A Dynamic Theory of Endogenous Constitutions

Matteo Cervellati   Piergiuseppe Fortunato   Uwe Sunde[*]

Preliminary Version
January 31, 2005

Abstract

This paper studies how the dynamics of democratization influence the design of constitutions and political institutions. The process of democratization is shown to be determined by inequality in economic and political power, as well as the dynamics of economic development, while, at the same time, democratic structures shape the economic environment. We show that different scenarios of political development. can arise and lead to different constitutional designs. These shape in particular the relative importance of efficiency and redistribution in the activities of the public sector, depending on the relative power and interests of different groups during the transition. Constitutions written under a strong capitalistic elite are characterized by little redistribution and a small size of the government. The reverse holds for strongly landed and less entrenched elites. The various implications of the model are shown to be in line with empirical and historical evidence.

JEL-classification: H10, H40, N40, O10

Keywords: Endogenous Constitutions, Democratic Transition, Public Goods, Redistribution

1 Introduction

The importance of political institutions is widely recognized in social sciences. Modern democracies are characterized by a complex set of rules which govern social interactions and the resolution of conflicts of interests. These institutions play an important role in shaping the state's interventions in the marketplace. A substantial literature in political economy and political science studies the effects of different political institutions regulating the aggregation of individual preferences. This includes, among others, investigations of the effects of the political system (democracy vs dictatorship), the role of voting systems (majoritarian vs consensual), of the form of government (parlamentay vs presidential), or of the form of state (unitary vs federal) to name a few, as well as their implications for various governmental activities and economic performance in general, see e.g. Persson, Roland, and Tabellini (2000) as well as two recent books by Persson and Tabellini (2003) and Alesina and Glaeser (2004) for a survey of theories and empirical evidence.

Several findings emerge. First, the rules governing the aggregation of conflictual interests, in a word the political institutions, are not neutral. These rules have a first order effect on the economic performance and the growth possibilities of a community as a whole and on the relative well being of its various members. Second, institutions appear to exhibit a large degree of persistence and path dependence, compare for example the discussion of the differences between the U.S. and continental Europe provided by Alesina and Glaeser (2004), who document the long term effects of the early constitutional stages.[1] Third, institutions are designed by rational individuals with well defined and conflicting interests. Constitutions are not written under the veil of ignorance, but they reflect the interests and relative bargaining power of the different parties involved in their design.

Two important questions naturally arise from these findings: *why* and *how* did different political systems or constitutions emerge? While the implications of different systems have been systematically analyzed, much less is known about why the political systems arose in the form they did. The question of *why* countries democratize(d) in the first place has triggered substantial research effort, particular in the political sciences, but it appears far from being a settled issue. The different available economic theories of democratization highlight different channels of transition from oligarchy to democracy. In a series of articles, Acemoglu and Robinson (2000, 2001, 2003, 2004) emphasize the role of coups and suggest that the threat of a

---

[1]There are various theoretical explanations why constitutions require a large consensus to be changed, and why it may be optimal to render constitutions difficult to change. Compare, for example, Fernandez and Rodrik (1991) for a rationale for the existence of status quo bias, and Gradstein (1999) and Messner and Polborn (2004) for rationales for supermajority rules.

revolution might have been be crucial in inducing incumbent elites to give up their monopoly of political power and extend the franchise to larger groups of the population. Democracy essentially serves the role of a commitment device since the under oligarchy the elite cannot credibly commit to future redistribution. The elite receives no intrinsic gains from democratization but it is forced 'from below' to concede power and, eventually, redistribute to the poor. Another line of research highlights the productive function of democratic government and argues that it was actually in the interest of the elite itself to democratize. Lizzeri and Persico (2004) show that in some cases, like England, democratization might have actually been in the elite's own interest, since, for example, the provision of public goods, or the avoidance of inefficient rent-seeking and corrupt behavior was easier under democracy than under oligarchy due to the stronger checks and balances, and the possibility to spread responsibility on more shoulders. An alternative argument, why the elite might prefer to give up its monopoly in political power, based on superior possibilities of property rights protection under democracy is provided by Gradstein (2004b). In contrast to the previously mentioned line of argument, the latter papers provide arguments for the elite implementing democracy 'from above' to reap the benefits of that form of government but without being, strictly speaking, under a serious treat of a revolution or coup.[2] As a corollary, the theories of democratization 'from below' underline the redistributive role of democracies, while theories of democratization 'from above' emphasize the productive role of public good and service provision.

