.

Chapter III explores the impact of economic sanctions on future trade and financial policies. Regardless of whether sanctions are effective in achieving concessions, sanctions restrict international trade flows, creating rents for import-competing producers, who are protected from international competition. These rents can then be used to pressure the government to implement protectionist policies. Thus, sanctions create powerful interest groups in the sanctioned country who seek market protection.

In Chapter IV, I distinguish between two types of financial restrictions: inflow restrictions, which limit the entry of capital into the country, and outflow restrictions, which

limit capital exit from the country. Inflow restrictions benefit domestic capital owners, who compete with foreign capital owners, while outflow restrictions benefit labor at the expense of domestic capital owners, who lose the bargaining power associated with a credible exit option. I derive and evaluate predictions for inflow and outflow restrictions based on political institutions and market structure.

CHAPTER I

Introduction

Economic growth is often credited with alleviating poverty and improving the lives of people worldwide. Social scientists have identified a set of policies that increase growth, including: liberal trading policies; investment protection; stable monetary policies, often through independent central banks or fixed exchange rates; property rights; and unbiased legal systems. Policymakers have implemented these policies to varying degrees, and there is increasing recognition that the reasons for their deviations are political. If we want to understand why some countries are poor and others wealthy, we do not just need a clear understanding of economics. We also need to understand the political incentives of policymakers. This dissertation explores the political motivation for one set of policy decisions, market liberalization, and its implications for economic development and inequality.

There is overwhelming evidence that international trade and investment provide economic benefits to countries as a whole. David Ricardo laid the theoretical foundation for the benefits of free trade centuries ago: “Under a system of perfectly free commerce, each country naturally devotes its capital and labor to such employments as are most beneficial to each. This pursuit of individual advantage is admirably connected with the universal good of the whole” (Ricardo 1817, p. 133-134). More recently, scholars have tried to quantify the size of these benefits. Using geography as an instrument for trade flows to exclude confounding variables and isolate the direct effect of trade, Frankel and

Romer find that a one percentage point increase in trade raises per person income by two percent (Frankel and Romer 1999, p. 387). The benefits of trade are now widely accepted, and scholars have turned to assessing the causes of trade protection.¹

The benefits of open capital markets are more controversial. Bekaert, Harvey and Lundblad (2005), Henry (2007) and Quinn and Toyoda (2008) find that liberalization increases growth, while Klein and Olivei (2008) and Schularick and Steger (2010) find the opposite.² Despite these contradictory findings, scholars generally accept that when the financial market is already competitive or property rights are provided, openness leads to capital accumulation and market development (Rajan and Zingales 2003, Chinn and Ito 2006, Prasad et al. 2007, Broner and Ventura 2010). Due to these benefits, increasing international trade and capital market liberalization, and consequently facilitating trade and capital flows, have become important foreign policy goals in their own right. In this dissertation, I aim to isolate the political and economic factors that undermine trade and financial liberalization and make it difficult for countries to reap the benefits often associated with liberalization.

The dissertation answers the following question: When do policymakers allow capital and goods to flow in and out of their countries? In Chapter II, I explore capital market liberalization in autocracies. Extant research has found that democratization is more likely under open capital markets (Acemoglu and Robinson 2006, Freeman and Quinn 2012), but, if liberalization is something policymakers control (and Chinn and Ito (2006) show they do), why would survival-maximizing autocrats liberalize markets, especially if that liberalization will cause them to lose power in the long-run? I identify conditions under which capital market liberalization actually allows autocrats to prolong their tenure and protect their wealth.

Capital market liberalization has two distinct effects. The first effect is to constrain tax rates, as capital owners may move their capital out of the country when taxes are

¹For example, see Schattschneider (1935), Rogowski (1987), Grossman and Helpman (1994), Milner (1999), McGillivray (2004).

²See Rodrik and Subramanian (2009) and Kose et al. (2009) for an overview of the literature.

increased (Oatley 1999, Basinger and Hallerberg 2004). This constraining effect is particularly beneficial for the economic elite in democracy. Liberalization prevents redistribution and, therefore, helps explain the persistence of high inequality in many democratic countries. Thus, autocrats may liberalize markets in anticipation of democratization in order to minimize the cost of redistribution.

The second effect of liberalization is to stimulate the economy in capital scarce countries: foreign capital enters the country to benefit from higher interest rates when markets are opened. The entry of capital increases competition among capital owners, thereby decreasing interest rates and increasing wages. These distributional consequences are often thought to harm domestic capital owners and to benefit labor. The elite, therefore, may use liberalization as a transfer to the labor force. The transfer makes revolution less attractive, as revolution disrupts the economy. Thus, autocrats, who are often members of the economic elite, may liberalize the capital market, sacrifice capital returns, and, in exchange, maintain their political position. Because liberalization has these two effects, autocrats pursue liberalization for two purposes: either to deter democratization and stabilize their regime or to constrain tax rates in anticipation of democratization.

The game theoretic model identifies the conditions under which these outcomes occur. In doing so, the model yields testable implications. Liberalization in capital scarce countries decreases inequality as it increases wages and decreases interest rates. However, the effect is more pronounced in autocracies than in democracies. In democracy, liberalization reduces redistribution, thereby increasing inequality relative to democracies without liberal capital markets. I find that liberalization decreases inequality, but the effect goes away (and may even increase inequality) as countries become more democratic. I illustrate the theory with a brief description of economic policy in Chile and in Indonesia.

In Chapter III, I argue that international economic sanctions undermine trade and financial liberalization. Economic sanctions directly restrict the import and export of goods and services in the sanctioned country, but they also have indirect effects. Sanctions

often eliminate foreign competition and benefit import-competing producers. At the same time, sanctions harm those producers who would otherwise export their goods abroad. Consequently, sanctions empower an interest group with protectionist interests: those producers who gain economically from sanctions seek to replace the protection furnished by sanctions with trade and capital market restrictions, and they have the resources to achieve their preferred policies. Using data on sanctions and market openness, I find that trade sanctions increase tariff rates and financial sanctions increase capital market restrictions.

Existing works in political science, the first two substantive chapters of the dissertation included, have largely assumed that capital account liberalization is one-dimensional, and they aggregate many different types of capital account restrictions into one composite measure. Nevertheless, each of the components may be pursued for different purposes. In Chapter IV, I distinguish between two forms of financial restrictions: inflow restrictions and outflow restrictions. Liberalizing inflow restrictions likely benefits labor groups, as foreign capital enters the market, while liberalizing outflow restrictions benefits capital owners, as it opens up investment options abroad. Particularist political institutions should favor the interests of capital owners over labor. Accordingly, I expect countries with particularist institutions to employ more inflow restrictions and fewer outflow restrictions. The relationship should be particularly pronounced when capital owners are concentrated. Chapter IV examines inflow and outflow restrictions under different political institutions and different market conditions.

This dissertation advances our understanding of the political foundations of economic development. Market liberalization is important for efficiency, specialization, and capital accumulation. However, economic policies are often selected for political purposes, and they may or may not foster economic growth. Political scientists have long sought to understand why policymakers do not select economically optimal policies. My research improves our understanding of economic policy by investigating the interconnectedness of policies themselves and their relation to political institutions.

CHAPTER II

Capital Market Liberalization

2.1 Introduction

According to standard models of policymaking in democracy, democratization should usher in redistribution: the median voter is empowered by democratic institutions and prefers more redistribution than the elite who rule in most autocracies (Meltzer and Richard 1981). Contrary to expectations, redistribution is the exception rather than the rule, and many democratic societies remain highly unequal (Albertus and Menaldo 2013, Kaufman 2009). In fact, low-income voters may not even demand redistribution (Haggard and Kaufman 2012). Furthermore, many transitions to democracy entail little or no redistribution. What is missing from our theoretical accounts of democratization: why doesn't democratization lead to redistribution? Recent research recognizes that the openness of the capital market affects the severity of redistribution in democracy (Acemoglu and Robinson 2006, Freeman and Quinn 2012). According to the theories, assets are more mobile under open capital markets. Even seemingly immobile assets may be broken up into shares and bought and sold by investors, allowing asset owners to diversify their holdings and protecting them against concentrated losses. The increase in mobility associated with openness reduces the redistributive pressure facing elites following democratization, thereby making democratization more likely in open countries.

However, extant research in democratization takes capital mobility as a given. Re-

searchers do not consider why some markets are more open and therefore why assets are more mobile in some countries than in others. We know that policymakers manipulate the openness of the capital market for political reasons (e.g., Quinn and Inclán 1997, Brooks and Kurtz 2007). If openness ameliorates redistributive pressure and policymakers control openness, why would autocrats ever maintain closed markets? Furthermore, capital markets are open in many stable autocratic countries; why do they open markets even when democratization is unlikely?

To answer these questions, this chapter integrates theories of democratization and factor mobility with the economic intuition about the distributional consequences of openness. I identify two primary political motivations for autocrats to liberalize capital markets. First, when preventing democratization is feasible, the autocratic elite use transfers to make the political opposition indifferent between revolting and conceding to existing autocratic rule. Liberalization makes revolution more costly, as it facilitates the entry of foreign investment, which acts as a transfer from the autocratic elite to the working class. The elite in many autocratic countries benefit from closed, under-developed capital markets. The elite often control substantial wealth, and they are able to charge high premiums on their investment precisely because the closed capital market prevents the entry of foreign competitors. Capital market openness, therefore, reduces elite rents. The entry of foreign capital also increases competition for domestic labor and thereby increases wages (e.g., Stolper and Samuelson 1941, Frieden 1991, Jensen and Rosas 2007, Pinto 2013).

In addition to these distributional consequences, liberalization makes revolution more costly for the political opposition. Revolution often disrupts the economy, and this disruption is more costly when the economy is open and dependent on foreign investment. Thus, liberalization may be used as a transfer to avert revolution and stabilize the autocracy.

Second, when preventing democratization is prohibitively costly, autocratic elites also liberalize capital markets. In this context, market liberalization fosters capital market

development and makes assets more mobile. Capital mobility constrains tax rates and protects the elite's wealth in the face of impending democratization. Anticipating that the elite would move their assets abroad if extractive tax policies are selected, democratic leaders select policies that are favorable to the elite (e.g., Block 1977, Lindblom 1977, Przeworski and Wallerstein 1988, Oatley 1999). Thus, the theory provides insight into the puzzle of why little redistribution is realized in democracies. Autocrats often find ways to protect their wealth before democratization happens (Baldez and Carey 1999, Carey 2002, Albertus and Menaldo 2013). In democracies with open capital markets, even when the majority of the population prefer redistribution, this same majority might maintain the status quo in order to retain mobile investment. Policymakers may even avoid discussions of redistribution for fear of deterring investment when markets are open. Consequently, capital market liberalization is present in many democracies with limited redistribution *and* in some stable autocracies.

This chapter presents a game theoretic model that captures these two different motivations for capital market liberalization and their implications for regime change. The model has multiple empirical implications. First, the probability of democratization does not always increase in liberalization. In fact, because liberalization may be used to prolong autocracies, there are many stable autocracies with fully liberalized capital markets, and the probability of democratization may actually decrease in liberalization. Second, liberalization decreases inequality in autocracy, as it increases wages and reduces interest rates. In democracy, liberalization has the same distributional effect, but it also reduces tax rates. Thus, the impact of liberalization on inequality in democracy is ambiguous. The chapter provides preliminary evidence that is consistent with the model.

The paper proceeds as follows. I first identify the equilibrium financial policy and regime type using a game theoretic model. The possible equilibria and their implications are briefly described in the text. Formal proofs are in the appendix. I then discuss and evaluate the model predictions. I conclude with thoughts for future research.

2.2 Regime Change and Capital Liberalization

This section describes a Markov model of economic policymaking and regime transition. Markov models include states, and actors may have different strategies available to them depending on their current state. Further, the actions taken in any state may affect which state the actors move to in the future. States are a particularly useful way to model political institutions, because the role of actors is different under different institutions and actors impact the durability of institutions. In the model here, the amount of financial openness selected by the autocrat affects not only his utility in autocracy but also the probability of democratization and his utility under democratic institutions should they result. Transition between the democratic and autocratic states may happen through revolution, ‘democracy from below’, or from elite extension of the franchise, ‘democracy from above’.

There are two actors in the model, the poor and the elite. They interact to produce different political regimes and policies. The game is infinitely repeated, but the regime type determines the state of the game and the actions available to each player. Although the poor and elite are groups of individual actors, they are treated as unitary actors in the model, as individuals in either group share the same preferences with other members of their own group. I assume that the elites are wealthier than the poor before tax transfers are made. Elites derive utility from the returns on capital investments, while the poor derive utility from their wages. The elite control policy in autocracy, while the poor, who make up a majority of the population in the country, control policy decisions in democracy.¹ Even if they are not politicians themselves, economic elites often have influence over policy decisions in an autocracy. Either they are political elites who amassed wealth through rent-seeking,² or they are economic elites who influence political decisions

¹This assumption is consistent with the Acemoglu and Robinson (2001) model. Their model focused on reversions to autocracy, and democracy was only possible following elite extension of the franchise. Revolution was a terminal state and could never lead to democracy.

²For instance, leaders with small winning coalitions provide more targeted transfers to their supporters according to selectorate theory (Buono de Mesquita et al. 2003, 88 & 101). Over time, these transfers create a wealthy political elite.

through bribes and other transfers. Although economic elites also have political influence in democracy, their influence is exaggerated in autocracy where institutions provide fewer constraints. The next section details the states and strategies available to the actors. It is followed by a description of the actors' utility functions, the economy in the country, the equilibrium of the game and insights derived from the model.

2.2.1 States and Actions

There are three states in the model: autocracy, revolution and democracy. One should think of the states as different institutional settings, where institutions constrain behavior in various ways, but institutions are themselves the product of past interactions. The payoffs of the actors and strategies available to them depend on the present state. The poor select the tax rate in the democratic state, while the elite select the tax rate in the autocratic state. 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.

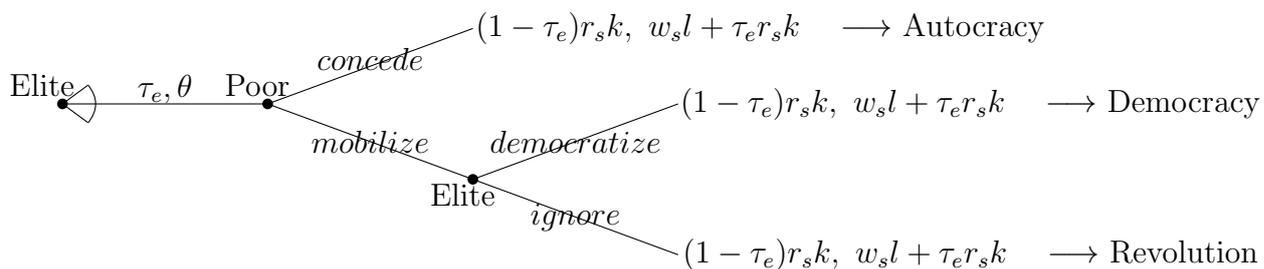
The probabilities of transition between the states result from the strategies selected in each state. The game begins in autocracy and continues in autocracy if the poor concede to the elite's policies. Revolution results if the poor mobilize for revolution and the elite ignore their threat. The state returns to autocracy if revolution is unsuccessful. Democracy results from a successful revolution or from the elite's decision to extend the franchise and democratize the country. Figure 2.1 presents the sequence of play in each state, which is described here.

Autocracy

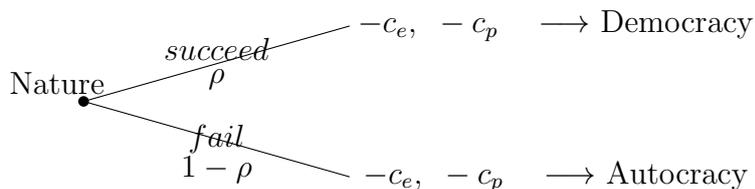
1. The elite select the tax rate, τ_e , and the level of market liberalization, θ .
2. The poor decide to *mobilize* for revolution or to *concede*. If the poor concede, payoffs are realized according to τ_e, θ , and the state remains autocracy.

Figure 2.1: Sequence of Play in Each State

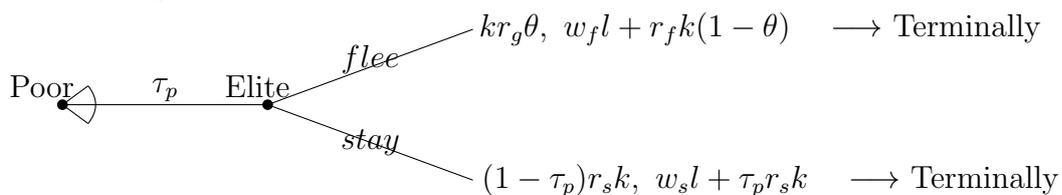
Autocracy



Revolution



Democracy



3. If the poor mobilize for revolution, the elite decide whether to *democratize* the political system or to *ignore* the poor's mobilization. Regardless of the elite's decision, payoffs in the present period are realized according to τ_e, θ . However, if the elite democratize, they proceed to democracy in the next period. If the elite ignore the mobilization, they proceed to revolution.

Revolution

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

Democracy

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 a terminal 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 liberalization. This structure enables the elite to use openness to prevent

revolution and to constrain the tax rate in democracy, should democracy result. This strategic interaction will inform the equilibrium of the game.

While I assume that the elite control both the tax rate and capital market liberalization in autocracy, the poor only control the tax rate in democracy. Although democratic policymakers have control over liberalization in the long-term, the tax rate they select immediately after democratization is constrained by the existing level of openness. It is unlikely that democratic policymakers could revise the amount of liberalization rapidly enough to prevent flight, and even discussion of restrictions on mobility may be enough to trigger flight. Flight is seldom observed, because, once markets are open, the threat of flight is often sufficient to constrain policymakers.³

2.2.2 Utility Functions

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. In the autocracy and democracy states, the economy functions, and the elite receive income from interest charged on their capital which is invested in production. The utility function of the elite in the democracy and autocracy states is: $u_e = (1 - \tau)rk$, where r is the interest rate or return to 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.⁴ 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 interest and minimize transfers. However, due to the poor's threat of revolution in autocracy, the elite may implement transfers even when they control policy in autocracy.

³The threat of flight is particularly constraining as the capital market deepens and economic success in the country relies on investment (Tornell, Westermann and Martínez 2003, Demirgüç-Kunt and Detragiache 2006, Mishkin 2007).

⁴The 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 incentives to attract investment (e.g., Li 2006, Desai, Foley and Hines Jr. 2006).

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 tax transfers. However, due to the elite's ability to move assets abroad in democracy, the poor may refrain from redistribution even when they control policy in democracy. The wage and interest rates are determined by the domestic economy, which is described in the following section.

2.2.3 The Economy

In autocracy and democracy, the economy functions and the wage and interest rate 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 $\beta < 1$. The domestic economy is assumed to be competitive, which implies that the wage and interest rates 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.

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 capital depends on the level of market 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 availability 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 the interest rate decreases.⁵ All else equal, the poor prefer more capital market liberalization, while the elite prefer to limit

⁵This is consistent with existing work that shows that labor benefits from investment (e.g., Jensen and Rosas 2007, Pinto 2013).

liberalization and benefit from the relative scarcity of their capital. However, all else is not equal; capital market liberalization also makes assets more mobile and facilitates capital flight.

Thus far, we have discussed 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 Figure 2.1). The flight of capital is likewise determined by the level of liberalization, θ . Following flight, the total capital invested in the country is: $(1-\theta)K = (1-\theta)(k+a\theta)$. 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 interest rate of r_g , which is assumed to be less than the domestic interest rate, as many authoritarian countries are capital scarce.

I assume that capital market liberalization increases the ability of capital to enter and exit the market.⁶ As a result, liberalization in the model accounts for the removal of numerous types of market restrictions, including reductions in inflow and outflow restrictions, as well as stable exchange rate policies and property rights enforcement, particularly for investors. Although policymakers may independently manipulate these policies, they often pursue packages of liberalization (e.g., Brune, Garrett and Kogut 2004, Simmons and Elkins 2004, Simmons, Dobbin and Garrett 2006), and foreign investment and market development only result when liberalization covers multiple dimensions for the following reasons. Liberalizing capital inflows has little impact on markets without likewise liberalizing outflows: capital entry is unattractive to foreign investors if they do not have the flexibility to disinvest when they choose to do so. Policymakers then must facilitate inflows and outflows if they want to deepen markets. Additionally, many policies, particularly exchange rate policies, bank regulation, legal institutions and shareholder rights, affect both inflows and outflows. Capital market liberalization facilitates capital entry and exit.

The domestic interest rate when capital remains in the country is denoted: $r_s = \frac{(1-\beta)l^\beta}{(k+a\theta)^\beta}$

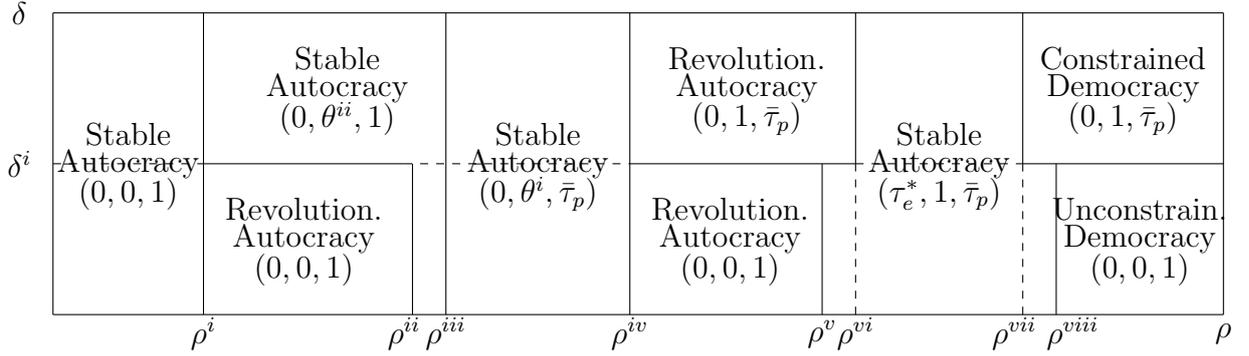
⁶I use the terms capital market liberalization, financial liberalization, and openness synonymously.

and the domestic interest rate following flight is: $r_f = \frac{(1-\beta)l^\beta}{[(k+a\theta)(1-\theta)]^\beta}$. It is also useful to denote the domestic interest rate in the absence of openness: $r_d = \frac{(1-\beta)l^\beta}{k^\beta}$. The wage rate is affected by openness in a similar manner: $w_s = \frac{\beta(k+a\theta)^{1-\beta}}{l^{1-\beta}}$, $w_f = \frac{\beta[(k+a\theta)(1-\theta)]^{1-\beta}}{l^{1-\beta}}$, 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 $\theta \in [0, 1]$. 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 interest rate. Only elite income earned domestically is susceptible to the government's tax.

