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Persistence of Power, Elites and Institutions*

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Abstract

We construct a model of simultaneous change and persistence in institutions. The model consists of landowning elites and workers, and the key economic decision concerns the form of economic institutions regulating the transaction of labor (e.g., competitive markets versus labor repression). The main idea is that equilibrium economic institutions are a result of the exercise of *de jure* and *de facto* political power. A change in political institutions, for example a move from nondemocracy to democracy, alters the distribution of de jure political power, but the elite can intensify their investments in de facto political power, such as lobbying or the use of paramilitary forces, to partially or fully offset their loss of de jure power. In the baseline model, equilibrium changes in political institutions have no effect on the (stochastic) equilibrium distribution of economic institutions, leading to a particular form of persistence in equilibrium institutions, which we refer to as *invariance*. When the model is enriched to allow for limits on the exercise of de facto power by the elite in democracy or for costs of changing economic institutions, the equilibrium takes the form of a Markov regime-switching process with *state dependence*. Finally, when we allow for the possibility that changing political institutions is more difficult than altering economic institutions, the model leads to a pattern of *captured democracy*, whereby a democratic regime may survive, but choose economic institutions favoring the elite. The main ideas featuring in the model are illustrated using historical examples from the U.S. South, Latin America and Liberia.

Keywords: democracy, de facto power, de jure power, dictatorship, elites, institutions, labor repression, persistence, political economy.

JEL Classification: H2, N10, N40, P16.

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"Plus ça change plus c'est la même chose." French Proverb.

"The domination of an organized minority ... over the unorganized majority is inevitable. The power of any minority is irresistible as against each single individual in the majority, who stands alone before the totality of the organized minority. At the same time, the minority is organized for the very reason that it is a minority." Gaetano Mosca (1939, p. 53).

1 Introduction

Current empirical work and theoretical discussions of the impact of institutions on economic development either implicitly or explicitly assume that institutions persist (e.g., North, 1990, Engerman and Sokoloff, 1997, Acemoglu, Johnson and Robinson, 2001, 2002). In fact, some of the most popular empirical strategies in gauging the effect of institutions on economic performance use the persistence of institutions over centuries as part of their conceptual approach and identification strategy. But many aspects of "institutions" show substantial change over periods much shorter than a century. Many less-developed countries, especially those in Latin America and Africa, have changed their political institutions all too often over the past 100 years, with frequent switches between democracy and dictatorship (see, e.g., Acemoglu and Robinson, 2006a) and multiple changes in constitutions.[1]

The same pattern also emerges when we turn to economic institutions. For example, while many historians and economists trace the economic problems of Latin America to colonial labor practices such as the *encomienda* or the *mita*, and those of the Caribbean to slavery and to the plantation complex, all of these economic institutions vanished long ago.[2] Beneath this pattern of change, however, economic systems often show surprising continuity. The form of agricultural labor relations in many of the Latin American and Caribbean countries changed little after colonialism, and perhaps relatedly, these societies continued to suffer various economic problems, slow growth, and economic and political instability throughout the 20th century. Another interesting example comes from the U.S. South. Even though slavery was abolished at the end of the Civil War, the U.S. South maintained a remarkably similar agricultural system, based on large plantations and low-wage uneducated labor, and remained relatively poor

[1] For instance, Colombia had 8 constitutions in the 19th century (Gibson, 1948), while Bolivia had 11 (Trigo, 1958) and Peru 9 (Palacios and Guillergua, 2003).

[2] In Latin America, the last form of official forced labor, *pongueaje*, was abolished in Bolivia in 1952 (Klein, 1992, Chapter 8). Unpaid labor services lasted in Guatemala until 1945 (McCreery, 1994). Slaves were gradually freed, for example in 1850 in Colombia. In the British Caribbean slavery was abolished after 1834, though it lasted until in 1886 in Cuba and 1888 in Brazil.

until the middle of the 20th century.

In this paper, we provide a possible explanation for this paradoxical pattern of the coexistence of frequent changes in political institutions with the persistence in certain (important) aspects of economic institutions.[3] Our approach illustrates the possibility of two different types of persistence. The baseline model leads to a pattern which we refer to as *invariance*, whereby a change in political institutions from nondemocracy to democracy leads to no change in the (stochastic) equilibrium process of economic institutions and of the distribution of resources in society. Simple extensions of our baseline model lead to a richer form of persistence, which we refer to as *state dependence*; the probability that a society will be democratic (and have pro-citizen economic institutions) tomorrow is a function of whether it is democratic today.[4]

The underlying idea of our approach is that equilibrium economic institutions emerge from the interaction between political institutions, which allocate *de jure political power*, and the distribution of *de facto political power* across social groups (see Acemoglu and Robinson, 2006a, and Acemoglu, Johnson and Robinson, 2005b). De Facto power is power that is not allocated by institutions (such as elections), but rather is possessed by groups as a result of their wealth, weapons or ability to solve the collective action problem. A change in political institutions that modifies the distribution of de jure power need not lead to a change in the equilibrium process for economic institutions if it is associated with an offsetting change in the distribution of de facto political power (e.g., in the form of bribery, capture of the political parties, or use of paramilitaries). The central argument in this paper is that there is a natural reason to expect changes in the distribution of de facto political power to partially or entirely offset changes in de jure power brought about by reforms in specific political institutions as long as these reforms do not radically alter the political structure of society, the identity of the elites, or the source of economic rents for the elites.

To make these ideas precise, we develop a model consisting of two groups, a landed elite and the citizens. The key economic institution concerns the organization of the labor mar-

[3] Throughout, persistence refers to the continuity of a *cluster of institutions*, for example, the extent of enforcement of property rights for a broad cross-section of society. Lack of property rights enforcement may have its roots in quite different specific economic institutions, for example, risk of expropriation by the government or elites; extreme corruption; economic systems such as serfdom or slavery preventing large segments of the population from selling their labor freely or from investing in most economic activities; legal rules making it impossible for those without political connections to have their contracts enforced; or entry barriers creating a non-level playing field.

[4] We refer to this type of persistence as "state dependence" since the probability distribution over equilibrium political and economic institutions tomorrow depends on the "state" of the system, which is political institutions today. See Page (2006) for a discussion of richer forms of persistence in political systems, where the past entire sequence of events, rather than simply a low-dimensional state vector, might influence future outcomes.

ket, in particular, whether wages are competitive or are repressed below this level.[5] In the model, economic institutions are decided either by the landed elite or the citizens (workers) depending on who has more political power. Political power, in turn, is determined by both political institutions that allocate de jure power and the distribution of de facto power, which is derived, at least partly, from a social group's ability to solve their collective action problem. A key observation is that landowners, by virtue of their smaller numbers and their established position, have a comparative advantage in solving the collective action problem (Mosca, 1939, Olson, 1965). This implies that the amount of de facto political power of the elite is an equilibrium outcome, and responds to incentives. Nevertheless, political institutions and de jure political power also matter for equilibrium outcomes. For example, in democracy de jure political power is allocated to the majority, so the balance of power is tilted towards the citizens (see Acemoglu and Robinson, 2006a). In addition, freedom of political organization and the existence of political parties may help the citizens in solving their collective action problem more effectively, thus facilitating their exercise of de facto political power.

In the model society, in every period there is a "contest" between the elite and the citizens, and political institutions (democracy versus nondemocracy) determine how level the playing field is in this contest. Those with greater political power determine economic institutions today and political institutions tomorrow. The most interesting result of our framework is that, because the elite's de facto political power is an equilibrium outcome, it will partly or entirely offset the effect of changes in political institutions. In particular, the elite will invest more in their de facto political power in democracy than in nondemocracy.

In the baseline model, this effect is sufficiently strong that the distribution of equilibrium economic institutions is identical in democracy and nondemocracy—thus leading to the pattern of invariance defined above.[6] This pattern shows that it could be mistaken to infer from frequent changes in certain dimensions of political institutions that there is little institutional persistence. The result also starkly illustrates how changes in some specific dimensions of political institutions can be undone by the greater exercise of de facto political power by the elite.

Even though in this baseline model the equilibrium probability distribution of economic institutions is independent of whether the society is democratic or nondemocratic, this probability distribution is still affected by economic fundamentals. The comparative static results

[5] Although this setup is natural from the view point of Latin American history, it is not essential to the results.

[6] To be precise, there *are* changes in economic institutions, but the *equilibrium distribution* of economic institutions is *invariant* to political institutions.

illustrate this. The most interesting among these is that the economic structure of the society, for example the presence of sectors competing with agriculture for labor, will have a major effect on the equilibrium. The more productive are these sectors, the less the elite have to gain from using repressive methods, and the more likely it is that institutions favor the citizens. Second, the smaller the numbers of the elite, the more cohesive they are and the more able they will be to solve the collective action problem and choose the institutions they favor. Finally, and more paradoxically, the political advantage created by a democracy for the citizens may lead to a greater domination of politics by the elite. This result follows because the democratic advantage of the citizens creates a future cost for the elite and they are willing to invest more in activities to increase their de facto power to avoid this future cost.[7] However, when democratic institutions create a sufficiently large political advantage for the citizens (i.e., when they are "sufficiently strong"), the nature of the equilibrium changes qualitatively, and democracy may become an absorbing state.

The invariance result, that the de facto political power of the elite can *entirely* offset the effect of changes in political institutions, is special. In the rest of the paper, we extend our baseline model in a number of ways to show how, more generally, the de facto political power of the elite *only partially* undoes the effect of changes in political institutions, leading to an equilibrium with a Markov regime-switching structure. The two extensions we consider allow democracy to place limits on the exercise of de facto power by the elite (e.g., limits on their use of paramilitaries or co-option of politicians) and introduce the feature that changing economic institutions may be difficult in the short run (e.g., because the democratic regime has already implemented some changes favoring the citizens). Both of these extensions lead to an equilibrium structure where the society switches between democracy and nondemocracy, with different sets of economic institutions in the two regimes, and exhibits state dependence (so that nondemocracy is more likely to follow nondemocracy than it is to follow democracy).

Finally, we analyze a richer model in which political institutions are more *durable*, in the sense that, in democracy, it is more difficult for the elite to change political institutions than economic institutions. This model leads to a phenomenon which we refer to as *captured democracy*; the equilibrium may feature the emergence and persistence of democracy for a long span of time, but throughout the economic institutions will be those favoring the elite. In

[7] It is also interesting that in this baseline model, there is greater inefficiency in democracy than in nondemocracy, because in democracy the economic allocations are the same as in nondemocracy, but there is greater exercise of de facto political power by the elite, which is costly. This result suggests some insights about why certain potential reforms in specific political institutions in many less-developed countries may have failed to generate significant economic growth and also perhaps about why the post-war economic performance of democracies may have been no better than those of dictatorships (e.g., Barro, 1997).

fact, somewhat paradoxically, this extended model predicts that the equilibrium probability of labor-repressive institutions is higher in democracy than in nondemocracy, motivating the term captured democracy.

The model also sheds some light on how institutional persistence can be diminished or broken. It suggests that an effective democracy requires both reforms in specific political institutions (such as voting rules or electoral procedures), but also a way of curbing the de facto political power of the elite, which can be achieved directly, for example, by reducing their ability to capture the political system, or indirectly by reforming the economic structure so that with reduced land rents, they have less incentive to thwart democracy.

The model's insights enable us to interpret the experience of many less developed countries in a different light. For example, in the Americas, labor repression was of central importance during the colonial era, and was achieved by various means including the *encomienda*, the *mita*, and slavery. Yet repression did not end when the *mita* and slavery were abolished. It continued with domination of politics by local landed elites, with the creation of labor market monopsonies (Solberg, 1969, McGreevey, 1971, Coatsworth, 1974, McCreery, 1986), and the systematic threat of violence against peasants in rural areas. Similarly, in the sugar plantations of the British Caribbean, Natal or Mauritius, slavery was replaced by the use of cheap indentured laborers from the Indian subcontinent (Tinker, 1974, Northrup, 1995). In the U.S. South, slavery was replaced by monopsonistic arrangements, policies designed to impede labor mobility, political disenfranchisement, intimidation, violence and lynching.[8]

Our paper is related to the literature on the persistence of institutions in political science (e.g., Steinmo, Thelen and Longstreth, 1992, Pierson, 2004, Thelen, 2004), though much of this literature focuses on how specific institutions persist over long periods of time. In this it follows works on 'hysteresis' by David (1985) and Arthur (1989) on the lock-in of specific technologies based on increasing returns. In addition to these approaches, persistence of institutions can arise in models in which social conventions or norms emerge from local interactions and learning (e.g., Young, 1998, Bednar and Page, 2006), and in models in which agents make specific investments in activities whose value would be destroyed by changes in social arrange-

[8] This discussion and the general approach in the paper beg the question of how the elite are able to exercise de facto political power in democracy. This is also discussed in detail in Section 7, where we present a number of historical case studies illustrating the pattern of persistence modeled here and also emphasize two specific channels: the capture of the party system by the elites and the threat of violence. Both these methods were extensively used in the U.S. South after the Civil War and are still present in many Latin American countries such as Brazil, Bolivia or Colombia. For the U.S. South after the Civil War, see Key (1949), Woodward (1955), Wright (1986), Alston and Ferrie (1999), and Ransom and Sutch (2001), for Colombia, see Dix (1967), Wilde (1978), Hartlyn (1988) and Kline (1999), and for Brazil, see Chilcote (1990) and Hagopian (1996).

ments (Dixit, 1989a,b, Coate and Morris, 1999). Institutions could also persist because of the existence of multiple steady-state equilibria (e.g., Krugman, 1991, Matsuyama, 1991). The popular idea that economic inequality or certain forms of natural resource endowments tilt the balance towards bad institutions is also different from our notion of persistence (invariance and state dependence), since this idea stresses the persistence of economic characteristics that then lead to the persistence of institutions (e.g., Engerman and Sokoloff, 1997, Benabou, 2000, 2005). None of these approaches have addressed the issues we discuss here, in particular, the coexistence of persistence and change.

From a modeling point of view, this paper extends the framework in Acemoglu and Robinson (2000, 2001, 2006a), where de facto political power drives changes in political institutions and the future distribution of de jure political power.[9] The major difference is that we now model the process of the elite investing in their de facto political power, which leads to some significant differences in the results. While our previous work emphasized that democracy is more "pro-citizen", the analysis here shows this may not be the case if the elite are able to garner sufficient de facto political power in democracy.[10] In this respect, the current paper is related to Mulligan, Gil and Sala-i-Martin (2004) and Mulligan and Tsui (2005), which focus on similarity of various policies between democracies and nondemocracies, though, in terms of our terminology, they explain this similarity by lack of significant de jure power differences between regimes, while our model emphasizes how changes in de facto power can undo real changes in de jure power.

The rest of the paper is organized as follows. Section 2 outlines the basic economic and political environment. Section 3 characterizes the equilibria of the baseline model, and establishes the invariance result and the main comparative statics. Section 4 generalizes this framework in a number of directions and shows how under more general circumstances, only partial offset will occur, and the equilibrium will correspond to a Markov regime-switching model, with fluctuations between democracy and nondemocracy. Section 5 introduces the model in which changing political institutions is more difficult than influencing economic institutions and shows how an equilibrium pattern of captured democracy can arise with landed elites dictating their favorite economic institutions in democracy. Section 6 briefly discusses how simultaneous reforms in multiple dimensions of political institutions or economic institu-

[9] See also Ticchi and Vindigni (2005), Jack and Lagunoff (2006), and Lagunoff (2006) for related approaches.

[10] See, among others, Austen-Smith (1987), Baron (1994) and Grossman and Helpman (1996) on models models where the equilibrium policy in a democracy is affected by lobbying. Our approach is more reduced-form, but explicitly models the incentives of individual agents to contribute to lobbying-type activities, is dynamic and endogenizes not just policies but also institutions.

tions can be effective in breaking the cycle of persistence in economic institutions. Section 7 discusses a number of historical case studies that both motivate and substantiate the ideas in the paper. Section 8 concludes.

2 Baseline Model

2.1 Demographics, Preferences and Production Structure

Consider an infinite-horizon society in discrete time with a unique final good and populated by a continuum 1 of worker/citizens and (a finite) number $M > 1$ of the elites. All agents have the same risk-neutral preferences with discount factor β, given by

$$\sum_{j=0}^{\infty} \beta^j c_{t+j}^i \tag{1}$$

at time t where c_{t+j}^i denotes consumption of agent i at time $t+j$ in terms of the final good. We use the notation $i \in \mathcal{E}$ to denote an elite agent, and $i \in \mathcal{C}$ to denote a citizen.

All workers own one unit of labor, which they supply inelastically. Each member of the elite $i \in \mathcal{E}$ has access to the following production function to produce the unique final good:

$$Y_L^i = \begin{cases} F\left(L^i, N_L^i\right) & \text{if } L^i \leq \frac{L}{M} \\ F\left(\frac{L}{M}, N_L^i\right) & \text{if } L^i > \frac{L}{M} \end{cases} \tag{2}$$

where L^i denotes land and N_L^i denotes labor used by this producer, and F exhibits constant returns to scale. This production function implies that there is a maximum land size of L/M after which each producer runs into severe diminishing returns (where the fact that diminishing returns start after land size of L/M is a normalization). There is a total supply of land equal to L in the economy, with no alternative use, and each elite owns L/M units of land (and no labor).[11]

The final good can also be produced with an alternative technology, which can be interpreted as small-scale production by the laborers themselves (or a low productivity proto-industry technology). This alternative technology exhibits constant returns to scale to labor:

$$Y_A = AN_A. \tag{3}$$

[11] The diminishing returns is introduced to prevent an allocation in which all land is owned by one individual, which would solve the free-rider problem in investment in de facto political power, explained below. For the same reason, if initially there were $M' > M$ land owners, given the production function in (2), land would become concentrated in the hands of M land owners. We do not explicitly discuss transactions in the land market to save space.

Clearly, total output of the unique final good in the economy will be $Y = \sum_{i \in \mathcal{E}} Y_L^i + Y_A$, and the market clearing condition for labor is

$$\sum_{i \in \mathcal{E}} N_L^i + N_A \leq 1. \tag{4}$$

The main role of the alternative technology, (3), will be to restrict how low wages can fall in this economy.

We consider two different *economic institutions*. In the first, labor markets are *competitive*.[12] Given (2), each elite will hire $N_L^i = N_L/M$ units of labor, where $N_L = 1 - N_A$, and since F exhibits constant returns to scale, we can write per capita output as:

$$y = F\left(\frac{L}{N_L}, 1\right) = f\left(\frac{L}{N_L}\right). \tag{5}$$

When there are competitive labor markets, which we denote by $\tau = 1$, the wage rate (and the wage earnings of each worker), as a function of labor allocated to this sector, N_L, is therefore:

$$w^c\left[N_L\right] \equiv f\left(\frac{L}{N_L}\right) - \frac{L}{N_L} f'\left(\frac{L}{N_L}\right), \tag{6}$$

where the superscript c denotes "competitive". The return to landowners with competitive markets is similarly

$$R^c\left[N_L\right] \equiv f'\left(\frac{L}{N_L}\right), \tag{7}$$

with each landowner receiving $R^c L/M$.

Assumption 1

$$f\left(L\right) - Lf'\left(L\right) > A.$$

This assumption implies that even when $N_L = 1$ (i.e., when $L/N_L = L$), the competitive wage in this sector is greater than the marginal product of labor in the alternative technology. Therefore, both the efficient allocation and the competitive equilibrium allocation will have all workers allocated to the land sector, i.e., $N_L = 1$. In light of this, the relevant competitive wage and rental return on land will be

$$w^c \equiv w^c[N_L = 1] \equiv f\left(L\right) - Lf'\left(L\right), \tag{8}$$

and

$$R^c \equiv R^c[N_L = 1] \equiv f'\left(L\right). \tag{9}$$

[12] This implies that, by law, landowning elites cannot restrict their labor demand to affect prices.

Consequently, factor prices at time t as a function of economic institutions are given by $w_t = w(\tau_t = 1) = w^c$ and $R_t = R(\tau_t = 1) = R^c$, with w^c and R^c as defined in (8) and (9).[13]

The alternative set of economic institutions are *labor repressive* ($\tau_t = 0$) and allow the landowning elite to use their political power to reduce wages below competitive levels. They cannot, however, force workers to work (i.e., slavery is not allowed), so workers always have access to the alternative small-scale production technology. Consequently, when economic institutions are labored oppressive, the lowest wage that the elite can pay the workers, while still ensuring that $N_L > 0$, is A. This implies that factor prices under these economic institutions are

$$w^r \equiv A, \tag{10}$$

and

$$R^r \equiv \frac{f(L) - A}{L}. \tag{11}$$

(Recall that the landed elite are paying the wage of A to a total of $N_L = 1$ workers). When economic institutions are labor repressive, then we will have $w_t = w(\tau_t = 0) = w^r$ and $R_t = R(\tau_t = 0) = R^r$. Assumption 1 immediately implies that $R^r > R^c$, since with labor repressive economic institutions wages are kept artificially low, i.e., $w^r < w^c$, so that land owners enjoy greater rents. For future reference, we define

$$\begin{aligned} \Delta R &\equiv R^r - R^c \\ &= \frac{f(L) - A}{L} - f'(L) > 0. \end{aligned} \tag{12}$$

One feature to note is that the simple environment outlined here implies that both competitive labor markets and labor repression will generate the same total output, and will differ only in terms of their distributional implications. Naturally, it is possible to introduce additional costs from labor repressive economic institutions, which may include standard monopsony distortions or other costs involved in monitoring and forcing laborers to work at below market-clearing wages (such as wasteful expenditures on monitoring, paramilitaries, or lower efficiency of workers because of the lower payments they receive). Incorporating such costs has no effect

[13] More formally, the second welfare theorem combined with preferences in (1) implies that a competitive equilibrium is a solution to the following program:

$$\max_{N_L, N_A, \tilde{L}} f\left(\frac{\tilde{L}}{N_L}\right) N_L + A N_A$$

subject to (4) and $\tilde{L} \leq L$. Assumption 1 ensures that the solution involves $N_L = 1$ and $\tilde{L} = L$, and the equilibrium factor prices are given by the shadow prices of this program.

on the analysis, and throughout, one may wish to consider the labor repressive institutions as corresponding to "worse economic institutions".

2.2 Political Regimes and De Facto Political Power

There are two possible political regimes, denoted by D and N, corresponding to democracy and nondemocracy. The distribution of de jure political power will vary between these two regimes. At any point in time, the "state" of this society will be represented by $s_t \in \{D, N\}$, which designates the political regime that applies at that date. Importantly, irrespective of the political regime (state), the identity of landowners and workers does not change; the same M individuals control the land, and have the potential to exercise additional political power.

Overall political power is determined by the interaction of de facto and de jure political power. Since there is a continuum of citizens, they will have difficulty in solving the collective action problem to exercise de facto political power. Consequently, we treat their de facto power as being exogenous rather than stemming from their own contributions.

In contrast, elites can spend part of their earnings to gather further de facto political power. In particular, suppose that elite $i \in \mathcal{E}$ spends an amount $\theta_t^i \geq 0$ as a contribution to activities increasing their group's de facto power. Then total elite spending on such activities will be $Z_t = \sum_{i \in \mathcal{E}} \theta_t^i$, and we assume that their de facto political power is

$$P_t^E = \phi Z_t, \tag{13}$$

where $\phi > 0$. The reason why the elite may choose to spend a positive amount on such activities is that there is a finite number, M, of them, so each of them will take into account that their own contribution to total spending, Z_t, will have an effect on equilibrium outcomes. An important assumption implicit in (13) is that the technology for generating de facto political power for the elite is the same in democracy and nondemocracy.[14]

Even though the citizens cannot solve the collective action problem to invest in their de facto political power, since they form the majority in society they always possess some political power. The extent of this power depends on whether the political regime is democratic or nondemocratic. We model the citizens' total political power in a reduced-form manner as follows:

$$P_t^C = \omega_t + \eta I\left(s_t = D\right), \tag{14}$$

[14] There may be a number of reasons for why the elite's ability to lobby and bribe politicians or use paramilitaries may be more restricted in democracy, so in Section 4, we allow this technology to differ between democracy and nondemocracy.

where ω_t is a random variable drawn independently and identically over time from a given distribution $F(\cdot)$ and measures their de facto power; $I(s_t = D)$ is an indicator function for $s_t = D$, such that $I(s_t = D) = 1$ while $I(s_t = N) = 0$; and η is a strictly positive parameter measuring citizens' de jure power in democracy.