The second question concerning *how* constitutions were designed, and why political institutions have been shaped the way we observe them has been the focus of a few recent contributions. Aghion, Alesina, and Trebbi (2004) study the optimal constitutional size of a minority required to block legislation, and conversely the size of the supermajority needed to pass legislation. Ticchi and Vindigni (2003) address the choice between a majoritarian and a consensual democracy made by a rich elite and show that the elite is likely to choose a majoritarian democracy the larger the (exogenous) degree of inequality. These studies, which are inherently static in nature, provide a deeper economic understanding of the reasons for the emergence of different political institutions. Gradstein (2004a) develops a dynamic model of the emergence of property rights protection in the context of economic development, emphasizing the idea that property rights protection becomes more important as an economy develops. This effect might have played a role in the democratization and the extension of the franchise in many countries, and contributed to the extent of property rights protection implemented in their political system, as argued in a related paper by the same author, see

---

[2]A similar argument why the extension of the franchise can be in the interest of those in oligarchic power can be found in the paper by Oxoby and Llavador (2004).

Gradstein (2004b).

In this paper we argue that the joint consideration of the both questions, *why* and *how*, allows to make further steps towards understanding the endogeneity of political institutions. While it is certainly true that the process of institution building is incremental overtime, it is possible to identify key periods for the formation of political institutions in the history of each country. In a very long run perspective as the one adopted here, democratization can therefore be interpreted as a unique event characterized by the abolition of oligarchic states. The understanding of the driving forces of this transition is crucial for the understanding of the actual constitutional designs emerging.

This paper provides a simple theory of endogenous political institutions (constitutions) based on the interaction between the intertwined processes of economic development and democratization. The transition to democracy is seen as an endogenous event. Depending on the specific economic environment and history, different development paths, 'transition regimes', can arise endogenously. We consider a dynamic framework in which initially an elite of landowners has all political decision rights and in this sense rules over the landless people. However, the population in general, and the elite in particular, has always the option to switch to a democratic regime with universal political representation, public good provision and fiscal redistribution. Democratization takes place when either the elite gains from it or when it is forced to give power away. The elite offers a democratization (from above) only when it is in its own interest. This happens once the process of development makes democracy a sufficiently efficient system compared to oligarchy. To concentrate attention on the main driving forces we abstract from modeling constitutional details and concentrate attention on the main functions of a government. We distinguish the two main intentional purposes of the state by referring to (efficiency enhancing) public good provision on the one hand, and to (fairness enhancing) redistribution on the other. The idea is that the choice of actual constitutional details can be subsumed in the choice of a certain balance between public good provision (efficiency) and redistribution (fairness). Under these conditions the elite is prone to constitutions with limits to redistribution and with large shares of public spending going to the provision of public goods and infrastructure (which are efficiency enhancing), as well as substantial barriers to constitutional amendments in terms of enlarging redistribution and the welfare state. Nearly the opposite happens in democracies that arise as consequence of a democratization 'from below'. In this case the elite does not find democracy profitable and is not particularly interested in public good provision. Also the bargaining power of the elites is necessarily smaller at the time of transition, i.e. when the constitution is written. As a result the constitution is characterized by no limits to redistribution.

The central result is that democracies arising under different democ-

3

ratization processes are fundamentally different, and that the process of democratization crucially affects the path of future economic development as well. In particular, the relative power and interests of the various population groups at the time of transition towards a democracy is reflected in the constitution, which is written to regulate the democracy. The economic environment determines the the timing of and the conditions under which the transition takes place, rendering democratization essentially endogenous. These conditions themselves shape the constitutions in terms of size and structure of the public sector through the incentives and constraints faced by the 'founding fathers', that is, by the generation during which the democratic transition occurs. As is well known, the institutional environment in turn crucially affects economic outcomes, which therefore reflects the power politics at the outset of democratization. Therefore, the actual political institutions (addressed by the question *how* constitutions were designed) are closely linked to the relative power and interests of the different groups at the moment of democratization which in turn depends on the actual circumstances of democratization (and hence to the question *why* countries democratized). Our approach delivers testable implications concerning the effects of the specific economic and political environment during a transition phase on the constitutional design, and the consequential size and structure of the public sector. We argue that actual differences between Anglo-saxon and continental European constitutions can be traced back to the different democratization histories.