2.2.4 Equilibrium Analysis

The equilibrium 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 always one, unique equilibrium for a 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 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 outcomes depending on the amount of market liberalization selected by the elite, which determines whether flight results in democracy (even in the cases where democracy is not actually reached in equilibrium). Figure 2.2 provides a simplified graphical representation of the differences between the equilibria. The figure presents all of the logically possible equilibria. I distinguish the equilibria using the discount factor (δ) and the probability of revolution success (ρ). I briefly sketch each equilibrium below; the full proofs and definitions of the cut-points are available in the appendix.

Figure 2.2: 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.

There are two possible equilibrium outcomes where democracy results from the elite's voluntary extension of the franchise and democratization of the country: **constrained democracy** and **unconstrained democracy**. In both outcomes, revolution is sufficiently likely to be successful that the elite cannot credibly commit not to democratize when the poor mobilize for revolution. Anticipating the elite's democratization, the poor mobilize. Knowing that democracy will result anyway, 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. 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. Because they fail to liberalize markets, the poor seize all of the elite's income in democracy ($\tau_p = 1$).

For the remaining equilibria to exist, the elite must be willing to ignore mobilization by the poor. The elite are able to credibly ignore mobilization when $\rho < \rho^{vii}$ and $\delta \geq \delta^i$ or $\rho < \rho^{viii}$ and $\delta < \delta^i$. These are necessary conditions to rule out constrained and

unconstrained democracy. If the conditions are violated, the elite cannot credibly commit not to democratize, so the poor always mobilize and democracy results. Figure 2.2 represents the most general case where it is assumed that a range of ρ 's exist between ρ^i and ρ^{viii} . For any set of values, ρ and δ , only one equilibrium exists.

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 that revolution is successful increases, the size of the transfers needed to prevent revolution likewise increases. The elite prefer to use capital market liberalization over tax transfers to prevent revolution, so they first exhaust liberalization before turning to tax transfers. Stable autocracy without the threat of redistribution results when the amount of liberalization necessary to prevent revolution (θ^i) is also sufficient to moderate the tax rate selected by the poor in democracy ($\tau_p = \bar{\tau}_p$). Stable autocracy with the threat of redistribution occurs when the amount of liberalization necessary to prevent revolution (θ^{ii}) is not sufficient to prevent expropriation in democracy ($\tau_p = 1$), although democracy never actually results in this equilibrium. Stable autocracy without transfers results when revolution is so unlikely to be successful that the poor cannot credibly mobilize for revolution, and the elite provide no transfers of any sort.

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 always preceded by revolution. These outcomes result at intermediate values of ρ , as revolutions must be sufficiently likely to be successful that the poor are willing to mobilize for revolution and sufficiently unlikely to be successful that the elite do not prevent the mobilization 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. Consequently, 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. Because the flight threat is credible, the poor select the highest tax rate that retains elite investment ($\bar{\tau}_p$).

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 became 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. These types of redistributive policies are precisely the costs that economic elites associate with unconstrained democracy, and they provide a useful representation of the fear of redistributive democracy in the model presented here.

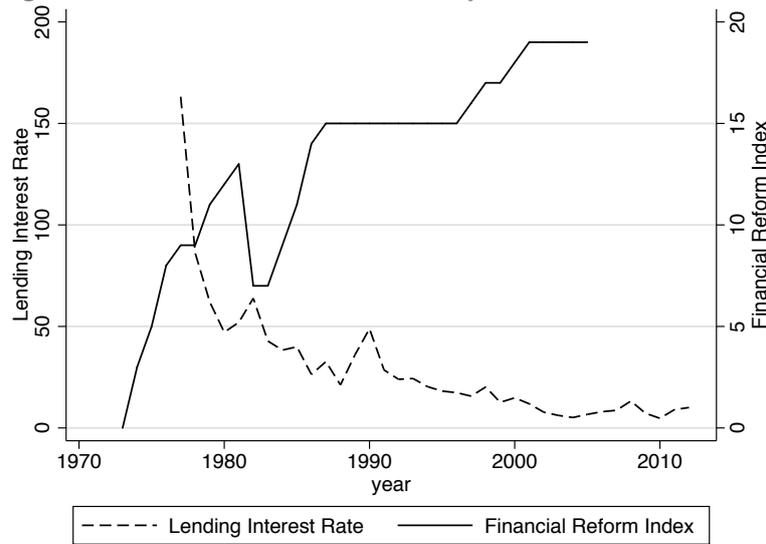
In 1973, General Augusto Pinochet seized power in a military coup. Pinochet remained in office until 1990, when he negotiated the transition to democracy after losing a national plebiscite in 1988. During his years as head of the Chilean government, Pinochet pursued a policy of "apertura," or opening, 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 2.3 diagrams the dictatorship's capital market policies using the Financial Reform Index (Adiad, Detragiache and Tressel 2008),⁷ and the lending interest rate (World Bank 2013).⁸ Aggregate, time-series data reflects the liberalization of the financial market during the dictatorship.

Pinochet's advisors sought to create an economic order that was so liberal and strong that it would survive the creation of a new political order: "This was to be a 'pro-

⁷The index details reductions in restrictions on the exchange rate, capital controls, banking sector, and securities market and takes values between 0 and 21.

⁸Lower interest rates should indicate open and competitive markets.

Figure 2.3: Financial Market Policy & Outcomes in Chile



tected 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” (Huneus 2007, 478). In other words, the 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). Many scholars have lamented Chile’s lack of redistributive policies in the decades following democratization. They point out that the democratic government “never really tried to address the complex issue of the persistent long-term disparities in income and wealth distribution” and that wealth continues to be concentrated “in the hands of powerful and politically influential economic elites” (Solimano 2012, 34). In fact, comparing income distributions between 1987 and 1998 show “that inequality has increased slightly since 1994” (Camhi et al. 2003, 110), and one of the main causes of continued inequality is “the lack of more progressive taxation” (Solimano 2012, 86). 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 persistently high level of inequality in Chile. The Chilean economy

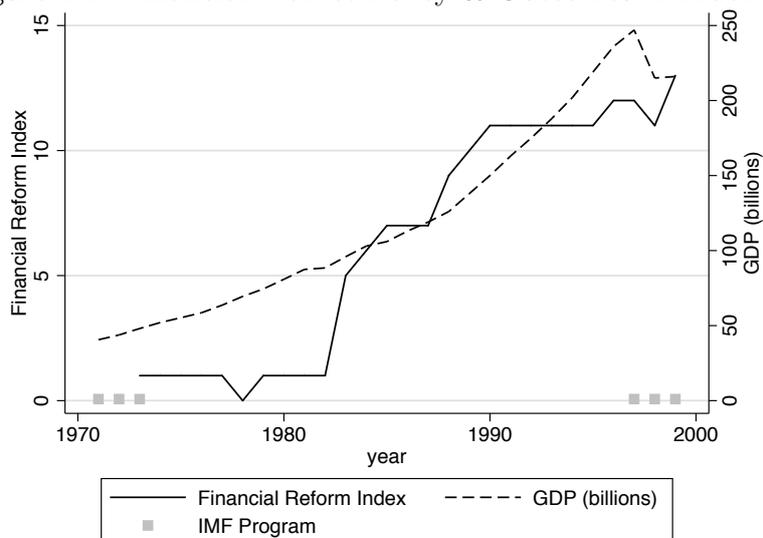
is intimately tied to the global economy, and Chile’s democratic leaders are constrained by their need for investment.

General Suharto’s policy choices during his rule of Indonesia (1967-1998) exemplify the benefits of market restrictions for political supporters, while at the same time illustrating how market liberalization may **stabilize an autocracy**. Although Suharto opened the capital account, he simultaneously maintained strict controls on foreign entry into the banking sector and the financial market, particularly at the inception of his rule (Hanson 2001, p. 237-239). These controls enabled him to provide preferential access to financing and to channel other benefits to his political supporters (Vatikiotis 1998, p. 43-45). 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, p. 413). 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. Figure 2.4 depicts Suharto’s aggregate capital market policies using the Financial Reform Index (Adiad, Detragiache and Tressel 2008). Because the lending interest rate is unavailable during Suharto’s rule, the figure includes Indonesia’s GDP in billions of U.S. dollars (World Bank 2013). GDP and liberalization were closely associated in Indonesia. The figure also includes markers during the years that Indonesia was under an IMF program (Dreher 2006). Suharto pursued market liberalization even in those years when IMF programs were not in place. The unprecedented market openness and growth of Indonesia under Suharto helped undermine support for political opponents and create a **stable autocracy**.

2.2.5 Model Insights

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

Figure 2.4: Financial Market Policy & Outcomes in Indonesia



Proposition 2.1. *The probability of democratization is not monotonically increasing in liberalization.*

Although capital market openness is an effective way for the elite to protect their wealth following democratization, democratization is not always more likely following liberalization. In fact, 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 2.1 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 (Bates and Lien 1985, Boix 2003, Acemoglu and Robinson 2006). Contrary to these existing theories, if the people who own the wealth have power in autocracy, greater mobility will not increase the probability of democratization. In fact, there are 34 different autocratic states with fully liberalized capital markets.⁹ These open and stable autocracies include, at various times: China, Djibouti, Jordan, Liberia, Qatar, Saudi Arabia, Uganda, Uzbekistan and many more. Proposition 2.1 provides insight into why autocrats maintain stable political

⁹Autocratic states are identified here as states with a polity score less than 6. Fully liberalized capital markets have a Karcher and Steinberg (2013) value for capital account openness over 2.532, which is the highest score in the full sample, including democracies and OECD countries.

institutions while at the same time opening markets. Open markets may be used to stimulate the economy, making revolution, which disrupts the economy, relatively more costly and consolidating their rule.

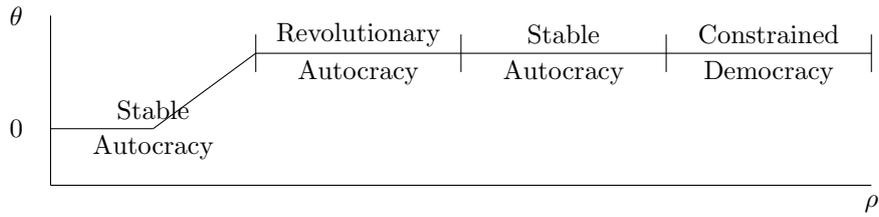
Lemma 2.2. *There are stable autocratic equilibria that sustain all levels of liberalization.*

Lemma 2.2 helps explain why autocratic elites maintain variable levels of capital market openness, even when liberalization increases competition and decreases the returns to their wealth. The amount of liberalization in autocratic countries depends on the size of the transfers necessary to prevent revolution. When larger transfers are needed, capital markets should be more liberal and more developed.

Proposition 2.3. *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.*

Figure 2.5 illustrates the logic of Proposition 2.3. The figure plots the equilibrium amount of financial liberalization 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 market liberalization is used for two different purposes. It may be used in autocracy to constrain tax rates in anticipation of democratization or it may be used as a transfer to undermine the opposition and preserve the current regime. For either purpose, however, liberalization is increasing in the probability of revolution success. In autocracy, a higher likelihood of revolution success results in a larger transfer being necessary to prevent the poor from revolting. When the probability of revolution success is sufficiently high, the elite liberalize capital markets, to prevent redistribution in democracy, and extend the franchise. As long as the elite value their future payoffs, they always liberalize the market to prevent redistribution, prior to democratization.

Figure 2.5: Equilibrium Value of Liberalization (for large δ)



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

Lemma 2.4. *The equilibrium tax rate selected by the poor in constrained democracy is decreasing in the level of capital market liberalization, the domestic capital endowment, the amount of foreign capital seeking to enter the market and the global interest rate.*

Lemma 2.4 is consistent with the literature on tax competition across countries (e.g., Oatley 1999, Basinger and Hallerberg 2004, Rudra 2008, Franzese and Hays 2008). When the elite have the ability to move their assets abroad, through liberalized capital markets (θ), policymakers must offer a lower tax rate in order to retain investment. This relationship is even more pronounced when foreign investment options are attractive, as policymakers must make more concessions in order to attract or retain capital. Foreign investment options are attractive in the model when the global interest rate (r_g) is high. Then, liberalized capital markets and attractive international investment options reduce redistribution in democratic countries.

The results for the capital endowment (k) and the attractiveness of the market (a) capture the fact that returns are lower in the country when capital is abundant. As capital accumulates, through open capital markets and the attractiveness of the market, the difference between the interest rate in the country if capital stays and the global interest rate ($r_s - r_g$) decreases. In other words, the relative attractiveness of investing elsewhere increases as the capital presence increases. Anything that makes investing abroad more attractive for the elite forces the poor to implement more favorable tax rates in order to retain investment in the democratic state. Further, when the capital endowment is larger, liberalizing capital 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.

Assumption 2.5. *Reductions in elite income and increases in poor income decrease inequality, while increases in elite income and decreases in poor income increase inequality.*

Assumption 2.5 is needed to derive results about 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. Consistent with the characterization of the elite as capital owners and the poor as wage earners, this assumption implies that the elite are wealthier than the poor and that reductions in elite income and increases in poor income decrease inequality.

Proposition 2.6. *In democracy, the effect of liberalization for inequality depends on which of two income effects dominates. First, the elite's income, in democracy, is always increasing in liberalization. Second, the change in the poor's income, in democracy, depends on whether the effect of the wage increase or the reduction in tax transfer from liberalization dominates. If the wage increase is sufficiently large, inequality decreases. If the transfer decrease is sufficiently large, inequality increases.*

Proposition 2.6 captures the fact that liberalization has countervailing effects in democracy. It increases wages and decreases interest rates, while at the same time providing the elite with a credible exit option, which reduces the tax rate. In democracy, the elite's income is always increasing in liberalization, because they can move their assets abroad, which forces the poor to reduce the tax rate. However, the effect on the poor's overall income depends on the relative increase in the wage rate versus the decrease in tax transfers. If the decrease in tax transfers is larger than the increase in wages, then the poor's overall income decreases and inequality increases. If the increase in wages is larger than the decrease in tax transfers, then whether inequality increases or decreases will depend on whether the elite's income is increasing at a faster rate than the poor's income. 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 in autocracy are much more straightforward, although we will first need the result in Lemma 2.7 to show them.

Lemma 2.7. *Autocratic elites always prefer to use financial liberalization (θ) over taxes (τ_e) as transfers.*

Using capital market liberalization to buy the poor's support and prevent revolution is always preferable to using tax transfers for the elite. The intuition for this finding is that the poor's income increases more than the accompanying decrease in the elite's income from liberalization. The decrease in interest rates is mirrored by an increase in wages and is attributable to the inflow of foreign capital: $a\theta$. However, the decrease in interest rates is spread across domestic and foreign capital owners ($k + a\theta$), while the increase in wages attributes entirely to the domestic labor force (l). In consequence, the increase in wages from capital market development are larger than the decrease in interest rates. This result is independent of the constraining impact of liberalization on tax rates in democracy, which also makes liberalization attractive to the elite. Assumption 2.5 and Lemma 2.7 are used to derive Proposition 2.8.

Proposition 2.8. *In autocracy, liberalization reduces inequality in equilibrium.*

The intuition for Proposition 2.8 is that capital market liberalization provides a transfer from the elite to the poor in autocracy. Market development decreases the returns to the elite by decreasing interest rates, 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. The empirical section will assess whether evidence is consistent with Propositions 2.6 and 2.8.

2.3 Openness and Inequality

Propositions 2.6 and 2.8 provide novel implications for the effect of capital market liberalization on inequality. The propositions yield the following hypotheses for empirical

evaluation. Capital market liberalization has divergent consequences depending on regime type. First, in autocracy, capital market liberalization acts as a transfer, increasing wages and decreasing interest rates, and it thereby decreases inequality. Second, in democracy, the effect of capital market liberalization on inequality is ambiguous. In democracy, liberalization likewise serves as a transfer, but it also reduces the tax rate, by increasing the mobility of capital. Because liberalization reduces the tax rate, it decreases inequality at a slower rate in democracies, and it may even increase inequality relative to closed democracies.

I use the following regression estimator with country fixed effects (v_i), a linear time trend (u_t) and robust standard errors to evaluate the hypotheses:

$$Gini_{it} = \beta_0 + \beta_1 Openness_{it} + \beta_2 Polity_{it} + \beta_3 Openness_{it} * Polity_{it} + \beta_4 Controls_{it} + v_i + u_t + \epsilon \quad (2.1)$$

The sample is limited to non-OECD countries, as the theory applies most directly to capital scarce countries,¹⁰ and the sample includes 101 countries from 1978 to 2012. The sample is described in Section 2.4.3 of the Appendix. Summary statistics are provided in Table 4.1. The dependent variable is the Gini Index, which is a measure of inequality. The Gini Index captures how much the income distribution in a country deviates from a perfectly even income distribution (World Bank 2013). Larger values of the Gini Index indicate more inequality.

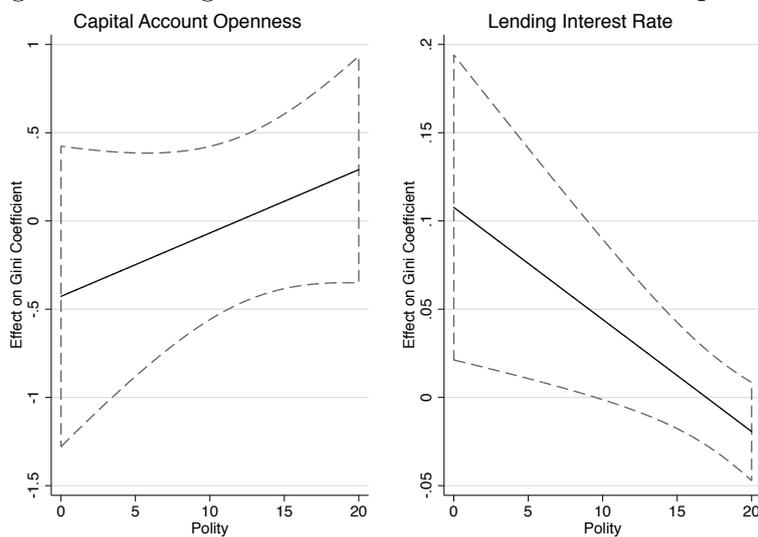
The main variables of interest are market liberalization and regime type. I again use the Karcher and Steinberg (2013) measure of capital account openness. I complement this measure with two de facto measures of capital market liberalization: the interest rate spread and the lending interest rate. Both interest rate measures come from the World Development Indicators (World Bank 2013). The interest rate spread is the lending interest rate minus the deposit rate, and competitive, open markets should have a smaller spread. The lending interest rate is the rate charged by banks on loans to prime customers.

¹⁰The results are robust to the inclusion of all countries in the World Bank sample.

Table 2.1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Year	1999.59	7.33	1978	2012	809
Gini	42.62	10.33	19.4	74.33	809
Log GDP per capita	7.49	1.02	4.84	10.86	783
GDP Growth	4.2	5.09	-29.1	37.48	788
IMF Program	0.51	0.69	0	4	757
Polity	13.96	5.88	0	20	749
Interest Rate Spread	10.95	14.19	-165.06	166.19	644
Lending Interest Rate	23.56	20.89	5.04	213.02	660
Openness	0.14	1.56	-1.76	2.53	542

Figure 2.6: Marginal Effect of Liberalization on Inequality



Note: confidence intervals are 95 percent.

In a more open financial market, one expects lower rates. The interest rate is particularly useful here, as it captures the effect of liberalization in the model, which decreases interest rates. Previous studies have also used interest rates as a proxy for market liberalization (e.g., Fry 1997, Bandiera et al. 2000).

The de facto measures of liberalization are particularly attractive, because leaders may restrict capital markets in infinitely many ways, making de jure measures difficult to estimate. The de facto measures also capture the intermediate effect of liberalization hypothesized here: reductions in interest rates. Even seemingly all-encompassing measures of capital market liberalization (Karcher and Steinberg 2013, Chinn and Ito 2008, Quinn and Inclán 1997, Quinn 1997) cannot capture every way that leaders limit access to capital markets. For example, leaders may enact discriminatory legal provisions, provide preferential regulation to their political supporters or engage in all sorts of corrupt practices.¹¹ Many studies have attempted to evaluate the impact of liberalization on inequality using conventional measures on liberalization, but most have found null results (e.g., Reuveny and Li 2003, Jaumotte, Lall and Papageorgiou 2008). Furthermore, capital market liberalization likely only leads to market development in the presence of property rights (Chinn and Ito 2006, Broner and Ventura 2010). The theory presented here is concerned with a liberalizing package of reforms, which lead to capital inflows, market development, increased wages, reduced interest rates, and increased capital mobility.

The Polity data again captures regime type (Marshall, Jaggers and Gurr 2013). To facilitate interpretation of the interactive and constitutive terms in the estimator, I transform the polity variable to cover 0 to +20 with higher values indicating more democratic countries. After the transformation, the coefficient on each capital market liberalization measure captures the effect of liberalization in a fully autocratic country. I include controls for log GDP per capita (in thousands of dollars) in the country and GDP growth (World Bank 2013), as modernization could be related to democratization (e.g., Lipset

¹¹See Claessens and Perotti (2007) for a discussion of the limit of existing analyses and the impact of various types of restrictions and Pepinsky (2013) for a discussion of when different restrictions might be politically attractive.

1959, Doorenspleet 2004) and openness. I also control for whether a country is under an IMF loan in each country year (Dreher 2006), as the IMF often encourages countries to open their markets.