There are two important assumptions embedded in equation (14). The first is that the de facto political power of the citizens fluctuates over time, and is hard to predict in advance.[15] The second assumption is that when the political regime is democratic, i.e., $s_t = D$, citizens have greater political power. This represents in a very simple way the fact that democracy allocates de jure political power in favor of the majority. This will be both because of the formal rules of democracy and also because in democratic politics, parties may partly solve the collective action problem of the citizens. Put differently, equation (14) implies that in democracy the political power of the citizens shifts to the right in the sense of first-order stochastic dominance. To simplify the discussion, we make the following assumptions on F:

Assumption 2 F is defined over $(\underline{\omega}, \infty)$ for some $\underline{\omega} < 0$, is everywhere strictly increasing and twice continuously differentiable (so that its density f and the derivative of the density, f', exist everywhere). Moreover, $f(\omega)$ is single peaked (in the sense that there exists ω^* such that $f'(\omega) > 0$ for all $\omega < \omega^*$ and $f'(\omega) < 0$ for all $\omega > \omega^*$) and satisfies $\lim_{\omega \to \infty} f(\omega) = 0$.

All of the features embedded in Assumption 2 are for convenience, and how relaxing them affects the equilibrium is discussed below.

We introduce the variable $\pi_t \in \{0, 1\}$ to denote whether the elite have more (total) political power. In particular, when $P_t^E \geq P_t^C$, we have $\pi_t = 0$ and the elite have more political power and will make the key decisions. In contrast, whenever $P_t^E < P_t^C$, $\pi_t = 1$ and citizens have more political power, and they will make the key decisions.

To complete the description of the environment, it remains to specify what these key decisions are. We assume that the group with greater political power will decide both economic institutions at time t, τ_t, and what the political regime will be in the following period, s_{t+1}.

When the elite have more political power, a representative elite agent makes the key decisions, and when citizens have more political power, a representative citizen does so. Since the political preferences of all elites and all citizens are the same, these representative agents will always make the decisions favored by their group.

[15] This assumption is used extensively in Acemoglu and Robinson (2006a), and defended there. Briefly, given their large numbers, whether and how effectively citizens will be able to organize is difficult to predict in advance, and will change from time to time. The randomness of ω_t captures this in a simple way.

2.3 Timing of Events

We now briefly recap the timing of events in this basic environment.

At each date t, society starts with a state variable $s_t \in \{D, N\}$. Given this, the following sequence of events take place:

1. Each elite agent $i \in \mathcal{E}$ simultaneously chooses how much to spend to acquire de facto political power for their group, $\theta_t^i \geq 0$, and P_t^E is determined according to (13).

2. The random variable ω_t is drawn from the distribution F, and P_t^C is determined according to (14).

3. If $P_t^E \geq P_t^C$ (i.e., $\pi_t = 0$), a representative (e.g., randomly chosen) elite agent chooses (τ_t, s_{t+1}), and if $P_t^E < P_t^C$ (i.e., $\pi_t = 1$), a representative citizen chooses (τ_t, s_{t+1}).

4. Given τ_t, transactions in the labor market take place, R_t and w_t are paid to elites and workers respectively, and consumption takes place.

5. The following date, $t+1$, starts with state s_{t+1}.

3 Analysis of Baseline Model

We now analyze the baseline model described in the previous section. We first focus on the symmetric Markov Perfect Equilibria (MPE). An MPE imposes the restriction that equilibrium strategies are mappings from payoff-relevant states, which here only include $s \in \{D, N\}$. In particular, in an MPE strategies are not conditioned on the past history of the game over and above the influence of this past history on the payoff-relevant state s. An MPE will consist of contribution functions $\left\{\theta^i(s)\right\}_{i \in \mathcal{E}}$ for each elite agent as a function of the political state, and decision variables $\tau(\pi)$ and $s'(\pi)$ as a function of $\pi \in \{0, 1\}$ denoting which side has more political power, and equilibrium factor prices as given by (8)-(11).[16] Here the function $\tau(\pi)$ determines the equilibrium decision about labor repression conditional on who has power and the function $s'(\pi) \in \{D, N\}$ determines the political state at the start of the next period. Symmetric MPE will in addition impose the condition that contribution functions take the form $\theta(s)$, i.e., do not depend on the identity of the individual elite, i. Symmetry is a natural

[16] More generally, we could have $\tau(\pi, s)$ and $s'(\pi, s)$, so that the choice of economic institutions and future political institutions are conditioned on which party has political power, π, and the current state, s. Nevertheless, since it is clear that the current state will have no effect on these decisions, we use the more economical notation $\tau(\pi)$ and $s'(\pi)$.

feature here, and simplifies the analysis. We discuss asymmetric MPE for completeness below. A more formal definition of an MPE is also given below.

The focus on MPE is natural in this context as a way of modeling the potential collective action problem among the elite. Looking at subgame perfect equilibrium (SPE) will allow the elite greater latitude in solving the collective action problem by using implicit punishment strategies. We briefly analyze SPEs in subsection 3.3.

3.1 Main Results

The MPE can be characterized by backward induction within the stage game at some arbitrary date t, given the state $s \in \{D, N\}$. At the last stage of the game, clearly whenever the elite have political power, i.e., $\pi = 0$, they will choose economic institutions that favor them, i.e., $\tau = 0$, and a political system that gives them more power in the future, i.e., $s' = N$. In contrast, whenever citizens have political power, i.e., $\pi = 1$, they will choose $\tau = 1$ and $s' = D$.[17] This implies that choices over economic institutions and political states are straightforward. Moreover the determination of market prices under different economic institutions has already been specified above (recall equations (8)-(11)). Thus the only remaining decisions are the contributions of each elite agent to their de facto power, θ_t^i. Therefore, a symmetric MPE can be summarized by a level of contribution as a function of the state $\theta(s)$. It will be convenient to characterize the MPE by writing the payoff to elite agents recursively, and for this reason, we denote the equilibrium value of an elite agent in state s by $V(s)$ (i.e., $V(D)$ for democracy and $V(N)$ for nondemocracy).

Let us begin with nondemocracy. Since we are focusing on symmetric MPE, suppose that all other elite agents, except $i \in \mathcal{E}$, have chosen a level of contribution to de facto power equal to $\theta(N)$. Consequently, when agent $i \in \mathcal{E}$ chooses θ^i, their total power will be

$$P^E\left(\theta^i, \theta(N) \mid N\right) = \phi\left((M-1)\theta(N) + \theta^i\right).$$

The elite will have political power if

$$P^E\left(\theta^i, \theta(N) \mid N\right) = \phi\left((M-1)\theta(N) + \theta^i\right) \geq \omega_t.$$

[17] We will see in Proposition 1 that the equilibrium distribution over economic institutions is the same in democracy and nondemocracy, so citizens will be indifferent between $s' = D$ and $s' = N$. Throughout, we use the tie-breaking rule that, when indifferent, citizens choose $s' = D$, and we impose this in the analysis. Alternatively, in Section 5, equation (49) introduces more general preferences for the citizens, whereby they receive other benefits from democracy, denoted by $\nu(D)$. In that case for any $\nu(D) > 0$, $s' = D$ is always strictly preferred for the citizens. We do not introduce these preferences now to simplify the analysis until Section 5.

Expressed differently, the probability that the elite will have political power in this state is

$$p\left(\theta^i, \theta\left(N\right) \mid N\right) = F\left(\phi\left(\left(M-1\right)\theta\left(N\right) + \theta^i\right)\right). \tag{15}$$

We can then write the net present discounted value of agent $i \in \mathcal{E}$ recursively as

$$\begin{aligned} V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) &= \max_{\theta^i \geq 0} \left\{ -\theta^i + p\left(\theta^i, \theta\left(N\right) \mid N\right)\left(\frac{R^r L}{M} + \beta V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right)\right) \right. \\ &\quad \left. + \left(1 - p\left(\theta^i, \theta\left(N\right) \mid N\right)\right)\left(\frac{R^c L}{M} + \beta V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)\right)\right\}, \end{aligned} \tag{16}$$

where recall that R^c is the rate of return on land in competitive markets, given by (9) and R^r is the rate of return on land under labor repressive economic institutions, given by (11). The function $V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right)$ recursively defines the value of an elite agent in nondemocracy when all other elite agents choose contributions $\theta\left(N\right)$ in nondemocracy and $\theta\left(D\right)$ in democracy. Similarly, $V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)$ is the value in democracy under the same circumstances.

The form of the value function in (16) is intuitive. It consists of the forgone consumption because of the expenditure θ^i, plus the revenues and the continuation values. In particular, given his contribution θ^i and those of other elite agents in nondemocracy, $\theta\left(N\right)$, political power will remain in the hands of the elite with probability $p\left(\theta^i, \theta\left(N\right) \mid N\right)$, in which case economic institutions will be labor repressive, and this elite agent receives revenue equal to $R^r L/M$ (rate of return under labor repressive economic institutions, R^r, times his land holdings, L/M) and the discounted continuation value of remaining in nondemocracy, $\beta V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right)$. With probability $1 - p\left(\theta^i, \theta\left(N\right) \mid N\right)$, citizens have greater political power, so they choose $\tau = 1$ and labor markets are competitive. In this case a member of the elite receives revenue equal to $R^c L/M$ and continuation value $\beta V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)$, since with power in their hands, the citizens will choose to change the political system to $s_{t+1} = D$.

Agent $i \in \mathcal{E}$ chooses θ^i to maximize his net expected present discounted utility. Let the policy function (correspondence) for the maximization in (16) be $\Gamma^N\left[\theta\left(N\right), \theta\left(D\right)\right]$, so that any $\theta^i \in \Gamma^N\left[\theta\left(N\right), \theta\left(D\right)\right]$ is an optimal policy for the value function in (16) (in state $s = N$).

Since F is continuously differentiable and everywhere increasing (from Assumption 2), so is $p\left(\theta^i, \theta\left(N\right) \mid N\right)$, which implies a particularly simple first-order necessary condition for (16):

$$\phi f\left(\phi\left(\left(M-1\right)\theta\left(N\right) + \theta^i\right)\right)\left(\frac{\Delta R L}{M} + \beta\left(V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) - V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)\right)\right) \leq 1, \tag{17}$$

and $\theta^i \geq 0$, with complementary slackness,[18] where recall that $\Delta R \equiv R^r - R^c$ is defined in (12), and f is the density function of the distribution function F. Moreover, it is clear that we

[18] That is, either $\theta^i = 0$ or (17) holds as equality.

need the additional second-order condition that $f'\left(\phi\left((M-1)\theta(N)+\theta^i\right)\right)<0$.[19] The reason why the maximization problem for individual i in this recursive formulation is so simple is that θ^i does not affect $V(N \mid \theta(N), \theta(D))$ or $V(D \mid \theta(N), \theta(D))$, so differentiability of the maximand is guaranteed.

Expressed differently, any $\theta^i \in \Gamma^N[\theta(N), \theta(D)]$ must solve (17) and satisfy the corresponding second-order condition. The first-order condition is quite intuitive: the cost of forgone consumption, which is the right hand side of (17), must be equal to (or less than) the benefit from this contribution, which is the marginal increase in the probability of the elite having more political power than the citizens, i.e., $\phi f(\cdot)$, and the benefit that the agent will derive from this political power, which is the second term on the left-hand side, consisting of the direct benefit $\Delta RL/M$ plus the benefit in terms of continuation value. Moreover, since we are focusing on a symmetric MPE, $\theta^i > 0$ is equivalent to $\theta(N) > 0$, so if there is any investment in de facto power by the elite, then (17) must hold as an equality.

Next, consider the society starting in democracy. With the same argument as above, the elite will have political power if

$$P^D\left(\theta^i, \theta(D) \mid D\right) = \phi\left((M-1)\theta(D)+\theta^i\right) \geq \omega_t + \eta,$$

which only differs from the above expression because with $s_t = D$, the citizens have an additional advantage represented by the positive parameter η. Then the probability that the elite will capture political power in democracy is

$$p\left(\theta^i, \theta(D) \mid D\right) = F\left(\phi\left((M-1)\theta(D)+\theta^i\right)-\eta\right), \tag{18}$$

and using the same reasoning as before, the value function for elite agent $i \in \mathcal{E}$ is

$$\begin{aligned} V(D \mid \theta(N), \theta(D)) \;=\; & \max_{\theta^i \geq 0}\left\{-\theta^i + p\left(\theta^i, \theta(D) \mid D\right)\left(\frac{R^r L}{M} + \beta V(N \mid \theta(N), \theta(D))\right)\right. \\ & \left. + \left(1 - p\left(\theta^i, \theta(D) \mid D\right)\right)\left(\frac{R^c L}{M} + \beta V(D \mid \theta(N), \theta(D))\right)\right\} \end{aligned} \tag{19}$$

which has first-order necessary condition

$$\phi f\left(\phi\left((M-1)\theta(D)+\theta^i\right)-\eta\right)\left(\frac{\Delta RL}{M} + \beta\left(V(N \mid \theta(N), \theta(D)) - V(D \mid \theta(N), \theta(D))\right)\right) \leq 1, \tag{20}$$

and $\theta^i \geq 0$, again with complementary slackness and with second-order condition $f'\left(\phi\left((M-1)\theta(N)+\theta^i\right)-\eta\right)<0$. Denote the policy function (correspondence) implied by the maximization in (19) by $\Gamma^D[\theta(N), \theta(D)]$, so that any $\theta^i \in \Gamma^D[\theta(N), \theta(D)]$ solves (20).

[19] The condition $f'\left(\phi\left((M-1)\theta(N)+\theta^i\right)\right)<0$ is sufficient, while $f'\left(\phi\left((M-1)\theta(N)+\theta^i\right)\right)\leq 0$ would be necessary but not sufficient. We impose the sufficient condition throughout to simplify the discussion.

Consequently, denoting the decision of current economic institutions by $\tau(\pi)$ and future political system by $s'(\pi)$, we can have the following definition of a symmetric MPE:[20]

Definition 1 A symmetric MPE consists of a pair of contribution levels for elite agents $\theta(N)$ and $\theta(D)$, such that $\theta(N) \in \Gamma^N[\theta(N), \theta(D)]$ and similarly $\theta(D) \in \Gamma^D[\theta(N), \theta(D)]$. In addition, economic and political decisions $\tau(\pi)$ and $s'(\pi)$ are such that $\tau(\pi = 0) = 0$, $s'(\pi = 0) = N$, $\tau(\pi = 1) = 1$ and $s'(\pi = 1) = D$, and factor prices are given by (8)-(11) as a function of $\tau \in \{0, 1\}$.

This definition highlights that the main economic actions, in particular, the investments in de facto power, are taken by elite agents, so the characterization of the MPE will involve solving for their optimal behavior.

In a symmetric MPE, θ^i that solves (17) must equal $\theta(N)$, thus when strictly positive, $\theta(N)$, must be given by:

$$\phi f(\phi M \theta(N)) \left(\frac{\Delta RL}{M} + \beta V(N \mid \theta(N), \theta(D)) - \beta V(D \mid \theta(N), \theta(D)) \right) = 1, \tag{21}$$

and similarly the equilibrium condition for $\theta(D)$ (when strictly positive) is

$$\phi f(\phi M \theta(D) - \eta) \left(\frac{\Delta RL}{M} + \beta V(N \mid \theta(N), \theta(D)) - \beta V(D \mid \theta(N), \theta(D)) \right) = 1. \tag{22}$$

Given Definition 1, these two equations completely characterize symmetric MPEs with $\theta(N) > 0$ and $\theta(D) > 0$.

Comparison of (21) and (22) immediately implies that

$$\theta(D) = \theta(N) + \frac{\eta}{\phi M}. \tag{23}$$

Moreover inspection of (21) and (22), combined with the fact that F is continuously differentiable, yields the *invariance* result:

$$p(D) \equiv p(\theta(D), \theta(D) \mid D) = p(\theta(N), \theta(N) \mid N) \equiv p(N), \tag{24}$$

which also defines $p(D)$ and $p(N)$ as the respective probabilities of the elite gaining (or maintaining) political power in democracy and nondemocracy.

Intuitively, in democracy the elite invest sufficiently more to increase their de facto political power that they entirely offset the advantage of the citizens coming from their de jure power.

[20] This definition incorporates the best responses of elites and citizens regarding economic and political institutional, $\tau(\pi)$ and $s'(\pi)$, for convenience.

A more technical intuition for this result is that the optimal contribution conditions for elite agents both in nondemocracy and democracy equate the marginal cost of contribution, which is always equal to 1, to the marginal benefit. Since the marginal costs are equal, equilibrium benefits in the two regimes also have to be equal. The marginal benefits consist of the immediate gain of economic rents, $\Delta RL/M$, plus the gain in continuation value, which is also independent of current regime. Consequently, marginal costs and benefits can only be equated if $p(D) = p(N)$ as in (24).

It is also straightforward to specify when there will be positive investment in de facto power. In particular, the following assumption is sufficient to ensure that the equilibrium will have positive contribution by elite agents to de facto power:

Assumption 3

$$\min\left\{\phi f(0)\frac{\Delta RL}{M}, \phi f(-\eta)\frac{\Delta RL}{M}\right\} > 1.$$

Since $V(N) - V(D) \geq 0$ (by virtue of the fact that the elite choose nondemocracy), this assumption ensures that in both regimes, an individual would like to make a positive contribution even if nobody else is doing so.[21] If this assumption is not satisfied, there may also exist equilibria in which the elite make no contribution to increasing their de facto power (see Corollary 1).

Proposition 1 ***(Invariance)*** Suppose Assumptions 1-3 hold. Then in the baseline model, there exists a unique symmetric MPE. This equilibrium involves $p(D) = p(N) \in (0,1)$, so that the probability distribution over economic institutions is non-degenerate and independent of whether the society is democratic or nondemocratic.

Proof. Assumption 3 ensures that $\theta(D) = 0$ and $\theta(N) = 0$ cannot be part of an equilibrium. Since Assumption 2 implies that $f(\omega)$ is continuous and $\lim_{\omega\to\infty} f(\omega) = 0$, both conditions (21) and (22) must hold as equalities for some interior values of $\theta(D)$ and $\theta(N)$, establishing existence. The result that $p(D) = p(N) > 0$ then follows immediately from the comparison of these two equalities, which establishes (24). The fact that $p(D) = p(N) < 1$ follows from Assumption 2, which imposes that F is strictly increasing throughout its support, so for any interior $\theta(D)$ and $\theta(N)$, $F(\phi M\theta(D) - \eta) = F(\phi M\theta(N)) < 1$. In addition, again from Assumption 2, $f(\omega)$ is single peaked, so only a unique pair of $\theta(D)$ and $\theta(N)$ could satisfy (21) and (22) with $f'(\phi M\theta(N)) < 0$ and $f'(\phi M\theta(D) - \eta) < 0$ for given $V(N) - V(D)$.

[21] Assumption 3 also implies that $\eta < -\underline{\omega}$ (where recall that $\underline{\omega} < 0$); see condition (26) below.

The fact that $V(N) - V(D) = \eta/(\phi M)$ is uniquely determined (from equation (24)) then establishes the uniqueness of the symmetric MPE. ■

This proposition is one of the main results of the paper. It shows that there will be equilibrium changes from democracy to nondemocracy and the other way round (this follows from the fact that the equilibrium probability distribution is non-degenerate, i.e., $p(D) = p(N) \in (0,1)$). Moreover, by assumption these changes in political institutions affect the distribution of de jure power, but they do *not* translate into changes in the law of motion of economic institutions and economic allocations, i.e., we have $p(D) = p(N)$.[22] This is the sense in which there is *invariance* in equilibrium; even when shocks change the political institutions, the probability distribution over equilibrium economic institutions remains unchanged. This result also illustrates how institutional change and persistence can coexist—while political institutions change frequently, the equilibrium process for economic institutions remains unchanged.

Remark 1 As will be discussed further below, the invariance result relies on functional form assumptions. Section 4 will show that when there are differences in the technology of generating de facto power for the elite in democracy and nondemocracy or when economic institutions are costly to change in the short run, de facto power will only offset the change in de jure power partially. Other assumptions implicit in our analysis that are important for the invariance result are: (1) that democracy shifts the power of the citizens additively (rather than ω being drawn from general distributions F_N in nondemocracy and F_D in democracy, with F_D first-order stochastically dominating F_N); (2) that the technology of de facto power for the elite, equation (13), is linear. When either of these assumptions are relaxed, we continue to obtain the general insight that endogenous changes in de facto power (at least partially) offset declines in the de jure power of the elite, but not necessarily the invariance result. See Section 4.

Remark 2 Assumptions 2 and 3 can be relaxed without affecting the basic conclusions in Proposition 1. For example, if we relax the single-peakedness assumption on $f(\omega)$, the conclusions in Proposition 1 would continue to apply, except that the symmetric MPE may no longer be unique. Multiple equilibria here are of potential interest, as they correspond to situations in which expectations of future behavior affects current behavior (see, e.g., Hassler et al., 2003). Also, if the parts of Assumption 2 that F is increasing everywhere and $\lim_{\omega \to \infty} f(\omega) = 0$ are relaxed, we may obtain corner solutions, whereby $p(N) = p(D) = 1$, and there would be no transitions to democracy from nondemocracy (essentially because returns to individual elites from investing in de facto power may remain high, while the probability of a sufficiently high

[22] Yet, naturally, economic institutions will change when total power shifts from one group to another.

level of ω becomes 0). Alternatively, if Assumption 3 is relaxed, we can have equilibria with $p(N) = p(D) = 0$. Assumptions 2 and 3 rule out these "corner" equilibria. The following result is interesting in this context.

Corollary 1 Suppose there exists $\bar{\theta}(N) > 0$ such that

$$\phi f(\phi M \bar{\theta}(N)) \left(\frac{\Delta RL/M - \beta \bar{\theta}(N)}{1 - \beta F(\phi M \bar{\theta}(N))} \right) = 1, \tag{25}$$

that Assumptions 1 and 2 hold, and that

$$\eta > -\underline{\omega}. \tag{26}$$

Then in the baseline model, there exists a symmetric MPE in which $p(N) \in (0,1)$ and $p(D) = 0$.

Proof. Suppose there exists a symmetric MPE with $p(D) = 0$. Then we have $V(D) = R^c L / ((1-\beta) M)$, while $V(N)$ is still given by (16), and the relevant first-order necessary condition for $\theta(N) > 0$ is given by (21). Combining this with the expression for $V(D)$, we obtain $\theta(N) = \bar{\theta}(N)$ as in (25), and

$$V(N) - V(D) = \frac{F(\phi M \bar{\theta}(N)) \Delta RL/M - \bar{\theta}(N)}{1 - \beta F(\phi M \bar{\theta}(N))}.$$

Now using (21) and (22), we see that (25) is sufficient to ensure that positive contribution to de facto power in nondemocracy is optimal for elite agents. Moreover, (26) implies that $f(-\eta) = 0$, thus

$$\phi f(-\eta) \left(\frac{\Delta RL/M - \beta \bar{\theta}(N)}{1 - \beta F(\phi M \bar{\theta}(N))} \right) < 1,$$

so that zero contribution in democracy is also optimal for the elite. Moreover, again from (26), $F(-\eta) = 0$, which establishes the existence of a symmetric MPE with $p(N) \in (0,1)$ and $p(D) = 0$. ■

Therefore, if we relax part of Assumption 3, symmetric MPEs with democracy as an absorbing state may arise. Clearly, Condition (26), which leads to this outcome, is more likely to hold when η is high. This implies that if democracy in fact creates a substantial advantage in favor of the citizens, it may destroy the incentives of the elite to engage in activities that increase their de facto power, and thus change the future distribution of political regimes and economic institutions.

It is also interesting to note that even when Condition (26) holds, the equilibrium with $p(D) = p(N) > 0$ characterized in Proposition 1 may still exist, leading to a symmetric MPE

with $p(D) = p(N)$. Consequently, whether democracy becomes an absorbing state (i.e., fully consolidated), may depend on expectations.

Finally, inspection of the proof of Corollary 1 shows that Assumption 3 can be relaxed to:

Assumption 3A There exists $\bar{\theta}(N) > 0$ satisfying (25), and

$$\phi f(-\eta)\left(\frac{\Delta RL/M - \beta\bar{\theta}(N)}{1-\beta F(\phi M\bar{\theta}(N))}\right) > 1.$$

With this modified assumption, all the results continue to hold, though we prefer Assumption 3 since, despite being more restrictive, it is simpler and more transparent.