This paper is therefore at the intersection of several branches of literature. In this paper, we provide a theory of endogenous democratization which depends on the degree of inequality and technical progress and identifies the conditions under which the different forces identified in the literature should be expected to operate. Moreover, we relate this endogenous process to the emergence of different constitutions, and interpret actual differences between constitutions and institutional systems in a historical perspective, thus contributing to the current debate concerning the reasons for the significant differences between, e.g., the U.S. and Europe, both of which, despite being characterized by apparently similar economic fundamentals, exhibit substantially different social contracts in terms of redistribution and public good provision.

The paper proceeds as follows. Section 2 lays out the basic economic framework and the potential for political conflict. Section 3 analyzes the model and presents the major result, a characterization of the interactions between economic and political development of an economy. Section 4 discusses the model implications in a historical perspective and presents some empirical findings corroborating the theory, and section 5 concludes.

2 The Basic Framework

This section presents the economic environment, and the decision problem faced by individuals with different factor endowments. We then introduce and discuss the potential for political conflict that arises in this economy.

2.1 Economic Environment

We consider an economy that is populated by an infinite sequence of subsequent generations t of individuals i. Each individual has one parent and one offspring, there are no fertility decisions to be made. Consequently, there is no population growth over generations, with the size of each generation being $L_t = L$. During their life, individuals inelastically supply one unit of labor on the labor market, and earn in exchange a competitively determined wage for their labor input. We abstract from labor-leisure choices. Moreover, individuals are endowed with physical capital, which they inherit as bequests from their parents. A fraction $0 < \gamma < 1/2$ of individuals is also endowed with land, while all the land is distributed equally among land-owners. Individuals maximize their utility, which is logarithmic in consumption c and bequests b,[3]

$$u_t^i = u(c_t^i, b_t^i) = (1 - \beta) \log c_t^i + \beta \log b_t^i . \tag{1}$$

All individuals therefore optimally choose to spend a constant fraction $(1-\beta)$ of their individual income y_t^i on consumption, such that $c_t^i = (1-\beta)y_t^i$, while they bequeath the rest of their income to their offspring, hence $b_t^i = \beta y_t^i$. To keep things simple, we assume that bequests can only be invested into physical capital K, and that, conversely, capital can only be created through investing the bequests of the preceding generation. There is no other possibility to invest resources in capital formation. At the end of a generation's lifetime, its capital fully depreciates. Consequently, the capital stock available to an individual corresponds to his parent's bequests, such that $k_t^i = b_{t-1}^i = \beta y_{t-1}^i$. Land resources are ready to use for production for their owners. Moreover, land does not depreciate. Land is bequeathed from generation to generation, and there is no market for land.[4] For lack of other utility relevant uses, individuals will use all their factor endowments for production by selling them on the respective factor markets, in order to generate

---

[3]This formulation of the utility function is not crucial for the main insights, but simplifies the analysis considerably. It is noteworthy, however, that the development dynamics of the economy, as shown below, essentially depend on the distribution of factor endowments, and hence the decision on consumption and bequest, which in reality may differ across different groups of the society.

[4]This assumption is without loss of generality. In fact, as will become clear below, even allowing for land markets would not change the results. See also Cervellati, Fortunato, and Sunde (2004) for a fully specified model in which selling or buying land using e.g. bequests is always a (weakly) dominated strategy.

income. Individual incomes are thus determined by the respective endowments and the corresponding factor prices realized on the competitive factor markets. For notational convenience, we denote aggregate variables by upper case letters, and individual variables by lower case letters. Consequently, the aggregate resources available in the economy during the existence of generation t are labor input L, an aggregate capital stock $K_t = B_{t-1} = \int b_{t-1}^i di$, and land N. Also, we introduce the following notation for average per capita variables: average individual incomes $y_t = Y_t/L$, average capital endowment $k_t = K_t/L$, and average land endowment $n = N/L$.