When liberalization is measured using the interest rate variables, I expect higher interest rates to be associated with higher inequality in autocracy (β_1 should be positive), but the effect should become smaller and even begin to decrease inequality as the regime type becomes more democratic (β_3 negative). β_1 captures the effect of liberalizing capital markets when the government is authoritarian (β_3 drops out when polity is 0). Alternatively, when liberalization is measured using the openness variable the signs on the coefficients should flip: I expect openness to decrease inequality in the most autocratic countries (β_1 should be negative), but the effect should become smaller and even begin to increase inequality as the regime type becomes more democratic (β_3 positive). I expect inequality to be lower in authoritarian countries with open markets, measured here by lower interest rates and greater openness. The reduction in inequality in autocracy is driven by the impact of market liberalization on factor returns: wages increase and the returns to investment decrease when developing markets are liberalized. Conversely, as countries become more democratic, liberalization reduces income redistribution through tax transfers and may actually increase inequality.

The results in Table 2.2 are consistent with my expectations, and they are significant at conventional levels when using the interest rate measures.¹² Liberalization in autocracy is negatively correlated with inequality, and the relationship is moderated by polity. As polity and openness increase, inequality increases. The lack of significance using the capital account measure is unsurprising, as there are many ways that policymakers restrict openness, which are not captured using the capital account measure. Columns (1), (3), and (5) represent the most parsimonious estimates; columns (2), (4), and (6) include controls. Figure 2.6 plots the marginal effect of liberalization on inequality in the esti-

¹²Estimates are robust to the exclusion of country fixed effects and to the inclusion of a lagged dependent variable, although the sample size is dramatically reduced by the dynamic specification.

Table 2.2: The Effect of Market Development on Inequality

	(1)	(2)	(3)	(4)	(5)	(6)
Lending Interest Rate	0.11*** (2.66)	0.11** (2.44)				
Interest Rate Spread			0.18** (2.49)	0.19** (2.14)		
Openness					-0.43 (-0.99)	-0.43 (-0.98)
Polity	0.16 (1.65)	0.15 (1.41)	0.094 (1.12)	0.085 (0.95)	-0.0013 (-0.02)	0.0080 (0.10)
Lending Interest Rate * Polity	-0.0062*** (-2.73)	-0.0063*** (-2.74)				
Interest Rate Spread * Polity			-0.010** (-2.33)	-0.011** (-2.20)		
Openness * Polity					0.038 (1.33)	0.036 (1.23)
Log GDP per capita		1.08 (0.42)		0.97 (0.35)		1.76 (0.63)
GDP Growth		-0.057 (-1.43)		-0.047 (-1.16)		-0.086 (-1.55)
IMF Program		0.066 (0.20)		0.096 (0.28)		0.15 (0.46)
Constant	-179.4* (-1.69)	-119.0 (-0.85)	-176.8* (-1.72)	-127.8 (-0.81)	-184.7 (-1.47)	-74.6 (-0.58)
N	620	567	605	555	519	475

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Sample is restricted to non-OECD.

Estimators include country fixed effects, a linear time trend, and robust standard errors.

mates with controls (columns (2) and (6)). The left panel uses capital account openness as the measure of liberalization and the line slopes upward, as increased liberalization in more democratic countries is not associated with as large a decrease in inequality as it is in autocratic countries. The right panel uses the lending interest rate as the measure of liberalization and the line slopes downward, as increased liberalization reduces interest rates.¹³ Then, a reduction in liberalization is associated with an increase in inequality in autocratic countries, and the effect diminishes as countries become more democratic.

2.3.1 Conclusion

Many scholars fear that the constraining power of international capital flows undermines democratic policy (e.g., Block 1977, Lindblom 1977, Stopford, Strange and Henley 1991, Roberts 1998, Oman 2000). According to their theories, policymakers are unable to select the policies preferred by their constituents when those policies would lead to underinvestment or even capital flight (Przeworski and Wallerstein 1988). This chapter presents a more optimistic picture of the stability of democratic institutions: precisely because redistribution is constrained by capital flows, the economic elite do not need to reverse democratic institutions and directly exercise political power in autocracy. Rather, the constraining power of capital means that economic elites obtain policies that they find acceptable in democracy. Without capital mobility, democracy would produce redistribution, creating pressure from economic elites for the reversal of democracy.

The implications of the game theoretic model presented here run in direct contradiction to the conventional wisdom about capital mobility and democratization. The conventional wisdom, often framed around the development of democracy in Western Europe, is that limited government results when rulers must trade policy and institutional concessions in exchange for tax revenue (Bates and Lien 1985, North and Weingast 1989, Boix 2003, Ansell and Samuels 2010). Mobile assets are particularly hard to tax, providing the owners of mobile assets with more policy control, and greater asset mobil-

¹³The plot of the interest rate spread is excluded as it is similar to the lending interest rate plot.

ity leads to more democratization. This argument only holds when the economic elite are not also the political elite. However, because autocrats manipulate policy to enrich themselves and their political supporters, the political elite are often the economic elite in modern autocracies. When the political elite are the economic elite in autocracy, democratization may result when capital is mobile, not because capital owners demand it, rather because the autocratic elite no longer need political power. They exercise influence through the mobility of their investments. Furthermore, it is not certain that democracy will result from openness: The autocratic elite may use liberalization to weaken the political opposition and preserve the autocracy.

In exploring the effects of capital openness for regime change, the model resolves several existing puzzles. First, high inequality and the seeming absence of redistributive pressure in many democracies have long puzzled scholars (Bonica et al. 2013, Haggard and Kaufman 2012, Kaufman 2009). As long as the median voter earns less than the mean income, policymakers in democracy should prefer more redistribution than policymakers in autocracy (Meltzer and Richard 1981, Acemoglu and Robinson 2001). However, inequality persists in many democracies (Albertus and Menaldo 2013). This chapter suggests that democratization occurs when the elite have found ways to stymie its effects: They liberalize capital markets, making their threat of capital flight credible and preventing the new democratic leaders from pursuing redistributive policies.

The theory provides insight into a second puzzle: why doesn't capital market liberalization decrease inequality? Theoretically, one would expect liberalization to lead to lower inequality, particularly in developing countries, where liberalization should trigger capital inflows, which decrease interest rates and raise wages. Previous studies have found no relationship between capital market liberalization and inequality, even when they parse out developed from developing countries (Jaumotte, Lall and Papageorgiou 2008), and others find that liberalization and investment may actually increase inequality (Reuveny and Li 2003). There are many potential reasons for null results: wages might increase the most for skilled workers, which could increase inequality, or the measures of

liberalization might not actually capture significant amounts of protection that are not based on capital account restrictions, including weak legal institutions, foreign entry or ownership restrictions, or corruption (Pepinsky 2013, Claessens and Perotti 2007).

The theory presented here shows that liberalization could in fact decrease inequality through its impact on interest rates and wages and still produce results that are indeterminate or even inconsistent with the theoretical intuition. Previous studies have failed to consider that the implications of liberalization might be different under different political regimes. According to the theory, liberalization decreases tax rates in democracy, thereby limiting redistribution, which in turn increases inequality. In order to evaluate the impact of liberalization, scholars must consider the political institutions in the country of interest. A simple cross-national time series analysis of Gini coefficients, polity and interest rates provides evidence that is consistent with the theory, although future work should assess the robustness of the results.

The theory helps address a third puzzle: why do leaders in authoritarian countries ever liberalize financial markets? Leaders in democracies, who must appeal to a large group of voters, are more likely to invest in pro-growth, public good type policies than leaders in autocracies who favor their relatively small group of supporters (Bueno de Mesquita et al. 2003, Lake and Baum 2001). The liberalization and development of financial markets is often associated with economic growth (Rajan and Zingales 2003, La Porta et al. 2000). Thus, democratic leaders should be more likely than autocratic leaders to liberalize capital markets. While they are, some autocratic leaders liberalize capital markets prior to and even absent democratization.

Previous studies have relied on variation in the size of the winning coalition in autocracies to explain autocratic liberalization (Clark, Poast and Flores 2010, Steinberg and Malhotra 2014). The model here abstracts from the size of the winning coalition and instead examines the effect of pressure from groups who have no institutional authority. Through their revolutionary threat, the poor may extract concessions in autocracy and may even trigger democratization. The theory explains those cases of liberalization

where the winning coalition is small, even by autocratic standards. Autocrats pursue the liberalization of financial markets for two reasons. First, liberalization may provide an efficient way to increase the income of the poor, make revolution more costly, and thereby preserve the autocracy. Second, because liberalization constrains tax rates in democracy, autocrats may liberalize the market in anticipation of democratization, when preventing democratization is prohibitively costly. The second mechanism is largely complementary to existing arguments that autocrats create political institutions to protect their influence (Baldez and Carey 1999, Carey 2002, Albertus and Menaldo 2013). Liberalization, however, enables economic elites to retain policy influence even without political power.

2.4 Appendix

2.4.1 Proofs of Lemmas and Propositions

Proof. PROPOSITION 2.1. By contradiction. Assume the probability of democratization is increasing in capital market 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. \square

Proof. LEMMA 2.2. In the stable autocracy equilibria, θ increases with ρ , and covers the range of $\theta \in [0, 1]$. See Proposition 2.3 for the full proof that θ increases in ρ . \square

Proof. PROPOSITION 2.3. 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 2.10 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 2.14 in the Appendix). $\frac{\partial F(\theta^i, \rho)}{\partial \theta^i}$ is always 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 always set to one in equilibrium. \square

Proof. LEMMA 2.4. 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 . \square

Proof. PROPOSITION 2.6. The elite's income in democracy is always: θr_g , so their income increases in θ .¹⁴ 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: $\frac{\partial U_p}{\partial \theta} = -\frac{(1-\beta)^2 k l^\beta}{[(k+a\theta)(1-\theta)]^\beta} - \frac{a\beta(1-\beta)k(1-\theta)^{1-\beta} l^\beta}{(k+a\theta)^{1+\beta}} + \frac{a\beta(1-\beta)(1-\theta)^{1-\beta} l^\beta}{(k+a\theta)^\beta} - \frac{\beta(1-\beta)(k+a\theta)^{1-\beta} l^\beta}{(1-\theta)^\beta}$. 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. \square

¹⁴The 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 .

Proof. LEMMA 2.7. 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 taxes. See Equation 2.9 in the Appendix. \square

Proof. PROPOSITION 2.8. 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). Whenever θ varies in equilibrium, increases in θ always transfer wealth from the elite to the poor. \square

2.4.2 Equilibria Proofs

2.4.2.1 Constrained Democracy

In the constrained democracy equilibrium, the elite select: $\tau_e = 0$, $\theta = 1$ and democratize in autocracy. The poor mobilize 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 always 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:

$$\bar{\tau}_p = \frac{(1-\beta)l^\beta - \theta r_g (k+a)^\beta}{(1-\beta)l^\beta} \quad (2.2)$$

$\theta = 1$ 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 always 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 mobilization: $V_e^A(\text{democratize}) \geq V_e^A(\text{ignore}) \iff r_s k + \frac{\delta r_s k(1-\tau_p)}{1-\delta} \geq \frac{r_s k(1-\delta) - c_e \delta(1-\delta) + \rho(1-\tau_p)r_s k \delta^2}{(1-\delta^2(1-\rho))(1-\delta)}$. Simplification reveals the following inequality:

$$\rho \geq \frac{k(1-\beta)l^\beta [\tau_p(1+\delta) - 1] - c_e(k+a)^\beta}{k(1-\beta)l^\beta \tau_p \delta} \quad (2.3)$$

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

In autocracy, the elite would always 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 always increasing in θ in democracy. In autocracy, the elite's income is always decreasing in θ , where 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:

$$\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \bar{\tau}_p} \quad (2.4)$$

Equations 2.3 and 2.4 must be met for constrained democracy.

□

2.4.2.2 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 mobilize for 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 2.2 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 $\bar{\tau}_p > 0$. Then the inequality always holds.

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

$$\rho \geq \frac{(1-\beta)l^\beta k^{1-\beta} \delta - c_e}{(1-\beta)l^\beta k^{1-\beta} \delta} \quad (2.5)$$

The poor mobilize if their value from mobilization is larger than their value from concede:

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

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:

$$\delta < \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p} \quad (2.6)$$

Equations 2.5 and 2.6 must hold for unconstrained democracy.

□

2.4.2.3 Stable Autocracy with the Threat of Redistribution

The stable autocracy with threat of redistribution equilibrium occurs when the elite select a low level of capital market 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 $\frac{(1-\delta)(k+a\theta)^\beta [(1-\beta)l^\beta k^{1-\beta} - c_e \delta] - (1-\beta)l^\beta k(1-\delta^2)}{(1-\beta)l^\beta k \delta^2} \leq \rho \leq \frac{(1-\beta)l^\beta k(1-\delta) - r_g k(k+a\theta)^\beta \theta - c_e(k+a\theta)^\beta (1-\delta)}{(1-\beta)l^\beta k \delta(1-\delta) - r_g k(k+a\theta)^\beta \theta \delta(1-\delta)}$.

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:

$$0 \geq (1-\beta)l^\beta k(1-\bar{\tau}_p - (1-\theta)^{1-\beta}) + \beta l^\beta (k+a\theta)(1 - (1-\theta)^{1-\beta}) \quad (2.7)$$

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 2.7 when it is met with equality. The first requirement for this equilibrium is that the necessary amount of transfers, θ^{ii} , that prevent mobilization are less than $\bar{\theta}$.

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

$$\rho \leq \frac{(1-\beta)l^\beta k(1-\delta) - r_g k(k+a\theta)^\beta \theta - c_e(k+a\theta)^\beta (1-\delta)}{(1-\beta)l^\beta k \delta(1-\delta) - r_g k(k+a\theta)^\beta \theta \delta(1-\delta)} \quad (2.8)$$

The elite will make a transfer to the poor that incentivizes the poor to concede: $V_p^A(\text{concede}) \geq V_p^A(\text{mobilize})$. Before turning to this constraint, we evaluate how that transfer would be made. The poor will always 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: $\frac{\partial r_s k}{\partial \theta} = \frac{-\beta(1-\beta)l^\beta a k}{(k+a\theta)^{1+\beta}}$. 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 :

$$\frac{k}{k+a\theta} \leq 1 \quad (2.9)$$

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, $\theta^{ii} < \bar{\theta}$.¹⁵

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

$$c_p(1-\delta)(k+a\theta)^\beta \geq \delta \rho l^\beta (1-\theta)^{1-\beta} [(1-\beta)k + \beta(k+a\theta)] - \beta l^\beta (k+a\theta)(1-\delta(1-\rho)) \quad (2.10)$$

When equation 2.10 is met with equality, it implicitly identifies the level of transfers necessary to prevent the poor from mobilizing for revolution. Equation 2.10 is always 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 2.10 binds. I call the necessary level of transfers θ^{ii} . θ^{ii} is defined by equation 2.10 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:

$$\rho \geq \frac{(1-\delta)(k+a\theta)^\beta [(1-\beta)l^\beta k^{1-\beta} - c_e \delta] - (1-\beta)l^\beta k(1-\delta^2)}{(1-\beta)l^\beta k \delta^2} \quad (2.11)$$

□

¹⁵I next turn to the equilibrium where openness is sufficient to prevent flight in the state of democratization. Although democratization never results in stable autocracy, expected payoffs in democracy affect transfers in autocracy.

2.4.2.4 Stable Autocracy without the Threat of Redistribution

In the stable autocracy without the threat of redistribution equilibrium, 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. Stable autocracy without the threat of redistribution results when the following conditions 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:

$$\bar{\tau}_p = \frac{(1-\beta)l^\beta - \theta r_g(k+a\theta)^\beta}{(1-\beta)l^\beta} \quad (2.12)$$

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 capital market liberalization necessary to buy the poor's support is: $\theta^i \in [\bar{\theta}, 1]$ and the poor always select $\bar{\tau}_p$.¹⁶ Because θ is a less expensive source of transfers than τ_e (see equation 2.9), τ_e is only used when $\theta = 1$ is insufficient to prevent mobilization.

In autocracy, the elite must be willing to ignore mobilizations 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:

$$\rho \leq \frac{(1-\beta)l^\beta k [\tau_p(1+\delta) - 1 - \tau_e \delta] - c_e(k+a\theta)^\beta}{(1-\beta)l^\beta k \delta [\tau_p - \tau_e]} \quad (2.13)$$

¹⁶In the previous equilibrium, I solved for the case where $\theta \in [0, \bar{\theta}]$.

Equation 2.13 is a more general version of the cut point in equation 2.3.

The elite will not provide more transfers to the poor than are necessary to prevent mobilization, which means the elite make the poor indifferent between mobilize and concede: $V_p^A(\text{concede}) = V_p^A(\text{mobilize}) \iff \frac{w_s l + \tau_e r_s k}{1 - \delta} = \frac{(w_s l + \tau_e r_s k - \delta c_p)(1 - \delta) + \delta^2 \rho (w_s l + \tau_p r_s k)}{(1 - \delta)(1 - \delta^2(1 - \rho))}$. 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 mobilization. The second case occurs when $\theta = 1$ is insufficient to prevent mobilization and τ_e must be used as well.

In the first case, $V_p^A(\text{concede}) \geq V_p^A(\text{mobilize})$ 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:

$$\beta(k + a\theta^i)l^\beta(1 - \delta) \geq \delta\rho k[(1 - \beta)l^\beta - \theta^i r_g(k + a\theta^i)^\beta] - c_p(1 - \delta)(k + a\theta^i)^\beta \quad (2.14)$$

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 capital market liberalization in order to prevent democratization.

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 ($V_p^A(\text{concede}) = V_p^A(\text{mobilize})$) above:

$$\tau_e = \frac{\rho(1 - \beta)kl^\beta\delta - \beta(k + a)l^\beta(1 - \delta) - c_p(k + a)^\beta(1 - \delta) - \rho\delta k r_g(k + a)^\beta}{(1 - \beta)l^\beta k(1 - \delta(1 - \rho))} \quad (2.15)$$

Equation 2.15 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 mobilize for 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:

$$\rho \geq \frac{(1 - \delta) \left[(1 - \beta)l^\beta k^{1 - \beta} (k + a\theta)^\beta - c_e (k + a\theta)^\beta \delta - (1 - \tau_e)(1 - \beta)l^\beta k(1 + \delta) \right]}{(1 - \tau_e)(1 - \beta)l^\beta k \delta^2} \quad (2.16)$$

Another possibility is that the elite deviate to $\tau_e = 0$ and $\theta = 1$. If the elite were to deviate, the poor would mobilize for 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:

$$\rho \geq \frac{(1-\delta)\left[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e\delta(k+a)^\beta(k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta(1+\delta)\right]}{\delta^2(1-\beta)l^\beta k\left[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta\right]} \quad (2.17)$$

□

2.4.2.5 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 mobilize for 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 mobilization must be incentive compatible for the elite: $V_e^A(\text{ignore}) \geq V_e^A(\text{democratize}) \iff \frac{r_d k - \delta c_e}{1 - \delta^2(1 - \rho)} \geq r_d k$. Therefore, the following inequality must hold:

$$\rho \leq \frac{\delta(1-\beta)l^\beta k^{1-\beta} - c_e}{\delta(1-\beta)l^\beta k^{1-\beta}} \quad (2.18)$$

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

$$\rho \geq \frac{(1-\delta)(\beta k^{1-\beta} l^\beta + c_p)}{\delta(1-\beta)k^{1-\beta} l^\beta} \quad (2.19)$$

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:

$$\delta < \frac{(k + a)^\beta - k^\beta}{(k + a)^\beta - k^\beta \tau_p} \quad (2.20)$$

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, $V_e^A(0, 0) \geq V_e^A(0, \theta^{ii})$:

$$\rho \leq \frac{(1 - \delta) \left[(1 - \beta) l^\beta k^{1 - \beta} (k + a\theta)^\beta - c_e \delta (k + a\theta)^\beta - (1 - \beta) l^\beta k (1 + \delta) \right]}{(1 - \beta) l^\beta k \delta^2} \quad (2.21)$$

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. □

2.4.2.6 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 mobilize for 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 mobilization must be incentive compatible for the elite: $V_e^A(\text{ignore}) \geq V_e^A(\text{democratize}) \iff \frac{r_s k(1 - \delta) - \delta c_e(1 - \delta) + \delta^2 \rho(1 - \tau_p) r_s k}{(1 - \delta^2(1 - \rho))(1 - \delta)} \geq r_s k + \frac{\delta(1 - \tau_p) r_s k}{1 - \delta}$. Simplification yields:

$$\rho \leq \frac{k(1 - \beta) l^\beta [\tau_p(1 + \delta) - 1] - c_e(k + a)^\beta}{k(1 - \beta) l^\beta \tau_p \delta} \quad (2.22)$$

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

$$\rho \geq \frac{(1-\delta) \left[c_p (k+a)^\beta + \beta l^\beta (k+a) \right]}{\delta(1-\beta)l^\beta k(1-\tau_p)} \quad (2.23)$$

$\theta = 1$ 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:

$$\delta \geq \frac{(k+a)^\beta - k^\beta}{(k+a)^\beta - k^\beta \tau_p} \quad (2.24)$$

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 mobilization: $\theta^{ii} > \bar{\theta}$, 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:

$$\rho \geq \frac{(1-\delta) \left[(1-\beta)l^\beta k(k+a\theta)^\beta - c_e \delta (k+a)^\beta (k+a\theta)^\beta - (1-\tau_e)(1-\beta)l^\beta k(k+a)^\beta (1+\delta) \right]}{\delta^2(1-\beta)l^\beta k \left[(1-\tau_e)(k+a)^\beta - (1-\tau_p)(k+a\theta)^\beta \right]} \quad (2.25)$$

□

2.4.2.7 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 $V_e^A(\text{ignore}) \geq V_e^A(\text{democratize})$. Then, the following inequality must hold:

$$\rho \leq \frac{(1 - \beta)l^\beta k^{1-\beta} \delta - c_e}{(1 - \beta)l^\beta k^{1-\beta} \delta} \quad (2.26)$$

The poor must be unwilling to mobilize: $V_p^A(\text{concede}) \geq V_p^A(\text{mobilize})$. Simplification reveals:

$$\rho \leq \frac{(1 - \delta)[c_p + \beta l^\beta k^{1-\beta}]}{\delta(1 - \beta)l^\beta k^{1-\beta}} \quad (2.27)$$

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

□

2.4.3 Countries Included in the Empirical Analysis

OECD countries are excluded from the sample in the year they become OECD and for all subsequent years in the model estimating the impact of market openness on inequality. The following 101 countries were included: Albania, Algeria, Angola, Armenia, Azerbaijan, Belarus, Bhutan, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo Brazzaville, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Fiji, Gabon, Gambia, Georgia, Ghana, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Israel, Ivory Coast, Jordan, Kenya, Kosovo, Kyrgyzstan, Laos, Latvia, Lesotho, Liberia, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mauritania, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Russia, Rwanda, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, South Africa, Sri Lanka, Suriname, Swaziland, Syria, Tajikistan, Tanzania, Thailand, Trinidad, Tunisia, Uganda, Ukraine, Uruguay, Venezuela,

Yemen, Zambia, and Zimbabwe.