3.2 Non-Symmetric MPE

We now show that the same invariance result obtains without the restriction to symmetric MPE. To do this, we first extend our treatment above and define an MPE more generally. Without symmetry, the power of the elite in nondemocracy as a function of contribution θ^i by agent $i \in \mathcal{E}$ and the distribution of contributions by all other agents, $\theta^{-i}(N) \equiv \left\{\theta^j(N)\right\}_{j\in\mathcal{E}, j\neq i}$, is given by

$$P^E\left(\theta^i, \theta^{-i}(N) \mid N\right) = \phi\left(\sum_{j\in\mathcal{E}, j\neq i}\theta^j(N) + \theta^i\right).$$

Similar to before, in nondemocracy the elite will have political power with probability

$$p\left(\theta^i, \theta^{-i}(N) \mid N\right) = F\left(\phi\left(\sum_{j\in\mathcal{E}, j\neq i}\theta^j(N) + \theta^i\right)\right). \tag{27}$$

In democracy, with the same reasoning as before, this probability is given by

$$p\left(\theta^i, \theta^{-i}(D) \mid D\right) = F\left(\phi\left(\sum_{j\in\mathcal{E}, j\neq i}\theta^j(D) + \theta^i\right) - \eta\right). \tag{28}$$

The possibility that different individuals will contribute different amounts to the de facto power of the elite implies that value functions can also differ across elite agents, and must also be indexed by i. Therefore, the net present discounted value of agent $i \in \mathcal{E}$ is

$$\begin{aligned} & V^i\left(N \mid \theta^{-i}(N), \theta^{-i}(D)\right) \qquad (29)\\ = \; & \max_{\theta^i \geq 0}\left\{-\theta^i + p\left(\theta^i, \theta^{-i}(N) \mid N\right)\left(\frac{R^r L}{M} + \beta V^i\left(N \mid \theta^{-i}(N), \theta^{-i}(D)\right)\right)\right. \\ & \left. + \left(1 - p\left(\theta^i, \theta^{-i}(N) \mid N\right)\right)\left(\frac{R^c L}{M} + \beta V^i\left(D \mid \theta^{-i}(N), \theta^{-i}(D)\right)\right)\right\}. \end{aligned}$$

Here $V^i\left(N \mid \theta^{-i}(N), \theta^{-i}(D)\right)$ denotes the value of agent i in nondemocracy when all other elite agents choose contributions $\theta^{-i}(N)$ in nondemocracy and $\theta^{-i}(D)$ in democracy. Similarly,

$V^i\left(D \mid \theta^{-i}(N), \theta^{-i}(D)\right)$ is the corresponding value in democracy for agent i. The intuition for this equation is similar to that for (16) in the symmetric case.

Agent $i \in \mathcal{E}$ chooses θ^i to maximize his net expected present discounted utility. Let the policy function (correspondence) of agent i that solves the maximization in (29) be given by $\Gamma_i^N\left[\theta^{-i}(N), \theta^{-i}(D)\right]$, so that any $\theta^i \in \Gamma_i^N\left[\theta^{-i}(N), \theta^{-i}(D)\right]$ is an optimal policy for the value function in (29). Similarly, we have

$$\begin{aligned} & V^i\left(D \mid \theta^{-i}(N), \theta^{-i}(D)\right) \\ = & \max_{\theta^i \geq 0}\left\{-\theta^i + p\left(\theta^i, \theta^{-i}(D) \mid D\right)\left(\frac{R^r L}{M} + \beta V^i\left(N \mid \theta^{-i}(N), \theta^{-i}(D)\right)\right)\right. \\ & \left. + \left(1 - p\left(\theta^i, \theta^{-i}(D) \mid D\right)\right)\left(\frac{R^c L}{M} + \beta V^i\left(D \mid \theta^{-i}(N), \theta^{-i}(D)\right)\right)\right\}, \end{aligned} \tag{30}$$

and let the set of maximizers of this problem be $\Gamma_i^D\left[\theta^{-i}(N), \theta^{-i}(D)\right]$. Then we have the more general definition of MPE as:

Definition 2 An MPE consists of a pair of contribution distributions for elite agents $\left\{\theta^i(N)\right\}_{i\in\mathcal{E}}$ and $\left\{\theta^i(D)\right\}_{i\in\mathcal{E}}$, such that for all $i \in \mathcal{E}$, $\theta^i(N) \in \Gamma_i^N\left[\theta^{-i}(N), \theta^{-i}(D)\right]$ and similarly $\theta^i(D) \in \Gamma_i^D\left[\theta^{-i}(N), \theta^{-i}(D)\right]$. In addition, economic and political decisions $\tau(\pi)$ and $s'(\pi)$ are such that $\tau(\pi = 0) = 0$, $s'(\pi = 0) = N$, $\tau(\pi = 1) = 1$ and $s'(\pi = 1) = D$, and factor prices are given by (8)-(11) as a function of $\tau \in \{0, 1\}$.

Proposition 2 ***(Non-Symmetric MPE and Invariance)*** Suppose Assumptions 1-3 hold. Then in the baseline model, any MPE involves $p(D) = p(N) \in (0, 1)$.

Proof. See Appendix. ■

The only difference between symmetric and non-symmetric MPE is that in symmetric MPE we also know that the total contributions made by the elite will be equally divided among each elite agent. In non-symmetric MPE, this may not be the case, and depending on expectations, some elite agents may be expected to, and consequently do, contribute more than others. This implies that in non-symmetric MPE, different levels of $p(D) = p(N)$ can arise in equilibrium.

Nevertheless, the important conclusion that the probability of the elite dominating political power and imposing their favorite economic institutions is independent of the underlying form of political institutions remains. Given this result, in the rest of the paper we focus on symmetric MPE. Before doing so, however, we can also note the following result:

Corollary 2 Among non–symmetric MPEs, the following maximizes $p(N) = p(D)$: for $i' \in \mathcal{E}$, $\theta^{i'}(D) = \theta^{i'}(N) + \eta/\phi$, and for all $i \in \mathcal{E}$ and $i \neq i'$, $\theta^i(D) = \theta^i(N) = 0$.

Proof. The proof of Proposition 2 makes it clear that in any equilibrium where condition (59) in the Appendix holds as equality for some $i \in \mathcal{E}$, so does (60) for the same $i \in \mathcal{E}$, and vice versa. This implies that to maximize $p(N) = p(D)$, we need to maximize $\Delta V^i\left(\theta^{-i}(N), \theta^{-i}(D)\right)$ for all $i \in \mathcal{E}$ for whom (59) and (60) in the Appendix hold as equalities. Clearly, the highest value any such $\Delta V^i\left(\theta^{-i}(N), \theta^{-i}(D)\right)$ can take is given by $\Delta V^{i'}\left(\theta^{-i'}(N), \theta^{-i'}(D)\right) = \eta/\phi$ for some i' together with $\theta^{i'}(D) = \theta^{i'}(N) + \eta/\phi$. To see that an equilibrium with $\theta^{i'}(D) = \theta^{i'}(N) + \eta/\phi$ for i' and $\theta^{i}(D) = \theta^{i}(N) = 0$ for all $i \in \mathcal{E}$ and $i \neq i'$ exists, note first that, since $\theta^{i}(D) = \theta^{i}(N) = 0$ for all $i \in \mathcal{E}$ and $i \neq i'$, we have $\Delta V^i\left(\theta^{-i}(N), \theta^{-i}(D)\right) = 0$ for all $i \in \mathcal{E}$ and $i \neq i'$. Second, from (59) and (60) in the Appendix, we have that for $i' \in \mathcal{E}$,

$$\phi f\left(\phi\left(\theta^{i'}(N)\right)\right) = \phi f\left(\phi\left(\theta^{i'}(D)\right) - \eta\right) = \left(\frac{\Delta RL}{M} + \beta \Delta V^{i'}\left(\theta^{-i'}(N), \theta^{-i'}(D)\right)\right)^{-1},$$

which, in view of the fact that $\Delta V^{i'}\left(\theta^{-i'}(N), \theta^{-i'}(D)\right) > 0 = V^i\left(\theta^{-i}(N), \theta^{-i}(D)\right)$, implies

$$\phi f\left(\phi\left(\theta^{i'}(N)\right)\right) = \phi f\left(\phi\left(\theta^{i'}(D)\right) - \eta\right) < \left(\frac{\Delta RL}{M} + \beta \Delta V^{i}\left(\theta^{-i}(N), \theta^{-i}(D)\right)\right)^{-1},$$

for all other $i \in \mathcal{E}$, establishing that they prefer to make zero contributions. Hence, $\theta^{i'}(D) = \theta^{i'}(N) + \eta/\phi$ for i' and $\theta^{i}(D) = \theta^{i}(N) = 0$ for all $i \in \mathcal{E}$ and $i \neq i'$ is an equilibrium and achieves the highest $p(N) = p(D)$ among all MPEs. ■

Intuitively, the equilibrium that makes only one elite agent make all of the investment in de facto power means that this agent has a lot to lose from democracy (because of the higher investment in de facto power involved in this regime), and maximizes investments in de facto power.

3.3 Subgame Perfect Equilibria

The analysis so far has focused on MPE. Since the landed elite form a small cohesive group, they may be able to achieve a better equilibrium than the MPE by using threats of punishments against each other. In this subsection, we briefly discuss SPEs (subgame perfect equilibria) of the above game. The main result is that for sufficiently large discount factors, the "best" SPEs also take the same form as the MPE characterized in Propositions 1 and 2, with the equilibrium probability distribution over economic institutions independent of the political regime.

In characterizing the SPEs, we allow elite agents to use any kind of punishment strategies and coordination, except that in competitive labor markets, they cannot (by law) restrict their labor demand in order to affect factor prices. To define an SPE, let $\theta(s_t, t) \equiv \left\{\theta^j(s_t, t)\right\}_{j \in \mathcal{E}}$

be the vector of contributions by elite agents at time t, when the state is s_t. Let $h^t = (\theta(s_0, 0), \pi_0, \tau_0, s_1, ..., \theta(s_t, t), \pi_t, \tau_t, s_{t+1})$ be the history of contributions, political outcomes and actions up to time t, with $\mathcal{H}^t$ denoting the set of possible histories at time t.

Definition 3 An SPE consists of contribution functions for each elite agent $i \in \mathcal{E}$, $\theta^i : \mathbb{Z}_+ \times \{N, D\} \times \mathcal{H}^{t-1} \to \mathbb{R}_+$ specifying their contribution as a function of time t, state s_t and the history $\mathcal{H}^{t-1}$ up to that point and economic and political decision functions $\tau : \mathbb{Z}_+ \times \{0, 1\} \times \{N, D\} \times \mathcal{H}^{t-1} \to \{0, 1\}$ and $s' : \mathbb{Z}_+ \times \{0, 1\} \times \{N, D\} \times \mathcal{H}^{t-1} \to \{N, D\}$ specifying economic and political institution decisions as a function of time, who has political power, the state and history, such that θ^i is a best response to θ^{-i}, τ and s' for all $i \in \mathcal{E}$ and τ and s' are best responses to $\left\{\theta^i\right\}_{i \in \mathcal{E}}$, and factor prices are given by (8)-(11) as a function of $\tau \in \{0, 1\}$.

As in most repeated and dynamic games, there exist many subgame perfect equilibria in this model. Our focus is on SPEs that maximize the ex ante—time $t = 0$—utility of the elite. This is natural since we are motivated to look at the SPEs to see how the ability of the elite to coordinate their actions changes the results. We define best or "Pareto optimal" SPEs as SPEs in which, at time $t = 0$, no elite agent can be made better off without some other elite agent being made worse off.[23] In addition, we refer to an SPE as "symmetric Pareto optimal", if it is Pareto optimal and all elite agents use the same equilibrium strategy. The main result is the following:

Proposition 3 ***(Subgame Perfect Equilibrium and Invariance)*** Suppose Assumptions 1-3 hold. Then there exists $\bar{\beta} \in [0, 1)$ such that that for all $\beta \geq \bar{\beta}$, the symmetric Pareto optimal SPE induces equilibrium probabilities of labor repressive institutions $p(D) = p(N) \in (0, 1)$. Moreover, as $\beta \to 1$, any Pareto optimal SPE involves $p(D) = p(N) \in (0, 1)$.

Proof. See Appendix. ■

This proposition therefore shows that as long as the discount factor is large enough, the "best" SPEs also give the same invariance result as the MPEs. Intuitively, with a high enough discount factor, the elite act totally cohesively, as a single agent, and the same calculus as in the MPE applies for equating the marginal cost of greater contributions to de facto power to the marginal benefits, again implying $p(D) = p(N)$. When the discount factor is sufficiently small, however, this result may no longer be true, because a different pattern of contributions may be necessary to ensure "incentive compatibility" on the side of the elite agents (i.e., to

[23] Clearly, here Pareto optimality is only among the elite and does not consider the utility of the citizens.

ensure that certain elite agents are willing to make the contributions they are supposed to make along the equilibrium path).

3.4 Comparative Statics

We now return to the symmetric MPE and derive a number of comparative static results. Comparative statics are straightforward in this case, since equations (16), (19) and (23), immediately imply that

$$V(N) - V(D) = \frac{\eta}{\phi M} > 0, \tag{31}$$

where we have dropped the conditioning of the value functions on the equilibrium $\theta(D)$ and $\theta(N)$ to simplify the notation. Equation (31) is intuitive. In the equilibrium of Proposition 1, the only difference between democracy and nondemocracy for the elite is that in democracy they have to spend more in contributions in order to retain the same de facto political power. In particular, the per elite additional spending is equal to $\eta/\phi M$, which is increasing in the de jure political power advantage that democracy creates for the citizens (since, in equilibrium, the elite totally offset this advantage).

Using (21) and (31) and denoting the equilibrium level of $\theta(N)$ by $\theta^*(N)$, we have:

$$\phi f(\phi M \theta^*(N)) \left(\frac{\Delta RL}{M} + \frac{\beta \eta}{\phi M} \right) = 1. \tag{32}$$

Similarly, denoting the equilibrium level of $\theta(D)$ by $\theta^*(D)$, we also have

$$\phi f(\phi M \theta^*(D) - \eta) \left(\frac{\Delta RL}{M} + \frac{\beta \eta}{\phi M} \right) = 1. \tag{33}$$

Finally, let us denote the probability that the elite will have political power by $p^* = p(D) = p(N)$, and recall that this probability corresponds both to the probability that the elite will control political power, and also the probability that the society will be nondemocratic and economic institutions will be labor repressive rather than competitive. Thus this probability summarizes most of the economic implications of the model.

Proposition 4 ***(Comparative Statics)*** Suppose that Assumptions 1-3 hold. Then in the baseline model, we have the following comparative static results:

1. An increase in the economic rents that the elite can obtain by controlling political power will increase their contributions and the probability that they control political power, i.e.,

$$\frac{\partial \theta^*(N)}{\partial \Delta R} > 0, \frac{\partial \theta^*(D)}{\partial \Delta R} > 0 \text{ and } \frac{\partial p^*}{\partial \Delta R} > 0.$$

2. An increase in the discount factor will increase the elite's contributions and the probability that they control political power, i.e.,

$$\frac{\partial \theta^{*}(N)}{\partial \beta} > 0, \frac{\partial \theta^{*}(D)}{\partial \beta} > 0 \text{ and } \frac{\partial p^{*}}{\partial \beta} > 0.$$

3. An increase in the number of the elite will intensify the collective action problem among them, and will reduce their contributions and the probability that they control political power i.e.,

$$\frac{\partial \theta^{*}(N)}{\partial M} < 0, \frac{\partial \theta^{*}(D)}{\partial M} < 0, \text{ and } \frac{\partial p^{*}}{\partial M} < 0.$$

4. An increase in the advantage of the citizens in democracy will increase the elite's contributions and the probability that they control political power, i.e.,

$$\frac{\partial \theta^{*}(N)}{\partial \eta} > 0, \frac{\partial \theta^{*}(D)}{\partial \eta} > 0, \text{ and } \frac{\partial p^{*}}{\partial \eta} > 0.$$

5. An increase in the effectiveness of the de facto political power technology of the elite has ambiguous effects on their contributions, but increases the probability that they control political power, i.e.,

$$\frac{\partial p^{*}}{\partial \phi} > 0.$$

Proof. All of these comparative static results follow from (32) and (33) using the Implicit Function Theorem (e.g., Simon and Blume, 1994, Theorem 15.2). We can use the Implicit Function Theorem, since f is differentiable everywhere and moreover, Assumptions 2 and 3 ensure that the equilibrium is always at an interior point. We briefly sketch the argument for some of these results. For example, for $\partial \theta^{*}(N) / \partial \Delta R$, use the Implicit Function Theorem on (32) to obtain

$$\frac{\partial \theta^{*}(N)}{\partial \Delta R} = -\frac{f(\phi M \theta^{*}(N)) L}{f'(\phi M \theta^{*}(N)) M (\phi \Delta R L + \beta \eta)} > 0$$

since $f' < 0$ from the second order condition. Using the Implicit Function Theorem on (33) establishes $\partial \theta^{*}(D) / \partial \Delta R > 0$. To obtain $\partial p^{*} / \partial \Delta R > 0$, note that $p^{*} = F(\phi M \theta^{*}(N))$ and F is everywhere strictly increasing.

The comparative statics in part 2 with respect to β are identical.

Using the Implicit Function Theorem with respect to M also immediately establishes $\partial \theta^{*}(N) / \partial M < 0$ and $\partial \theta^{*}(D) / \partial M < 0$ as claimed in part 3. Since $p^{*} = F(\phi M \theta^{*}(N))$, the effect on p^{*} at first appears ambiguous. However, note from (32) that as M increases, the second term on the left-hand side declines, so $f(\phi M \theta^{*}(N))$ has to increase. Since $f' < 0$,

this is only possible if $\phi M\theta^*(N)$ declines, so $p^* = F(\phi M\theta^*(N))$ also declines (given the monotonicity of F).

Next, the Implicit Function Theorem also gives the results in part 4, in particular,

$$\frac{\partial\theta^*(N)}{\partial\eta} = -\frac{\beta f(\phi M\theta^*(N))}{\phi f'(\phi M\theta^*(N)) M(\phi\Delta RL + \beta\eta)} > 0,$$

and similarly, $\partial\theta^*(D)/\partial\eta > 0$. The argument for $\partial p^*/\partial\eta > 0$ is again similar. The second term on the left-hand side of (32) increases as η increases, so $f(\phi M\theta^*(N))$ has to decline. Since $f' < 0$, this implies that $\phi M\theta^*(N)$ increases, so $p^* = F(\phi M\theta^*(N))$ also increases, establishing $\partial p^*/\partial\eta > 0$.

Finally, it is straightforward to verify that the effect of ϕ on $\theta^*(N)$ and $\theta^*(D)$ is ambiguous. However, writing (32) as

$$f(\phi M\theta^*(N))\left(\frac{\phi\Delta RL}{M} + \frac{\beta\eta}{M}\right) = 1,$$

we see that an increase in ϕ increases the second term on the left-hand side, so $f(\phi M\theta^*(N))$ has to decline. Since $f' < 0$, this implies that $\phi M\theta^*(N)$ increases, and $p^* = F(\phi M\theta^*(N))$ must also increase, establishing $\partial p^*/\partial\phi > 0$. ■

Many of the comparative statics in Proposition 4 are intuitive, and yet quite useful in terms of economic implications. For example, the fact that an increase in ΔR induces both greater contributions by elite agents and also increases the probability that they control political power is very intuitive, since ΔR is a measure of how much they have to gain by controlling political power. The greater is this gain, the more willing is each elite agent to contribute to their collective political power.[24] Since ΔR will be high when A is low, Proposition 4 also implies $\partial p^*/\partial A < 0$. In other words, in a society where alternative (e.g., proto-industrial) economic activities are less developed and where, by repressing labor the elite can obtain large rents, political and economic institutions are more likely to be controlled by the elite, and consequently economic institutions are more likely to be tilted towards repressive labor relations rather than competitive labor markets.[25]

The fact that a higher β also increases contributions by the elite and the likelihood of labor repressive institutions is also interesting. In many models, a higher discount factor leads to better allocations. Here, in contrast, a higher discount factor leads to more wasteful activities by the elite and labor repressive economic institutions. The reason is that the main pivotal

[24] This finding is also in line with the empirical literature on collective action which finds that it is more likely when the benefits are higher (e.g., Wade, 1988).

[25] The fact that the elite can never impose slavery, thus taking away the outside option of the workers, is naturally important for the result that $\partial p^*/\partial A < 0$.

agents in this model are the elite, which, by virtue of their smaller numbers, take the effect of their contributions on equilibrium allocations into account. Contributing to de facto political power is a form of investment, and some of the returns accrue to the elite in the future (when they secure nondemocracy instead of democracy). Therefore a higher level of β encourages them to invest more in their political power and makes nondemocracy and labor repressive economic institutions more likely.

The third set of comparative statics show that when M increases so that there are more elite agents, the collective action problem among them becomes worse. This highlights the latent free-rider problem in the model. Even though each elite agent contributes to the group's political power, their level of contribution is still suboptimal from the viewpoint of the group, since each elite agent realizes that by contributing more he creates a positive externality on other elites. A greater M increases the extent of this positive externality and intensifies the free-rider problem (the collective action problem). This comparative static therefore suggests that nondemocracy and labor repressive economic institutions are more likely to emerge when there is a relatively small and cohesive group of elite land owners, a pattern consistent with the historical case studies discussed below.

The most surprising comparative static results are those with respect to η. Recall that a higher η corresponds to democracy giving more de jure power to the citizens. We may have therefore expected a greater η to lead to better outcomes for the citizens. In contrast, we find that higher η makes nondemocracy and labor repressive economic institutions more likely (as long as Assumption 3 still holds). The reason for this is that a higher η makes democracy more costly for the elite, so it is in the interest of each elite agent to invest more in the group's political power to avoid democracy. This effect is strong enough to increase the probability that they will maintain political power. However, the overall impact of η on the likelihood of democracy is non-monotonic: if η increases so much that Assumption 3 no longer holds, then Corollary 1 applies and democracy may become fully consolidated (i.e., an absorbing state).

Note however that both the results that higher M reduces the political power of the elite and that higher η increases their political power depend on the functional form assumptions already highlighted in Remark 1.[26] Nevertheless, we believe that the baseline model we have is both the simplest and the most natural one, and highlights important first-order effects.

[26] In particular, both the additive shift of the distribution function of ω in democracy and the fact that (13) is linear are important for these comparative statics. The fact that the effect of M on p^* is ambiguous in general is related to Esteban and Ray (2001), who emphasize that the effect of an increase in the number of agents to the total contribution of a lobby is ambiguous because, while each agent contributes less, there are more of them.

Finally, when ϕ increases, the technology of garnering de facto political power for the elite improves. This may reduce their contributions to the group's de facto power, but it will always increase the equilibrium probability of a nondemocratic regime and labor repressive institutions.

4 Generalizations: Markov Regime-Switching Models and State Dependence

The model in the previous section yielded stark results, which were partly driven by the assumptions that the elite had the same technology to generate de facto political power in both regimes and were able to change economic institutions immediately after they took control (in addition to the functional form assumption noted in footnote 26). Relaxing these assumptions leads to a richer form of persistence, in the form of a Markov regime-switching model with state dependence. These issues are discussed in the next two subsections, and also pave the way of our analysis of how to effectively reform equilibrium institutions in Section 6.

Another special feature of the model in the previous section was that it implicitly assumed that changing economic institutions and changing the political system were equally easy (or difficult). An extension in which changing political institutions may require greater political power than influencing economic policies or institutions is discussed in Section 5.

Throughout the rest of the paper, to simplify the discussion, we focus on symmetric MPE.

4.1 Limits on De Facto Power of the Elite

Our first generalization of the above framework assumes that in democracy, because of limits on the activities of the elite, their technology for gathering de facto political power changes to

$$P_t^E(D) = \phi_D Z_t, \tag{34}$$

where $\phi_D \in (0, \phi)$ and $Z_t = \sum_{i \in \mathcal{E}} \theta_t^i$.[27] In other words, each unit of the final good spent by the elite for increasing their de facto power is less effective in democracy than in nondemocracy. This is a reasonable assumption, since democratic institutions may prevent the elite from using repression or paramilitaries or from buying politicians as effectively as in a nondemocratic regime. Therefore, in this model democracy has two simultaneous functions; it shifts the distribution of de jure political powers towards the citizens and it limits the exercise of de facto power by the elite.

[27] We now write this as $P_t^E(D)$ as opposed to P_t^E as in (13), since the technology of generating de facto political power differs between the two political regimes.