The economy is fully competitive, and all resources are employed in the production of a single commodity Y according to a production technology exhibiting constant returns to scale of the form

$$Y_t = [(1 + G_t)A_t K_t + N]^{\alpha} L^{(1-\alpha)} . \tag{2}$$

Besides the resource inputs, production is affected by a productivity index A_t, which reflects the technological state of the art of production, and by a productivity enhancing public good G_t, which reflects for example infrastructure. Public goods provision is discussed in more detail in the next section. Technological progress, as implied by the production function, relatively favors capital-intensive production as opposed to land-intensive production. This is expressed by the fact that productivity of physical capital in the form of A changes over the course of generations, while that of land remains constant and is normalized to 1. To keep the model simple, and since we are not interested in analyzing the determinants of productivity growth, we assume that technological innovations arrive only with the birth of a new generation. The process of technological progress is exogenous according to[5]

$$\frac{A_t - A_{t-1}}{A_{t-1}} = a_t = a \ \ \forall \ \ t . \tag{3}$$

The production function is formally equivalent to the production of a homogeneous commodity in two distinct sectors, one employing exclusively land resources together with labor, and the other exclusively physical capital together with labor, like the one discussed in Cervellati, Fortunato, and Sunde (2004).[6] Since the economy is competitive, all factors are paid according to their marginal products. For convenience, we normalize population size to 1 in what follows, such that $L_t = 1 \ \forall t$. Hence, equilibrium factor prices in terms of wages, capital rents and land rents, in the economy are given by

$$w_t = (1-\alpha)\left[(1+G_t)A_t k_t + n\right]^{\alpha} ; \tag{4}$$

$$r_t = \alpha\left[(1+G_t)A_t k_t + n\right]^{\alpha-1}(1+G_t)A_t ; \tag{5}$$

$$\text{and} \quad \rho_t = \alpha\left[(1+G_t)A_t k_t + n\right]^{\alpha-1} , \tag{6}$$

---

[5]Endogenizing the rate of technical progress would not affect the main argument.

[6]Also Acemoglu and Robinson (2003) use the specification used for the production technology in equation (2).

respectively. The production technology is therefore able to replicate the permanent growth in capital stocks and incomes experienced by most countries in the western world. Moreover, while the implied income share of labor is stable over generations, as was the case in history, the incomes generated by capital grow at the expense of the incomes generated by land over the course of development, see also Acemoglu and Robinson (2003). Individual incomes, which can be allocated optimally to consumption and bequests, are determined by the individual resources employed in the production process and the respective rents accrueing to them. Hence, all individuals earn a labor income plus a capital income. Those individuals i belonging to the fraction γ of the population owning land, which we denote in the following by $i \in E$ and refer to as the 'landlord elite', additionally own income from renting out their land to the production process. Note that due to the equal distribution of land among the elite, every landowner has land resources of $n^E = n/\gamma$. On the other hand, members of the group without land, the landless people or 'proletariat', $i \in P$, have no land, so $n^P = 0$, and hence also enjoy no incomes from land resources. Individual gross incomes can thus be written as

$$ y_t^i = w_t + r_t k_t^i + \rho_t n_t^i \quad \text{with} \ \ i \in \{E, P\} \ . \tag{7}$$

Substituting with the expressions for equilibrium factor prices given by conditions (4), (5) and (6), and denoting effective physical capital as $\tilde{k}_t(G_t)$, with

$$ \tilde{k}_t (G_t) := (1 + G_t) A_t k_t \ , \tag{8}$$

income of individual i, $i \in \{E, P\}$, can be expressed as

$$ y_t^i = \left(\tilde{k}_t(G_t) + n \right)^\alpha \left[(1 - \alpha) + \frac{\alpha \tilde{k}_t(G_t)}{\tilde{k}_t(G_t) + n} \frac{k_t^i}{k_t} + \frac{\alpha}{\tilde{k}_t(G_t) + n} n^i \right] \ . \tag{9}$$

This immediately implies that average per capita income in the economy can be calculated as $y_t = \left(\tilde{k}_t(G_t) + n \right)^\alpha$.