CHAPTER III

Economic Sanctions

3.1 Introduction

On March 18th, 2014, Russian President Vladimir Putin annexed the Crimean Peninsula from Ukraine. The United States and European Union immediately condemned the annexation arguing that Russia violated Ukraine's territorial sovereignty. They then instituted sanctions against Russia, and more particularly against Russians who are part of Putin's "inner circle." According to the U.S. Department of the Treasury (March 20, 2014), "Yuri Kovalchuk [one of the sanction targets] is the largest single shareholder of Bank Rossiya and is also the personal banker for senior officials of the Russian Federation including Putin." The sanctions targeted at Kovalchuk prevent Visa and Mastercard from processing payments to Rossiya Bank, Russia's 15th largest bank, which controls an estimated \$12 billion dollars in assets. In response to the sanctions, Putin announced that Russia will develop its own credit card system and cut foreign competitors out of the market (Anishchuk March 27, 2014).

Putin's decision to respond to the sanctions by building up domestic substitutes for international services points to an often overlooked consequence of international economic sanctions. Because economic sanctions restrict access to foreign products in the sanctioned country, sanctions increase domestic demand for domestic products. In limiting foreign access to the market and thereby removing foreign competition, sanctions

encourage the domestic provision of goods and services in which the sanctioned country lacks comparative advantage. In fact, domestic industrial products emerged to replace imports, and industrial production actually increased under sanctions in countries as diverse as South Africa, Iraq and Yugoslavia (Selden 1999). The intuition behind the effect of sanctions is similar to the logic often applied to tariffs: They raise domestic prices and protect domestic producers who would otherwise be unable to compete with foreign producers.

This article integrates research on economic sanctions and trade policy to assess the impact of sanctions on tariff rates. By fostering domestic production of comparatively disadvantaged goods, sanctions create and empower a group of producers who seek market protection through tariffs. It is only through protection that uncompetitive firms maintain their market share. Furthermore, because sanctions often target politically important actors, sanction targets have the disproportionate ability to influence political leaders and obtain that protection. The Russian example provides a timely illustration. If Putin and his financiers plan to create a domestic credit card system, will it be competitive with global providers? The long record of import substitution industrialization demonstrates that industries created under stringent market protection are seldom competitive (e.g., Panagariya 2004). If they are uncompetitive, what will happen to the operators of the Russian credit card system once the sanctions are lifted? Will they lose market share or stop providing credit card services when they are forced to compete with foreign providers? Their loss of market share is unlikely. It is more likely that they will successfully pressure the Russian government for privileged access to the Russian market. After all, the U.S. and E.U. targeted them precisely because of their political importance to the Russian regime.

I argue that sanctions directly impact markets in the short-term and thereby influence economic policies long after the sanctions are lifted. Sanctions immediately limit trade flows into and out of the target country. This cessation of trade is thought to be extremely costly in its own right, enabling the government to crack down on the political opposi-

tion; undermining economic stability, particularly for women and children; and harming the environment (Lopez and Cortright 1995, Weiss et al. 1997, Allen 2008, Peksen and Drury 2010, Drury and Peksen 2012). While the immediate impact of sanctions is clearly important, existing literature neglects the long-term economic effects of sanctions. When trade flows are restricted by sanctions, exporters in the sanctioned country are no longer able to reach foreign markets, and import-competing firms no longer compete with foreign firms. Sanctions have effects analogous to domestic trade barriers in the sanctioned country: They benefit import-competing firms at the expense of export firms and consumers. Consequently, sanctions redirect production away from the global market and toward meeting the demands of the domestic market. These changes increase production in comparatively disadvantaged sectors.

This distortion of production towards internationally uncompetitive industries enables producers to charge more for their products, creating rents for certain producers, who are protected from foreign competition. Protected producers may then use their rents to pressure the government to implement market restrictions, thereby protecting and perhaps even furthering their market rents in the future. In particular, import-competing firms and the owners of scarce factors seek to substitute the protection afforded by sanctions with protective policies. Furthermore, these firms demonstrate their importance during the sanction period; they provide employment and growth during a time when many export firms are floundering. Thus, while the removal of sanctions directly facilitates cross-border trade, sanctions also have an indirect effect that may undermine these flows. Sanctions create a powerful domestic interest group in the target country who benefits from market protection and has the economic resources and political clout to secure that protection.

The paper first develops a theory of how sanctions impact market restrictions. A decision theoretic model shows how sanctions lead to market distortions that increase the production of import-competing goods and decrease the production of export goods. A game theoretic model then illustrates how import-competing firms pressure the govern-

ment for market protection. The theory is evaluated using an autoregressive distributed lag model. The model provides estimates of the short- and long-term effects of sanctions, which is particularly important here because it is unclear precisely when the market protection will be implemented. The empirical section provides evidence consistent with the protection-inducing power of sanctions in a time-series, cross-sectional sample. The results are robust to the use of a weighted, time-series model. The paper concludes with implications for future research.

3.2 Economic Sanctions and Trade Protection

Economic sanctions are threats that entail economic costs, often by limiting trade or financial flows, if the sanctioned country does not concede to some demand by the sanctioning country. Based on standard economic theories, countries should export goods that they produce more efficiently than other countries and import goods that are more efficiently produced elsewhere. In other words, countries export comparative advantaged goods. Accordingly, sanctions, which restrict the flow of goods and services across borders, reduce the production of comparative advantaged products and increase the production of comparative disadvantaged products in the sanctioned country. Restrictions, therefore, prevent countries from reaping the benefits of specialization. More specifically then, trade sanctions reduce competition for *import-competing producers*. Import-competing producers often lack comparative advantage in production, either because they lack technology or the production of their products intensively uses scarce factors of production,¹ and they have higher production costs than foreign producers. Sanctions, particularly those that provide protection from imports, benefit those producers who lack comparative advantage. Economic sanctions have an effect similar to the effect of tariffs: they reduce competition and increase prices.

In addition, economic sanctions limit the external market for export-oriented produc-

¹These interpretations of comparative advantage are attributed to Ricardo-Viner and Heckscher-Ohlin respectively.

ers. Export-oriented producers often have a comparative advantage in their production, and they are able to compete with foreign producers. They are often large firms that sell their products to domestic and foreign markets (Melitz 2003). Trade sanctions restrict exports from the sanctioned country. When the sanctions are effective in limiting trade flows, export-oriented producers lose access to foreign markets. They may go out of business or substitute their normally competitive production for the production of a high-priced, protected good in which the country lacks comparative advantage. In sum, producers who compete with imports will benefit, as sanctions increase domestic prices and their profits, while exporters and consumers will be harmed, as sanctions decrease or even eliminate access to export markets and increase prices. Thus, the market distortions produced by sanctions are remarkably similar to distortions produced by tariffs (Selden 1999, Kaempfer and Lowenberg 1999). The following decision-theoretic model illustrates the impact of sanctions on export and import-competing sectors.

3.2.1 Market Distortions

In the model, there is one domestic producer of two goods. The goods are either import-competing or export goods.² For simplicity, the two goods and their production processes are unrelated. The firm's profits are determined by quantity competition.³ The firm determines the optimal quantity of each good to maximize its profit. The firm is a price-taker, and sanctions affect the quantities produced in the model. The firm's profit function is: $\Pi = q_i(p_i + s - c_i q_i) + q_e(p_e - s - c_e q_e)$, where subscripts, e and i , denote whether the good is an export good or an import-competing good. q is the quantity of the good produced, p is the price of the good, s is the amount of sanctions in place, and c is the cost of production. Note that sanctions increase the return to import-competing

²The logic is similar to Ricardo's well-known example of cloth and wine production in England and Portugal. Both countries may produce both goods, but the relative cost of cloth production is lower in England and the relative cost of wine production is lower in Portugal. At the time, England had a comparative advantage in cloth production, and cloth was an export product. England could not efficiently produce wine, so wine was an import-competing product.

³The model is similar to a Cournot model of quantity competition.

goods, as they prevent foreign goods from entering the market in the sanctioned country. At the same time, sanctions decrease the return to goods that were previously exported, as sanctions often prevent the export of goods from the sanctioned country.

The firm chooses the quantities of import-competing and export goods to maximize the profit function: $\max_{q_i, q_e} \{q_i(p_i + s - c_i q_i) + q_e(p_e - s - c_e q_e)\}$. The firm's maximization yields the following equilibrium quantities: $q_i^* = \frac{p_i + s}{2c_i}$ and $q_e^* = \frac{p_e - s}{2c_e}$. These quantities define the amount of import-competing goods and export-oriented goods that yield the largest profit for the firm. Unsurprisingly, as the price of either good increases or the cost decreases, the production of that good increases. The effect of sanctions for quantity produced depends on whether the good is produced for domestic or foreign sale. The quantity of import-competing goods produced increases when sanctions are in place, while the quantity of export goods decreases. Intuitively, the divergent effects are caused by sanctions' divergent impact. Sanctions increase the demand for import-competing goods produced in the sanctioned country, as they decrease or eliminate imports that would have helped satisfy domestic demand. Conversely, sanctions decrease the demand for export goods produced in the sanctioned country, because many of those goods can no longer reach consumers in other countries.

Proposition 3.1. *Sanctions increase the production of import-competing goods and decrease the production of export goods.*

Proof. The derivative of the equilibrium import-competing quantity produced with respect to sanctions, $\frac{\partial q_i^*}{\partial s} = \frac{1}{2c}$, is always positive. The derivative of the equilibrium export quantity produced with respect to sanctions, $\frac{\partial q_e^*}{\partial s} = -\frac{1}{2c}$, is always negative. \square

Proposition 3.1 shows how sanctions distort the market. A sanctioned country will produce more products for consumption by the domestic market and fewer products for consumption abroad. This often means that they will produce more goods in which the country does not have a comparative advantage. The model provides a micro-foundation for the work by Selden (1999), which shows that sanctions stimulate the production

of manufactured products. Many developing countries, who are often targeted by economic sanctions, do not have a comparative advantage in the production of manufactured goods, which may rely on advanced technology and intensive capital investment. Because the sanctions restrict the import of manufactured goods from other countries, the sanctioned country begins to produce them, albeit in an often less-efficient way than the foreign source. Sanctions are not the only kind of market protection that benefits import-competing producers. Tariffs are also an important source of market protection. The next section turns to the interaction between producers and policymakers under sanctions.

3.2.2 Lobbying for Protection

A second model explores the relationship between import-competing producers and policymakers. Import-competing producers are generally assumed to pressure the government for market protection, as they are less efficient than foreign producers. Sanctions increase the profits of import-competing producers, who may then use their profits to lobby for market protection. Producers in uncompetitive industries seek to replace the market protection afforded by sanctions with market protection provided by their own government. The game has two actors, the government and an import-competing firm. The market determines the amount of resources firms have for consumption, as well as for lobbying the government. The firm selects political donations, and the government selects protectionist policies. The sequence of play is as follows:

Period I

1. Nature determines the level of sanctions: $s \in \mathbb{R}^+$
2. Firm maximizes its first period profit by selecting quantity: $\max_q \{\Pi_s = q(p + s - cq)\}$
3. Firm selects political donations, $d \in \mathbb{R}^+$, to maximize both period profits
4. Firm consumes all profit that was earned in Period I less political donations

Period II

1. Sanctions are no longer in place in the second period, $s = 0$
2. Government determines tariff level, $t \in \mathbb{R}^+$, which depends on Period I donations
3. Firm maximizes second period profit by selecting quantity: $\max_q \{\Pi_t = q(p + t - cq)\}$
4. Firm consumes all profit that was earned in Period II

Note that the structure of the game enables firms to substitute tariffs for sanctions. In the first period, the firm benefits from the imposition of sanctions and can use its increased profit to lobby the government for tariffs. In the second period, the sanctions are lifted and the firm's profits are increased by the tariffs it purchased in the first period. Although the sequencing of the model provides theoretical clarity, in reality firms may be uncertain about when sanctions will be lifted. Therefore, they are likely to lobby for protection while sanctions are in place *and* after they are lifted. Because the sanctions have an effect over time, the empirical specifications will make few assumptions about timing and will instead isolate short-term, long-term and cumulative effects of sanctions.

In the first model only sanctions increased profits; in the second model profits are increased by both sanctions and tariffs, as we focus exclusively on an import-competing firm. The profit of the firm in both periods is denoted: $\Pi_x = q(p + x - cq)$, where q is the quantity produced by the firm, c is the cost of production, and p is the baseline price of the good produced. In the above equation, x denotes the amount of sanctions or tariffs in place in a given period: $x \in \{s, t\}$. When sanctions are in place, $x = s$; when tariffs are in place, $x = t$. The subscripts on the profit function, Π_s or Π_t , are used to denote whether sanctions or tariffs are implemented in the period when profits are realized (first or second periods respectively). The firm's profit is increasing in both sanctions and tariffs. In the first period, only sanctions may be in place; in the second period, the size of the tariffs depends on the political contributions from the first period. The profit function is positive at low values of q , but as q becomes very large, production becomes increasingly expensive, and eventually profits become negative. This method

for modeling production costs is similar to more general convex cost functions, and it ensures an explicit solution to the firm's profit maximization.

The firm maximizes the profit function with respect to quantity: $\max_q \{\Pi_x = q(p + x - cq)\}$. The equilibrium quantity produced by the firm is: $q^* = \frac{p+x}{2c}$ and its equilibrium profit is: $\Pi_x = \frac{(p+x)^2}{4c}$. The subscript x denotes that this is a general solution, and we need only plug s or t in for x to obtain the equilibrium profit of the firm when sanctions or tariffs are in place. The firm-owners derive utility from consumption in the first and second period: $U_f = \ln c_1 + \delta \ln c_2$, where c_1 is first period consumption, c_2 is second period consumption, and δ is the firm's discount rate. The firm-owners cannot consume more than they produce however, so: $c_1 \leq \Pi_s - d$, where d is the amount of campaign donations they provide to the government, and $c_2 \leq \Pi_t$.⁴ The firm-owner's utility function is concave - increasing at a decreasing rate - in each period; this functional form is selected for ease of derivation, but many utility functions are assumed to be concave.⁵

The government derives utility from political donations, d , which it receives in exchange for implementing tariffs, t . One need not think that d always takes the form of money. d may also represent political support, in which case, the cost should be thought of in terms of effort and the expenses associated with effort, including opportunity cost or even functional costs like transportation and materials. Tariffs are also costly for the domestic population, as they raise prices for consumers. The government's utility function takes the following form: $U_g = \ln(\alpha dt - t^2)$, where α is the weight that the government places on political donations, d are political donations, and t is the tariff rate selected by the government. The government derives positive utility from small amounts of tariffs (due to their association with donations), but at some point, the negative effects of tariffs for the overall population and economy as a whole overwhelm the benefits. These

⁴There is no reason to give donations in the second period, as this is just a two-period model, and the donations would not yield greater protection until the subsequent period, which does not exist here.

⁵When a linear utility function is used, a corner solution results. The firm either expends all his income on donations or expends none (depending on whether consumption is larger in the future when tariffs may be implemented or consumption is larger in the present, because the cost of waiting or the price of tariffs is prohibitively high). The natural log ensures an interior solution, and it is analytically attractive here, because the solution is again explicit.

negative effects are captured by the $-t^2$ in the government's utility function.

3.2.2.1 Model Solution

The solution concept is subgame perfect Nash equilibrium, which is appropriate when the game is sequential, as it ensures that individually rational strategies are played at every node. To solve the game, I proceed by backward induction. In the second period, the firm selects q to maximize profits: $q^* = \frac{p+t^*}{2c}$ and consumes everything: $c_2 = \Pi_{t^*} = \frac{(p+t^*)^2}{4c}$.

The government selects the tariff rate to maximize his utility function: $\max_t \{U_g = \ln(\alpha dt - t^2)\}$.⁶ The equilibrium tariff rate is: $t^* = \frac{\alpha d}{2}$. The results of this simple derivation are consistent with much of the trade literature. Tariffs are increasing in the weight that the government places on donations, α , and in donations themselves, d . The intuition for the result is a little different than the standard Grossman and Helpman (1994, 2001) model, where the government pursues protection, as it values the firm's utility. Here, the government pursues protection, because it receives political support in exchange for protection.⁷

There is no commitment problem in the model. I assume that the firm takes the government price for tariffs (in terms of campaign donations) and maximizes its utility. The firm maximizes: $\max_d \{U_f = \ln c_1 + \delta \ln c_2\}$, subject to the following conditions: $t = \frac{\alpha d}{2}$, $c_1 \leq \Pi_x - d$ and $c_2 \leq \Pi_t$. The first condition comes from the price that the government charges for the tariffs. The second and third conditions are similar to budget constraints: The firm-owners may not consume more than the firm earns. Both the inequalities are met with equality because firm utility is increasing in consumption, so it would not discard any profit. Because they are met with equality, the conditions may be substituted into

⁶The natural log in the utility function is unimportant here. It is included for consistency with the firm's utility function.

⁷In addition, the standard model focuses on protection in democracies. Many of the countries targeted by sanctions are weak democracies or autocracies. Policymakers in undemocratic institutional settings should be more susceptible to particularist protectionist pressure than their counterparts in democracies (e.g., Mansfield, Milner and Rosendorff 2000, Bueno de Mesquita et al. 2003, Milner and Kubota 2005).

the maximization problem: $\max_d \{U_f = \ln[\frac{(p+s)^2}{4c} - d] + \delta \ln[\frac{(2p+\alpha d)^2}{16c}]\}$. The equilibrium amount of campaign donations is: $d^* = \frac{\delta\alpha(p+s)^2 - 8cp}{4\alpha c(1+2\delta)}$. The main proposition follows.

Proposition 3.2. *Market protection is increasing in economic sanctions.*

Proof. Recall that $t^* = \frac{\alpha d^*}{2}$ and $d^* = \frac{\delta\alpha(p+s)^2 - 8cp}{4\alpha c(1+2\delta)}$. By substitution, we know: $t^* = \frac{\delta\alpha(p+s)^2 - 8cp}{8c(1+2\delta)}$ Tariffs are increasing in sanctions: $\frac{\partial t^*}{\partial s} = \frac{\delta\alpha(p+s)}{4c(1+2\delta)}$. \square

Proposition 3.2 provides a ceteris paribus result: Given an existing balance of bargaining power between the import-competing firms, who prefer increased protection, and the country's citizens, who prefer less protection, sanctions increase the bargaining power of the import competing-firms through their impact on profits. Import-competing firms increase their profits under sanctions, because they no longer have to compete with foreign producers, and they use these excess profits to lobby the government for more protection. The model provides an estimate of baseline protection without sanctions, $t^* = \frac{\delta\alpha p^2 - 8cp}{8c(1+2\delta)}$, which loosely represents the government's balancing act between the benefits of higher prices for import competing producers and the cost of higher prices for consumers. Sanctions, then, increase this baseline by the following rate: $\frac{\partial t^*}{\partial s} = \frac{\delta\alpha(p+s)}{4c(1+2\delta)}$.

Like most trade policy research, the model presented here focuses on the unilateral selection of trade policy, where governments set trade policy in response to pressure from import-competing, domestic interest groups and consumers. Researchers have begun to evaluate the impact of multilateral institutions, which make exporters relevant to trade policy (Betz 2014, Gilligan 1997). If trade policy is set through reciprocity in multilateral negotiations, then exporters may pressure the government to concede to foreign demands for market liberalization in exchange for reciprocal liberalization elsewhere that enables the exporters to more easily serve the foreign market. Proposition 3.1 shows that sanctions increase the returns to production for the domestic market and decrease returns to production for foreign markets. This means that import-competing firms gain resources, while exporters lose resources under sanctions. If exporters are integral to trade liberalization as Betz (2014) and Gilligan (1997) argue, then sanctions produce market protection

through yet another channel: Exporters, who are relatively less powerful than before the sanctions were implemented, will have less influence to counter the protectionist pressure from the import competing firms.

Perhaps one of the clearest examples of the protection-producing effect of sanctions comes from the Corn Laws in the United Kingdom. Although most seminal work (e.g., Schonhardt-Bailey 2006) addresses the repeal of the Corn Laws in 1846, an equally important question is how the Corn Laws became so severe in the first place. The intensification of agricultural protection in the U.K. was at least partially driven by American trade sanctions. The United States attempted to remain neutral during the Napoleonic Wars, reaping the gains from trade with both the U.K. and France. However, British forces seized American merchant ships and forced the seamen into the armed services. The violations of neutrality led to the implementation of the U.S. Embargo Act of 1807. The embargo is an example of a sanction that forbade trade between the U.S. and U.K. It therefore provided protection for Britain's landed elite, who could not compete with American wheat (which is called "corn" in the U.K.). Because of the protection "furnished by war", and particularly by the American embargo, corn prices in the U.K. mounted: from an average of 83 shillings from 1794-1813 to 92 shillings from 1804-1813 and finally to 108 shillings from 1809-1813 (Schonhardt-Bailey 1997, p. 69). The price jump was largely due to the break in trade between the U.S. and U.K.