We now have the probability of the elite controlling the political agenda in democracy as

$$p\left(\theta^i, \theta\left(D\right) \mid D\right) = F\left(\phi_D\left(\left(M-1\right)\theta\left(D\right) + \theta^i\right) - \eta\right), \tag{35}$$

and the value function in democracy is unchanged and is still given by (19). It is clear that Definition 1 still applies to this modified model, and specifies symmetric MPEs.

Assuming interior solutions, then the symmetric MPE is characterized by (21) and

$$\phi_D f\left(\phi_D M\theta\left(D\right) - \eta\right)\left(\frac{\Delta RL}{M} + \beta V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) - \beta V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)\right) = 1. \tag{36}$$

We can impose a variant of Assumption 3 to ensure that the equilibrium is interior:

Assumption 3'

$$\min\left\{\phi f\left(0\right)\frac{\Delta RL}{M}, \phi_D f\left(-\eta\right)\frac{\Delta RL}{M}\right\} > 1.$$

Now recalling that $p\left(N\right) \equiv p\left(\theta\left(N\right), \theta\left(N\right) \mid N\right)$ and $p\left(D\right) \equiv p\left(\theta\left(N\right), \theta\left(N\right) \mid D\right)$, comparison of (21) and (36) immediately implies that

$$p\left(N\right) > p\left(D\right). \tag{37}$$

To see this more explicitly, note that $\phi > \phi_D$ implies $f\left(\phi_D M\theta\left(D\right) - \eta\right) > f\left(\phi M\theta\left(N\right)\right)$. Since in the neighborhood of equilibrium, $f\left(\cdot\right)$ is decreasing and $F\left(\cdot\right)$ is strictly increasing everywhere, we must have $\phi_D M\theta\left(D\right) - \eta < \phi M\theta\left(N\right)$ and $p\left(D\right) = F\left(\phi_D M\theta\left(D\right) - \eta\right) < p\left(N\right) = F\left(\phi M\theta\left(N\right)\right)$. Note that $p\left(N\right)$ is the probability of nondemocracy persisting, while $1 - p\left(D\right)$ is the probability of democracy persisting. This implies that labor repressive institutions are less likely to arise in democracy than in nondemocracy. Moreover, once the society is democratic, it has a higher probability of remaining democratic than the probability of switching to democracy from nondemocracy. Consequently, in this model there is persistence of both political and economic institutions.

Assumption 3' also implies $p\left(D\right) > 0$,[28] so even in democracy, the elite have the potential power to impose their favorite economic institutions, and change the political system back to nondemocracy, and moreover from Assumptions 2 and 3', we have $p\left(N\right) \in \left(0, 1\right)$, so the Markov process is ergodic (irreducible and aperiodic). Next, dividing (21) by (36) yields:

$$\phi_D f\left(\phi_D M\theta\left(D\right) - \eta\right) = \phi f\left(\phi M\theta\left(N\right)\right), \tag{38}$$

[28] In fact, $p\left(D\right) > 0$ would follow from the weaker assumption that $\eta < -\underline{\omega}$, though this latter assumption would not be sufficient to ensure positive contributions by the elite in democracy, which we use for comparative statics.

which shows that the gap between ϕ and ϕ_D will determine the gap between $p(D)$ and $p(N)$, thus the extent of persistence of economic and political institutions (e.g., as $\phi_D \to \phi$, $p(D) \to p(N)$). This leads to the following result:

Proposition 5 ***(Limits on De Facto Power and State Dependence)*** Consider the modified model with limits on the elite's de facto power in democracy. Suppose that Assumptions 1, 2 and 3' hold. Then any symmetric MPE leads to a Markov regime switching structure where the society fluctuates between democracy with associated competitive economic institutions ($\tau = 1$) and nondemocracy with associated labor repressive economic institutions ($\tau = 0$), with switching probabilities $p(N) \in (0,1)$ and $1 - p(D) \in (0,1)$ where $p(D) < p(N)$.

The proof of this proposition is omitted since it is similar to that of Proposition 1, and follows straightforwardly from the expressions in the text, in particular, equations, (21) and (36), and Assumptions of 1, 2 and 3'.

The most important implication of this modified model is that there is now a different type of institutional persistence—which we refer to as state dependence, since the probability distribution over equilibrium political and economic institutions depends on the current state of the system, $s \in \{N, D\}$. While Proposition 1 featured invariance in the sense that economic institutions followed the same equilibrium process irrespective of political institutions, it did not lead to persistence in political institutions; the fact that $p(D) = p(N)$ implied that democracy was as likely to follow a democratic regime as it was to follow a non-democratic regime. The results in Proposition 5 are different; once in nondemocracy, the society is more likely to remain nondemocratic than it is to switch to nondemocracy from democracy. This is the essence of state dependence.

Also interesting is the fact that the elite still have the ability to solve their collective action problem and gather sufficient de facto power to dominate democratic politics and impose their favorite economic institutions, i.e., $p(D) > 0$ (though here this also corresponds to their ability to also change the political system from democracy to nondemocracy).

It is also possible to obtain additional comparative static results for this case. To do this, we need to solve for $V(N) \equiv V(N \mid \theta(N), \theta(D))$ and $V(D) \equiv V(D \mid \theta(N), \theta(D))$. This is straightforward by imposing that equilibrium probabilities of the elite having more power than the citizens are $p(D)$ and $p(N)$, and combining (16) and (19), which gives

$$V(N) - V(D) = \frac{\theta(D) - \theta(N) + (p(N) - p(D))\,\Delta RL/M}{1 - \beta(p(N) - p(D))} > 0. \tag{39}$$

Combining this equation with (21) and (36), we obtain (again for an interior equilibrium since Assumption 3' is imposed):

$$H^N \equiv \phi f\left(\phi M\theta\left(N\right)\right)\left(\frac{\Delta RL}{M}+\beta\frac{\theta\left(D\right)-\theta\left(N\right)+\left(p\left(N\right)-p\left(D\right)\right)\Delta RL/M}{1-\beta\left(p\left(N\right)-p\left(D\right)\right)}\right)-1=0, \quad (40)$$

and

$$H^D \equiv \phi_D f\left(\phi_D M\theta\left(D\right)-\eta\right)\left(\frac{\Delta RL}{M}+\beta\frac{\theta\left(D\right)-\theta\left(N\right)+\left(p\left(N\right)-p\left(D\right)\right)\Delta RL/M}{1-\beta\left(p\left(N\right)-p\left(D\right)\right)}\right)-1=0, \quad (41)$$

where, clearly, $p\left(D\right)=F\left(\phi_D M\theta\left(D\right)-\eta\right)$ and $p\left(N\right)=F\left(\phi M\theta\left(N\right)\right)$. These equations also define H^N and H^D for future reference.

We can now perform the comparative statics using these two conditions. The difficulty is that the equilibrium is no longer guaranteed to be unique, since multiple values of $\theta\left(N\right)$ and $\theta\left(D\right)$ might satisfy these two conditions. Moreover, an equilibrium may correspond to a situation in which there is "myopic instability" in the sense that a small increase in one of the equilibrium variables, say $\theta\left(N\right)$, will lead to a further increase in that variable. In these types of situations, comparative static results are difficult to obtain.[29] To make more progress, we appeal to Samuelson's (1947) *correspondence principle*, which essentially restricts attention to equilibria that satisfy a type of "myopic stability". Under this assumption, it is possible to obtain some comparative static results.

More specifically, myopic stability would necessitate that the Jacobian matrix of $\left(H^N, H^D\right)$ with respect to $\left(\theta\left(N\right),\theta\left(D\right)\right)$,

$$\mathcal{J}=\begin{pmatrix} \frac{\partial H^N}{\partial\theta(N)} & \frac{\partial H^N}{\partial\theta(D)} \\ \frac{\partial H^D}{\partial\theta(N)} & \frac{\partial H^D}{\partial\theta(D)} \end{pmatrix},$$

is negative definite, i.e., an increase in $\theta\left(N\right)$ reduces H^N, an increase in $\theta\left(D\right)$ reduces H^D, and the cross-partial terms are not large enough to dominate the product $\partial H^N/\partial\theta\left(N\right)\times\partial H^D/\partial\theta\left(D\right)$. In fact, the proof of Proposition 6 will show that $\partial H^N/\partial\theta\left(D\right)<0$ and $\partial H^D/\partial\theta\left(N\right)>0$, and exactly the same arguments as in that proof also establish that $\partial H^D/\partial\theta\left(D\right)<0$, so myopic stability and the correspondence principle (i.e., the negative definiteness of $\mathcal{J}$) only require the condition $\partial H^N/\partial\theta\left(N\right)<0$.[30]

Notice that if $\theta\left(N\right)$ and $\theta\left(D\right)$ were solutions to an optimization problem, this condition would be automatically satisfied. The reason why $\mathcal{J}$ may not be negative definite is that

[29] In fact, as is well known, when there are multiple equilibria, the comparative static results will typically be reversed for some intermediate equilibria; see, for example, Milgrom and Roberts (1994) for supermodular games.

[30] The condition $\partial H^N/\partial\theta\left(N\right)<0$ can always be ensured by making $f\left(\phi M\theta\left(N\right)\right)$ sufficiently decreasing.

the system of equations (40) and (41) arise from the equilibrium interaction of elite agents individually contributing to increasing the de facto political power of their group.

By applying the correspondence principle, we can establish most of the comparative static results of interest. These are stated and proved in the next proposition (again using *'s to denote equilibrium values).

Proposition 6 ***(Comparative Statics for the Model with Limits on De Facto Power)*** Consider the modified model with limits on the elite's de facto power in democracy. Suppose that Assumptions 1, 2 and 3' hold and following the correspondence principle, assume that the matrix $\mathcal{J}$ is negative definite. Then, we have the following comparative static results:

1.
$$\frac{\partial\theta^{*}(N)}{\partial\Delta R}>0,\ \frac{\partial\theta^{*}(D)}{\partial\Delta R}>0,\ \frac{\partial p^{*}(N)}{\partial\Delta R}>0 \text{ and } \frac{\partial p^{*}(D)}{\partial\Delta R}>0.$$

2.
$$\frac{\partial\theta^{*}(N)}{\partial\beta}>0,\ \frac{\partial\theta^{*}(D)}{\partial\beta}>0\ \frac{\partial p^{*}(N)}{\partial\beta}>0 \text{ and } \frac{\partial p^{*}(D)}{\partial\beta}>0.$$

3.
$$\frac{\partial\theta^{*}(N)}{\partial M}<0,\ \frac{\partial\theta^{*}(D)}{\partial M}<0,\ \frac{\partial p^{*}(N)}{\partial M}<0 \text{ and } \frac{\partial p^{*}(D)}{\partial M}<0.$$

Proof. We provide the proof for the first result. The other two are proved analogously.

Let us first apply the Implicit Function Theorem and write

$$\begin{pmatrix} \frac{\partial H^{N}}{\partial\theta(N)} & \frac{\partial H^{N}}{\partial\theta(D)} \\ \frac{\partial H^{D}}{\partial\theta(N)} & \frac{\partial H^{D}}{\partial\theta(D)} \end{pmatrix}\begin{pmatrix} \partial\theta(N) \\ \partial\theta(D) \end{pmatrix}=-\begin{pmatrix} \frac{\partial H^{N}}{\partial\Delta R} \\ \frac{\partial H^{D}}{\partial\Delta R} \end{pmatrix}\partial\Delta R.$$

The fact that $\mathcal{J}$ is negative definite implies $\partial H^{N}/\partial\theta(N)<0$ and $\partial H^{D}/\partial\theta(D)<0$. In addition, it can be verified that $\partial H^{N}/\partial\theta(D)<0$ and $\partial H^{D}/\partial\theta(N)>0$. To see this, first consider $\partial H^{N}/\partial\theta(D)$. Differentiating (40) with respect to $\theta(D)$ and using (39), we have

$$\frac{\partial H^{N}}{\partial\theta(D)}=\frac{\beta\phi f(\phi M\theta(N))}{1-\beta(p(N)-p(D))}\left[1-\frac{\partial p(D)}{\partial\theta(D)}\left\{\frac{\Delta RL}{M}+\beta[V(N)-V(D)]\right\}\right]$$

and moreover, from (35) we have

$$\frac{\partial p(D)}{\partial\theta(D)}=M\phi_{D}f(\phi_{D}M\theta(D)-\eta).$$

The fact that $M>1$ combined with the last two equations and (36) implies $\partial H^{N}/\partial\theta(D)<0$.

Now with the same reasoning,

$$\frac{\partial H^{D}}{\partial\theta(N)}=\frac{\beta\phi_{D}f(\phi_{D}M\theta(D)-\eta)}{1-\beta(p(N)-p(D))}\left[-1+\frac{\partial p(N)}{\partial\theta(N)}\left\{\frac{\Delta RL}{M}+\beta[V(N)-V(D)]\right\}\right]$$

and (15) implies:

$$\frac{\partial p(N)}{\partial \theta(N)} = M\phi f(\phi M\theta(N)).$$

Combining this with the appropriate first-order condition, (17), gives $\partial H^D/\partial\theta(N) > 0$.

Therefore, we have the following sign pattern for $\mathcal{J}$:

$$\mathcal{J} = \begin{pmatrix} - & - \\ + & - \end{pmatrix}.$$

Moreover, it is straightforward to verify that an increase in ΔR strictly increases both the left hand sides of (40) and (41), i.e., $\partial H^N/\partial\Delta R > 0$ and $\partial H^D/\partial\Delta R > 0$. Then by Cramer's rule (e.g., Simon and Bloom, 1994, Theorem 9.4), we have

$$\frac{\partial\theta(D)}{\partial\Delta R} = \frac{\det\begin{pmatrix} - & - \\ + & - \end{pmatrix}}{\det\mathcal{J}} > 0.$$

Totally differentiating (38) implies that

$$Sgn\left(\frac{\partial\theta(D)}{\partial\Delta R}\right) = Sgn\left(\frac{\partial\theta(N)}{\partial\Delta R}\right)$$

(since $f'(\phi_D M\theta(D) - \eta) < 0$ and $f'(\phi M\theta(N)) < 0$), which establishes that $\partial\theta(D)/\partial\Delta R > 0$ and $\partial\theta(N)/\partial\Delta R > 0$. Finally, $\partial p^*(D)/\partial\Delta R > 0$ immediately follows from the monotonicity of $F(\cdot)$.

The same reasoning establishes the comparative statics with respect to β and M. ■

This proposition therefore shows that most of the qualitative results from the baseline model generalize to the Markov regime-switching model with state dependence. In particular, nondemocracy and labor repressive economic institutions are more likely when the landed elite have greater rents from repressing labor (i.e., when ΔR is high, for example because A is low), when they are more forward-looking (i.e., when β is high), and when they form a more cohesive (smaller) group (i.e., when M is low). However, some other results from Proposition 4, for example, those concerning the effect of ϕ and η, are now ambiguous.

4.2 Sluggish Economic Institutions

Next we modify the above framework in a different direction, and assume that starting in democracy, the elite cannot impose their favorite economic institutions immediately, for example, democratic politics has already taken some actions that cannot be reversed within the same period. This implies that starting in democracy, economic institutions are "slow-changing" or sluggish. This structure is also formally equivalent to one in which the elite incur a temporary cost when they change economic institutions from competitive to labor repressive.

More specifically, we now allow three different types of economic institutions: $\tau_t = 1$, corresponding to competitive markets, $\tau_t = 0$, corresponding to full labor repression and $\tau_t = 1/2$ corresponding to partial labor repression, in which case, wages are reduced to some level $A \leq \bar{w} < w(\tau_t = 1) \equiv f(L) - Lf'(L)$, and thus returns to land owners with partial labor repression are equal to

$$R^p \equiv R(\tau = 1/2) \equiv \frac{f(L) - \bar{w}}{L}. \tag{42}$$

Let us define λ such that

$$\lambda \equiv \frac{R^p - R^c}{\Delta R},$$

with ΔR as defined in (12). The fact that $A \leq \bar{w} < w(\tau = 1)$ ensures $\lambda \in (0, 1]$.

The only difference from the analysis in Section 2 is that starting in $s = D$, even if the elite gain political power, they cannot impose $\tau = 0$, and the best they can do is to set $\tau = 1/2$ (while starting in $s = N$, any $\tau \in \{0, 1/2, 1\}$ is allowed). Given this assumption, the rest of the analysis is similar to before, with the only difference taking place in the value function in democracy, which now takes the form:

$$\begin{aligned} V(D \mid \theta(N), \theta(D)) = \max_{\theta^i \geq 0} \Bigg\{ & -\theta^i + p\left(\theta^i, \theta(D) \mid D\right) \left(\frac{R^p L}{M} + \beta V(N \mid \theta(N), \theta(D)) \right) \\ & + \left(1 - p\left(\theta^i, \theta(D) \mid D\right)\right) \left(\frac{R^c L}{M} + \beta V(D \mid \theta(N), \theta(D)) \right) \Bigg\}. \end{aligned} \tag{43}$$

Once again, focusing on interior solutions, this maximization problem implies the first-order condition

$$\phi f\left(\phi\left((M-1)\theta(N) + \theta^i\right) - \eta\right) \left(\frac{\lambda \Delta R L}{M} + \beta\left(V(N \mid \theta(N), \theta(D)) - V(D \mid \theta(N), \theta(D))\right) \right) = 1, \tag{44}$$

which only differs from (20) because the gain of capturing power is now $\lambda \Delta R$ rather than ΔR. The corresponding second-order condition is $f'\left(\phi\left((M-1)\theta(N) + \theta^i\right) - \eta\right) < 0$. Once again, let the policy correspondence be denoted by $\Gamma^D(\theta(N), \theta(D))$.

The value function in nondemocracy is unchanged and is given by (16), and the first-order condition for contributions is given by (17), with the policy correspondence given by $\Gamma^N(\theta(N), \theta(D))$.

To define an equilibrium formally, let us also recall that $\pi = 1$ stands for the citizens having political power. Now let $\pi = 0$ stand for the elite having full power, so that they can set $\tau = 0$ if they want to, and let $\pi = 1/2$ denote the elite capturing political power starting in democracy. Thus we have:

Definition 4 A symmetric MPE of the model with sluggish economic institutions consists of a pair of contribution levels for elite agents $\theta(N)$ and $\theta(D)$, such that $\theta(N) \in \Gamma^N[\theta(N), \theta(D)]$ and $\theta(D) \in \Gamma^D[\theta(N), \theta(D)]$. In addition, economic and political decisions $\tau(\pi)$ and $s'(\pi)$ are such that $\tau(\pi = 0) = 0$, $s'(\pi = 0) = N$, $\tau(\pi = 1/2) = 1/2$, $s'(\pi = 1/2) = N$, $\tau(\pi = 1) = 1$ and $s'(\pi = 1) = D$, and factor prices are given by (8)-(11) and $\bar{w}$ and (42) when $\tau = 1/2$.

Given this definition of a symmetric MPE, the equilibrium condition for $\theta(N)$ is again the same as before, i.e., equation (22), while with the same steps as in the previous section, the equilibrium condition for $\theta(D)$ is given by:

$$\phi f(\phi M\theta(D) - \eta)\left(\frac{\lambda \Delta RL}{M} + \beta(V(N \mid \theta(N), \theta(D)) - V(D \mid \theta(N), \theta(D)))\right) = 1. \quad (45)$$

Comparison of this condition to (22) immediately establishes that as long as $\lambda < 1$, i.e., as long as democracy *does put* restrictions on economic institutions that the elite can impose, we have $p(D) < p(N)$.

As before, we impose an assumption to ensure an interior equilibrium:

Assumption 3"

$$\min\left\{\phi f(0)\frac{\Delta RL}{M}, \phi f(-\eta)\frac{\lambda \Delta RL}{M}\right\} > 1.$$

Proposition 7 ***(Sluggish Economic Institutions and State Dependence)*** Consider the modified model with sluggish economic institutions. Suppose that Assumptions 1, 2 and 3" hold. Then any symmetric MPE leads to a Markov regime switching structure where the society fluctuates between democracy and nondemocracy, with switching probabilities $p(N) \in (0,1)$ and $1 - p(D) \in (0,1)$ where $p(D) < p(N)$.

Proof. This result follows immediately from the comparison of (22) with (45), which establishes $p(D) < p(N)$. ■

To obtain a full solution to this model, we again need to solve (16) together with (43). Using $V(N)$ and $V(D)$ to simplify notation, this implies

$$V(N) - V(D) = \frac{\theta(D) - \theta(N) + p(N)\Delta RL/M - p(D)\lambda \Delta RL/M}{1 - \beta(p(N) - p(D))}. \quad (46)$$

Now combining this with the equilibrium conditions, (22) with (45), we have conditions characterizing the equilibrium similar to those in the previous subsection:

$$H^N \equiv \phi f(\phi M\theta(N))\left(\frac{\Delta RL}{M} + \beta\frac{\theta(D) - \theta(N) + p(N)\Delta RL/M - p(D)\lambda \Delta RL/M}{1 - \beta(p(N) - p(D))}\right) - 1 = 0, \quad (47)$$

$$H^D \equiv \phi f\left(\phi M\theta\left(D\right)-\eta\right)\left(\frac{\lambda\Delta RL}{M}+\beta\frac{\theta\left(D\right)-\theta\left(N\right)+p\left(N\right)\Delta R/M-p\left(D\right)\lambda\Delta R/M}{1-\beta\left(p\left(N\right)-p\left(D\right)\right)}\right)-1=0. \tag{48}$$

To make more progress, we once again impose the correspondence principle, and define the matrix $\mathcal{J}$ as before and assume that it is negative definite.

Proposition 8 ***(Comparative Statics for the Model with Sluggish Economic Institutions)*** Consider the modified model with sluggish economic institutions. Suppose that Assumptions 1, 2 and 3" hold and assume that the matrix $\mathcal{J}$ is negative definite. Then, we have the following comparative static results:

1.
$$\frac{\partial\theta^*\left(N\right)}{\partial\Delta R}>0,\ \frac{\partial\theta^*\left(D\right)}{\partial\Delta R}>0,\ \frac{\partial p^*\left(N\right)}{\partial\Delta R}>0 \text{ and } \frac{\partial p^*\left(D\right)}{\partial\Delta R}>0.$$

2.
$$\frac{\partial\theta^*\left(N\right)}{\partial\beta}>0,\ \frac{\partial\theta^*\left(D\right)}{\partial\beta}>0\ \frac{\partial p^*\left(N\right)}{\partial\beta}>0 \text{ and } \frac{\partial p^*\left(D\right)}{\partial\beta}>0.$$

3.
$$\frac{\partial\theta^*\left(N\right)}{\partial M}<0,\ \frac{\partial\theta^*\left(D\right)}{\partial M}<0,\ \frac{\partial p^*\left(N\right)}{\partial M}<0 \text{ and } \frac{\partial p^*\left(D\right)}{\partial M}<0.$$

4.
$$\frac{\partial\theta^*\left(N\right)}{\partial\lambda}<0 \text{ and } \frac{\partial p^*\left(N\right)}{\partial\lambda}<0.$$

Proof. The proofs of the first three results are identical to those in Proposition 5 and are omitted. To obtain the last one, we can again apply the Implicit Function Theorem and totally differentiate equations (47) and (48) to write

$$\begin{pmatrix} \frac{\partial H^N}{\partial\theta(N)} & \frac{\partial H^N}{\partial\theta(D)} \\ \frac{\partial H^D}{\partial\theta(N)} & \frac{\partial H^D}{\partial\theta(D)} \end{pmatrix}\begin{pmatrix} \partial\theta\left(N\right) \\ \partial\theta\left(D\right) \end{pmatrix}=-\begin{pmatrix} \frac{\partial H^N}{\partial\lambda} \\ \frac{\partial H^D}{\partial\lambda} \end{pmatrix}\partial\lambda.$$

An argument similar to that in the proof of Proposition 6 establishes that $\partial H^N/\partial\theta\left(D\right)<0$ and $\partial H^D/\partial\theta\left(N\right)>0$. Next it is also straightforward to see that $\partial H^D/\partial\lambda>0$ and $\partial H^N/\partial\lambda<0$. Then applying Cramer's rule and using the fact that $\det\mathcal{J}>0$ yields

$$\frac{\partial\theta^*\left(N\right)}{\partial\lambda}=\frac{\det\begin{pmatrix} + & - \\ - & - \end{pmatrix}}{\det\mathcal{J}}<0$$

while the same steps imply that $\partial\theta^*\left(D\right)/\partial\lambda$ has ambiguous sign. Finally, $\partial p^*\left(N\right)/\partial\lambda<0$ follows immediately from the monotonicity of $F\left(\cdot\right)$. ■

This proposition shows that in the environment with sluggish economic institutions the main comparative static results from Proposition 4 regarding the effect of economic rents, the discount factor and the cohesion of the landed elite continue to apply. Also interestingly, a decrease in λ, meaning more sluggish economic institutions in democracy, increases $p^{*}(N)$. This is intuitive; a lower λ means that democracy is more costly for the elite, because it will take time for them to impose their favorite economic institutions even when they take control in democracy. Consequently, the value of nondemocracy relative to democracy, $V(N)-V(D)$, is higher, so in nondemocracy, the elite invest more in order to preserve this set of political institutions (and the associated labor repressive economic institutions). The implications of a decrease in λ on the elite's de facto power in democracy is ambiguous, since it reduces the immediate benefits of taking control in democracy, but also, by increasing $V(N)-V(D)$, it increases the long-run benefits.