2.2 Institutions and the Public Sector

Next, consider the role of the state. The main purpose of the model is to provide a simple model that allows to characterize the dynamic interdependencies between economic development and political development in terms of democratization. Political decisions are essentially made along two dimensions, the size and the structure of the state in form of the budget and its use. The total budget is given by tax revenues R. Political decisions always affect also the use of this budget, which is subject to the fundamental trade-off between efficiency and equity. Efficiency-enhancing activities of the state

7

are represented by the provision of a public good G, which enters the production function (2) in the form of higher productivity of physical capital. On the other hand, the state can pursue equity-driven activities, condensed as purely non-productive lump-sum redistribution in form of transfers T, which are equally distributed among the population. We assume that there are no inefficiencies affecting either public good provision or redistribution, in the sense that neither of these two uses of tax revenues implies a waste of income. Rather, every unit of income used for public good provision produces one unit of public good, and likewise for redistribution. The budget must be balanced for every generation, since there are no capital markets allowing for intergenerational loans and debt. The budget is financed by proportional income taxation, implying a budget of the state for a given generation of individuals of

$$R_t = \tau Y_t \geq G_t + T_t \ . \tag{10}$$

Note that we abstract from timing issues regarding production, taxation of income and public goods provision or redistribution. Rather, this formulation is meant to highlight the role of the size and structure of the public sector for individuals, while they themselves have to decide about both dimensions. Meanwhile, intergenerational issues are neglected, since they do not add fundamental insights to the main argument of our paper.[7] In the following, the tax rate τ required to finance the public sector, as well as the amounts of redistributive transfers T, and public goods G to be provided by the public sector, are determined as the outcome of a political process to be specified next. Of course, given τ and G and the respective total production outcome Y, R as well as the size of the redistributive component of the public sector T are determined residually, so that by choosing two variables the size and structure of the public sector are fully determined.

2.3 Political Conflict and Timing of Events

Size and structure of the public sector are chosen by the respective group of the population that is in power. Hence, power itself is defined as the possibility to decide upon issues such as public goods provision and redistribution. Public sector variables are essentially determined by the median voter of the respective electorate. Individuals are only heterogeneous with respect to whether they own land or not, and hence there are only two political regimes: oligarchy, where one group of individuals has exclusive political power, while the other group has no vote; and democracy, where

---

[7]One could argue that also in reality, by projecting future budgets, democratically elected governments adhere to a similar reverse timing with respect to production, taxation and spending the tax revenues on redistribution or public goods, which affect the production process itself.

all individuals, regardless of their status with respect to land-ownership, enjoy suffrage. Despite having exclusive decision power, we assume that an oligarchic elite cannot forcefully tax and expropriate the politically subordinate class. Hence, if the elite desires a budget for some purpose, for example the provision of productive public goods, it can only finance the required tax revenues itself, but not force non-elitist people to participate. A crucial feature of democracy is the fact that the rules of the 'democratic game' are fixed and known to everyone, in particular when it comes to making collective decisions, such as the size and structure of the state. The distinction to oligarchy in this respect is that the ruling oligarchic elite sets the rules itself, and hence can change them unilaterally, e.g. decide autonomously on the amount of public good provision. This is not possible under democracy. Rather, the constitution regulates the political institutions, and the constitution is not easily changeable. However, constitutions are not exogenously given, but designed by the 'founding fathers' of the democratic state. Hence, the circumstances at the moment of democratization in terms of economic environment as well as proportions of political (and conflict) power crucially affect the details laid down in the constitution. But, as will turn out, these details have substantial consequences for future development. For example, the constitution may contain an upper limit to the share of government spending on redistributive purposes. Since such details are literally cast in stone, and, again by constitution, very difficult to amend, they have far reaching consequences.

In order to make the conflicts of interest explicit, and to elicit the main message of the model in a very clear way, assume that, whatever regime is in place, the landlords, that is, the richer class due to higher endowments, have an incentive to effectively curb redistribution. Under a landlord oligarchy, this poses no particular problem since the elite can determine T as well as the optimal level of public good provision G, both of which landlords have to fully finance themselves, and hence completely determine the public sector. Under democracy, on the other hand, the constitution sets the rules for redistribution and public good provision. Let the level of public good provision G be determined by majority rule. Since $\gamma < 1/2$, this means that it is essentially chosen by a member of the landless, the group of the median voter. However, knowing this, the elite will try to limit redistribution and implement the optimal level of public good provision by setting constitutional boundaries to redistribution, like an upper limit $T < \bar{T}$, when the constitution is implemented. The main results of our model derive from analyzing different regimes of transition towards democracy implying different potential for the elite to influence the constitution in terms of limiting redistribution.[8]

---

[8]As will be shown below, the results do not depend on the fact that the elite tries to influence the rules for redistribution T, while then G is chosen in a voting process. Rather, alternative settings, where e.g. the elite attempts to limit the size of the states by choosing