When the boycott was lifted in 1809 and the war over in 1815, the British agriculturalists sought trade protection. The Corn Law of 1815 significantly deepened agricultural protection. The law prevented trade whenever the price of corn dropped below 80 shillings. The initial law solely prevented trade, it did not garner any government revenue. In 1828, the Corn Laws were amended again, providing for tariffs on imports, which produced both protection and revenue (Schonhardt-Bailey 1997, p. 5-6). In short, the American boycott protected British agricultural producers, driving up the cost of wheat in the U.K. Once the boycott was lifted, the producers sought trade restrictions to protect their market position. The boycott strengthened the landed elite in Britain,

particularly relative to the industrialists who suffered from their inability to reach the American market. The enhanced power of the landed elite helped them obtain more stringent protection in 1815.

Many scholars have identified a selection problem inherent in the implementation of sanctions: when sanctions are effective, the target country backs down before the sanctions are put in place and the sanctions are not actually observed (e.g., Smith 1996, Nooruddin 2002, Lacy and Niou 2004, Kaempfer and Lowenberg 2007). When sanctions are actually implemented, we know that the threatened sanctions were not costly enough, or the interest groups that are negatively effected by the sanctions were not important enough, to force the target to back down.⁸

The fact that observed sanctions have already failed to elicit concessions likely strengthens the impact of sanctions on market protection. There are two possibilities: the sanction may target (1) politically important actors or (2) politically unimportant actors. If the sanction targets politically important actors, as most sanctioners claim they do, and the consequences are sufficiently dire, then the sanctioned country will make the demanded concession and the sanction will never actually be implemented. This case does not show up in the data and has led scholars to conclude that sanctions, which are realized, are likely to target politically unimportant actors (Becker 1995, Kaempfer and Lowenberg 2007). However, sanctions may still target politically important actors, as most sanctioning countries claim, *and* fail to elicit concessions. If policymakers in the sanctioned country are able to compensate the politically important actors, who bear the brunt of the sanctions, then the sanctioned country may not concede even when their political supporters are hurt by the sanctions. Sanctions themselves provide policymakers with a

⁸In assessing the effectiveness of sanctions, many scholars have used [Heckman] selection models, because their data samples are ‘incidentally truncated’ (Greene 2008, p. 883). The samples are truncated, because they only include implemented sanctions, which failed to garner concessions when they were threatened. Those sanctions that were effective immediately are excluded from their samples. The selection model is not appropriate here, because sanctioned and unsanctioned countries are included in the sample, and I do not expect the threat of sanctions, absent their implementation, to affect market protection. That said, the empirical results are robust to the use of a selection model (results are available from the author).

unique opportunity: They can compensate their supporters with preferential access to the domestic market, and, particularly when targeted actors are politically important, market protection is likely to endure long after the sanctions are lifted.

When the actors who bear the cost of sanctions are not politically important, policy-makers in the target country are unlikely to concede to the demands of the sanctioning country. Because competitive sectors are disproportionately hurt by sanctions, their lack of political influence also means that they will not be able to obtain their preferred trade and financial policy, which is likely more liberal than the policies preferred by their uncompetitive counterparts. In the case of the Corn Laws, the landed elite in the U.K. were more politically powerful than the industrialists at the end of the 18th century.⁹ If “protection [is] for sale” (Grossman and Helpman 1994), sanctions create a potent buyer: Sanctions increase the profit of uncompetitive, politically important firms.

3.3 Evidence

This section provides an empirical assessment of the hypothesis that trade sanctions are associated with higher trade protection. Trade sanction is the independent variable of interest. The Threat and Imposition of Sanctions (TIES) database details every sanction implemented between 1945 and 2010 (Morgan, Bapat and Kobayashi 2013).¹⁰ TIES extends the prominent study conducted by Hufbauer, Schott and Elliott (2007) and provides extensive information on the sanction type. I code new trade sanction variables for those sanctions that include a total economic embargo, a partial economic embargo, an import restriction, an export restriction, or a blockade. The variables identify those

⁹In fact, the transition of greater political and economic power to industrialists and workers with the 1832 Reform Act was one of the major causes of the eventual dismantling of the Corn Laws (Schonhardt-Bailey 2006).

¹⁰The TIES database covers sanctions initiated between 1945 and 2005, but many sanctions in the database remain in place much longer. In prior communication, T. Clifton Morgan, the lead scholar on the data collection project, indicated that the summaries for the more recent sanctions were written later and that the sanctions data is updated until about 2010. The results are similar using a restricted sample, which ends in 2005, with the exception of the effect of trade sanctions. The weakness of the tariff results is unsurprising given that the tariff data are plagued by missing observations, particularly earlier in the sample.

sanctions that restrict the flow of goods between countries. I code two sanctions variables: Trade Sanction Count sums up the number of trade sanctions in place in a given target-country year, while Trade Sanction Binary is zero in country years without sanctions and one in country years with sanctions. The tariff rate is the dependent variable. Tariff data come from the World Bank World Development Indicators and include data from 1988 to 2012 (World Bank 2013). They are the average mean tariffs weighted by the product import shares. Table 4.1 provides a summary of the data.¹¹

Table 3.1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Year	1989.9	12.31	1966	2010	6338
Trade Sanction Count	0.26	0.67	0	11	6338
Trade Sanction Binary	0.13	0.34	0	1	6338
Sum Trade Sanction	0.70	2.52	0	30	6338
Financial Sanction Count	0.16	0.46	0	3	6338
Financial Sanction Binary	0.12	0.33	0	1	6338
Sum Financial Sanction	0.59	2.24	0	30	6338
Tariff	7.64	8.95	0	254.58	1965
Openness	-0.03	1.51	-1.76	2.53	5529
Reform	10.34	6.35	0	21	2477
MID	0.26	0.44	0	1	6338
Polity	1.04	7.46	-10	10	5601
Checks	2.58	1.7	1	18	4937
Political Turnover	0.16	0.37	0	1	5102
GDP per capita	8934.85	11330.71	160.8	118835.48	6082
IMF Program	0.28	0.56	0	4	6338
WTO	0.32	0.47	0	1	6338
Total Trade	51780.61	184913.06	-18	3466210	6122

3.3.1 Autoregressive Distributed Lag Model

The model and preceding discussion raise important questions regarding the impact of sanctions: when are the effects of sanctions realized and how long do the effects endure? Recall that the U.S. embargo of the U.K. did not immediately increase protection, but it eventually lead to an intensification of the Corn Laws, increasing the equilibrium amount

¹¹The controls, derivation of the summed sanction variables, and the financial sanctions variables are described in the corresponding empirical sections.

of agricultural protection. The autoregressive distributed lag model (ADL) is particularly attractive for answering duration questions. The ADL provides an estimate of the impact of sanctions in both the short-term and the long-term. The ADL is a general version of a static model: By including a lag structure for both the independent and dependent variables, it imposes fewer restrictions on the relationship between them (Beck and Katz 2011, p. 346). I estimate the model:

$$Protection_{it} = \alpha_0 + \alpha_1 Protection_{i,t-1} + \beta_0 Sanction_{it} + \beta_1 Sanction_{i,t-1} + \epsilon_{i,t} \quad (3.1)$$

where $Protection_{it}$ is the tariff rate and $Sanction_{it}$ is the number of sanctions in place in country i at time t . Equation 3.1 allows us to estimate the correlation between sanctions in the current period and protection, β_0 , as well as the correlation between sanctions from the previous period and protection, β_1 , while controlling for the level of protection in the previous period, α_1 . The longterm impact, or long-run multiplier (LRM), is: $k_1 = \frac{\beta_0 + \beta_1}{1 - \alpha_1}$. The multiplier literally divides the effect in the current and previous periods over the per-period effect of the change in the dependent variable: “the LRM is the total effect X_t has on Y_t distributed over future time periods” (De Boef and Keele 2008, p. 191).¹²

I control for the regime type of the country from the Polity index (Marshall, Jaggers and Gurr 2013),¹³ because sanctions and tariffs could be associated with regime type.¹⁴ I also control for the number of checks [and balances] in the political system and for government turnover (Beck et al. 2001).¹⁵ Checks helps capture veto player arguments about policy stasis. Turnover provides a particularly hard test for the theory, because

¹²The variance of k_1 is computed using the delta method. The results for the variance are indistinguishable from using the formula in De Boef and Keele (2008). The ADL is equivalent to the error correction model (ECM).

¹³I use the polity 2 measure, because it converts periods of “interruption”, including foreign occupations; “interregnum” or periods of government failure; and “transition” to conventional polity scores between -10 and 10.

¹⁴Sanctions could be more effective against democracies, as the political leaders are accountable to a larger segment of the population (Bueno de Mesquita et al. 2003). Democracies may be less likely to use military force against one another, and sanctions could substitute for military conflict. Democracies are also likely to have lower tariff rates and to trade with one another.

¹⁵Government turnover is coded using the years in office variable from Beck et al. (2001). Turnover takes on a value of one during a government’s first year in office.

sanctions could affect economic policy by undermining political support for economically liberal leaders. I control for GDP per capita (purchasing power parity converted to GDP per capita in thousands of dollars, derived from growth rates, at 2005 constant prices) from the Penn World Tables (Heston, Summers and Aten 2012), as wealthy countries might be particularly costly sanction targets. I also control for membership in the World Trade Organization (WTO website).

Table 3.2 reports the results from numerous specifications. Column 1 reports the results from a static model, which includes the lagged dependent variable, but only includes the sanctions variable from the present period, and, thus, does not measure the accumulation of the effects of sanctions over time. Column 2 reports the static model with a number of controls. Columns 3 and 4 report the results from feasible generalized least squares models, which account for heteroskedasticity and autocorrelation. Columns 5 and 6 report the results of the ADL model (minimalist and with controls respectively), and the LRM is included at the bottom of the table. In all models, trade sanctions are positively correlated with tariff rates, and the correlation holds in the ADL models both in the short- and long-run. The long-run multiplier of trade sanctions is significant at the five percent level in the model with controls. We can think of the LRM as the total effect that sanctions have on tariff rates. Here the total effect is significant and not insubstantial. An increase of one trade sanction is correlated with an increase in the tariff level by over 0.5 percentage points in the model with controls. The average tariff level in the sample is 7.6 percent. Thus, a one-unit increase in trade sanctions increases average tariff rates by almost 7 percent. The within country standard deviation in the tariff rate is 7.14 percent. One sanction is correlated with an increase in the tariff rate in the long-run by one-fourteenth of a standard deviation. Figure 3.1 provides a graphic representation of the effects of sanctions over time. The graph shows that the estimated effect of trade sanctions is quite rapid: most of the increase in tariffs associated with trade sanctions is felt in the first period. The consequences of trade sanctions may be particularly prompt, because governments can quickly manipulate tariff rates.

Table 3.2: Trade Sanctions and Tariff Rates

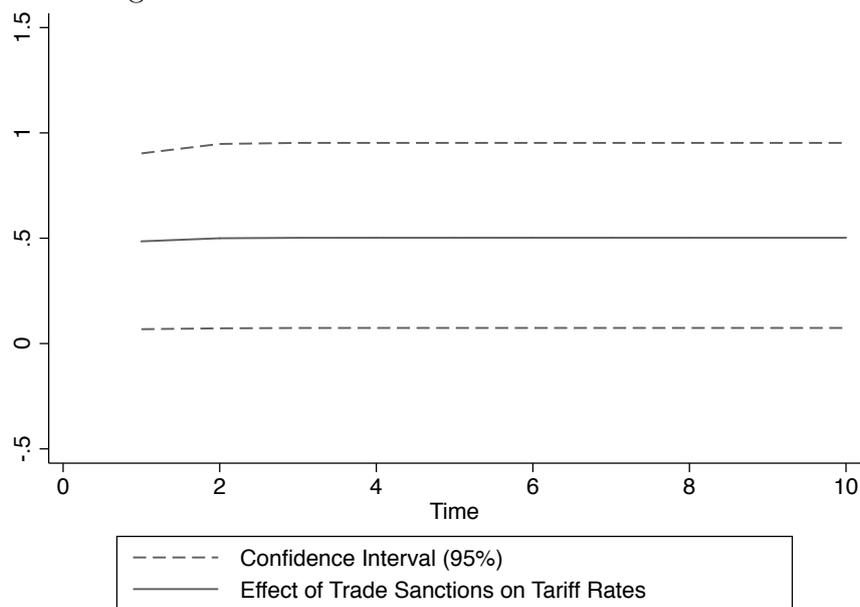
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	FGLS	FGLS	ADL	ADL
lag Tariff	0.0532 (0.68)	0.0319 (0.54)	0.286*** (23.36)	0.177*** (21.46)	0.0532 (0.68)	0.0309 (0.54)
Trade Sanctions Count	0.386* (1.67)	0.384** (2.03)	0.0250 (0.39)	0.144** (2.15)	0.378* (1.95)	0.257 (1.45)
lag Trade Sanctions Count					0.0141 (0.12)	0.232** (2.07)
Polity		-0.239* (-1.81)		-0.238*** (-20.10)		-0.0746 (-1.03)
lag Polity						-0.223** (-2.08)
GDP per capita		-0.209** (-2.50)		-0.135*** (-31.24)		-0.0642 (-0.89)
lag GDP per capita						-0.121 (-0.99)
WTO Member		-1.135 (-1.01)		-0.332*** (-3.19)		0.316 (0.61)
lag WTO Member						-1.714* (-1.66)
Checks		0.440 (1.21)		0.232*** (15.24)		0.416 (1.57)
lag Checks						0.0973 (0.41)
Political Turnover		0.700 (0.90)		0.447*** (8.13)		0.599 (0.83)
lag Political Turnover						-0.655 (-1.18)
Constant	5.768*** (11.95)	9.795*** (10.62)	4.577*** (32.89)	8.001*** (78.15)	5.765*** (12.04)	9.776*** (10.48)
LRM					0.414 (1.54)	0.505** (2.30)
<i>N</i>	1453	1223	1440	1213	1453	1209

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed test;

OLS and ADL analyses include robust standard errors, clustered by country, and country fixed effects.

FGLS specifies a heteroskedastic error structure and panel specific AR(1) autocorrelation.

Figure 3.1: Effect of Trade Sanctions Over Time



3.3.2 Weighted, Time-Series Model

This section assesses the robustness of the ADL results using an alternative specification suggested by Blackwell and Glynn (2013) and Robins, Hernán and Brumback (2000). The discussion of the method will adhere to the experimental terminology used by the authors, where treatment is the presence of a trade sanction and control is the absence of a sanction. First, the authors recommend weighing the treatment variable by the inverse probability of treatment, which transforms the sample population to replicate the actual population and helps account for confounding variables. Second, they recommend calculating two treatment variables: a ‘blip’ variable that captures the effect of one treatment period and a ‘cumulative’ variable that captures the effect of a treatment that is in place for an extended period. The coefficient on the cumulative variable captures the effect of one more year of sanctions given that sanctions have already been in place for a number of years. The estimates of the blip and cumulative effects are particularly useful, because they have similar substantive interpretations to the short- and long-run effects from the ADL but are computed differently.

The inverse probability of treatment is used to weigh the treatment in the estimate of the treatment's impact on the dependent variable. In the analysis here, the dependent variable is the tariff rate in the sanctioned country. \widehat{SW}_i is the inverse probability of treatment:

$$\widehat{SW}_i = \prod_{t=1}^T \frac{\widehat{Pr}[Sanction_{it} | Sanction_{i,t-1}; \hat{\gamma}]}{\widehat{Pr}[Sanction_{it} | Sanction_{i,t-1}, Controls_{it}; \hat{\alpha}]} \quad (3.2)$$

The numerator in Equation 3.2 gives the probability of treatment, sanctions here, conditional on a treatment history for the estimator ($\hat{\gamma}$) in a specific period. The denominator is similar, except it also conditions the probability of treatment on a set of covariates for the estimator ($\hat{\alpha}$). The product of the ratios over a country's history up to the current time period captures the probability of treatment for that history.¹⁶

I use a logistic regression model to estimate the binary probability of treatment:

$$Sanction_{it} = f(Sanction_{i,t-1}, Sanction_{i,t-2}, Controls_{it}) \quad (3.3)$$

I include the following controls, $Controls_{it}$, when estimating the denominator of \widehat{SW}_i , and exclude them when estimating the numerator. Economic controls include GDP per capita and total trade (from Barbieri, Keshk and Pollins 2009, Barbieri and Keshk 2012).¹⁷ Political controls again include polity, checks [and balances] and turnover. International controls include membership in the WTO, as well as the presence of a Militarized International Dispute (from Ghosn, Palmer and Bremer 2004, Jones, Bremer and Singer 1996). MID provides a useful predictor of sanctions, because sanctions are aimed at changing the sanctioned country's policy and often result from a dispute.

I then use the weighted regression to estimate the impact of sanctions on market

¹⁶Missing treatment probabilities take the probability of treatment from the previous year. This assumption reduces the problem of missing data and is unlikely to bias results, as the treatment probabilities are unlikely to change substantially from year to year, given the relative stability of the predictors.

¹⁷Total trade is the sum of all imports and exports in thousands of dollars. Total trade is not included in the previous models, because the impact of sanctions on tariff rates is expected to accrue through sanctions' impact on trade. Total trade is included in the weight calculation, because trade could effect the attractiveness of a specific sanction target.

protection:

$$Protection_{i,t} = \beta_0 + \beta_1 Sanction_{i,t} + \beta_2 Sum\ Sanction_{i,t-1} + \epsilon \quad (3.4)$$

Like Blackwell and Glynn (2013), I am interested in both the immediate and cumulative effects of sanctions, and I retain the individual sanctions variable, $Sanction_{i,t}$, in the regression, as well as a cumulative variable, $Sum\ Sanction_{i,t} = \sum_{k=1}^t Sanction_{i,k}$, where $Sanction_{i,k}=1$ when one or more sanctions are in place against country i at time k and $Sanction_{i,k}=0$ when no sanction is in place. $Sum\ Sanction_{i,t}$ is the sum of past sanction periods in the current sanction period. The sum starts anew when a new sanction period begins. The variable captures the cumulative effect of past sanctions in the current sanction period.

The results of the weighted, time-series model are displayed in Table 3.3. Column (1) reports the findings from the logistic regression model used to compute the denominator of the weights. Column (2) reports the weighted regression of trade sanctions on tariff rates. The immediate or blip effect of trade sanctions on tariffs is positive, but the effect is insignificant by conventional standards. The cumulative effect of trade sanctions is also positive and is significant at the five percent level. In order to estimate the total effect of sanctions, one would need to sum up the blip (2.50) and cumulative effect (0.32) for each year sanctions are in place (on average, they are in place for 5.3 years). The total effect of trade sanctions based on the weighted model is to increase the tariff rate by 3.88 percent,¹⁸ which is a 50 percent increase in the average tariff rate (7.64 percent is the average tariff in the sample). Thus, using two distinct empirical specifications, sanctions are correlated with higher tariff rates. Although the estimated impact of trade sanctions is about seven times larger in the weighted model than the LRM in the ECM, both findings are consistent with the hypothesis that trade sanctions produce greater market protection.

¹⁸The calculation is: $2.5+0.32*4.3 = 3.88$.

Table 3.3: Weighted, Time-Series Model

	(1)	(2)
	Logistic	Weighted OLS
Trade Sanction Binary		2.496 (1.37)
lag Sum Trade Sanction Binary		0.318** (2.22)
lag Trade Sanction Binary	4.200*** (20.14)	
2-yr lag Sum Trade Sanction Binary	0.0728*** (2.78)	
MID	0.707*** (4.89)	
Polity	0.0271* (1.78)	
GDP per capita	-0.0245 (-0.00)	
WTO Member	-0.434*** (-2.79)	
Checks	0.0570 (0.94)	
Political Turnover	0.509** (2.39)	
Total Trade	0.728** (2.31)	
Constant	-3.764*** (-17.84)	-93982.4 (-1.56)
<i>N</i>	4125	1316

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; models include linear and quadratic time trends and use robust standard errors, clustered by country.

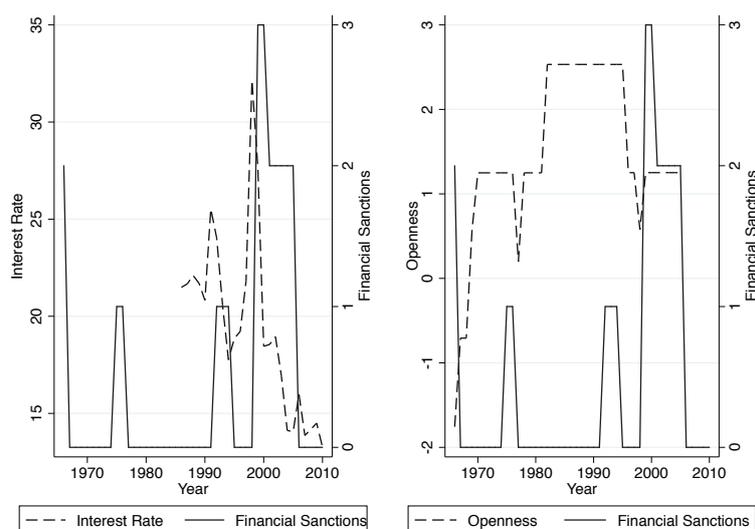
3.4 Economic Sanctions and Financial Protection

Thus far the theory has focused exclusively on trade sanctions, but many sanctions restrict financial flows between countries. The logic of trade sanctions may be readily extended to financial sanctions. Financial sanctions include prohibitions on investment and foreign aid. Closing the market to foreign capital also has distributional consequences for firms: some firms benefit and others are harmed. Those who benefit from market closure are often assumed to be the owners of capital in developing countries where capital is scarce, and they are expected to prefer capital market restrictions, because restrictions eliminate foreign competition. In addition, financial sanctions reduce capital inflows and increase the scarcity of capital in the sanctioned country, which allows financial intermediaries to charge higher interest rates and thereby increases the returns to domestic capital owners and intermediaries.

However, the financial industry is complicated and financial firms often have competing interests: some benefit from foreign capital entry, particularly when it is channelled through domestic banks (Pepinsky 2013), and others compete with foreign investors directly. Hence, it is important to note that specific assumptions about which financial actors benefit are not necessary here: The argument is that those who benefit from sanctions will find themselves in a more attractive bargaining position when they seek to influence economic policy, and, because they benefited from the market protection provided by sanctions, they are likely to use their influence to secure additional market protection. These actors gain influence and seek to replace the protection furnished by sanctions with protectionist capital market policies. Financial sanctions produce analogous results to trade sanctions, benefiting some domestic firms and aiding them in garnering market protection in the sanctioned country.