5 Durable Political Institutions and Captured Democracy

The assumption so far has been that when the elite have more political power than the citizens, they can change both economic institutions and the political system (though in the previous subsection, they could only change the economic institutions slowly). The historical examples below illustrate a different salient pattern: democracy may emerge and endure, but in a *captured* form, whereby the elite are able to impose their favorite economic institutions (or at the very least, have a disproportionate effect on the choice of economic institutions) in an enduring democracy. It is therefore important to generalize the model so that there can be differences between equilibrium political and economic institutions.

As discussed in detail in Acemoglu and Robinson (2006a), in many situations, political institutions are more difficult to change, and may have additional "durability". We now modify the baseline model to incorporate this feature and assume that overthrowing a democratic regime is more difficult than influencing economic institutions. More specifically, the elite require greater political power to force a switch from democracy to nondemocracy than simply influencing economic institutions in democracy. To simplify the discussion, we assume that when they influence economic institutions in democracy, they can choose their favorite economic institutions, labor repression.

Finally, for reasons that will become apparent below, we now assume that the time t

preferences of citizens, i.e., those for all $i \in \mathcal{C}$, are given by

$$\sum_{j=0}^{\infty} \beta^j \left(c_{t+j}^i + \nu \left(S_{t+j} \right) \right), \tag{49}$$

with $\nu(S = N) = 0$ and $\nu(S = D) > 0$. Therefore, these preferences allow a direct utility for the citizens from democracy (which may in turn be because of ideological reasons or a reduced-form for other benefits provided to the citizens by democracy). Moreover, we will assume that $\nu(S = D)$ is large enough that citizens always prefer and vote for democracy even when this may have economic costs for them.

We model institutional change as follows. We assume that when $s = D$ and $P_t^C + \xi > P_t^E \geq P_t^C$, where $\xi > 0$, the elite can choose economic institutions but cannot change the political system. If, on the other hand, $P_t^E \geq P_t^C + \xi$, the elite can choose both economic institutions and the future political system. Symmetrically when $s = N$ and $P_t^E + \xi > P_t^C \geq P_t^E$, the citizens can choose economic institutions, but cannot change the political system. This formulation builds in the assumption that changing political institutions is more difficult than influencing economic institutions in the most straightforward way.

Throughout this section, we again focus on symmetric MPE. Also, to keep the issues separate in this subsection, we assume that when the elite have more political power in democracy, they can impose their most preferred economic institutions, $\tau = 0$, as in the baseline model. Finally, to further simplify the discussion we strengthen Assumption 2:

Assumption 2' F is defined over $(\underline{\omega}, \infty)$ for some $\underline{\omega} < 0$, is everywhere strictly increasing and twice continuously differentiable (so that its density f and the derivative of the density, f', exist everywhere), and moreover we have $f'(\omega) < 0$ for all ω and $\lim_{\omega \to \infty} f(\omega) = 0$.

Given these assumptions, the structure of the model is similar to before. The value functions are more complicated, but have similar intuition to those in Section 3. In particular, in addition to (18), let

$$\hat{p}\left(\theta^i, \theta(D) \mid D\right) = F\left(\phi\left((M-1)\theta(D) + \theta^i\right) - \eta - \xi\right), \tag{50}$$

so that we have:[31]

$$\begin{aligned} V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right) &= \max_{\theta^i \geq 0} \Big\{ -\theta^i + p\left(\theta^i, \theta\left(D\right) \mid D\right) \frac{R^r L}{M} + \\ &\quad \left(1 - p\left(\theta^i, \theta\left(D\right) \mid D\right)\right) \frac{R^c L}{M} + \hat{p}\left(\theta^i, \theta\left(D\right) \mid D\right) \beta V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) \\ &\quad + \left(1 - \hat{p}\left(\theta^i, \theta\left(D\right) \mid D\right)\right) \beta V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right) \Big\}, \end{aligned} \tag{51}$$

where we have already imposed that when the citizens have sufficient power they will choose democracy.

With similar arguments to before, the maximization in (51) implies the following first-order condition

$$\begin{aligned} &\phi f\left(\phi\left(M-1\right)\theta\left(D\right) + \theta^i - \eta\right) \frac{\Delta R L}{M} \\ &+\beta\phi f\left(\phi\left(M-1\right)\theta\left(D\right) + \theta^i - \eta - \xi\right)\left(V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) - V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right)\right) = 1, \end{aligned} \tag{52}$$

which is now sufficient since Assumption 2' ensures that the second-order condition is satisfied.

The main difference of this first-order condition from the one before is that the probability with which the elite gain the economic rent $\Delta RL/M$ is different from the probability with which they secure a change in the political system. For this reason, two different densities appear in (52). As before, denote the resulting policy correspondence as $\Gamma^D\left(\theta\left(N\right), \theta\left(D\right)\right)$.

Similarly for nondemocracy, we define

$$\hat{p}\left(\theta^i, \theta\left(N\right) \mid N\right) = F\left(\phi\left(\left(M-1\right)\theta\left(N\right) + \theta^i\right) + \xi\right), \tag{53}$$

which leads to a modification of the value function for nondemocracy as

$$\begin{aligned} V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) &= \max_{\theta^i \geq 0} \Big\{ -\theta^i + p\left(\theta^i, \theta\left(N\right) \mid N\right) \frac{R^r L}{M} + \\ &\quad \left(1 - p\left(\theta^i, \theta\left(N\right) \mid N\right)\right) \frac{R^c L}{M} + \hat{p}\left(\theta^i, \theta\left(N\right) \mid N\right) \beta V\left(N \mid \theta\left(N\right), \theta\left(D\right)\right) \\ &\quad + \left(1 - \hat{p}\left(\theta^i, \theta\left(N\right) \mid N\right)\right) \beta V\left(D \mid \theta\left(N\right), \theta\left(D\right)\right) \Big\}, \end{aligned} \tag{54}$$

which also has a similar structure to the value function in democracy in this case, (54). Consequently, the first-order (necessary and sufficient given Assumption 2') condition for optimal

[31] An alternative way of writing (51) would be as follows: define $\tilde{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$ to be the probability that the elite are able to impose their preferred economic institutions but not change political institutions, and let $\breve{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$ be the probability that they are able to change the political institutions as well. Then with probability $\tilde{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$, they only receive $\Delta RL/M$, whereas with probability $\breve{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$, they receive $\Delta RL/M + \beta\left(V\left(N\right) - V\left(D\right)\right)$. This way of writing the recursive formulation is equivalent to (51) with $\breve{p}\left(\theta^i, \theta\left(D\right) \mid D\right) = \hat{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$ and $\tilde{p}\left(\theta^i, \theta\left(D\right) \mid D\right) = p\left(\theta^i, \theta\left(D\right) \mid D\right) - \hat{p}\left(\theta^i, \theta\left(D\right) \mid D\right)$.

contribution by an elite agent is also similar:

$$\phi f\left(\phi\left(M-1\right)\theta\left(N\right)+\theta^{i}\right)\frac{\Delta RL}{M} \tag{55}$$
$$+\beta\phi f\left(\phi\left(M-1\right)\theta\left(N\right)+\theta^{i}+\xi\right)\left(V\left(N\mid\theta\left(N\right),\theta\left(D\right)\right)-V\left(D\mid\theta\left(N\right),\theta\left(D\right)\right)\right)=1$$

which again defines the policy correspondence $\Gamma^{N}\left(\theta\left(N\right),\theta\left(D\right)\right)$.

To define an equilibrium, now introduce the additional notation such that $\pi=(0,0)$ denotes the elite keeping total power in nondemocracy or gaining total power in democracy (i.e., $P_t^E \geq P_t^C$ when $s=N$ or $P_t^E \geq P_t^C+\xi$ when $s=D$); $\pi=(0,1)$ corresponding to the elite keeping control of de jure power but losing control of economic institutions in nondemocracy (i.e., $P_t^E+\xi \geq P_t^C > P_t^E$); $\pi=(1,1)$ means the elite loses power in nondemocracy or fails to gain any power in democracy (i.e., $P_t^C > P_t^E+\xi$ when $s=N$ or $P_t^C > P_t^E$ when $s=D$); and finally, $\pi=(1,0)$ corresponds to the citizens maintaining de jure power in democracy but losing control over economic institutions (i.e., $P_t^C+\xi > P_t^E \geq P_t^C$). Imposing that citizens always prefer democracy to nondemocracy (from preferences in (49)), we have:

Definition 5 A symmetric MPE of the model with durable political institutions consists of a pair of contribution levels for elite agents $\theta\left(N\right)$ and $\theta\left(D\right)$, such that $\theta\left(N\right)\in\Gamma^{N}\left[\theta\left(N\right),\theta\left(D\right)\right]$ and $\theta\left(D\right)\in\Gamma^{D}\left[\theta\left(N\right),\theta\left(D\right)\right]$. In addition, economic and political decisions $\tau\left(\pi\right)$ and $s'\left(\pi\right)$ are such that $\tau\left(\pi=(0,0)\right)=\tau\left(\pi=(1,0)\right)=0$, $s'\left(\pi=(0,0)\right)=s'\left(\pi=(0,1)\right)=N$, $\tau\left(\pi=(1,1)\right)=\tau\left(\pi=(0,1)\right)=1$, $s'\left(\pi=(1,1)\right)=s'\left(\pi=(1,0)\right)=D$, and factor prices are given by (8)-(11) as a function of $\tau\in\{0,1\}$.

Given this definition, a symmetric MPE with $\theta\left(N\right)>0$ and $\theta\left(D\right)>0$ is a solution to the following two equations

$$\phi f\left(\phi M\theta\left(D\right)-\eta\right)\frac{\Delta RL}{M}+\beta\phi f\left(\phi M\theta\left(D\right)-\eta-\xi\right)\left(V\left(N\mid\theta\left(N\right),\theta\left(D\right)\right)-V\left(D\mid\theta\left(N\right),\theta\left(D\right)\right)\right)=1. \tag{56}$$

$$\phi f\left(\phi M\theta\left(N\right)\right)\frac{\Delta RL}{M}+\beta\phi f\left(\phi M\theta\left(N\right)+\xi\right)\left(V\left(N\mid\theta\left(N\right),\theta\left(D\right)\right)-V\left(D\mid\theta\left(N\right),\theta\left(D\right)\right)\right)=1. \tag{57}$$

It can be verified that Assumption 3 above is sufficient to ensure that zero contributions cannot be equilibria.

The interesting result in this case is that once the society becomes democratic, it will remain so potentially for a long time (i.e., $\hat{p}\left(D\right)$ can be small), but the elite will still be able to control the economic institutions (i.e., $p\left(D\right)$ could be quite large). This is stated and proved in the next proposition.

Proposition 9 ***(Captured Democracy)*** Consider the modified model with durable political institutions. Suppose that Assumptions 1, 2' and 3 hold. Then we have a Markov regime-switching process with state dependence and $1 > \hat{p}(N) > \hat{p}(D) > 0$. Moreover, democracy is captured in the sense that $0 < p(N) < p(D) < 1$, i.e., democracy will survive but choose economic institutions in line with the elite's interests with even a higher probability than does nondemocracy.

Proof. The probability of labor repressive economic institutions under democracy is

$$p(D) = p(\theta(D), \theta(D) \mid D) = F(\phi M \theta(D) - \eta),$$

while it is

$$p(N) = p(\theta(N), \theta(N) \mid N) = F(\phi M \theta(N))$$

in nondemocracy. Suppose, to obtain a contradiction, that $p(D) \leq p(N)$. This is equivalent to

$$\phi M \theta(D) - \eta \leq \phi M \theta(N). \tag{58}$$

Since from Assumption 2' f is decreasing everywhere, this implies

$$f(\phi M \theta(D) - \eta) \geq f(\phi M \theta(N)).$$

This equation combined with (56) and (57) implies that

$$f(\phi M \theta(D) - \eta - \xi) \leq f(\phi M \theta(N) + \xi).$$

Since from Assumption 2' f is decreasing, this is equivalent to

$$\phi M \theta(D) - \eta - \xi \geq \phi M \theta(N) + \xi,$$

which, given $\xi > 0$, contradicts (58), establishing that $p(D) > p(N)$, i.e., that democracy is captured.

But, by the same reasoning, $p(D) > p(N)$ implies $f(\phi M \theta(D) - \eta - \xi) > f(\phi M \theta(N) + \xi)$, thus $\phi M \theta(D) - \eta - \xi < \phi M \theta(N) + \xi$. Since F is strictly monotonic, this implies $\hat{p}(N) > \hat{p}(D)$, establishing the Markov regime-switching structure. ■

The equilibrium in this proposition is the richest and perhaps the most interesting one we have encountered so far. The equilibrium still takes a Markov regime-switching structure with fluctuations between democracy and nondemocracy; but in democracy, there is no guarantee that economic institutions will be those favored by the citizens. While in all the previous

models we studied, the elite were able to impose both their political and economic wishes at the same time, here we have an equilibrium pattern whereby democracy persists, but the elite are able to impose their favorite economic institutions. In fact, the proposition shows that (given Assumption 2') the elite will be able to impose labor repressive economic institutions with a *higher* probability under democracy than in nondemocracy.

The intuition for this (somewhat paradoxical) result is that in democracy there is an additional benefit for the elite to invest in de facto political power, which is to induce a switch from democracy to nondemocracy. Consequently, the elite invest in their de facto power sufficiently more in democracy that they are able to obtain their favorite economic institutions with a greater probability.[32] Nevertheless, the elite are happier in nondemocracy, because the cost of investing in their de facto political power in democracy is significantly higher. In fact, it is precisely because they prefer nondemocracy to democracy that they are willing to invest more in their de facto political power in democracy and obtain the labor repressive economic institutions with a high probability. What about citizens? If there were no additional benefit of democracy, $\nu(S = D) > 0$, then citizens would actually be worse off in democracy than in nondemocracy, because they only care about economic institutions and economic institutions are more likely to be labor repressive in democracy than in nondemocracy. Thus when $\nu(S = D) = 0$, citizens would never choose democracy, and would be happy to remain in nondemocracy (given the limited ability that they have to solve the collective action problem). Therefore, the ideological or other benefits of democracy encapsulated in $\nu(S = D) > 0$ create the possibility of the captured democracy equilibrium, whereby the citizens are willing to vote and defend democracy, but democracy at the end caters to the wishes of the elite.

Therefore, this model features both state dependence in political and economic institutions, and also coexistence of change in political institutions with persistence in economic institutions (i.e., the presence of labor repression in democracy). In fact, it is straightforward to see that the larger is ξ, the more likely is the configuration with stable democracy choosing economic institutions in line with the interests of the elite. Consequently, this model with durable political institutions and captured democracy provides both the richest set of predictions regarding the persistence of economic and political institutions, and a potential explanation for the patterns discussed in Section 7, which illustrate how many societies become and remain democratic,

[32] This result is not independent of functional form assumptions. For example, if we relax Assumption 2', it is possible to obtain an equilibrium with a semi-captured democracy where political institutions still follow a Markov-switching structure with state dependence, but the probability of labor repressive economic institutions in democracy is positive but no higher than in nondemocracy, i.e., $p(N) \geq p(D) > 0$. Nevertheless, relaxing Assumption 2' does not guarantee that such an equilibrium will exist; it only makes it possible.

but continue to pursue policies that favor the traditional landed elite.

6 Effective Reform

In this section, we briefly discuss how institutional persistence can be broken by effective reforms. Our framework shows how the equilibrium path may feature invariance (i.e., labor repressive and generally dysfunctional economic institutions remaining in place despite shocks that change the political organization of society) or state dependence (where dictatorship is more likely to follow dictatorship than it is to follow democracy). Are there any major reforms that could break these various types of persistence?

The comparative static results above suggest potential answers to this question. In particular, the results so far show that a change in political institutions from nondemocracy to democracy is likely to be effective (in terms of leading to equilibrium competitive labor markets and persistent democracy) under two alternative (but complementary) scenarios. First, if democracy creates a substantial advantage for the citizens in the form of a large value of η, then as shown by Corollary 1 this will end the cycle of institutional persistence and make the permanent consolidation of democracy an equilibrium.

Second, one of the following reforms is undertaken *simultaneously* with the switch to democracy, then the economy is less likely to switch back to nondemocracy and labor repressive economic institutions: (1) a reduction in ϕ_D in terms of the model of subsection 4.1, so that the traditional elites are less able to control politics in a democratic society (for example, preventing local threats of violence or the capture of political parties by the traditional elites would achieve such an outcome). (2) a reduction in ΔR, for example, by means of an increase in A, which will reduce the potential rents that the landed elites can obtain and will discourage them from investing in de facto political power.

This discussion therefore illustrates that while politics as business-as-usual may favor the elite even in democracy, undertaking simultaneous and significant reforms may change the character of the political equilibrium, making democracy and competitive labor markets more likely. An attractive example of simultaneous reform leading to a significant change in the distribution of political power in society is the 1688 Glorious Revolution in England, which not only changed de jure power by dethroning the Stuart monarchy, but also by substantially increasing the role of the Parliament and the allocation of economic resources in society, irreversibly altered the distribution of de facto political power (see, for example, North and Weingast, 1989, Acemoglu, Johnson and Robinson, 2005a). Another interesting example of

simultaneous reforms arises in the next section where we describe how central aspects of the economic institutions of the U.S. South, having survived the Civil War, finally changed in the 1960s.

7 Historical Perspective

We now examine some case studies of the persistence of power, elites and institutions from the U.S. South, Latin America and Africa (Liberia). Our objective is neither to provide a comprehensive historical account nor to test our model. Instead, we wish to illustrate salient cases of coexistence of change in political institutions with persistence in the underlying economic system, which has been the motivating empirical pattern for our theoretical analysis. In all cases, we will interpret the historical events through the lenses of the models presented above, though we will also attempt to highlight potential disagreements or alternative interpretations among historians when they exist.

7.1 Persistence of the Elites in U.S. South

> "De landlord is landlord, de politician is landlord, de judge is landlord, de shurf is landlord, ever'body is landlord, en we ain' got nothin." Testimony of a Mississippi sharecropper to an official of the Agricultural Adjustment Administration in 1936, Schulman (1994, p. 16).

An important example which illustrates our thesis in the continuation of the economic system based on labor repression, plantation and low-wage uneducated labor in the U.S. South before and after the significant changes in political institutions brought about by the Civil War.[33]

Before the Civil War, the South was significantly poorer than the U.S. average income at about 70% of GDP per-capita (e.g., Barro and Sala-i-Martin, 1992, Easterlin, 1960).[34] The South lacked industry (Bateman and Weiss, 1981, Wright, 1986, Table 2.4, p. 27) and in 1860 the total manufacturing output of the South was less than that of either Pennsylvania, New

[33] Although many features of the Southern economic system, such as the plantation system and the reliance on low-wage labor, persisted, as Wright (1986) emphasizes, there were also important discontinuities, for example, the fact that the planter class transformed itself from "laborlords," mostly relying on their slave property, to "landlords," more reminiscent to the large-scale plantation owners of South America.

[34] The relative poverty of the South has been hotly debated by scholars. Although Fogel and Engerman (1974) pointed out that if the South had been an independent country in 1860 it would have been amongst the 10 richest in the world, the consensus view is that the South was relatively backward with poor institutions in 1860 (a view which in its modern form goes back at least to Genovese, 1965). To the extent that it was relatively prosperous compared to other parts of the world at the time, this was because it had recently benefited from a huge boom in cotton prices (Wright, 1978) and also because it was embedded in a society whose institutions were formed in the 17th century, before the development of the plantation economy.

York or Massachusetts (Cobb, 1984, p. 6). The South had very low rates of urbanization (around 9% as opposed to 35% in the Northeast) and relatively little investment in infrastructure. For example, the density of railroads (miles of track divided by land area) was three times higher in the North than in Southern states. The situation with respect to canal mileage was similar (Wright, Table 2.1, p. 21). Perhaps more importantly, especially in the context of the potential for future economic growth and industrialization, the South was not even innovative for the sectors in which it specialized.[35]

Although there is no consensus about why the South was backward, all scholars relate this in various ways to the planation economy and slavery. Wright (1986) argues that because slaves were a mobile asset, there was no incentive for planter interests to support investment in public goods such as infrastructure, and so manufacturing could not develop. Bateman and Weiss (1981) show that Southern planters did not invest in industry, even though the rate of return was superior to that in agriculture. A plausible explanation for the lack of innovation is that slavery limited the possibilities for productive investment. Slaves were forbidden to own property or to become educated in most Southern states, presumably because this made them easier to control. But this pattern of labor repression also condemned plantations to low-skilled labor forces and possibly removed the incentives of planters to innovate. It is also possible that the lack of urbanization and industry was a consequence of concerns about the control of slaves and collective action, though Goldin (1976) disputes this.

In the aftermath of the Civil War, the income per-capita of the South fell to about 50% of the U.S. average. If the organization of the slave economy had been the reason why the South had been relatively backward in 1865, one might have imagined that the abolition of slavery in 1865 would have removed this blockage to Southern prosperity. The evidence and historical interpretations show that the abolition of slavery had a surprisingly small effect on the Southern economy.[36] Though planters initially tried and failed to reintroduce the gang labor system with the freed slaves, out of the ashes of the Civil War emerged a low wage labor intensive economy based on labor repression. Cut off from the rest of the United States, income per-capita remained at about half the average until the 1940s when it finally began slowly to converge.[37] Just as before the Civil War, there was systematic underinvestment in education

[35] For example, during the period 1837 to 1859 while the average numbers of patents issued per year relating to corn and to wheat were respectively 12 and 10, it was just 1 for cotton (see Schmookler, 1972).

[36] Despite this consensus, there is a debate on the related matter of why Southern incomes fell after the Civil War. The interpretation by Fogel and Engerman (1974) is based on the idea that the slavery system was relatively efficient, though this has been challenged, see, for example, Ransom and Sutch (2001).

[37] Wright (1986, p. 70) notes "the isolation of the southern unskilled labor market was a basic background condition for virtually the whole epoch between the Civil War and World War II."

(Margo, 1990).[38] The main incentive for this seems to have been to impede migration (see Wright, 1986, p. 79). In 1900 all but two of the non-Southern states had enacted compulsory schooling laws, while none had such laws in the South except Kentucky (Woodward, 1951, p. 399). Though industrial development did begin more systematically after 1865, Cobb (1984, p. 17) notes:

> "The industries that grew most rapidly in the post-Reconstruction decades were typical of an underdeveloped economy in that they utilized both cheap labor and abundant raw materials ... such industries hardly promised to elevate the region to economic parity with the rest of the nation".

So why did the economic system of the South change so little following the Civil War, especially given the significant changes in political institutions? At first, this persistence of economic institutions appears at odds with the significant changes in the distribution of *de jure* power that took place after the Civil War, for example, with the enfranchisement of the freed slaves, and the repeal of the Missouri compromise, which had previously cemented the political power of the South in the federal government.

We believe the answer is related to the forces emphasized in our model, in particular, to the exercise of de facto political power by the Southern landed elites to compensate for the loss of their de jure political power.[39] Consistent with our approach, there was considerable persistence in the identity and power of the political elites. For example, Wiener (1978) studied the persistence of the planter elite in 5 counties of the black belt of western Alabama. Tracking families from the U.S. census and considering those with at least $10,000 of real estate, he found that (p. 9) "of the 236 members of the planter elite in 1850, 101 remained in the elite in 1870." Interestingly, this rate of persistence was very similar to that experienced in the antebellum period; "of the 236 wealthiest planters families of 1850, only 110 remained in the elite a decade later" (p. 9). Nevertheless, "of the 25 planters with the largest landholdings in 1870, 18 (72%) had been in the elite families in 1860; 16 had been in the 1850 elite group."[40] Table

[38] Kousser (1974, p. 17) records a post-bellum adage "To educate a 'nigger' is to spoil a good field hand."

[39] Another possibility would be that the continuation of large plantation agriculture was because of its relative economic efficiency. Yet this seems inconsistent with the available evidence. For example, Wright (1986, p. 84) argues "The plantations survived the Civil War, and their survival had little to do with their efficiency as producing units ... cotton and tobacco could be grown just as efficiently on family-sized farms. No, the key to the survival of the plantation was the ability of the former slave owners to hold on to their land in the midst of intense legal and political struggles after 1865. In national politics, the planters successfully blocked proposals for land confiscation and redistribution to the freedmen."

[40] Death during the Civil War appears to have had little impact on the persistence of the planter elites because the law exempted one slaveholder from military service for every 20 slaves held (Wiener, 1978, p. 18).

1 reproduces these data from Wiener (1978) and shows the high degree of persistence in the identity of Southern landed elites.[41]

After the end of the Civil War, more or less the same group of planter elites controlled the land and used various instruments to re-exert their control over the labor force. Though the specific economic institution of slavery did not persist, the evidence shows a clear line of persistence in the economic system of the South based on plantation-type agriculture with cheap labor. This economic system was maintained through a variety of channels, including both control of local politics and exercise of potentially violent de facto power. As a consequence, in the words of W.E.B. Du Bois (1903, p. 88), the South became "simply an armed camp for intimidating black folk."

The planter elite successfully staffed or co-opted the members of the Freedmen's Bureau, whose remit was to supervise the freed slaves. In 1865 the state legislature of Alabama passed the Black Code, an important landmark towards the repression of black labor. Wiener (1978, p. 58) describes this as: "The Black Code of Alabama included two key laws intended to assure the planters a reliable supply of labor—a vagrancy law, and a law against the 'enticement' of laborers". These laws were designed to impede labor mobility and reduce competition in the labor market.[42]

In addition to moulding the legal system in their favor, "Planters used Klan terror to keep blacks from leaving the plantation regions, to get them to work, and keep them at work, in the cotton field" (Wiener, 1978, p. 62).[43] In his seminal study of the politics of the South after World War II, Key (1949, p. 9) sums up the pattern of persistence of the institutions of the South both before and after the Civil War as the "extraordinary achievement of a relatively small minority—the whites of the areas of heavy Negro population."

A key to the persistence of the antebellum system after the Civil War was the continued control over land. For example, in the debate over the redistribution of 40 acres of land to the freedmen (vetoed by President Andrew Johnson in 1865), Congressman George Washington Julian argued (quoted in Wiener, 1978, p. 6):

[41] Other studies find similar persistence in other parts of the South. See, for example, Ransom and Sutch (2001, pp. 78-80) on landonwership in Dallas County Alabama, Huffman (1974) on Clarke County, Georgia, and Billings (1979) on North Carolina. This research to some extent contradicted earlier studies which had seen far more change in the identity of Southern elites after the Civil War (e.g., Woodward, 1951)

[42] The extent to which southern planters were able to exert classical monopsony power is controversial, see Alston and Kauffman (2001). Nevertheless, economic historians do agree on the use of coercion, intimidation, violence and segregationist legislation to repress and control free black labor.

[43] Relatedly, Alston and Ferrie (1989) show how planters controlled their labor force by offering them "security" from violence and lynching.

"Of what avail would be an act of congress totally abolishing slavery ... if the old agricultural basis of aristocratic power shall remain?"

A third strategy, again consistent with the emphasis on the de facto political power of the elite in our theoretical analysis, was control of the local political system. Following the Civil War, the period called 'Reconstruction' lasted until 1877 (see Stampp, 1965, and Foner, 1989). In this period Republican politicians contested power in the South and, with the help of the Union Army, engineered some social changes. Nevertheless, this induced a systematic backlash in the guise of support for the Democratic Party and the so-called 'Redeemers.' In 1877, in the context of a log-roll between President Rutherford Hayes and Southern national politicians, Union soldiers were withdrawn from the South and the region left to its own devices. The period after 1877 then marked the real recrudescence of the antebellum elite. The 'redemption' of the South involved the systematic disenfranchisement of the black (and poor white) population through the use of poll taxes and literacy tests (Key, 1949, Kousser, 1974) and the creation of the one-party Democratic regime.[44]

Key (1949, pp. 309-10), in his analysis of the primary elections of the Democratic party, noted the hegemony of southern society's "upper brackets" and the political marginalization of its "lower brackets." He discusses in detail the control of North Carolina's economic oligarchy over politics, noting that (p. 211): "The effectiveness of the oligarchy's control has been achieved through the elevation to office of persons fundamentally in harmony with its viewpoint."

This picture is also confirmed by the analysis of Wright (1986, p. 78), who writes "Even in the 1930s, southern representatives in Washington did not use their powerful positions to push for new federal projects, hospitals, public works and so on. They didn't, that is, as long as the foundations of the low-wage regional economy persisted."

In addition to disenfranchisement a whole gamut of segregationist legislation—the so-called Jim Crow laws—was enacted (Woodward, 1955, for the classic analysis). These laws turned the postbellum South into an effective "apartheid" society where blacks and whites lived different lives. As in South Africa, these laws were aimed at controlling the black population and its labor supply.

[44] Key (1949, pp. 8-9), for example, notes: "Two-party competition would have been fatal to the status of black-belt whites. It would have meant in the 'nineties an appeal to the Negro vote and it would have meant ... Negro rule in some black-belt counties. From another standpoint, two-party competition would have meant the destruction of southern solidarity in national politics ... Unity on the national scene was essential in order that the largest possible bloc could be mobilized to resist any national move towards interference with southern authority to deal with the race question as was locally desired."

Consequently, the South entered the 20th century as a primarily rural society. "It remained an agrarian society with a backward technology that still employed hand labor and mule power virtually unassisted by mechanical implements" Ransom and Sutch (2001 pp. 175-176).[45] In 1900, the South's urbanization rate was 13.5%, as compared to 60% in the Northeast (Cobb, 1984, p. 25).

Ransom and Sutch's (2001, p. 186) assessment of the implications of this economic and political system in the South for economic progress is representative of the consensus view: "Southerners erected an economic system that failed to reward individual initiative on the part of blacks and was therefore ill-suited to their economic advancement. As a result, the inequities originally inherited from slavery persisted. But there was a by-product of this effort at racial repression, the system tended to cripple all economic growth":

> "When whites used threats of violence to keep blacks from gaining an education, practicing a trade, or purchasing land, they systematically prevented blacks from following the three routes most commonly travelled by other Americans in their quest for self-advancement. With over half the population held in ignorance and forced to work as agricultural laborers, it is no wonder that the South was poor, underdeveloped, and without signs of economic progress" Ransom and Sutch (2001, p. 177).

All in all, the Southern equilibrium, based on the exercise of de facto power by the landed elite, plantation agriculture and low-wage, uneducated labor, persisted well into the 20th century, and only started to crumble after World War II. Interestingly, it was only after the demise of this Southern equilibrium, that the South started its process of rapid convergence to the North.

What caused the collapse of the Southern equilibrium? Consistent with the emphasis in Section 6, it seems that this collapse was brought about by the juxtaposition of a variety of factors. Initially, the depth of the Great Depression weakened the resolve of Southern politicians to block federal policies that might integrate the Southern economy into the rest of the nation (Schulman, 1994). Other important factors include the great outmigration and the impact of the simultaneous mechanization of cotton picking on the labor requirements of agriculture. As blacks became harder to trap in the South, they also became less necessary to generate rents.[46]

[45] See Whatley (1985) for a hypothesis explaining the lack of innovation in the post-bellum South in terms of the poor incentives created by sharecropping contracts.

[46] An interesting question, which is not central to our interpretation, is whether mechanization of cotton reduced the cost of black migration to the Southern landed elite, who then tolerated such outmigration, or

Wright's (1999, Table 1, p. 281) data on net migration from the South shows the large increase in black outmigration starting in the 1940s and Heinicke (1994, Table 1, p. 506) shows the concurrent rapid spread of mechanized cotton picking. First introduced in 1949, by the end of the 1950s mechanical cotton picking was the rule rather than the exception in the South; half of the crop in the key cotton states was being picked mechanically.

In addition to these changes, the Southern equilibrium was disrupted by the collective action of the Civil Rights movement and a sequence of Supreme Court and government decisions, such as Brown versus Board of Education in 1954, the Civil Rights Act of 1964 and the Voting Rights Act of 1965. These significant events can be interpreted as a decline in the ability of the landed elite to exercise de facto political power in democracy. McAdam's (1983, Figures 1 and 2, p. 739) data on the number of civil rights collective actions (bus boycotts and sit-ins) shows a sharp increase starting in 1960 (see also Chong, 1991), while Wright (1999, Figure 2, p. 273) records the dramatic increase in the registration of black voters in Southern states over this period. It thus became increasingly more difficult for the Southern landed elites to control the political process (see also the detailed analysis of the impact of the Voting Rights Act on economic growth in the South in Besley, Persson and Sturm, 2005).

7.2 Persistence of Elites and Economic Institutions in Latin America

Despite the significant changes in political institutions that have taken place since the colonial era in Latin America, the capture of political and economic institutions by elites is an enduring theme of much of the historical literature on the sub-continent. There are numerous studies documenting both the capture of democratic politics by traditional elites and the resulting continuation of labor repressive policies in agriculture in many Central and Latin American countries. Some notable examples include Zeitlin (1984) and Zeitlin and Ratcliff (1988) on Chile, Smith (1979) on Mexico, and Paige (1997) on Central America. A central question for understanding the economic development (or lack thereof) in Central and Latin America and the Caribbean is therefore how and why the economic system based on labor repression and cheap labor in agriculture failed to change following the political reforms that have gradually brought more democratic means of collective decision-making in these societies.

As in the U. S. South, the answer is related to the exercise of de facto political power by traditional elites in the context of democratic politics. The capture of democratic politics in Colombia, for example, took many different forms, depending on the specific conditions and the options open to the traditional elites, with the most common forms being the actual

whether the changes in the supply of cheap labor caused by black outmigration encouraged mechanization.

domination of political parties by the elites, electoral fraud, blocking of entry of new parties, and use of violence.

The most obvious form of political capture is the actual running of political parties and offices by members of the landed elite. This has been particularly the case in much of Central America and has been carefully documented by Stone (1975, 1990). His genealogical research shows the extraordinary extent to which elites have persisted in Costa Rica and other Central American countries from the colonial times.

Figures 1 and 2 (from Stone, 1990) show the striking number of presidents since independence in various Central American countries that are related to two conquistadors, Cristóbal de Alfaro and Juan Vázquez de Coronado, who both arrived in Central America in the 16th century. Figure 1 shows that no less that 48 presidents were direct descendents of Alfaro, 25 of them in Costa Rica. Alfaro's descendents also include the Somoza dynasty who ruled Nicaragua for most of the 20th century until the Sandinista Revolution in 1979. Figure 2 shows the 29 presidents descended from Vázquez, including again the Somoza clan and many of the same presidents of Costa Rica related to Alfaro.

As a case study we now examine Colombia in more detail. Colombia became independent from Spain in 1819 and the Liberal and Conservative parties first competed in the election of 1850.[47] These two parties have maintained their hold on political power ever since. As early as 1856 the Liberals introduced universal male suffrage and as many as 40% of adult males voted (Bushnell, 1971). After the 1863 Constitution, voting rights were determined at the state level, but several of them maintained universal suffrage (see Delpar, 1981). In the 19th century, the parties contested elections, but they also fought for power. Although the fighting sometimes took the form of civil wars, the parties also frequently reached collusive agreements to make sure that other political parties, especially those representing peasants and workers, were unable to enter the political system. For example, after the civil war from 1899 to 1902, the two parties introduced a power-sharing agreement, which divided all the seats in the legislature between the two parties by means of the 'incomplete vote' (Mazzuca and Robinson, 2004). This system lasted until 1929. After a civil war in the 1950s (a period know as *La Violencia*), the parties resurrected this collusive agreement in 1958, splitting the legislature 50-50 and also agreeing to take turns at the presidency for 16 years. In practice this power sharing agreement endured until the middle of the 1980s.

[47] The best studies of the origins of the parties are Colmenares (1968), Safford (1972) and Delpar (1981). Some trace the alignments to factions that formed in the late 1820s over whether or not Simón Bolívar should be made Emperor, though there have also typically been significant policy differences between these two parties.

The Liberals and Conservatives managed to successfully block entry of other parties to the political system through a variety of strategies. Even after the reintroduction of universal suffrage in 1936, fraud, violence, and engineering the electoral rules to create barriers to entry were widespread.[48] Electoral fraud is, in fact, a recurrent theme in Colombian politics and took many forms (see, for example, Bushnell, 1993, and Chaves, Fergusson and Robinson, 2005). Fraud was also used by the traditional parties to directly derail populist challenges, such as during the attempt by Rojas Pinilla to win the 1970 presidential election.[49]

Violence has also been endemic in Colombian politics. The potential "Perón" of Colombia, Jorge Eliécer Gaitán, who was likely to pursue populist and redistributive policies, was murdered in 1948 just when it seemed likely he would become the leader of the Liberal party. Luis Carlos Galán was murdered in 1990 just as he was emerging as the leader of the Liberal party.[50] In the 1980s the first alternative political party to seriously emerge since the beginning of the National Front in 1958 was the Unión Patriótica. This party was effectively obliterated in the 1980s by the systematic murder of its candidates (see, for example, Kline, 1999).[51]

Finally, as in Central America, the political parties in Colombia have featured strong family ties. The Conservative Ospina family has provided three Presidents, Mariano Ospina Rodríguez (1857-1861), Pedro Nel Ospina (1922-1926) and Mariano Ospina Pérez (1946-1950). The Liberal López family provided not just Alfonso between 1934 and 1938, and again between 1942 and 1945, but also Alfonso López Michelsen between 1974 and 1978. The Liberal Lleras

[48] This is related to the absence of a socialist party in Colombia. Some scholars have suggested that the relatively egalitarian frontier expansion that took place in the second half of the 19th century has contributed to the creation of a middle class of property owners, which checked radicalism in Colombian politics. This thesis does not appear to be very convincing in view of the fact that Colombia has one of the most unequal distributions of land ownership and income in the world (on this Antioqueño expansion see Christie, 1978).

[49] Another factor that appears to have contributed to the continuation of the two-party system is the way the electoral system created incentives for dissidents to stay within the traditional parties. For example, the electoral system ensured that candidates could be elected with far fewer votes than the electoral quotient, thus potentially guaranteeing that elite factions would get representation. At the same time, the traditional parties allowed "dissident lists" to run, providing a platform to potential dissidents. In line with these ideas, Dix (1967, p. 250) notes "proportional representation may have helped to a degree to reinforce the two-party system by allowing dissident factions to gain representation according to their strength in the electorate while still not forcing them from the party. Retaining the party label, or some version of it, they have usually been reabsorbed into the officialist ranks after one or two elections."

[50] Political entrepreneurs, like Gaitán and subsequently Alfonso López Michelsen and Galán, considered forming a third party, but then always returned to the fold because the electoral system made success by third parties difficult. Indeed, it is quite likely that the assassination of Gaitán was precisely because he had finally emerged as the leader of the Liberal party, not because political rivals anticipated the creation of a third party.

[51] In the 1986 elections, Unión Patriótica obtained 5 seats in the Senate and 9 in the Chamber of Representatives at the national level, and 14 deputies, 351 councilmen and 23 municipal mayors at the local level. By 1988, the party was wiped out, however. The Amnesty International reported that more than 500 of its members, including its previous presidential candidate, Pardo Leal, and 4 congressmen, had been assassinated, most likely with the involvement of members of the Colombian military and government.

family provided presidents in 1945-1946 and 1958-1962 (Alberto Lleras Camargo) and again in 1966-1970 (Carlos Lleras Restrepo). The Conservative Pastrana family provided Misael Pastrana between 1970 and 1974 and Andrés Pastrana between 1998 and 2002. The son of Conservative President Laureano Gómez (1950-1953), Álvaro was the Conservative challenger in the late 1980s and early 1990s and the father of Liberal President Julio Turbay (1978-1982) had previously been the most powerful figure in the Liberal party.

Overall, through a variety of means, including elite domination of politics, electoral fraud, blocking of the creation of new parties and violence, traditional elites seem to have been able to have a disproportionate effect in the democratic politics of Central America and Colombia. We conjecture that this pattern of elite dominance has been an important element in the continuation of the economic system based on cheap labor and quasi-labor repression in the countryside of many of these countries.

7.3 Persistence of Elites and Economic Institutions in Africa

The issues we study here are of importance outside of the Americas, and here we illustrate them with the example of Liberia. Modern Liberia was started in 1820 by the American Colonization Society (ACS) as a home for freed and repatriated African slaves.[52] The ACS bought land from local chiefs around the site of the modern capital of Monrovia (named after the then President of the United States James Monroe), and in 1847 Liberia became independent of the ACS. The year 1877 saw the emergence of the True Whig Party (TWP), which would dominate politics until the coup of Samuel Doe in 1980. The TWP comprised of the descendents of the repatriated slaves, the Americo-Liberians, who dominated the party and the country for over a century. This group set themselves up as an elite over the 'tribal peoples' and ran the country as if it were a colony. By the 1960s Americo-Liberians were about 3-5% of the population.

Despite the early emergence of the Americo-Liberian elite in Liberia, the political system has relied on elections since the 19th century, and became fully democratic starting in 1944. Nevertheless, like their Central American or Southern U.S. counterparts, the Americo-Liberian elite have been able to dominate democratic politics through a variety of means, including extreme electoral fraud and violence, and their domination of politics has been a major cause of the continued economic backwardness of Liberia.

The first study of the economic backwardness of Liberia was undertaken by a team of U.S. based economists from Northwestern University hired by USAID in the early 1960s (Clower et

[52] This discussion draws on the general history of Liberia by Sawyer (1992).

al., 1966). Dalton (1965, p. 581) sums up their findings by concluding that Liberia was ruled by the elite of the TWP and Americo-Liberians and that

> "...the economic backwardness of Liberia is not attributable to the lack of resources or to domination by foreign financial or political interests. The underlying difficulty is rather that the traditional Americo-Liberian rulers, who fear losing political control to the tribal people, have not allowed those changes to take place which are necessary to develop the national society and economy. ... Like the Portuguese in Angola or the Afrikaners in South Africa, the rulers of Liberia are the descendents of an alien minority of colonial settlers. Americo-Liberian families."

The TWP used indirect rule adapted from the British to control the hinterland and manipulate chiefships. As Clower et al. record, Liberia became a two class society and different laws, access to education and the legal system governed Americo-Liberians and tribal peoples. Dalton (1965, p. 584) points out that "Ironically, it is the ethic of Mississippi that most nearly characterizes their outlook: to retain power in traditional fashion and keep the natives in their place."

Before 1944, the hinterland had no political representation at all, and even after it did so, the TWP were able to cling to power through their complete control of the economy, and more significantly, through intimidation, corruption and coercion.[53]

The resulting economic institutions in Liberia certainly approximated the labor repressive institutions in the model discussed above. In the 1960s tribal peoples were still subject to forced labor on public works and rubber plantations (1/4 of the labor force in early 1960s) and the economy was either completely controlled by the TWP or by foreigners. The state apparatus became a huge patronage machine dedicated to promoting the interests of the TWP and the Americo-Liberians.

A key feature of Liberian politics, facilitating the exercise of power by the TWP, was the kinship networks of the Americo-Liberians (see Fraenkel, 1964). Dalton (p. 589) argues that "to understand Liberian politics, knowledge of kinship connections is more useful than knowledge of the Liberian constitution." Figure 3 shows how higher political offices were monopolized by the kinship network of President Tubman, who ruled between 1944 and 1971 and was from one of the established families of the Americo-Liberians.

[53] Indeed Liberia has the sad reputation as having had the most corrupt election ever held for Charles B. King's election in 1927. The Guinness Book of Records (1982) qualified the elections as the most fraudulent ever reported in world history. Suffrage was constitutionally limited to some 15,000 citizens, all Americo-Liberians, but according to the official election results some 240,000 votes were cast for Charles B. King.

After his defeat in the 1927 presidential elections, Thomas Faulkner accused the President-elect, Charles D.B. King, of allowing slavery to exist in the Republic and that certain highly placed government officials were engaged in the forced shipping of laborers to the Spanish island of Fernando Po. Faulkner's accusations spurred a wave of international reactions, and a Committee of the League of Nations, established to examine the allegations, indeed concluded that shipment of laborers to Fernando Po and Gabon was associated with slavery because the method of recruiting carried compulsion with it. Moreover, persons holding official positions were shown to have illegally misused their office in recruiting labor with the aid of the Liberian Frontier Force (the national military controlled by the TWP). Not only had Americo-Liberian government officials benefited from forced labour, but so had the most major foreign company in Liberia, Firestone.[54] In essence the TWP had offered Harvey Firestone a guaranteed cheap labor supply through coercion.

There can be few better historical examples of an elite than the Americo-Liberians and the TWP. Initially, they were able to restrict de jure power only to themselves, completely disenfranchising the indigenous Africans. They were also able to dominate in their use of de facto power because they had the support of the United States and superior weapons. Over time the political system opened. After 1944 the TWP had to deal with the political inclusion of peoples in the hinterland. They were nonetheless able to use their de facto power to maintain the economic institutions they favored.

Therefore, the domination of politics by the Americo-Liberian elite and their choices of (highly inefficient) economic institutions to redistribute resources to themselves gives another example of the successful exercise of de facto power by an elite both under nondemocratic and democratic political institutions.

8 Conclusions

Almost all theoretical and empirical research in political economy starts with the presumption that institutions, once in place, persist and shape the political-economic interactions of different groups and agents. Nevertheless, many societies experience frequent changes in their political institutions, such as the end of the colonial era and the creation of the republics throughout the 19th and 20th centuries, or multiple switches between dictatorship and democracy during

[54] Vast rubber plantations were started by Firestone in 1926. Firestone obtained a one million acre concession for a 99-year period (roughly corresponding to 10% of what was considered arable land in Liberia), was granted the exclusive rights upon the lands selected, and became—with small, exceptions—exempted of all present and future taxes.

the 20th century. Certain economic institutions also change, with slavery, forced labor, and the *encomienda* coming to an end in Latin America and Caribbean, and waves of nationalization and privatization of industry in many less developed countries. In the face of this picture of frequently changing (political and economic) institutions, do institutions really persist?

This paper has argued that the answer is yes, in the sense that the broad economic institutions, which are essential for economic outcomes, can persist even when specific political institutions, or even specific economic institutions, change. In line with this perspective, it has proposed a simple model of the coexistence of change and persistence in institutions.

The basic idea is that economic institutions are decided by groups or individuals that possess more political power. Political power, in turn, consists of de jure power regulated by formal political institutions and de facto political power, which comes from the ability of various different social groups to solve their collective action problems, lobby or bribe politicians, capture and control political parties, or use paramilitaries or other means of repression. Changes in specific political institutions, for example a change from nondemocracy to democracy, affects the distribution of de jure political power. This, however, may induce cohesive (and small) groups, such as (landed) elites to increase their investments in de facto political power to offset their loss of de jure political power.

To illustrate this mechanism in its starkest form, our baseline model assumed that the technology of generating de facto political power for the elite is the same in democracy and nondemocracy, and demonstrated the possibility of invariance, that is, a pattern where the equilibrium distribution of economic institutions is independent of whether the society is democratic or not—despite the fact that democracy creates a real shift in the distribution of de jure power towards the citizens. The reason for this stark result is that the landed elite invest enough to fully offset their loss of de jure power when society switches from nondemocracy to democracy.

The result that investment in the de facto power by the elite entirely offsets changes in de jure power is special, and the analysis showed how, more generally, the equilibrium takes the form of a Markov regime-switching process with state dependence. This Markov regime-switching structure emerges when some of the assumptions of the baseline model are relaxed, for example, when democracy is allowed to place limits on the exercise of de facto power by the elite (e.g., on their capture of political parties or use of paramilitaries), or when there are costs of changing economic institutions in the short run.