Consequently, some domestic capital owners and financial service providers benefit from economic sanctions, as they are able to charge higher interest rates and service fees when sanctions are in place. Thus, sanctions that restrict financial flows will result in

Figure 3.2: Implications of Sanctions Against Indonesia



increased demand for capital market restrictions in the sanctioned country.

Financial sanctions against Indonesia illustrate the logic of the theory. During the 1990's, the European Union pursued a total economic embargo and asset freeze, while the United States froze assets and placed import restrictions on Indonesian products. The sanctions aimed primarily at stopping human rights abuse by President Suharto's regime, and they were largely unsuccessful, but they did successfully limit financial flows. Figure 3.2 displays the number of financial sanctions and the lending interest rates in Indonesia over time,¹⁹ as well as the relationship between financial sanctions and de jure closure of the financial market.²⁰ Interest rates track sanctions closely. In fact, interest rates even seem to increase in advance of sanction imposition, as many capital owners move their assets abroad in anticipation of the sanctions. Capital account openness decreases following the imposition of financial sanctions. The next section will evaluate whether financial sanctions are correlated with greater financial market restrictions in a broad sample.

¹⁹Sanctions data are from TIES database (Morgan, Bapat and Kobayashi 2013), and lending interest rates are from the World Bank (2013).

²⁰Openness of the capital account is measured using the Karcher and Steinberg (2013) data.

3.5 Evidence

As before, I use the Threat and Imposition of Sanctions (TIES) database, which details every sanction implemented between 1945 and 2010 (Morgan, Bapat and Kobayashi 2013). A sanction is coded as a financial sanction if it includes a total economic embargo, an asset freeze, or the termination of foreign aid. Financial sanctions restrict financial flows between countries. I code two variables: Finance Sanction Count, which sums up the number of financial sanctions in a given target-country year, and Finance Sanction Binary, which is zero in country years without sanctions and one in country years with sanctions.

Recall the hypothesis that financial sanctions produce capital market restrictions. Data on capital market liberalization are from Karcher and Steinberg (2013). Their data are similar to the Chinn and Ito (2008) *de jure* measure, but they include policies from *only* the relevant year, rather than a five year moving average. Their coding is particularly useful when the object of the analysis is to isolate policy responses in a given year. Their measure is called openness in the tables below, and it covers 182 countries from 1966 to 2010. Once merged, the data cover 179 countries.

Recent research questions the use of capital account openness to measure financial market protection, as financial markets may be restricted in many different ways (e.g., Reuveny and Li 2003, Claessens and Perotti 2007, Jaumotte, Lall and Papageorgiou 2008, Broner and Ventura 2010, Barth, Gerard Caprio and Levine 2011). Financial sectors, particularly banks, may actually benefit from capital account liberalization in the presence of entry restrictions on foreign banks, as foreign investors are forced to channel their money through domestic banks (Pepinsky 2013). Entry restrictions may even provide a substitute for the type of capital market restrictions that most political scientists have focused on (e.g., Brooks and Kurtz 2007, Chinn and Ito 2008, Clark et al. 2012, Freeman and Quinn 2012). I complement the openness measure with a more comprehensive measure of financial reform from Adiad, Detragiache and Tresselt

(2008). Their Financial Reform Index is called Reform in the tables below, and it covers 91 countries from 1973 to 2005. The measure sums up the intensity of restrictions on a number of different dimensions: credit controls, interest rate controls, entry barriers, bank regulation and supervision, privatization, capital account and the securities market. A value of three on any dimension indicates the least amount of controls, while zero indicates stringent controls. Higher numbers on the overall index indicate fewer restrictions.²¹

3.5.1 Empirical Results

I use the same specifications as in the proceeding analysis of trade sanctions and tariff rates. Here I assess the effect of financial sanctions on capital account openness and financial sanctions on reform. Table 3.4 reports results from the regressions of financial sanctions on capital account openness, and Table 3.5 reports results from the regressions of financial sanctions on the financial reform index. Table 3.6 reports results from the weighted, time-series models, which again use the Blackwell and Glynn (2013) specification. For both dependent variables, capital account openness and financial reforms, higher values indicate more open financial markets. Thus, I expect a negative association between financial sanctions and capital account openness, as well as financial reform. The sign on all regression coefficients is consistent with the theory: financial sanctions are associated with less financial openness and fewer liberalizing financial reforms. The coefficients reach common significance levels in about half of the specifications.

Tables 3.4 and 3.5 provide per period estimates: how much does a financial sanction impact financial openness in each period? The first four columns provide OLS and FGLS specifications, which only identify the per period effect. Columns (5) and (6) report results from the autoregressive distributed lag (ADL) model, which enables the researcher to estimate the long run multiplier or total effect of the sanctions on financial openness. The regression results, on capital account openness, from Table 3.4 never reach signifi-

²¹Entry barriers and capital account restrictions are positively correlated with each other, providing some evidence that they are complements and that the use of either index is appropriate.

Table 3.4: Financial Sanctions and Capital Account Openness

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	FGLS	FGLS	ADL	ADL
lag Openness	0.874*** (67.60)	0.879*** (74.64)	0.972*** (288.01)	0.966*** (234.65)	0.874*** (67.53)	0.874*** (70.41)
Fin. Sanctions Count	-0.0300 (-1.30)	-0.0135 (-0.67)	-0.000376 (-0.19)	-0.00168 (-0.51)	-0.0159 (-0.69)	-0.0145 (-0.67)
lag Fin. Sanctions Count					-0.0204 (-1.09)	0.000393 (0.01)
Polity		0.00735** (2.45)		0.00283*** (5.65)		-0.00427 (-0.74)
lag Polity						0.0148** (2.44)
GDP per capita		0.00649* (1.96)		0.00224*** (5.11)		0.0236** (2.19)
lag GDP per capita						-0.0182* (-1.69)
IMF Program		0.0129 (0.81)		0.000887 (0.31)		0.00894 (0.50)
lag IMF Program						0.0190 (0.96)
Checks		0.00648 (0.80)		0.00107 (0.64)		-0.000799 (-0.08)
lag Checks						0.00111 (0.10)
Political Turnover		-0.0205 (-0.90)		-0.00153 (-0.63)		-0.0130 (-0.55)
lag Political Turnover						-0.0226 (-1.23)
Constant	0.0247*** (6.43)	-0.0487 (-1.44)	-0.00225 (-0.47)	-0.0143** (-2.48)	0.0256*** (6.23)	-0.0306 (-0.82)
LRM					-0.288 (-1.43)	-0.111 (-0.54)
<i>N</i>	5317	3703	5317	3703	5317	3570

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed test;

OLS and ADL analyses include robust standard errors, clustered by country, and country fixed effects.

FGLS specifies a heteroskedastic error structure and panel specific AR(1) autocorrelation.

Table 3.5: Financial Sanctions and Financial Market Reform

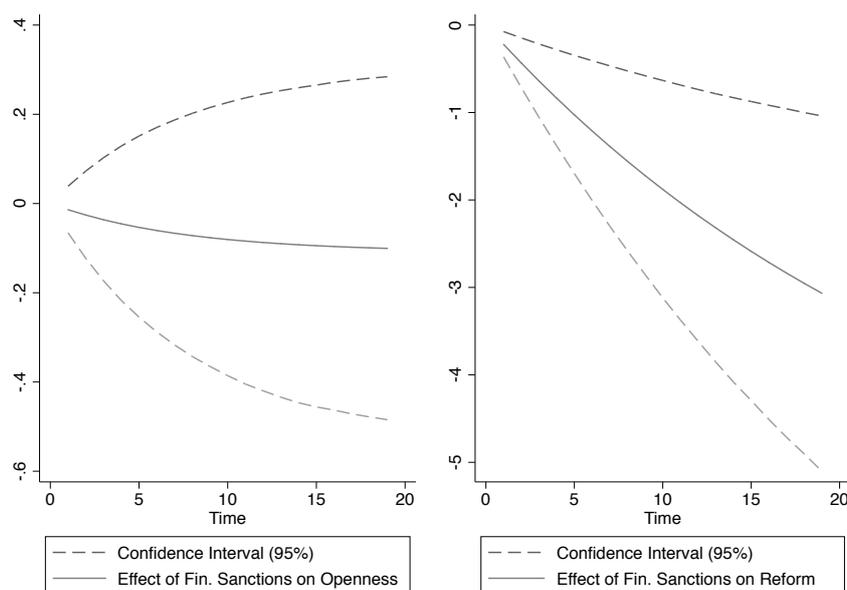
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	FGLS	FGLS	ADL	ADL
lag Reform	0.973*** (203.20)	0.962*** (161.50)	0.982*** (317.52)	0.971*** (217.67)	0.973*** (199.48)	0.963*** (188.75)
Fin. Sanctions Count	-0.242*** (-3.83)	-0.170*** (-2.95)	-0.119*** (-2.75)	-0.0867* (-1.89)	-0.132 (-1.66)	-0.168** (-2.21)
lag Fin. Sanctions Count					-0.165** (-2.00)	-0.0530 (-0.60)
Polity		0.0208*** (3.13)		0.0125*** (2.76)		0.00672 (0.35)
lag Polity						0.0179 (0.83)
GDP per capita		-0.00708 (-1.26)		0.00137 (0.54)		0.0135 (0.17)
lag GDP per capita						-0.0269 (-0.32)
IMF Program		0.182*** (3.41)		0.142*** (4.30)		0.144** (2.39)
lag IMF Program						0.0518 (1.09)
Checks		0.0609*** (3.30)		0.0375*** (2.58)		0.0662** (2.58)
lag Checks						-0.0113 (-0.36)
Political Turnover		-0.0359 (-0.55)		0.0124 (0.27)		-0.0321 (-0.47)
lag Political Turnover						0.00791 (0.12)
Constant	0.719*** (14.87)	0.602*** (8.86)	0.566*** (13.75)	0.479*** (8.35)	0.735*** (14.42)	0.658*** (8.94)
LRM					-10.91*** (-3.38)	-5.99*** (-2.71)
<i>N</i>	2382	2222	2382	2222	2382	2143

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed test;

OLS and ADL analyses include robust standard errors, clustered by country, and country fixed effects.

FGLS specifies a heteroskedastic error structure and panel specific AR(1) autocorrelation.

Figure 3.3: Effect of Financial Sanctions Over Time



cance. Alternatively, the regression results, on the financial reform variable, from Table 3.5 are significant in every specification, including the long-run multiplier, and most coefficients are significant at the one percent level. Thus, financial sanctions are consistently negatively correlated with financial openness, and the financial reform index seems to provide a better way to capture the impact of the sanctions. The reform index provides a more comprehensive measure of financial restrictions, including restrictions on bank entry, credit, interest rates, bank regulation, and privatization, as well as the capital account and the securities market.

The results of the weighted, time-series model are likewise consistent with the theory, but the significance of the results is the reverse of the previous estimates: capital account openness is significantly, negatively associated with financial sanctions, while financial reform is negatively associated, and the association is insignificant. Table 3.6 reports results from the weighted, time-series specification. This specification estimates both a single period or “blip” effect of sanctions and a cumulative effect of sanctions from previous periods. The differences in the significance of the results may be driven by differences in the coding of the openness measures. The financial reform index is a more

nuanced variable, which captures many different types of restrictions. It is likely a better measure for per period effects, which may then be summed up to isolate the long run effect. Alternatively, capital account openness may better capture the cumulative effect of sanctions. Particularly, if capital account openness is more difficult to change, is less frequently updated, or if changes are more abrupt, than it might be hard to capture changes in capital account openness in a single year, but, over many years, it is possible to estimate the effects. Although there are differences in the results across specifications, financial sanctions are consistently negatively, and often significantly, associated with financial openness and reforms.

3.6 Conclusion

This paper identifies several negative consequences of sanctions. Sanctions directly decrease trade flows with targeted countries, which reduces competition and access to the global market. The reduction in foreign competition in the targeted country results in economic distortions that are similar to those induced by tariffs: Producers shift production to comparatively disadvantaged sectors, and profits accrue to uncompetitive producers, who are no longer forced to compete with international producers. At the same time, the reduction in access to the global market harms exporters and consumers. The distributional consequences of sanctions impact the relative bargaining power of interest groups within the sanctioned country, creating new and empowering existing special interest groups that seek market protection. Empirical models provide evidence that is consistent with the theory. Trade sanctions are correlated with higher tariff rates, and financial sanctions are correlated with more financial market restrictions.

The protection inducing effect of sanctions is particularly problematic in light of overwhelming evidence that international trade provides economic benefits to countries as a whole. The benefits of trade are now widely accepted,²² and increasing international

²²Scholars have turned to assessing the causes of trade protection. For example, see Schattschneider (1935), Rogowski (1987), Grossman and Helpman (1994), Milner (1999), McGillivray (2004).

Table 3.6: Weighted, Time-Series Model

	(1)	(2)	(3)
Dependent Variable	Logistic Sanction	Weighted OLS Openness	Weighted OLS Reform
Financial Sanctions Binary		-0.237*** (-2.88)	-0.492 (-1.54)
lag Sum Financial Sanction Binary		-0.0442*** (-4.12)	-0.0222 (-0.53)
lag Financial Sanctions Binary	4.991*** (28.22)		
2-yr lag Sum Financial Sanction Binary	0.0430* (1.70)		
MID	0.256 (1.51)		
Polity	-0.00114 (-0.07)		
GDP per capita	-0.0280** (-2.50)		
IMF Program	-0.153 (-1.08)		
Checks	0.0796 (1.38)		
Political Turnover	0.181 (0.88)		
Total Trade	-0.173 (-0.34)		
Constant	-3.603*** (-17.66)	8669.4*** (9.63)	27541.1*** (5.80)
<i>N</i>	4125	3015	1789

t statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; models include linear and quadratic time trends and use robust standard errors, clustered by country.

trade liberalization has become an important foreign policy goal in its own right. This paper provides evidence that sanctions undermine liberalization, as they create political incentives for increased market protection.

In addition to the negative effects of trade restrictions associated with economic sanctions, political scientists have reached a consensus that observed economic sanctions are unlikely to succeed. In fact, sanctions fail to elicit concessions between 65 and 95 percent of the time (Hufbauer, Schott and Elliott 2007, Pape 1997). Sanctions are successful, when the sanctioned country concedes to the demands of the sanctioning country. These sanctions are often unobservable, because the concession is made before the sanction is actually implemented. Few policymakers expect observed sanctions, particularly those that endure for many years, to succeed in achieving concessions. Instead, these sanctions are implemented, because the leaders of the sanctioning country benefit politically from the sanctions (Smith 1996). Unsuccessful sanctions are implemented for largely “symbolic” reasons (Lindsay 1986), particularly when the media publicizes human rights abuses (Peksen, Peterson and Drury 2014) and citizens demand action but are unwilling to pay the cost of military intervention.

Economic sanctions are often thought to be attractive policy tools, because they are perceived as less costly than other alternatives for the sanctioning country (Lopez and Cortright 1995). However, it is likely that policymakers have underestimated the cost of sanctions. Economic sanctions are not only costly due to their immediate restriction of trade flows, they also lead to long-term restrictions in international economic relations. According to most modern economic theories, increased market protection is detrimental to competition, efficiency and growth. In deciding whether to implement sanctions, policymakers must consider how effective the sanctions are likely to be in achieving policy concessions, as well as the costs of the sanctions for producers and consumers, not only while the sanctions are in place, but long after the sanctions are lifted. These costs may outweigh the benefits of the sanction, particularly in those cases where the sanctions are largely symbolic and carry little hope of success.

CHAPTER IV

Varieties of Capital Account Liberalization

4.1 Introduction

Political scientists often use composite measures of financial openness, which collapse information on multiple dimensions, frequently including: capital inflow restrictions, capital outflow restrictions, trade account restrictions, and exchange rate stability.¹ Composite measures function well when each constitutive variable captures a similar phenomenon and all variables are expected to have the same effect, in both direction and magnitude, on the dependent variable or to be effected in the same way by other variables. However, once the constitutive variables are collapsed into a single variable, it is impossible to measure their individual effects (Hays 2009, p. 28). Use of the composite measure may make intuitive sense if the goal of the study is to capture a country's integration into international financial markets or to evaluate the influence of international financial markets on the domestic economy. Conversely, if the goal of the study is to examine financial policy, then these components must be examined separately, as they have various consequences and they likely become attractive under different political conditions.

This chapter distinguishes between capital inflow restrictions and capital outflow restrictions. Inflow restrictions limit the entry of foreign or non-residents' capital into the

¹Studies frequently employ data from Karcher and Steinberg (2013) and Chinn and Ito (2008) (e.g., Leblang 1997, Simmons, Dobbin and Garrett 2006, Brooks and Kurtz 2007, Pepinsky 2013, Mukherjee, Yadav and Béjar 2014. See Quinn and Toyoda (2008) and Clark et al. (2012) for an overview of multiple measures.

country, while outflow restrictions limit the exit of residents' capital from the country. Capital flows include all movements of wealth between countries, including direct investment, portfolio investment, loans, deposits, and currency.

Inflow and outflow restrictions have opposing distributional consequences, as well as conflicting implications for the bargaining power of domestic interest groups. Inflow restrictions benefit domestic investors, who compete with foreign investors when foreign capital is able to enter the market. In addition, inflow restrictions harm domestic labor, who would benefit from the investment inflows that would enter the country but are prohibited by the inflow restrictions. Foreign investment benefits labor through its impact on wages. Alternatively, outflow restrictions benefit labor at the expense of domestic investors. When capital outflows are liberalized, investors may take advantage of higher returns abroad, and they may diversify their investment holdings to protect against risk. Because labor benefits from investment, they do not want investors to leave the country, and they therefore support the implementation of outflow restrictions. Consequently, the preferences of domestic investors and labor are directly opposed: investors prefer more inflow restrictions and fewer outflow restrictions, while labor prefers fewer inflow restrictions and more outflow restrictions. As a result of these conflicting preferences, policymakers face conflicting incentives in implementing restrictions on capital inflows and on capital outflows.

In addition to these distributional consequences, outflow restrictions affect the relative bargaining power of domestic interest groups. Because the preferences of investors and labor are opposed - not just with respect to inflow and outflow restrictions but also with respect to tax policy - bargaining power is of utmost importance. When policymakers determine economic policies, they will be pressured by investors and labor groups, and the influence of each group will depend on their bargaining power. Bargaining power often comes from the actors' outside option. The logic is straightforward: actors will not accept less in an agreement than they could achieve without making the agreement. The amount that they can secure without making the agreement is called their reservation value or

outside option. In liberalizing outflows, policymakers actually give investors better outside options. When investors are able to move their investment to another location, they may threaten to move their investment abroad and influence policy through this threat of flight. This exit option is often associated with lower tax rates (see for example Oatley 1999, Przeworski and Wallerstein 1988), which should benefit investors. Alternatively, the implementation of outflow restrictions benefits labor, because it eliminates investors' outside option and thereby eliminates the bargaining power that investors gain from the it.

Thus, policymakers not only use financial restrictions to affect the returns of different factor owners, they also use financial restrictions to impact the relative influence of investors and labor in the future. Further, these two implications are mutually reinforcing. Investors prefer fewer outflow restrictions for two reasons: an open outflow market gives them greater flexibility in selecting investments with the highest returns and diversifying their portfolio, and investors gain bargaining power from their ability to leave the market. Thus, I expect policymakers to employ more inflow restrictions and fewer outflow restrictions, when political institutions and market structure favor the interests of investors over labor.

Note that, according to the theory, restrictions on capital inflows and outflows move in opposite directions from one another under certain conditions. Inflow restrictions should be *positively* correlated with political institutions and market structure that favor investors, while outflow restrictions should be *negatively* correlated with political institutions and market structure that favor investors. Composite measures are unable to capture this divergence. When inflow and outflow restrictions are collapsed into one variable, we assume that inflow and outflow restrictions are impacted in the same way, in both direction and magnitude, by other variables.

While this paper focuses on differential incentives for the implementation of inflow and outflow restrictions, the two types of restrictions are closely related to one another,

and they are highly correlated.² They are likely correlated for many reasons. Foremost is that both types of liberalization are needed for countries to reap many of the benefits of liberalization. For example, foreign investors may be deterred from entering a market if there is uncertainty about whether they will be able to repatriate their profits. Consequently, for liberalization to result in deeper, more developed financial markets with the corresponding gains for efficiency and borrowing, both types of liberalization may be necessary. Deep financial markets also make assets more mobile (Freeman and Quinn 2012), as even seemingly fixed assets may be traded on financial markets and the risk associated with immobile assets may be spread across many owners through portfolio diversification. In addition, IMF conditionality, or other types of international pressure, likely lead to both types of liberalization. Consistent with these considerations, it is necessary to account for the fact that inflow and outflow restrictions are not independent in the empirical models. In fact, policymakers jointly consider inflow and outflow restrictions when they make financial policy. I use a system of equations specification, with exogenous predictors of inflow and outflow restrictions, to jointly estimate the impact of institutions and market structure on inflow restrictions and outflow restrictions.

Section 4.2 describes the consequences of inflow and outflow restrictions for market returns and bargaining power and presents hypotheses for capital account policies under different political conditions. Section 4.3 provides empirical evidence that is consistent with the theory. Section 4.3.1 extends the theory to include bank entry restrictions and presents preliminary evidence that restrictions on banking competition are likely complementary to capital account restrictions, contrary to existing theoretical work. The conclusion presents research implications.

²The correlation coefficient between inflow and outflow restrictions is: 0.751.

4.2 Liberalization and Politics

According to the Heckscher-Ohlin theorem, trade liberalization increases returns to abundant factor owners and decreases returns to scarce factor owners. When trade liberalization occurs, factor returns equalize across countries (Stolper and Samuelson 1941). The idea is that countries will produce the goods that have the lowest relative production cost for them; in other words, they produce those goods in which they have a comparative advantage. Then, they trade with other countries for those goods that are more costly for them to produce. The theorem has been applied in political science to explain trade preferences in groups across countries. It is thought that labor should prefer trade liberalization when labor is abundant, i.e., in developing countries, and that capital owners should prefer trade liberalization when capital is abundant, i.e., in developed countries (e.g., Frieden 1991, Milner and Kubota 2005).

However, capital is also able to move across international borders, and so the trading logic may be applied to explain capital flows. According to these theories, rather than goods moving and the production process remaining fixed, capital travels to the location where it receives the highest return. When capital markets are open, capital is thought to move until those capital returns equalize.³ Because any production process requires some capital and labor, the return to capital should be highest in locations with scarce capital where the demand for capital is greater. Consequently, following financial liberalization, capital is expected to move to locations where it is scarce, decreasing the return to capital in those locations and increasing the returns to labor. In contrast, capital abundant regions will experience a net capital outflow, increasing their capital returns and decreasing labor returns. Political scientists have used this theory to derive expectations for policy preferences: Labor should support capital account liberalization in developing countries, while investors should support liberalization in developed countries (Pinto 2013, Quinn and Inclán 1997, Quinn 1997).

³For justifications of the differences in factor returns despite liberalization, see Robert E. Lucas (1990), Caselli and Feyrer (2007).

While these theories explain some of the variation in capital account policies, the empirical record is not consistent. In fact, many surveys find that unskilled labor supports trade and capital market protection in developing countries, where the theory predicts they would have the most to gain from liberalization (Hicks, Milner and Tingley 2014). The existing theoretical work likely suffers from assuming that investors or labor prefer all types of liberalization or closure. Rather preferences of domestic actors are more specific than support or opposition to liberalization writ large. I argue that domestic investors support the removal of restrictions on capital outflows in conjunction with the maintenance or even strengthening of restrictions on capital inflows. Outflow liberalization gives them the flexibility to take advantage of higher returns by moving their investment abroad, to diversify their holdings and to use capital flight as a threat that constrains policy. At the same time, investors prefer to maintain inflow restrictions, which protect their investments in their home market from competition with foreign investors. Outflow liberalization accompanied by inflow restrictions enable them to take advantage of higher returns elsewhere without jeopardizing their position in their home market.

Importantly, the benefits of outflow liberalization and inflow restrictions accrue to investors whether capital is abundant or scarce in their home country. Once we separate the determination of inflow and outflow restrictions, the preferences of investors and labor no longer depend on the factor endowment or development level of their country. When factor returns are high in their home market, investors will often retain their investments in their country, but they still benefit from inflow restrictions, which reduce competition from foreign investors in their home market, and from the liberalization of outflow restrictions, which allow them to invest abroad. Following outflow liberalization, investors are not only able to put their investments in the location of highest return, they also know that if policymakers increase tax rates or select expropriatory policies, they can move their capital abroad. The possibility of capital flight provides investors with an outside option, which grants them more leverage in bargaining with policymakers over financial policy decisions. Consequently, investors prefer to have the investment options

associated with an open outflow market, which also helps constrain policymakers, while at the same time to have the market protection afforded by restrictions on capital inflows. Further, investors share these preferences in both developed and developing countries.

The policies employed by French President François Mitterrand and the immediate response of financial actors illustrates the constraining power of capital, when markets are open. Mitterrand was elected in 1981 on a platform of leftist economic policies, including: multiple nationalizations; higher taxes [on the wealthy], wages, pension benefits, and workers' rights; and reduced working hours. Before many of the policies were even implemented, Mitterrand's election victory induced capital flight, which brought on a 10 percent devaluation of the French Franc (Brown 1996, p. 69). "In mid-1981, the economic expansion attempted by the new French Socialist government rapidly confronted a large capital outflow and a run on the franc, leading to a reversal of the policies soon after their adoption" (Frieden 1991, p. 427). The capital flight triggered by Mitterrand's policies and the subsequent reversal of those policies demonstrate the benefits of liberalized outflow markets for investors. When investors have the ability to move their investment elsewhere, they may use that outside option to constrain policymakers. Although capital flight actually occurred in Mitterrand's case, it is generally accepted that the threat of flight, or of underinvestment in the future, is enough to persuade policymakers to select pro-capital policies (Oatley 1999, Przeworski and Wallerstein 1988).

Assumption 4.1. *Investors prefer increased restrictions on capital inflows and decreased restrictions on capital outflows.*

The same distributional and bargaining theories also help explain the preferences of labor over capital account policies. If we believe that factor returns are impacted by market scarcity, then labor benefits directly from reductions in inflow restrictions. Investment inflows increase wages, as the demand for labor increases. In addition, inflow liberalization does not diminish their bargaining power vis-à-vis investors. Thus, labor should support liberalization of restrictions on capital inflows. Conversely, labor loses

bargaining power from the liberalization of outflow restrictions. When outflow restrictions are removed, investors can credibly threaten to move their investment elsewhere if higher tax rates are implemented. The rapid reversal of Mitterrand's leftist policies show the power of investors when markets are open. In order to avoid that type of policy reversal and to maintain their bargaining power, labor should support the maintenance of restrictions on capital outflows. Consequently, labor's preferences are the opposite of investors' preferences. Labor prefers reduced restrictions on capital inflows and increased restrictions on capital outflows.

In order to evaluate the theory, it is necessary to know when political institutions and market structure favor the interests of capital and when they favor the interests of labor. It is widely accepted that small, concentrated groups are better able to pursue collective action (most prominently from Olson 1965). Because concentrated groups organize more easily, they have an advantage in lobbying policymakers and realizing their policy goals.⁴ Investors are more concentrated and, therefore, better able to exercise political influence when the banking sector is concentrated (Pepinsky 2013, Mukherjee, Yadav and Béjar 2014).

Furthermore, certain political institutions are more vulnerable to capture by specific interest groups. When political institutions create an incentive to cultivate the personal vote (Carey and Shugart 1995), they are more responsive to small, influential interest groups often called "particularist interests." Investors are an example of a particularist interest group: They are a relatively small, often concentrated group with specific interests that often do not coincide with the interests of labor. Labor is a large, diffuse group. Investors are even more likely to impact policy through personalist institutions when they are concentrated. One way to capture their concentration is to use a measure of bank concentration. When institutions favor particularist interests and when investors are concentrated, I expect policymakers to implement the preferred policies of investors.

⁴This logic is clearly outlined in the trade literature (e.g., Schattschneider 1935, Busch and Reinhardt 1999, McGillivray 2004, Hiscox 2010).

Thus, there should be more restrictions on capital inflows and fewer restrictions on capital outflows under particularist institutions when the banking sector is concentrated.

Hypothesis 4.2. *When the banking sector is concentrated, personalism increases restrictions on capital inflows and decreases restrictions on capital outflows.*

Carey and Shugart (1995) provide a careful overview of institutions that create “incentives to cultivate a personal vote.” Their data incorporate much of the existing theoretical work about which institutions are vulnerable to capture by small interest groups. The incentive to cultivate a personal vote index (hereafter ‘personalism’) is based on the following variables: “(1) lack of party leadership control over access to and rank on ballots, (2) degree to which candidates are elected on individual votes independent of co-partisans, and (3) whether voters cast a single intra-party vote instead of multiple votes or a party-level vote” (the original index is from Carey and Shugart 1995; updated data are available from Johnson and Wallack 2012). Consistent with the personalism measure, McGillivray (2004) establishes a strong connection between weak parties and trade protection, arguing that candidates are more susceptible to particularist protectionist interests when they are not accountable to a national party. Party strength is captured by all the dimensions in Carey and Shugart’s personalism index. Mukherjee, Yadav and Béjar (2014) likewise use personalism to assess the effect of personalist institutions, moderated by bank concentration, on capital account openness writ large. They do not differentiate between inflow and outflow restrictions.

The capital inflow and outflow restrictions implemented by policymakers in Madagascar and Cameroon help illustrate the logic of the theory. In 2005, Madagascar’s political institutions were far more personalistic and their banking sector more concentrated than Cameroon’s political institutions and banking sector. Madagascar’s personalism score was 10 (the highest possible is 12), while Cameroon’s personalism score was one, and the largest three banks in Madagascar owned 87.4 percent of the banking assets in the country, while the largest three banks in Cameroon owned 53.9 percent of the banking

assets in the country. Thus, according to Hypothesis 4.2, Madagascar should have more restrictions on capital inflows and fewer restrictions on capital outflows than Cameroon, and that is what we observe. Madagascar had three times as many restrictions on capital inflows (score of 37.5, where the most restricted markets score 50) than on capital outflows (score of 12.5, again out of 50). Cameroon had fewer restrictions on capital inflows (25 out of 50) and more restrictions on capital outflows (50 out of 50). Although both countries have negative capital account openness scores on composite indices (Karcher and Steinberg 2013),⁵ they protect their capital markets in substantially different ways with Madagascar focusing on inflow restrictions and Cameroon focusing on outflow restrictions. These are just two data points selected to illustrate the theory and data. The next section turns to a more rigorous analysis of the empirical record, using cross-sectional, time-series data.

4.3 Inflow and Outflow Restrictions

Hypothesis 4.2 provides a conditional argument: when banks are concentrated, personalism increases restrictions on capital inflows and decreases restrictions on capital outflows. In order to assess whether the theory is consistent with evidence, the regression models include an interaction term between bank concentration and personalism.

$$\begin{aligned} \text{Restrictions}_{i,t} = & \beta_0 + \beta_1 \text{Personalism}_{i,t} * \text{Concentration}_{i,t} + \beta_2 \text{Personalism}_{i,t} \\ & + \beta_3 \text{Concentration}_{i,t} + \beta_4 \text{Controls}_{i,t} + \epsilon \end{aligned}$$

The dependent variable is either inflow or outflow restrictions. $\beta_1 \text{Concentration}_{i,t} + \beta_2$ are the coefficients of interest. I expect $\beta_1 \text{Concentration}_{i,t} + \beta_2$ to be positive in the regression on inflow restrictions and negative in the regression on outflow restrictions when banks are concentrated, i.e., the concentration variable is large. The theory predicts that investors have more policy control when banks are concentrated and institutions are personalist.

⁵Karcher and Steinberg (2013) update the Chinn and Ito (2008) composite measure of financial openness. Madagascar has a capital account openness score of -0.0316, while Cameroon's score is -1.08.

Data on inflow and outflow restrictions are coded using the IMF’s Annual Report on Exchange Arrangements and Exchange Restrictions (Freeman and Quinn 2012, Quinn and Toyoda 2008). Restrictions are classified on a directional basis: “resident direct investment abroad [outflow restrictions] and nonresident investment in the reporting economy [inflow restrictions]” (International Monetary Fund 1993, p. 80). The IMF codes restrictions on the following types of capital flows: **direct investment**, where the investor seeks a significant voice in the management of the enterprise (including equity capital, reinvested earnings, etc); **portfolio investment**, which excludes managerial oversight and also includes money market debt instruments, financial derivatives, longer-term debt, and equity securities; **other investment**, including trade credits, loans, currency and deposits, use of IMF credit, IMF loans, etc; and **reserve assets**, which consist of monetary gold, SDRs, reserve position in the Fund, foreign exchange, etc. The variable then sums up the number of restrictions in these four investment areas. The data cover 106 countries from 1950 to 2005.

Personalism is from the Database of Particularism (Johnson and Wallack 2012); the data cover 72 countries from 1978 to 2005. Bank concentration is the assets of the three largest banks as a share of the assets of all commercial banks from the Financial Development and Financial Structure Database (Beck, Demirgüç-Kunt and Levine 2000, 2009, Cihák et al. 2012).⁶ Controls include international debt as a percent of GDP (also from the Financial Development and Financial Structure Database), GDP from the Penn World Tables (Heston, Summers and Aten 2012), and total trade (imports plus exports divided by GDP from Barbieri, Keshk and Pollins 2009, Barbieri and Keshk 2012), as well as whether a country is under an IMF loan program (Dreher 2006). Once the data samples are merged, the data used in the regression models cover 57 countries from 1998 to 2005. There are 6.9 years on average for each country in the sample with a minimum of 2 years and a maximum of 8 years.⁷ Table 4.1 provides descriptive statistics

⁶The data cover 1960 to 2011, but there are many missing observations.

⁷Results from models without controls are consistent and include more observations; without controls there are 7.2 years for each country on average, and there are 80 countries in the sample.

for the variables used in the analysis. The subsequent section describes the bank entry variable, which measures the difficulty of market entry for new and foreign banks (Adiad, Detragiache and Tressel 2008).

Table 4.1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Year	2001.58	2.29	1998	2005	575
Inflow Restrictions	38.83	11.48	12.5	50	575
Outflow Restrictions	38.04	14.12	0	50	575
Personalism	5.83	3.87	1	12	575
Bank Concentration	67.86	20.32	21.4	100	575
International Debt	22.04	20.28	0.45	109.99	404
GDP (billions)	482.56	1357.82	1.65	12564.30	559
Total Trade	0.39	0.32	0	2.31	559
IMF Program	0.29	0.57	0	4	575
Bank Entry	2.72	0.61	0	3	473

Table 4.2 reports the results of OLS regression models. Although there are controls for the effect of inflow restrictions on outflow restrictions and the effect of outflow restrictions on inflow restrictions, the model incorrectly assumes that all the independent variables may be treated as exogenous. Despite these limitations, which will be discussed in the subsequent analysis, the OLS regressions provide a useful plausibility probe. They assess the correlation between personalism, moderated by banking concentration, and inflow restrictions and then outflow restrictions. All columns report the regression results of models with controls. Columns (2) and (4) include a lagged dependent variable to help alleviate the concern of serial correlation. Consistent with the hypotheses introduced above, when banks are concentrated, the predicted effect of personalism on inflow restrictions is positive and the predicted effect of personalism on outflow restrictions is negative. The predicted effect of personalism on inflow restrictions becomes positive when the three largest banks in the country control 83.02 percent of the total assets of all commercial banks (using the estimates in Column (1) of Table 4.2). The predicted effect of personalism on outflow restrictions becomes positive when the three largest banks in the country control 85.59 percent of the total assets of all commercial banks (using the estimates in

Table 4.2: Capital Account Restrictions (OLS)

	(1)	(2)	(3)	(4)
	Inflow	Inflow	Outflow	Outflow
lag Inflow Restrictions		0.838*** (0.0504)		
Outflow Restrictions	0.703*** (0.0674)	0.149*** (0.0400)		
lag Outflow Restrictions				0.776*** (0.0609)
Inflow Restrictions			0.841*** (0.0803)	0.233*** (0.0638)
Personalism * Bank Concentration	0.0212*** (0.00724)	0.000457 (0.00230)	-0.0118 (0.00922)	-0.00765* (0.00403)
Personalism	-1.760*** (0.543)	-0.0623 (0.172)	1.010 (0.691)	0.549* (0.286)
Bank Concentration	-0.124** (0.0535)	0.0165 (0.0142)	0.0931 (0.0666)	0.0679** (0.0294)
International Debt	-0.0449 (0.0453)	-0.0239** (0.0110)	0.116** (0.0547)	0.00194 (0.0157)
GDP	1.10*** (0.390)	0.185 (0.127)	-0.191 (0.330)	-0.0911 (0.104)
Total Trade	1.995 (2.446)	0.239 (0.661)	0.324 (1.481)	-0.0932 (0.481)
IMF Program	1.615 (1.398)	0.438 (0.296)	-2.085 (1.957)	-0.477 (0.513)
Constant	21.22*** (4.592)	-0.0706 (1.181)	-2.904 (6.774)	-4.804* (2.870)
<i>N</i>	388	388	388	388
adj. <i>R</i> ²	0.653	0.925	0.671	0.904

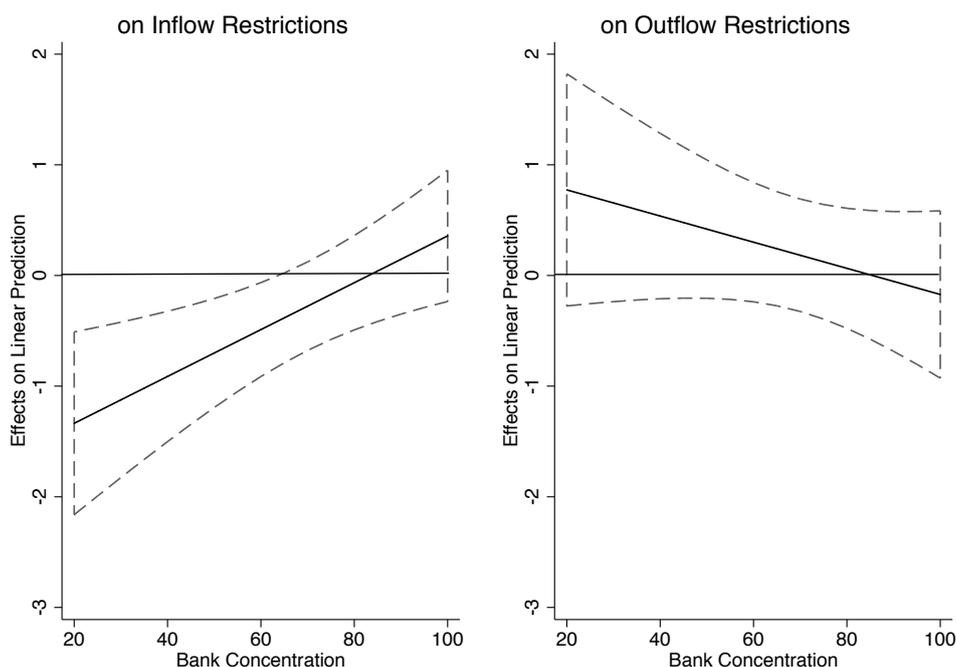
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; robust standard errors in parentheses, clustered by country; dependent variable is listed in table header, below model number.

Column (3) of Table 4.2). However, the effects of personalism for inflow and outflow restrictions are not significant by conventional standards when bank concentration takes on large values. Figure 4.1 plots the marginal effect of personalism at different values of bank concentration for inflow restrictions (left panel) and outflow restrictions (right panel). Without controls, the results are similar in magnitude and significance.⁸

Although capital inflows and outflows have conflicting implications for factor returns and for bargaining power, they are also closely related. As discussed in the introductory

⁸The results without controls are not reported here, but they are available from the author upon request.

Figure 4.1: Marginal Effect of Personalism (OLS)



Note: confidence intervals are 95%. Predictions from columns (1) and (3) of Table 4.2.

section, they are likely related for many reasons. Both types of liberalization may be necessary for countries to attract foreign investment. More specifically, investors may be deterred from entering a market if there is uncertainty about whether they will be able to repatriate their profits. In addition, in order to diversify domestic holdings, it may be necessary to sell them to foreign investors. Furthermore, international pressure may encourage both types of liberalization. Consistent with these considerations, it is necessary to account for the fact that inflow and outflow restrictions are jointly determined and, therefore, unlikely to be independent from one another in the empirical models.

Scholars often estimate systems of equations models to deal with independent variables that are jointly determined. Alt and Lowry (1994) use three-stage least squares (hereafter 3SLS) to account for endogenously determined variables (Greene 2008, p. 381-383), while others have used seemingly unrelated regression when the two equations they wish to identify have correlated error terms (hereafter SUR) (Greene 2008, p. 254-263). By estimating the errors in these systems of equations simultaneously, both modeling tech-

niques help account for the correlation between the equations. SUR allows the equations to be linked only through their disturbances and does not account for the interdependence of the dependent variables. The greater the correlation between the equations, the more efficiency is gained by using SUR (Greene 2008, p. 257). The SUR model allows me to test for the correlation between the two models using the Breusch-Pagan test statistic. The statistic tests whether the disturbances from the two models are related (the null hypothesis is that they are unrelated).

3SLS employs exogenous variables as instruments for the variables that are determined endogenously and then computes the standard errors for the system of equations together. 3SLS relies on the analyst selecting plausibly exogenous variables. These variables provide exogenous sources of variation in the dependent variable of one equation, which are also independent variables in the other equation, and they are unrelated to the dependent variable in the other equation. The system of equations is identified by putting an exogenous variable in each equation [and not in the other equation]. In the 3SLS regression on inflow restrictions, I use GDP as the identifying, exogenous predictor. Wealthy countries are often concerned about currency appreciation, as appreciation makes it more difficult for them to export their products. They implement inflow restrictions in order to prevent the purchase (and thereby appreciation) of their currency. GDP is likely to meet the exclusion restriction, because it is not theoretically related to outflow restrictions, and it does not reach significance in any of the OLS regressions on outflow restrictions. In the 3SLS regression on outflow restrictions, I use the amount of international debt as the identifying, exogenous predictor. Countries that carry more international debt often need to hold foreign currency in order to repay their debt. They are more likely to implement outflow restrictions in order to protect their foreign currency reserves (and the value of their currency). Furthermore, there is no direct reason that international debt should be related to inflow restrictions. In sum, GDP, international debt, personalism, bank concentration, total trade and IMF program are treated as exogenous variables, while inflow and outflow restrictions are endogenous variables in the

3SLS models.

Results for the SUR and 3SLS models are reported in Table 4.3 and the marginal effect of personalism is presented in Figure 4.2. As expected, personalism is positively correlated with inflow restrictions at high levels of bank concentration, and the relationship is significant at the five percent level. In addition, personalism is negatively correlated with outflow restrictions, at high levels of bank concentration, although the effect is insignificant at conventional levels. Once the lagged dependent variable is introduced, both correlations fail significance tests and the correlation between outflow restrictions and the interaction term even switches signs. This is perhaps due to the limited time series of the data and limited variation within countries of the institutional variables. The Breusch-Pagan test statistic reveals that the disturbances in each of the SUR models are not unrelated (they are likely related to one another) and that the system of equations specifications is therefore more appropriate than the individual OLS specifications. The empirical model provides robust evidence that personalist political institutions are positively correlated with inflow restrictions when banks are concentrated. Personalist political institutions are negatively correlated with outflow restrictions when banks are concentrated, but the association is insignificant.