The richest model is presented in Section 5, and allows for the feature that political institutions are more difficult to change than are economic institutions. Under this assumption,

a pattern of "captured democracy" arises, whereby democracy endures, but the elite are able to have a disproportionate effect on equilibrium economic institutions. In fact, in this model, paradoxically, the probability of labor repressive economic institutions in agriculture may be higher in democracy than in nondemocracy. This model is useful for interpreting the historical patterns discussed in Section 7. These patterns show the coexistence of change and persistence in institutions in the U.S. South, Latin America and Africa, and how traditional elites may be able to control democratic politics and maintain their favorite economic institutions. In all the cases we discussed, changes in some important dimensions of political institutions, which may have been potentially quite costly for the elites, were neutralized by the exercise of their de facto power, for example, control of the party system or key offices, or local violence. These examples suggest that the mechanisms highlighted by our model may be important in understanding how frequent changes in specific political institutions go hand-in-hand with the persistence of economic systems, with their broad distributional and efficiency characteristics unchanged.

The mechanism proposed in this paper, where the identity of the elites as well as the economic systems persist, is only one facet of institutional persistence. Another pattern, which appears salient in practice, for example, in cases such as Bolivia, Zimbabwe, Kenya and Ghana, is one in which the identity of the elites changes, but new elites adopt policies in line with the worst practices of their predecessors. This is reminiscent of Michels' (1911) *Iron Law of Oligarchy*, as well as of the emphasis by sociologists such as Mills (1956), Mosca (1939) and Pareto (1968) on the persistence and creation of elites. This pattern seems like a challenging but important area of study. Most ambitiously, future research may strive towards a unified model that can explain the composition of elites, when existing elites persist, when elites change but institutions persist, and when institutions truly change. Alternatively, a model isolating the iron law of oligarchy may be useful in understanding why dysfunctional incentives persist in the political arena, a direction we are currently pursuing in Acemoglu and Robinson (2006b).

9 Appendix: Proofs of Propositions 2 and 3

Proof of Proposition 2: Let us first define

$$\Delta V^i\left(\theta^{-i}(N),\theta^{-i}(D)\right)\equiv V^i\left(N\mid\theta^{-i}(N),\theta^{-i}(D)\right)-V^i\left(D\mid\theta^{-i}(N),\theta^{-i}(D)\right).$$

From the recursive formulations in (29) and (30), for all $i\in\mathcal{E}$ we have the first-order necessary conditions:

$$\phi f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i}\theta^j(N)+\theta^i\right)\right)\left(\frac{\Delta RL}{M}+\beta\Delta V^i\left(\theta^{-i}(N),\theta^{-i}(D)\right)\right)\leq 1 \text{ and } \theta^i\geq 0, \tag{59}$$

$$\phi f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i}\theta^j(D)+\theta^i-\eta\right)\right)\left(\frac{\Delta RL}{M}+\beta\Delta V^i\left(\theta^{-i}(N),\theta^{-i}(D)\right)\right)\leq 1 \text{ and } \theta^i\geq 0, \tag{60}$$

both holding with complementary slackness.

The proof proceeds in several steps. First, Assumption 3 implies that $\theta^i(N)=0$ and $\theta^i(D)=0$ for all $i\in\mathcal{E}$ cannot be an equilibrium. Therefore there must exist some $i'\in\mathcal{E}$ such that $\theta^{i'}(N)>0$ and $i''\in\mathcal{E}$ such that $\theta^{i''}(D)>0$.

Second, we claim that there must exist some $i\in\mathcal{E}$ for whom both (59) and (60) hold as equalities. Suppose not. Then it must be the case that for i' and i'' defined in the previous paragraph, we have, respectively, (59) and (60) holding as equalities and (60) and (59) are slack. This implies

$$\begin{aligned}1 &= \phi f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i'}\theta^j(N)+\theta^{i'}\right)\right)\left(\frac{\Delta RL}{M}+\beta\Delta V^{i'}\left(\theta^{-i'}(N),\theta^{-i'}(D)\right)\right)\\ &> \phi f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i'}\theta^j(D)+\theta^{i'}-\eta\right)\right)\left(\frac{\Delta RL}{M}+\beta\Delta V^{i'}\left(\theta^{-i'}(N),\theta^{-i'}(D)\right)\right)\end{aligned}$$

or

$$\begin{aligned}f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i'}\theta^j(N)+\theta^{i'}\right)\right) &= f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(N)\right)\right)\\ &> f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(D)-\eta\right)\right)=f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i'}\theta^j(D)+\theta^{i'}-\eta\right)\right).\end{aligned}$$

Similarly for i'',

$$\begin{aligned}f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i''}\theta^j(N)+\theta^{i''}\right)\right) &= f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(N)\right)\right)\\ &< f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(D)-\eta\right)\right)=f\left(\phi\left(\sum_{j\in\mathcal{E},j\neq i''}\theta^j(D)+\theta^{i''}-\eta\right)\right),\end{aligned}$$

yielding a contradiction with the previous inequality.

Third, the fact that there exists some $i\in\mathcal{E}$ for whom both (59) and (60) hold as equalities implies that

$$f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(N)\right)\right)=f\left(\phi\left(\sum_{j\in\mathcal{E}}\theta^j(D)-\eta\right)\right).$$

This is clearly only possible if

$$\phi \sum_{i \in \mathcal{E}} \theta^i (N) = \phi \sum_{i \in \mathcal{E}} \theta^i (D) - \eta,$$

which implies $p(D) = p(N) > 0$. The fact that $p(D) = p(N) < 1$ again follows from Assumption 2, completing the proof.

Finally, for use in the proof of Corollary 2, also note that this argument establishes that for any $i \in \mathcal{E}$ for whom (59) or (60) holds as equality, both of these equations must hold as equality. ■

Proof of Proposition 3: We will prove this proposition by showing that for any Pareto optimal distribution of contributions among elite agents, there exists a $\tilde{\beta} \in [0,1)$, such that this distribution can be supported as an SPE and involves equilibrium probabilities $p(D) = p(N) \in (0,1)$. The special case of equal contributions will establish the first part of the proposition, and the fact that as $\beta \to 1$ this is true for any distribution establishes the second part.

First suppose that a single individual controls all contributions by elite agents to de facto power. With the same arguments as above, the problem of this individual can be written recursively as:

$$\tilde{V}(N) = \max_{\theta \geq 0} \left\{ -\theta + F(\phi\theta) \left(\frac{R^r L}{M} + \beta \tilde{V}(N) \right) + (1 - F(\phi\theta)) \left(\frac{R^c L}{M} + \beta \tilde{V}(D) \right) \right\},$$

$$\tilde{V}(D) = \max_{\theta \geq 0} \left\{ -\theta + F(\phi\theta - \eta) \left(\frac{R^r L}{M} + \beta \tilde{V}(N) \right) + (1 - F(\phi\theta - \eta)) \left(\frac{R^c L}{M} + \beta \tilde{V}(D) \right) \right\},$$

where now $\theta = \sum_{i \in \mathcal{E}} \theta^i$ is the total contribution by elite agents, and these expressions only differ from (16) and (19) because the entire cost of contributions and the entire benefit in terms of land rents are taken into account. Denoting optimal choices in this program by $\theta^*(N)$ and $\theta^*(D)$, the first-order conditions are

$$\phi f(\phi\theta^*(N)) \left(\frac{\Delta RL}{M} + \beta \left(\tilde{V}(N) - \tilde{V}(D) \right) \right) \leq 1 \text{ and } \theta^*(N) \geq 0$$

$$\phi f(\phi\theta^*(D) - \eta) \beta \left(\frac{\Delta RL}{M} + \tilde{V}(N) - \tilde{V}(D) \right) \leq 1 \text{ and } \theta^*(D) \geq 0,$$

holding with complementary slackness. Assumption 3 ensures that $\theta^*(N)$ and $\theta^*(D)$ have to be positive, so the solution to this problem involves

$$\phi\theta^*(N) = \phi\theta^*(D) - \eta \tag{61}$$

and thus $p(D) = p(N) > 0$. That $p(D) = p(N) < 1$ again follows from Assumption 2. It is clear that an equilibrium satisfying the above conditions would be Pareto optimal from the ex ante viewpoint of elite agents (for some distribution of the total contributions $\theta^*(N)$ and $\theta^*(D)$ across the elite agents), since no elite agent can be made better off without some other elite agent being made worse off.

Next we show that there exists $\tilde{\beta} \in [0,1)$ such that for $\beta \geq \tilde{\beta}$, any distribution of contributions $\theta^*(N)$ and $\theta^*(D)$ across elite agents can be supported as an SPE. To simplify the notation, consider a stationary distribution (though, with more notation, the argument easily generalizes to any time-varying

distribution): $\left\{\theta^{i*}(N)\right\}_{i\in\mathcal{E}}$ and $\left\{\theta^{i*}(D)\right\}_{i\in\mathcal{E}}$. Consider a candidate SPE with this distribution and the feature that following a deviation, the equilibrium reverts back to an MPE.[55] Recall from Proposition 2 that in any MPE we have $\tau(\pi=0)=0$ and $s'(\pi=0)=N$, and some contributions denoted by $\left\{\theta^{ip}(N)\right\}_{i\in\mathcal{E}}$, $\left\{\theta^{ip}(D)\right\}_{i\in\mathcal{E}}$ such that $\theta^{p}(N)\equiv\sum_{i\in\mathcal{E}}\theta^{ip}(N)=\theta^{p}(D)-\eta/\phi\equiv\sum_{i\in\mathcal{E}}\theta^{ip}(N)-\eta/\phi$. Given this punishment structure following a deviation, the best deviation for any agent i is to contribute nothing. By comparing the above single-agent maximization problem to Corollary 2, we have $\theta^{*}(N)>\theta^{p}(N)$ and $\theta^{*}(D)>\theta^{p}(D)$. Let $h^t=\hat{h}^t$ denote the history in which in all past periods, all agents have played $\left\{\theta^{i*}(N)\right\}_{i\in\mathcal{E}}$, $\left\{\theta^{i*}(D)\right\}_{i\in\mathcal{E}}$, $\tau(\pi=0)=0$ and $s'(\pi=0)=N$.

Now consider the following strategy profile to support the SPE: if $h^t=\hat{h}^t$, then the equilibrium specifies that elite agents play $\left\{\theta^{i*}(N)\right\}_{i\in\mathcal{E}}$, $\left\{\theta^{i*}(D)\right\}_{i\in\mathcal{E}}$, $\tau(\pi=0)=0$ and $s'(\pi=0)=N$. If $h^t\neq\hat{h}^t$ (i.e., if there has been a deviation at some date $t'<t$ from this play), then $\theta^{i}(t,s_t)=\theta^{ip}(s_t)$ for all $i\in\mathcal{E}$ and all $s_t\in\{N,D\}$, $\tau(\pi=0)=0$ and $s'(\pi=0)=N$.

With this strategy profile, following a deviation, say starting in nondemocracy, elite agent i will obtain:

$$V_i^d(N)=F\left(\phi\sum_{j\in\mathcal{E},j\neq i}\theta^{j*}(N)\right)\left(\frac{R^rL}{M}+\beta\hat{V}_i(N)\right)+\left(1-F\left(\phi\sum_{j\in\mathcal{E},j\neq i}\theta^{j*}(N)\right)\right)\left(\frac{R^cL}{M}+\beta\hat{V}_i(D)\right), \tag{62}$$

where $\phi\sum_{j\in\mathcal{E},j\neq i}\theta^{j*}(N)$ is the total contributions to the de facto power after the deviation, and $\hat{V}_i(N)$ and $\hat{V}_i(D)$ are the MPE values in the punishment phase following the deviation,

$$\hat{V}_i(N)=-\theta^{ip}(N)+F(\phi\theta^{p}(N))\left(\frac{R^rL}{M}+\beta\hat{V}_i(N)\right)+(1-F(\phi\theta^{p}(N)))\left(\frac{R^cL}{M}+\beta\hat{V}_i(D)\right), \tag{63}$$

and

$$\hat{V}_i(D)=-\theta^{ip}(D)+F(\phi\theta^{p}(D)-\eta)\left(\frac{R^rL}{M}+\beta\hat{V}_i(N)\right)+(1-F(\phi\theta^{p}(D))-\eta)\left(\frac{R^cL}{M}+\beta\hat{V}_i(D)\right). \tag{64}$$

The value of deviation in state $s=D$, $V_i^d(D)$ is defined similarly to (62). Since $\theta^{*}(N)=\theta^{*}(D)-\eta/\phi>\theta^{p}(N)=\theta^{p}(D)-\eta/\phi$, we have $F(\phi\theta^{*}(N))=F(\phi\theta^{*}(D)-\eta)>F(\phi\theta^{p}(N))=F(\phi\theta^{p}(D)-\eta)$.

If, on the other hand, this agent follows the SPE strategy of "cooperating", i.e., contributing $\theta^{i*}(N)$ when $s=N$ and $\theta^{i*}(D)$ when $s=D$, he will obtain

$$V_i^c(N)=-\theta^{i*}(N)+F(\phi\theta^{*}(N))\left(\frac{R^rL}{M}+\beta V_i^c(N)\right)+(1-F(\phi\theta^{*}(N)))\left(\frac{R^cL}{M}+\beta V_i^c(D)\right). \tag{65}$$

Similarly,

$$V_i^c(D)=-\theta^{i*}(D)+F(\phi\theta^{*}(D)-\eta)\left(\frac{R^rL}{M}+\beta V_i^c(N)\right)+(1-F(\phi\theta^{*}(D))-\eta)\left(\frac{R^cL}{M}+\beta V_i^c(D)\right), \tag{66}$$

[55] Clearly, there may exist other punishment strategies, potentially supporting a larger set of SPEs for any given discount factor, for example by using minmax punishments for sufficiently high discount factors (e.g., Abreu, 1988). Nevertheless, for our purposes, it is sufficient to characterize the Pareto optimal SPEs with the MPE punishment, since as $\beta\to1$, these will coincide with the entire set of Pareto optimal SPEs.

and also for $V_i^d(D)$ and $\hat{V}_i(D)$. Choose an MPE for the punishment phase such that $\theta^{i*}(N) - \theta^{i*}(D) > \theta^{ip}(N) - \theta^{ip}(D)$ for $s \in \{D, N\}$ for all $i \in \mathcal{E}' \subset \mathcal{E}$ such that $\mathcal{E}' = \{i \in \mathcal{E} : \theta^{i*}(N) > 0 \text{ or } \theta^{i*}(D) > 0\}$. Such an MPE can always be constructed in view of the fact that $\theta^*(N) = \theta^*(D) - \eta/\phi > \theta^p(N) = \theta^p(D) - \eta/\phi$. Now each agent would be happy to follow the SPE strategy as long as

$$V_i^c(D) \geq V_i^d(D) \text{ and } V_i^c(N) \geq V_i^d(N). \tag{67}$$

These inequalities are naturally satisfied for all $i \in \mathcal{E} \backslash \mathcal{E}'$ (since any such agent has no incentive to deviate because he is making zero contributions along the equilibrium path), so we only need to check them for $i \in \mathcal{E}'$. Next combining (65) and (66) and using the fact that, from (61), $F(\phi\theta^*(N)) = F(\phi\theta^*(D) - \eta)$, we have

$$V_i^c(N) = -\theta^{i*}(N) + F(\phi\theta^*(N)) \left(\frac{\Delta RL}{M} + \beta \left[\theta^{i*}(D) - \theta^{i*}(N) \right] \right), \tag{68}$$

and also

$$\hat{V}_i(N) = -\theta^{ip}(N) + F(\phi\theta^p(N)) \left(\frac{\Delta RL}{M} + \beta \left(\theta^{ip}(D) - \theta^{ip}(N) \right) \right). \tag{69}$$

By virtue of the fact that $F(\phi\theta^*(N)) = F(\phi\theta^*(D) - \eta) > F(\phi\theta^p(N)) = F(\phi\theta^p(D) - \eta)$ and $\theta^{i*}(D) - \theta^{i*}(N) > \theta^{ip}(D) - \theta^{ip}(N)$, the comparison of (68) and (69) shows that $V_i^c(D)$ and $V_i^c(N)$ increase faster in β than $\hat{V}_i(N)$ and $\hat{V}_i(D)$, and by implication, than $V_i^d(D)$ and $V_i^d(N)$. Moreover, the same observation implies that for any $\left\{\theta^{i*}(N), \theta^{i*}(D)\right\}$ (and associated appropriate punishment MPE, $\left\{\theta^{ip}(N), \theta^{ip}(D)\right\}_{i \in \mathcal{E}}$), we have that $\lim_{\beta \to 1} \left(V_i^c(D) / V_i^d(D) \right) > 1$ and $\lim_{\beta \to 1} \left(V_i^c(N) / V_i^d(N) \right) > 1$, thus there exists $\tilde{\beta}_i \in [0, 1)$ such that for all $\beta \geq \tilde{\beta}_i$, player i does not wish to deviate from the SPE. Let $\tilde{\beta} = \max_{i \in \mathcal{E}'} \tilde{\beta}_i$ and since $\mathcal{E}' \subset \mathcal{E}$ is finite, $\tilde{\beta} \in [0, 1)$, and we have that for any distribution of contributions $\left\{\theta^{i*}(N), \theta^{i*}(D)\right\}_{i \in \mathcal{E}}$ and any punishment MPE with $\theta^{i*}(N) > \theta^{ip}(N)$ and $\theta^{i*}(D) > \theta^{ip}(D)$ when $s = D$ for all $i \in \mathcal{E}'$, there exist some $\tilde{\beta} \in [0, 1)$ such that for all $\beta \geq \tilde{\beta} \in [0, 1)$, (67) is satisfied for all $i \in \mathcal{E}$. This establishes that there exists $\bar{\beta} < 1$ such that for $\beta \geq \bar{\beta}$, the symmetric Pareto optimal SPE involves $p(D) = p(N) \in (0, 1)$, proving the first part of the proposition.

To prove the second part, first note that as $\beta \to 1$, any combination of $\left\{\theta^{i*}(N), \theta^{i*}(D)\right\}_{i \in \mathcal{E}}$ will satisfy (67) and $p(D) = p(N) \in (0, 1)$, thus we have SPEs that are Pareto optimal with $p(D) = p(N) \in (0, 1)$. To complete the proof, we only have to show that there cannot exist any Pareto optimal SPEs that do not have this feature. To obtain a contradiction, suppose that there exists another SPE with contribution levels $\theta(N)$ and $\theta(D)$ different from $\theta^*(N)$ and $\theta^*(D)$. However, as $\beta \to 1$, $\theta^*(N)$ and $\theta^*(D)$ are feasible as shown above, and an SPE with $\left\{\theta^{i*}(N)\right\}_{i \in \mathcal{E}}$ and $\left\{\theta^{i*}(D)\right\}_{i \in \mathcal{E}}$ that Pareto dominates $\theta(N)$ and $\theta(D)$ can be constructed, showing that no other Pareto optimal SPE can exist as $\beta \to 1$. ■

10 References

Abreu, Dilip (1988) "On the Theory of Repeated Games with Discounting" *Econometrica*, 56, 383-396.

Acemoglu, Daron, Simon Johnson and James A. Robinson (2001) "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, December, 91, 5, 1369-1401.

Acemoglu, Daron, Simon Johnson and James A. Robinson (2002) "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics*, 118, 1231-1294.

Acemoglu, Daron, Simon Johnson and James A. Robinson (2005a) "The Rise of Europe: Atlantic Trade, Institutional Change and Growth, *American Economic Review,* 95, 546-579.

Acemoglu, Daron, Simon Johnson and James A. Robinson (2005b) "Institutions as a Fundamental Cause of Development," in *Handbook of Economic Growth,* edited by Philippe Aghion and Steven Durlauf, Amsterdam; North-Holland.

Acemoglu, Daron and James A. Robinson (2000) "Why did the West Extend the Franchise? Democracy, Inequality and Growth in Historical Perspective," *Quarterly Journal of Economics*, 115, 1167-1199.

Acemoglu, Daron and James A. Robinson (2001) "A Theory of Political Transitions," *American Economic Review*, 91, 938-963.

Acemoglu, Daron and James A. Robinson (2006a) *Economic Origins of Dictatorship and Democracy*, New York; Cambridge University Press.

Acemoglu, Daron and James A. Robinson (2006b) "A Model of the Iron Law of Oligarchy," in preparation.

Alston, Lee J. and Joseph P. Ferrie (1999) *Southern paternalism and the rise of the American welfare state: economics, politics, and institutions in the south, 1865-1965*, New York; Cambridge University Press.

Alston, Lee J. and Kyle Kauffman (2001) "Were Postbellum Agricultural Labor Markets Competitive?" *Explorations in Economic History,* 38, 181-194.

Arthur, W. Brian (1989) "Competing Technologies, Increasing Returns and Lock-In by Historical Events," *Economic Journal*, 99, 106-131.

Austen-Smith, David (1987) "Interest Groups, Campaign Contributions and Probabilistic Voting," *Public Choice*, 54, 123-139.

Baron, David P. (1994) "Electoral Competition with Informed and Uninformed Voters," *American Political Science Review*, 88, 33-47.

Barro, Robert (1997) *Determinants of Economic Growth: A Cross-country Empirical Study,* MIT University Press, Cambridge MA.

Barro, Robert J. and Xavier Sala-i-Martin (1992) "Convergence," *Journal of Political Economy*, 100, 223-251.

Bateman, Fred and Thomas Weiss (1981) *A deplorable scarcity: the failure of industrialization in the slave economy*, Chapel Hill; University of North Carolina Press.

Bednar, Jenna and Scott Page (2006) "Culture, Institutional Performance and Path Dependence" University of Michigan, mimeo.

Benabou, Roland (2000) "Unequal Societies: Income Distribution and the Social Contract," *American Economic Review*, 90, 96-129.

Benabou, Roland (2005) "Inequality, Technology and the Social Contract" in the *Handbook of Economic Growth,* edited by Philippe Aghion and Steven Durlauf, Amsterdam; North-Holland.

Besley, Timothy, Torsten Persson and Daniel Sturm (2005) "Political Competition and Economic Performance: Theory and Evidence from the United States," London School of Economics, mimeo.

Billings, Dwight B. (1979) *Planters and the making of a "new South": class, politics, and development in North Carolina, 1865-1900*, University of North Carolina Press.

Bushnell, David (1971) "Voter Participation in the Colombian Election of 1856," *Hispanic American Historical Review*, 51, 237-249.

Bushnell, David (1993) *The Making of Modern Colombia: A Nation in Spite of Itself*, Berkeley; University of California Press.

Chaves, Isaías, Leopoldo Fergusson and James A. Robinson (2005) "Ballot Stuffing: Theory and Evidence from the 1922 Colombian Presidential Election," Unpublished, Department of Government, Harvard University.

Chilcote, Ronald H. (1990) *Power and the Ruling Classes in Northeast Brazil*, New York; Cambridge University Press.

Chong, Dennis (1991) *Collective action and the civil rights movement*, Chicago; University of Chicago Press.

Christie, Keith H. (1978) "Antioqeño Colonization in Western Colombia: A Reappraisal," *Hispanic American Historical Review*, 58, 260-283.

Clower, Robert W., George H. Dalton, Mitchell Harwitz and Alan A. Walters

(1966) *Growth without development; an economic survey of Liberia*, Evanston; Northwestern University Press.

Coate, Stephen and Stephen E. Morris (1999) "Policy Persistence," *American Economic Review*, 89, 1327-1336.

Coatsworth, John H. (1974) "Railroads, Landholding and Agrarian Protest in the Early Porfiriato," *Hispanic American Historical Review*, 54, 48-71.

Cobb, James C. (1984) *Industrialization and southern society, 1877-1984*, Lexington; University Press of Kentucky.

Colmenares, Germán (1968) *Partidos políticos y clases sociales*, Bogotá; Ediciones Universidad de los Andes.

Dalton, George H. (1965) "History, Politics and Economic Development in Liberia," *Journal of Economic History*, 25, 569-591.

David, Paul (1985) "Clio and the Economics of QWERTY" *American Economic Association Papers and Proceedings*, volume 75, 332-337.

Delpar, Helen (1981) *Red against blue: the Liberal Party in Colombian politics, 1863-1899*, Baton Rouge; University of Alabama Press.

Dix, Robert H. (1967) *Colombia: the political dimensions of change*, New Haven; Yale University Press.

Dixit, Avinash (1989a) "Entry and Exit Decisions under Uncertainty" *Journal of Political Economy*, 97, 620-638.

Dixit, Avinash (1989a) "Hysteresis, Import Penetration and Exchange-Rate Pass-Through" *Quarterly Journal of Economics*, 104, 205-228.