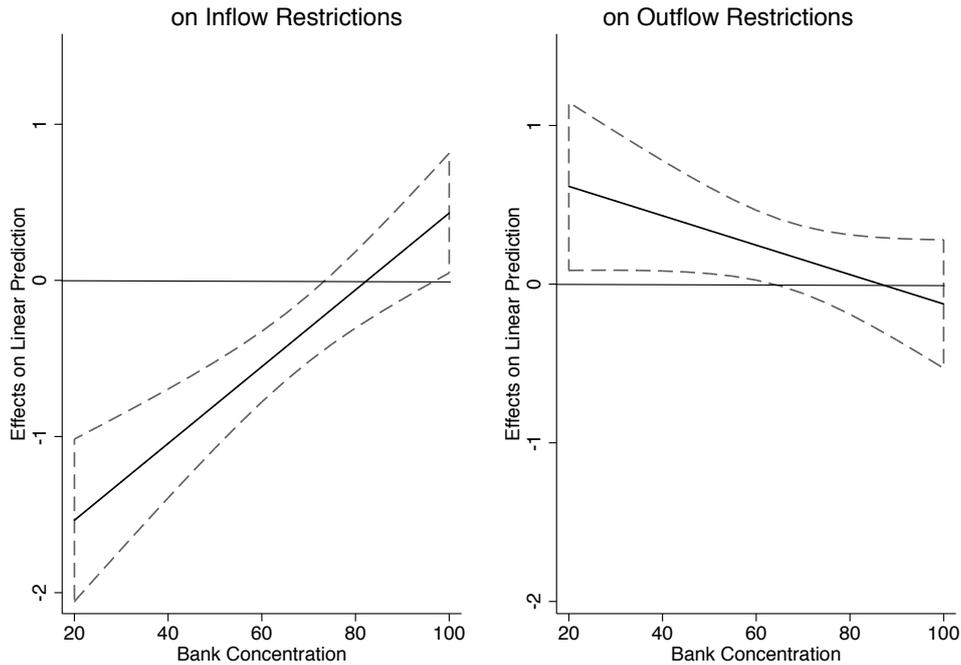
The evidence for the effect of political institutions and market structure on outflow restrictions is more robust than the evidence on inflow restrictions. As said, the signs on the interaction terms in the regression on inflow restrictions actually change when the lagged dependent variable is introduced in the model (although they are not significant). The explanation for the lack of consistency in the results for inflow restrictions may be driven by data limitations or other factors, but it may also be that banks' preference for closing inflow markets is ambiguous, while their preference for open outflow markets is unmistakable. Recall that liberalizing outflows gives investors more investment options to pursue higher returns in any open market, and it simultaneously increases their ability to influence policy in their home market. These two benefits of liberalized outflows for investors likely reinforce one another. Investors' preferences for inflow restrictions,

Table 4.3: Capital Account Restrictions (SUR & 3SLS)

	(1)	(2)	(3)	(4)
	SUR	SUR	3SLS	3SLS
Dependent Variable: Inflow Restrictions				
lag Inflow Restrictions		0.904*** (0.0219)		0.960*** (0.0259)
Outflow Restrictions	0.866*** (0.0236)	0.0722*** (0.0193)	0.469*** (0.108)	-0.00191 (0.0247)
Personalism * Bank Concentration	0.0189*** (0.00452)	-0.000107 (0.00223)	0.0246*** (0.00506)	-0.00149 (0.00233)
Personalism	-1.478*** (0.312)	0.00752 (0.157)	-2.028*** (0.360)	0.111 (0.163)
Bank Concentration	-0.136*** (0.0338)	0.0221 (0.0162)	-0.131*** (0.0363)	0.0333* (0.0172)
GDP (trillions)	0.307* (0.179)	0.158 (0.119)	1.52*** (0.350)	0.132 (0.107)
Total Trade	-0.672 (1.152)	-0.110 (0.542)	3.139** (1.579)	0.151 (0.575)
IMF Program	1.841** (0.765)	0.309 (0.358)	1.199 (0.848)	0.137 (0.380)
Constant	15.27*** (2.517)	-0.458 (1.332)	29.76*** (4.619)	-0.566 (1.406)
Dependent Variable: Outflow Restrictions				
lag Outflow Restrictions		0.842*** (0.0246)		0.871*** (0.0274)
Inflow Restrictions	1.048*** (0.0280)	0.149*** (0.0263)	0.760*** (0.119)	0.0880*** (0.0310)
Personalism * Bank Concentration	-0.0168*** (0.00483)	-0.00600** (0.00263)	-0.00927* (0.00532)	-0.00521* (0.00272)
Personalism	1.330*** (0.328)	0.412** (0.178)	0.802** (0.370)	0.344* (0.185)
Bank Concentration	0.133*** (0.0369)	0.0593*** (0.0201)	0.0814** (0.0400)	0.0540*** (0.0208)
International Debt	0.0347** (0.0145)	0.000965 (0.0115)	0.124*** (0.0245)	0.0000514 (0.0101)
Total Trade	0.787 (1.288)	-0.0801 (0.714)	0.765 (1.443)	0.0924 (0.730)
IMF Program	-2.003** (0.826)	-0.319 (0.448)	-2.055** (0.834)	-0.280 (0.464)
Constant	-12.44*** (2.874)	-3.388** (1.618)	0.895 (6.003)	-1.750 (1.696)
Breusch-Pagan: χ^2	210.667	31.485		
Test for Independence of the Two Equations	(0.000)	(0.000)		
N	388	388	388	388

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; robust standard errors in parentheses, clustered by country.

Figure 4.2: Marginal Effect of Personalism (3SLS)



Note: confidence intervals are 95%. Predictions from Column (3) of Table 4.3.

on the other hand, are likely weaker. Consistent with the extension of Stolper and Samuelson’s well-known arguments, investors themselves benefit from [inflow] restrictions, through their impact on competition and interest rates. However, not all financial actors compete with foreign investment, and some financial actors actually benefit from foreign investment.

In particular, if foreign investment must be channelled through domestic intermediaries, who are able to charge a premium on these transactions, then domestic intermediaries may profit from liberalized inflows. The singleminded focus on capital account restrictions, at the expense of other types of financial restrictions, is a stark limitation in most work on financial policy in political science, which focuses predominantly on factor returns using a Stolper-Samuelson type model. One important exception is Pepinsky (2013), who argues that banks prefer an open capital account when foreign bank entry is restricted. The following analysis extends Pepinsky’s argument to account for the effect of different political institutions, under different market structures, on inflow restrictions.

4.3.1 Bank Entry Restrictions

Distinguishing between the preferences of financial actors when bank entry is liberalized and when it is restricted provides a more nuanced theory of economic policymaking. First, when bank entry is liberalized, financial actors should prefer increased restrictions on capital inflows, as the restrictions prevent foreign competition. However, when bank entry is restricted, financial actors should prefer liberalized capital inflows. The bank entry restrictions force foreign investors to channel their investments through domestic intermediaries, who benefit from their privileged position in their home market. Thus, financial actors should either prefer restricted bank entry and open inflow markets or restricted inflow markets and open bank entry. In this way, bank entry restrictions and capital inflow restrictions are expected to substitute for one another: bank entry restrictions provide protection from foreign financial intermediaries, while capital inflow restrictions provide protection from competition with foreign investors. As before, the preferences of financial actors are more likely realized when financial actors are concentrated and political institutions favor particularist interests.

Hypothesis 4.3. *When bank entry is restricted, bankers prefer decreased restrictions on capital inflows. Bankers' preferences are more likely to be realized when bank concentration and personalism increase.*

Hypothesis 4.4. *When bank entry is open, bankers prefer increased restrictions on capital inflows. Bankers' preferences are more likely to be realized when bank concentration and personalism increase.*

In order to evaluate the hypotheses, we first need a variable that measures bank entry. Adiad, Detragiache and Tressel (2008) code the openness of a country to bank entry for 91 countries from 1973-2005; they use indicators of whether foreign and domestic banks may enter the market, whether branching is restricted and whether banks may provide varied services (p. 16). Their index ranges from fully repressed bank entry, 0, to fully liberalized bank entry, 3. After the data is merged, the sample includes 49 countries.

Hypotheses 4.3 and 4.4 relate personalist institutions to capital account controls in the presence and absence of bank entry restrictions and concentrated banks. Consequently, three conditional variables are needed: personalism, bank concentration and bank entry. Although I will again utilize the 3SLS model, I will focus on the equation predicting inflow restrictions. The specification of the second equation on outflow restrictions in the 3SLS model remains the same from the previous section, as investors prefer the ability to invest abroad, whether bank entry is restricted or not. Hypotheses 4.3 and 4.4 are interactive and require the inclusion of the following variables in the regression model:

$$\begin{aligned} InflowRestrictions_{i,t} = & \beta_0 + \beta_1 Personalism_{i,t} * Concentration_{i,t} * Entry_{i,t} \\ & + \beta_2 Personalism_{i,t} * Concentration_{i,t} + \beta_3 Concentration_{i,t} * Entry_{i,t} + \beta_4 Personalism_{i,t} * \\ & Entry_{i,t} + \beta_5 Personalism_{i,t} + \beta_6 Concentration_{i,t} + \beta_7 Entry_{i,t} + \beta_8 Controls_{i,t} + \epsilon \end{aligned}$$

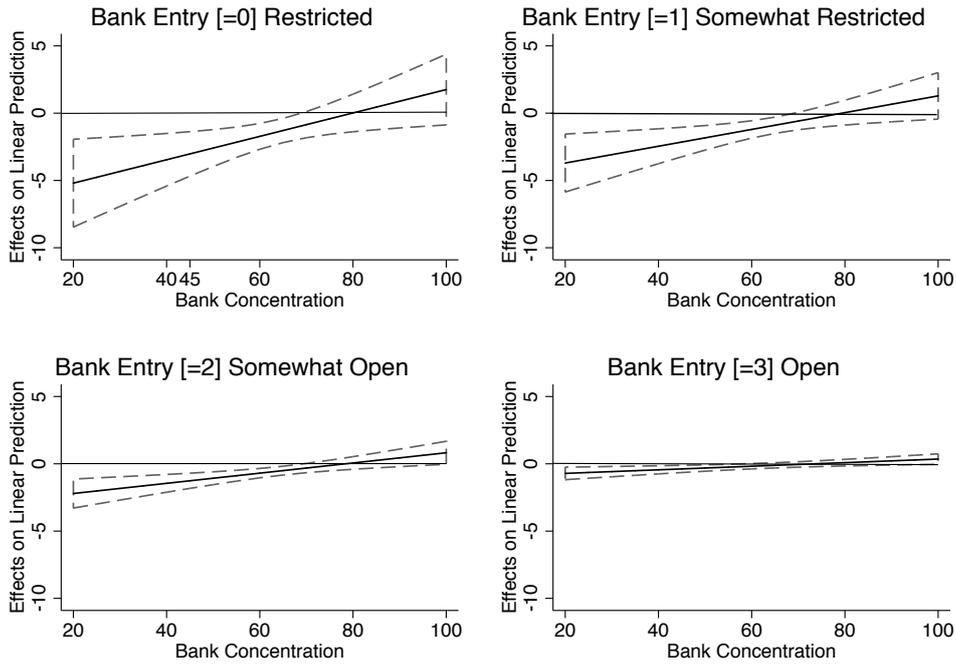
The hypotheses provide theoretical predictions regarding the marginal effect of personalism, when bank concentration is high. Thus, we will look at the following terms closely:

$$\beta_1 Concentration_{i,t} * Entry_{i,t} + \beta_2 Concentration_{i,t} + \beta_4 Entry_{i,t} + \beta_5$$

When bank entry is restricted, bankers prefer that foreign capital enter the market, as it must flow through their branches. Thus, I expect personalist institutions to be negatively associated with inflow restrictions, when banks are concentrated and bank entry is restricted. Therefore, I expect that $\beta_2 Concentration_{i,t} + \beta_5$ is less than zero when concentration is restricted ($\beta_2 Concentration_{i,t} + \beta_5$ is equivalent to the marginal effect of personalism when bank entry is fully restricted, $Entry_{i,t} = 0$).

Alternatively, when bank entry is liberalized, bankers seek protection from foreign investment. Bankers' preferences are likely realized when banks are concentrated and institutions personalist. In sum, capital inflow restrictions should be positively correlated with personalism at high levels of bank concentration when bank entry is open. Consequently, I expect that as bank entry liberalization increases the effect of personalism, at high levels of banking concentration, becomes positive. Consistent with Hypothesis 4.4, I expect that personalism moderated by bank concentration, $\beta_1 Concentration_{i,t} *$

Figure 4.3: Marginal Effect of Personalism on Inflow Restrictions (3SLS)



Note: confidence intervals are 95%. Predictions from Column (1) of Table 4.4.

$Entry_{i,t} + \beta_2 Concentration_{i,t} + \beta_4 Entry_{i,t} + \beta_5$, is greater than zero when concentration and entry are large.

Table 4.4 reports the results of the 3SLS regression with the triple interaction term, which was the only model that accounted for the simultaneous selection of inflow and outflow restrictions. Figure 4.3 plots the marginal effects of personalism for different levels of bank concentration and bank entry. The results are inconsistent with the hypotheses. Figure 4.3 shows that the correlation between personalism and entry restrictions increases as banking concentration increases for all levels of bank entry restrictions (the slopes are positive in all four panels). In fact, the slopes are steeper in the models with more bank entry restrictions and, at high levels of bank concentration, the predicted effect of personalism is positive. According to the hypotheses, the predicted effect of personalism should become negative at high levels of bank concentration when bank entry is liberalized, although the correlation does not become statistically-significantly positive, by conventional levels of significance, in any of the panels.

Table 4.4: Bank Entry and Capital Account Restrictions

	(1)	(2)
Dependent Variable: Inflow Restrictions		
lag Inflow Restrictions		0.942*** (0.0278)
Outflow Restrictions	0.500*** (0.150)	0.0105 (0.0274)
Personalism * Bank Concentration * Bank Entry	-0.0245** (0.0124)	-0.00566 (0.00447)
Personalism * Bank Concentration	0.0869** (0.0358)	0.0155 (0.0130)
Personalism * Bank Entry	1.987** (0.815)	0.393 (0.246)
Bank Concentration * Bank Entry	0.139* (0.0807)	0.00447 (0.0261)
Personalism	-6.940*** (2.361)	-1.039 (0.707)
Bank Concentration	-0.446** (0.222)	0.0171 (0.0748)
Bank Entry	-9.490** (4.558)	-0.756 (1.451)
GDP (trillions)	0.978*** (0.311)	0.151 (0.108)
Total Trade	1.879 (1.731)	0.304 (0.565)
IMF Program	1.094 (0.820)	0.238 (0.373)
Constant	50.02*** (17.17)	1.769 (4.194)
Dependent Variable: Outflow Restrictions		
lag Outflow Restrictions		0.865*** (0.0300)
Inflow Restrictions	0.959*** (0.0747)	0.106*** (0.0335)
Personalism * Bank Concentration	-0.0143*** (0.00497)	-0.00470* (0.00276)
Personalism	1.023*** (0.334)	0.313* (0.184)
Bank Concentration	0.0808** (0.0378)	0.0430** (0.0211)
International Debt	0.0766*** (0.0239)	-0.00312 (0.0113)
Total Trade	1.203 (1.360)	0.333 (0.743)
IMF Program	-1.925** (0.834)	-0.232 (0.470)
Constant	-6.055 (4.030)	-1.706 (1.686)
<i>N</i>	349	349

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; robust standard errors in parentheses, clustered by country.

Thus, rather than bank entry restrictions and capital inflow restrictions being substitutes as theorized, their relationship is very weak in the data. If there is a relationship, it is likely that they are complements, as the estimated effect of personalism on inflow restrictions is largest when bank entry is open and the banking sector is concentrated, although the effect is still insignificant. Given this finding, it is likely that financial actors prefer inflow restrictions and bank entry restrictions, and they are better equipped to acquire their preferred policies when political institutions are personalist. Banks in particular benefit from restrictions on foreign bank entry, and domestic investors benefit from restrictions on foreign capital inflows. Under personalist political institutions, both types of financial actors are able to obtain their preferred policies. The results are weakly consistent with the idea that financial actors want all the protection they can acquire, and they are more likely to get it under personalist institutions.

4.4 Conclusion

In this chapter, I argue that the consequences of inflow and outflow restrictions for the distribution of factor returns and for bargaining power reinforce one another. Investors prefer greater inflow restrictions and fewer outflow restrictions, as they want to benefit from more investment options without competing with foreign capital owners. Conversely, labor groups prefer fewer inflow restrictions and greater outflow restrictions, as they would like capital to enter and remain in the market. The preferences of investors are likely to be implemented when they are concentrated and political institutions are susceptible to capture by concentrated groups. The empirical model provides evidence that is consistent with the theory. Personalist political institutions are positively correlated with inflow restrictions when banks are concentrated. Personalist political institutions are negatively correlated with outflow restrictions when banks are concentrated, but the association is insignificant in many models.

The analysis presented here helps resolve two puzzles in the empirical literature. First,

scholars have argued that policymakers must liberalize the capital account to attract foreign investment. At the same time, they expect policymakers to close the capital account when they need to retain foreign currency. Previous studies were unable to assess these arguments, because they theoretically and empirically lumped inflow and outflow restrictions together. The empirical strategy pursued here provides evidence for both of these seemingly contradictory arguments. Inflow and outflow liberalization (or closure) are highly correlated, which is consistent with the idea that policymakers pursue capital account openness in order to attract foreign investment. However, once the correlation between inflow and outflow restrictions is accounted for, outflow restrictions are positively correlated with international debt, which is consistent with the argument that policymakers limit capital outflows when they need to retain foreign currency.

In addition, scholars have found weak evidence for theories based on preferences derived from Stolper-Samuelson models (Hicks, Milner and Tingley 2014). Although the weakness may stem from a lack of factor mobility across sectors, it is possible that it also comes from domestic interest groups' divergent preferences about capital inflows and outflows.⁹ Labor in particular is likely to support inflow liberalization and outflow restrictions, while investors support inflow restrictions and outflow liberalization in their home markets. Thus, the inconsistency of the empirical findings may be due to domestic actors' conflicting preferences with respect to capital inflows and outflows.

Many researchers study international capital markets, because they believe that there is great potential to increase efficiency, growth, and development through capital market liberalization. They have sought to estimate the relationship between financial openness and growth, and they have found weak evidence for the correlation.¹⁰ More nuanced studies have focused on the effect of openness in the presence of property rights or already competitive markets, with the idea that openness cannot help the economy much if there

⁹This is much like the distinction that Hays (2009) identifies in trade politics with firms benefiting from exports and losing out from foreign imports.

¹⁰For example, Bekaert, Harvey and Lundblad (2005) and Henry (2007) find that liberalization increases growth, while Klein and Olivei (2008) and Schularick and Steger (2010) find the opposite. See Rodrik and Subramanian (2009) and Kose et al. (2009) for an overview of the literature.

is another deterrent to capital accumulation (Rajan and Zingales 2003, Chinn and Ito 2006, Prasad et al. 2007, Broner and Ventura 2010). If the international community remains dedicated to reaping the gains of liberal capital flows, it must consider which restrictions are in place, how they impact growth and development, and why they were implemented in order to determine how best to encourage liberalization.

4.5 Appendix

Countries included in the regression models: Argentina, Australia, Austria, Bahamas, Barbados, Belgium, Brazil, Bulgaria, Canada, Sri Lanka, Colombia, Costa Rica, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, El Salvador, Finland, France, Greece, Guatemala, Hungary, Iceland, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Republic of Korea, Malaysia, Mauritius, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Singapore, Slovak Republic, South Africa, Sweden, Switzerland, Thailand, Trinidad and Tobago, Russia, Egypt, United Kingdom, United States, and Uruguay.

Once the regression model includes bank entry, the following countries are included in the sample: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Colombia, Costa Rica, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Finland, France, Greece, Guatemala, Hungary, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Korea, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Russia, Singapore, South Africa, Sri Lanka, Sweden, Switzerland, Thailand, United Kingdom, United States, and Uruguay.

CHAPTER V

Conclusion

Many contemporary economic theories are based on the idea that market liberalization carries broad benefits for countries as a whole. Like most policies, however, economic liberalization creates winners and losers. At the same time, liberalization alters the bargaining power of different interest groups and affects institutional stability. Because market liberalization has repercussions for economic returns and bargaining power, the conditions under which liberalization is pursued are complex and contextual. In this dissertation, I began the process of disentangling the political incentives for market liberalization. Understanding economic policy requires a nuanced understanding of the economic impact of each policy, the preferences of relevant actors, and the political institutions, as well as their durability, of the countries under analysis.

5.1 Chapter Summary

Chapter 2 outlines a theory of market liberalization in autocracies. Because many autocracies gain legitimacy from economic growth, liberalization can provide a key source of legitimacy. At the same time, liberalization limits redistribution, as it provides the owners of mobile assets with an exit option. This limited redistribution decreases the cost of democratization, thereby making autocracy itself less necessary for the maintenance of concentrated economic wealth. Thus, liberalization not only has implications for economic returns and inequality, it also impacts the stability of political institutions.

Chapter 3 details the impact of economic sanctions on market restrictions. Because economic sanctions restrict flows of goods and capital across countries, they benefit specific actors in the sanctioned country. Those actors who benefit from the market protection afforded by sanctions may then use their newfound economic [which likely leads to political] power to influence policy. And, because they benefited from the market restrictions inherent in sanctions, they will likely pressure the government to implement new market restrictions in order to protect their gains. Due to the protection-inducing impact of sanctions, the use of sanctions for coercion, particularly when they are often unsuccessful in achieving policy concessions, should be reconsidered.

Chapter 4 divides market liberalization into two parts: the liberalization of capital inflow restrictions and the liberalization of capital outflow restrictions. The two types of restrictions have divergent effects for domestic investors and labor groups. Inflow restrictions benefit domestic investors, as they do not have to compete with foreign investment, at the expense of labor groups. Outflow restrictions, on the other hand, benefit domestic labor, as they can pressure policymakers to increase tax rates without fear that investment will flee the country. Thus, understanding capital account policy requires the separation of inflow and outflow restrictions, because their implications cut in opposite directions. I find that political institutions and market structure, which privilege capital owners, are associated with fewer outflow restrictions and more inflow restrictions.

This dissertation advances our understanding of the political foundations of economic development. Market liberalization is important for capital accumulation and efficient investment. However, economic policies are often selected for political purposes, and they may or may not foster economic growth. The three studies presented here improve our understanding of economic policymaking by investigating the interconnectedness of political institutions and economic policies, of sanctions and political power, and of different types of liberalization. Future research should continue to assess not only the distributional effects of economic policy but also how these distributional effects impact bargaining power, future policy, and ultimately political institutions.

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