Du Bois, W.E.B. (1903) *The Souls of Black Folk*, New York; A.C. McClurg & Company.

Easterlin, Richard A. (1960) "Interregional Differences in Per Capita Income, Population, and Total Income, 1840-1950," in *Trends in the American Economy in the Nineteenth Century, Studies in Income and Wealth*, vol. 24, Princeton University Press, 73-140.

Esteban, Joan M. and Debraj Ray (2001) "Collective Action and the Group Size Paradox," *American Political Science Review* 95, 663–672.

Engerman, Stanley L. and Kenneth L. Sokoloff (1997) "Factor Endowments, Institutions, and Differential Growth Paths among New World Economies," in Stephen Haber ed. *How Latin America Fell Behind*, Stanford University Press, Stanford CA.

Fogel, Robert W. and Stanley L. Engerman (1974) *Time on the cross; the economics of American Negro slavery*, Boston; Little, Brown.

Foner, Eric (1989) *Reconstruction: America's unfinished revolution, 1863-1877*, New York; Perennial Library.

Fraenkel, Merran (1964) *Tribe and Class in Monrovia*, London; Oxford University Press.

Genovese, Eugene D. (1965) *The political economy of slavery: studies in the economy & society of the slave South*, New York; Pantheon Books.

Gibson, William M. (1948) *The constitutions of Colombia*, Durham; Duke University Press.

Goldin, Claudia D. (1976) *Urban slavery in the American South, 1820-1860: a quantitative history*, Chicago; University of Chicago Press.

Grossman, Gene M. and Elhanan Helpman (1996) "Electoral Competition and Special Interest Politics," *Review of Economic Studies*, 63, 265-286.

Hagopian, Frances (1996) *Traditional Politics and Regime Change in Brazil*, New York; Cambridge University Press.

Hartlyn, Jonathan (1988) *The politics of coalition rule in Colombia*, New York; Cambridge University Press.

Hassler John, Sevi Mora, Kjandetil Storlesseten and Fabrizio Zilibotti (2003) "Survival of the Welfare State" *American Economic Review*, 93, 87-112.

Heinicke, Craig (1994) "African-American Migration and Mechanized Cotton Harvesting, 1950-1960," *Explorations in Economic History*, 31, 501-520.

Huffman, Frank J. (1974) *Old South, New South: continuity and change in a Georgia county, 1850-1880*, Unpublished Ph.D. Thesis, Yale University.

Jack, William and Roger Lagunoff (2006) "Dynamic Enfranchisement," Department of Economics, Georgetown University, http://www.georgetown.edu/faculty/lagunoff/franch10.pdf

Key, V.O. Jr. (1949) *Southern Politics: In State and Nation*, New York; Vintage Books.

Klein, Herbert S. (1992) *Bolivia: The Evolution of a Multi-Ethnic Society*, New York; Oxford University Press.

Kline, Harvey F. (1999) *State building and conflict resolution in Colombia, 1986-1994*, Tuscaloosa; University of Alabama Press.

Kousser, J. Morgan (1974) *The shaping of Southern politics: suffrage restriction and the establishment of the one-party South, 1880-1910*, New Haven; Yale University Press.

Krugman, Paul (1991) "History versus Expectations," *Quarterly Journal of Economics*, 106, 651-667.

Lagunoff, Roger (2006) "Dynamic Stability and reform of Political Institutions," Georgetown University, mimeo.

Margo, Robert A. (1990) *Race and schooling in the South,1880-1950: an economic history*, Chicago; University of Chicago Press.

Matsuyama, Kiminori (1991) "Increasing Returns, Industrialization, and Indeterminacy of Equilibrium," *Quarterly Journal of Economics*, 106, 617-650.

Mazzuca, Sebastián and James A. Robinson (2004) "Political Conflict and Power-sharing in the Origins of Modern Colombia," Unpublished.

McAdam, Douglas (1983) "Tactical Innovation and the Pace of Insurgency," *American Sociological Review*, 48, 735-754.

McCreery, David J. (1986) "An Odious Feudalism: Mandamiento Labor and Commercial Agriculture in Guatemala, 1858-1920," *Latin American Perspectives*, 13, 99-117.

Michels, Robert. *Political Parties.* New York NY; The Free Press.

McCreery, David J. (1994) *Rural Guatemala, 1760-1940*, Stanford; Stanford University Press.

McGreevey, William P. (1971) *An economic history of Colombia 1845-1930*, New York; Cambridge University Press.

Milgrom, Paul and John Roberts (1994) "Comparing Equilibria," *American Economic Review*, 84, 441-459.

Mills, C. Wright. (1956) *The power elite*, New York; Oxford University Press.

Mulligan, Casey, Richard Gil and Xavier Sala-i-Martin (2004) "Do Democracies Have Different Public Policies than Nondemocracies" *Journal of Economic Perspectives*, 18, 51-74.

Mulligan, Casey and Kevin Tsui (2005) "Causes and Consequences of Political Competitiveness" University of Chicago, mimeo.

Mosca, Gaetano (1939) *The ruling class*, New York; McGraw-Hill.

North, Douglass C. (1990) *Institutions, institutional change and economic performance*, New York; Cambridge University Press.

North, Douglass C. and Barry R. Weingast (1989) "Constitutions and Commitment: Evolution of Institutions Governing Public Choice in Seventeenth Century England, *Journal of Economic History*, 49, 803-832.

Northrup, David (1995) *Indentured labor in the age of imperialism, 1834-1922*, New York; Cambridge University Press.

Olson, Mancur C. (1965) *The Logic of Collective Action; public goods and the theory of groups*, Cambridge; Harvard University Press.

Page, Scott (2006) "Path Dependence" *Quarterly Journal of Political Science*, 1, 87-115.

Paige, Jeffery M. (1997) *Coffee and power: revolution and the rise of democracy in Central America*, Cambridge; Harvard University Press.

Palacios, Darío and Ruth Monge Guillergua (2003) *Las constituciones del Perú, 1823-1993*, Lima; Editorial "FECAT".

Pareto, Vilfredo (1968) *The rise and fall of the elites*, New York; Arno Press.

Pierson, Paul (2004) *Politics in Time: History, Institutions and Social Analysis*, Princeton; Princeton University Press.

Ransom, Roger L. and Richard Sutch (2001) *One Kind of Freedom: the economic consequences of emancipation*, 2nd Edition, New York; Cambridge University Press.

Safford, Frank P. (1972) "Social Aspects of Politics in Nineteenth-Century Spanish America: New Granada, 1825-1850," *Journal of Social History*, 5.

Samuelson, Paul (1947) *The Foundations of Economic Analysis,* Cambridge, MA; Harvard University Press.

Sawyer, Amos (1992) *The emergence of autocracy in Liberia: tragedy and challenge*, San Francisco; ICS Press.

Schmookler, Jacob (1972) "Time Series of Patents Classified by Industry, United States 1837-1957," in Zvi Griliches and Leonid Hurwicz eds. *Patents, Inventions and Economic Change: Data and Selected Essays*, Cambridge; Harvard University Press.

Schulman, Bruce J. (1994) *From Cotton Belt to Sunbelt: Federal Policy, Economic Development and the Transformation of the South, 1938-1980*, Durham; Duke University Press.

Simon, Carl and Lawrence Blume (1994) *Mathematics for Economists*, W.W. Norton Co., New York.

Smith, Peter H. (1979) *Labyrinths of Power: Political Recruitment in Twentieth-Century Mexico*, Princeton; Princeton University Press.

Solberg, Carl E. (1969) "A Discriminatory Frontier Land Policy: Chile, 1870-1914," *The Americas*, 26, 115-133.

Stampp, Kenneth M. (1965) *The era of reconstruction, 1865-1877*, New York; Vintage Books.

Steinmo, Sven, Kathleen A. Thelen, and Frank Longstreth eds. (1992) *Structuring politics: historical institutionalism in comparative analysis*, New York; Cambridge University Press.

Stone, Samuel Z. (1975) *La dinastía de los conquistadores: la crisis del poder en la Costa Rica contemporánea*, Costa Rica; Editorial Universitaria Centroamericana.

Stone, Samuel Z. (1990) *The heritage of the conquistadors: ruling classes in Central America from the Conquest to the Sandinistas*, Lincoln; University of Nebraska Press.

Thelen, Kathleen A. (2004) *How institutions evolve: the political economy of skills in Germany, Britain, the United States, and Japan,* New York; Cambridge University Press.

Ticchi, Davide and Andrea Vindigni (2005) "Endogenous Constitutions," Princeton University, mimeo.

Tinker, Hugh (1974) *A new system of slavery; the export of Indian labour overseas, 1830-1920*, New York; Oxford University Press.

Trigo, Ciro Félix (1958) *Las constituciones de Bolivia*, Madrid; Instituto de Estudios Políticos.

Wade, Robert (1988) *Village republics: economic conditions for collective action in South India*, New York; Cambridge University Press.

Whatley, Warren C. (1985) "A History of Mechanization in the Cotton South: The Institutional Hypothesis," *Quarterly Journal of Economics*, 100, 1191-1215.

Wilde, Alexander (1978) "Colombia: Conversations amongst Gentlemen," in *The Breakdown of democratic regimes. Latin America*, edited by Juan J. Linz and Alfred Stepan, Baltimore; Johns Hopkins University Press.

Woodward, C. Vann (1951) *Origins of the new South, 1877-1913*, Baton Rouge; Louisiana State University Press.

Woodward, C. Vann (1955) *The Strange Career of Jim Crow*, New York; Oxford University Press.

Wright, Gavin (1978) *The political economy of the cotton South: households, markets, and wealth in the nineteenth century*, New York; W.W. Norton & Co..

Wright, Gavin (1986) *Old South, New South*, New York; Basic Books.

Wright, Gavin (1999) "The Civil Rights Revolution as Economic History," *Journal of Economic History*, 59, 267-289.

Young, H. Peyton (1998) *Individual Strategy and Social Structure: an Evolutionary Theory of Institutions*, Princeton; Princeton University Press.

Zeitlin, Maurice (1984) *The civil wars in Chile, or, The bourgeois revolutions that never were*, Princeton; Princeton University Press.

Zeitlin, Maurice and Richard E. Ratcliff (1988) *Landlords & capitalists: the dominant class of Chile*, Princeton; Princeton University Press.

Table 1: The persistence of the landed elite in three "Black Belt" counties of Alabama

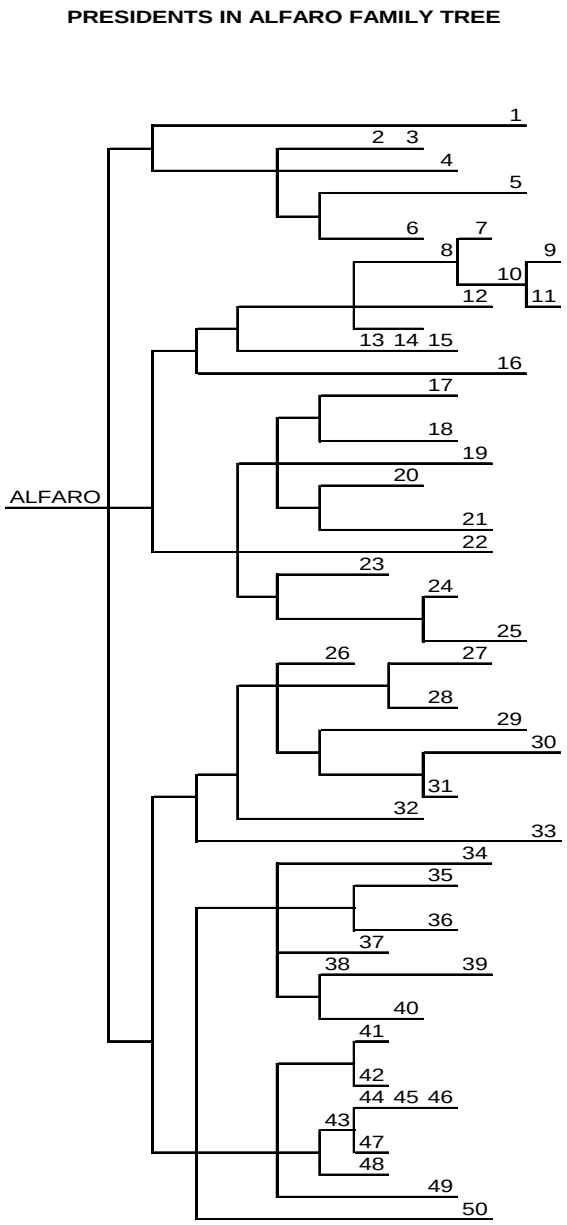
		Real estate holdings[a]		
Name	**County**	**1870**	**1860**	**1850**
Minge, G.	Marengo	$ 85,000		30,000
Lyon, F.	Marengo	75,000	115,000	35,000
Paulling, William	Marengo	72,000	150,000	29,000
Hatch, Alfred	Hale	70,000	120,000	40,000
Alexander, J.	Marengo	69,000	38,000	10,000[b]
Whitfield, B.	Marengo	65,000	200,000[b]	100,000
Terrill, J.	Marengo	62,000	93,000	
Taylor, E.	Marengo	61,000		
Robertson, R.	Marengo	60,000		
Dew, Duncan	Greene	52,000	200,000[b]	41,000
Walton, Jhon	Marengo	50,000	250,000	25,000
Collins, Charles	Hale	50,000	201,000[b]	30,000
Hays, Charles	Greene	50,000	113,000	
Brown, Jhon	Sumter	50,000	69,000	13,000
Pickering, Richard	Marengo	50,000	42,000	15,000
Withers, Mary	Hale	50,000	40,000	75,000[b]
Jones, Madison	Hale	50,000	36,000[b]	27,000
Nelson, A.	Hale	48,000		10,000[b]
Taylor, J.	Hale	48,000		
Pickens, Wm.	Hale	45,000	210,000[b]	51,000
Reese, Henry	Marengo	45,000	52,000	24,000
Walker, R.	Hale	42,000	55,000	
Smaw, W.	Greene	42,000	32,000	
Blanks, E.	Marengo	41,000		
Walker, Morns	Marengo	41,000		
Number of planters		25	18	16
Percent present in 1870			72%	64%

[a]Rounded off to the nearest thousand; as reported in the U.S. Census of Population, manuscript schedules. To convert to constant gold prices, see p. 14, note 13.

[b]Wealth of father or husband

Source: Weiner (1978, Table 2, p. 12)

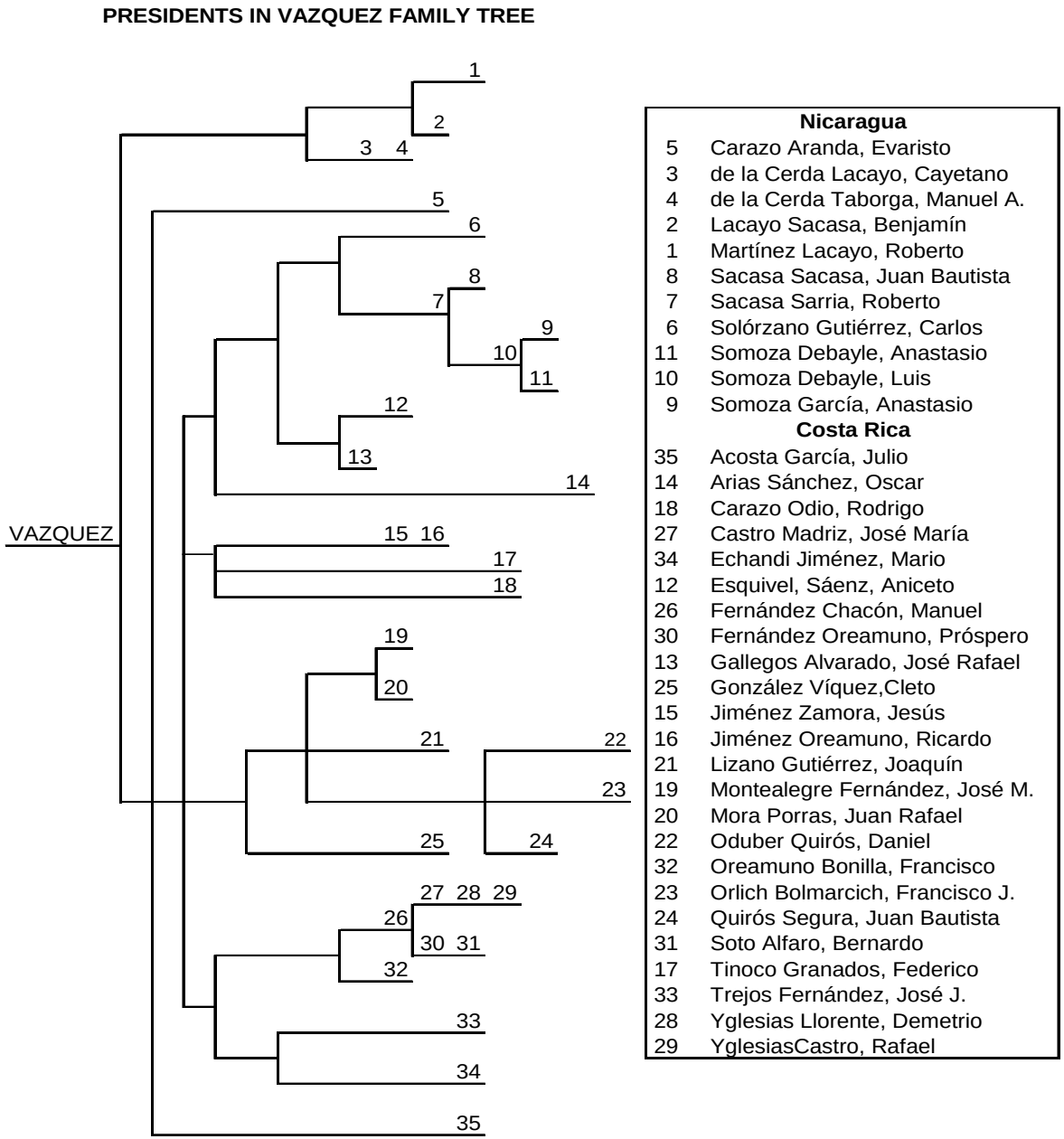
Figure 1: Central American Presidents Related to the Conquistador Cristóbal de Alfaro



	Guatemala
1	Laugerud García, Kjell Eugenio
	Salvador
3	Barrios Espinoza, Gerardo
2	Guzmán Ugalde, Joaquín
	Honduras
4	Bonilla Vázquez, Policarpo
	Panamá
5	Porras, Belisario
	Nicaragua
6	Carazo Aranda, Evaristo
7	Sacasa Sacasa, Juan Bautista
8	Sacasa Sarria, Roberto
12	Solórzano Gutiérrez, Carlos
11	Somoza Debayle, Anastasio
9	Somoza Debayle, Luis
10	Somoza García, Anastasio
	Costa Rica
21	Acosta García, Julio
23	Alfaro Zamora, José María
28	Aguilar Barquero, Francisco
37	Aguilar Chacón, Manuel
50	Arias Sánchez, Oscar
39	Calderón Guardia, Rafael Angel
30	Carazo Odio, Rodrigo
41	Carranza Ramírez, Bruno
42	Carrillo Colina, Braulio
44	Castro Madriz, José María
36	Cortés Castro, León
49	Echandi Jiménez, Mario
27	Esquivel Ibarra, Ascención
31	Esquivel, Sáenz, Aniceto
43	Fernández Chacón, Manuel
47	Fernández Oreamuno, Próspero
26	Gallegos Alvarado, José Rafael
19	González Flores, Alfredo
20	González Víquez,Cleto
17	Guardia Gutiérrez, Tomás
32	Herrera Zeledón, Vicente
15	Jiménez Oreamuno, Ricardo
14	Jiménez Zamora, Jesús
33	Monge Alvarez, Luis Alberto
48	Montealegre Fernández, José M.
38	Mora Fernández, Juan
18	Mora Porras, Juan Rafael
25	Oduber Quirós, Daniel
13	Oreamuno Bonilla, Francisco
16	Orlich Bolmarcich, Francisco J.
35	Picado Michalski, Teodoro
40	Rodríguez Zeledón, José
24	Soto Alfaro, Bernardo
29	Tinoco Granados, Federico
34	Trejos Fernández, José J.
22	Ulate Blanco, Otilio
45	Yglesias Llorente, Demetrio
46	YglesiasCastro, Rafael

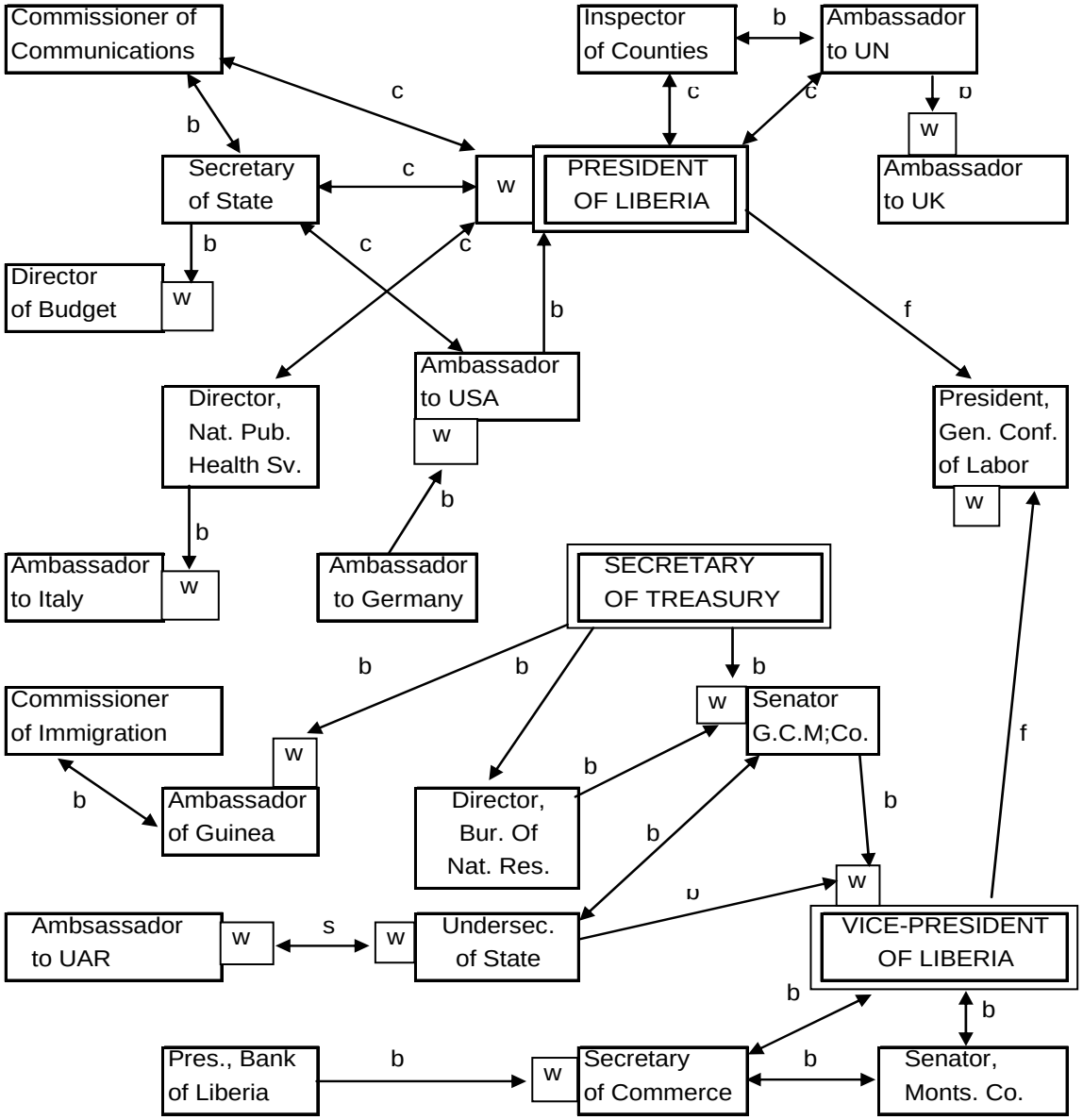
Source: Stone (1990, Appendix 1, p. 153)

Figure 2: Central American Presidents Related to the Conquistador Juan Vázquez de Coronado



Source: Stone (1990, Appendix 2, p. 168)

Figure 3: Social Relations and Political appointees of President Tubman in 1960



Key: b = brother; f = father; c = cousin; s = sister; w = wife

Source: Clower et al. (1966, Chart 1, p. 13)