Following the historical experience, we assume that initially political suffrage was confined to the land-owning elite only, implying an oligarchy of landowners. Of course, there are possibilities to change the political regime. Clearly, the respective ruling elite can offer to give up exclusive political power and extend the suffrage to other individuals as well.[9] On the other hand, if this is not the case, the politically excluded may try to obtain power by going to open conflict and violently challenging the ruling elite. To model this possibility, we adopt a 'guns model', according to which the winner of an open conflict, if it arises, is determined by the group with preponderance in fighting power. Fighting power is determined by all the resources, people, and physical capital that are available to a specific group. In the current context, there are only two observationally distinct groups, where the landlord elite is able to unleash a total conflict power of $\gamma \left(K_t^E \right)$, while the people are able to set free a fighting power of $(1-\gamma)K_t^P$.[10] Note that realizing fighting power effectively and credibly does not require any investments. Rather, the resources can be thought of as being fully reversible, leading to conflict potential that can be mobilized instantaneously and costlessly in the case an open conflict occurs. Consequently, the outcome of an open conflict depends on the sign of the following 'guns condition',

$$\gamma k_t^E \underset{<}{\overset{\geq}{=}} (1 - \gamma)k_t^P \ . \tag{11}$$

In other words, the elite prevails with its political will if they have more conflict potential, i.e. if the left hand side is larger than (or equal to) the right hand side, while the people enforce their desired political system if the opposite is true. Note that, depending on the relative benefits of the two systems in terms of incomes, the landless, if they are able to win an open conflict, can implement democracy, that is, merely extend the franchise, or implement an oligarchy to its own favor.[11]

The timing of events faced by every generation t, as depicted in Figure 1 for the example of an oligarchy of the landlord elite, can be summarized as follows. After birth, the respective elite can either decide to remain in power and opt for the status quo, or to make a democratic offer. This offer implies

---

a maximal tax rate $\bar{\tau}$, or alternatively two stage procedures, in which both groups first bargain about the constitutional rules for the size of the state and then, conditional on this outcome, on the distribution of tax revenues on public good provision and redistribution, imply the same results.

[9]We exclude the possibility of discretionary extension of suffrage to particular persons, and assume that it can only be done regarding entire groups. In other words, apart from land ownership, there is no, potentially 'unobservable', heterogeneity of individuals.

[10]Including land resources as a means of generating conflict potential analogously to physical capital would lead to identical results.

[11]As shown elsewhere, see Cervellati, Fortunato, and Sunde (2004), the qualitative results with respect to the characterization of the dynamic path of development do not change, even if expropriation of land were possible.

an extension of suffrage to the respectively politically excluded group, with the possibility to influence the democratic frame. In particular, we assume that the democratic offer implies the possibility to implement an explicit upper limit to redistribution $\bar{T}$. People, on the other hand, can then either choose to accommodate that proposal, or to challenge it by going to open conflict.[12] Once the conflict is resolved, the consequential political system materializes, and production takes place under this system, in particular, under the resulting taxation, and the public good provision and redistribution schemes that are implemented. Eventually, people consume or bequeath their remaining net income, and die. This completes the description of the model.

Figure 1: Timing of Events Within a Generation's Lifetime
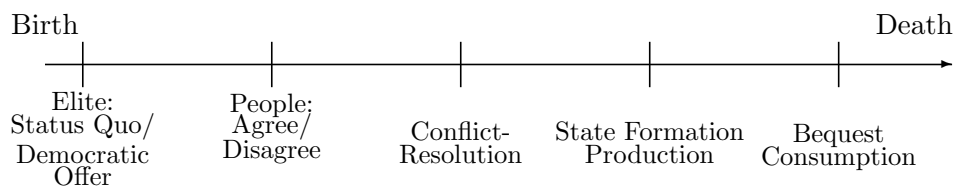
3 Development, Democratization, and their Interdependencies

This section first establishes some basic results concerning the dynamics of the development process and provides an analysis of the decision problems faced by members of the different groups in the economy. Using these results, we then turn to the characterization of the processes of economic and political development, and highlight their interdependencies by considering development as the succession of generations and their political and economic decisions within an evolving environment.

From the exogenous productivity growth given by (3), and the fact that capital is only created through bequests it follows that both incomes and capital endowments are increasing from generation to generation. This is true regardless of the political regime, and of whether landowners or landless are concerned. The first useful result concerns the evolution of capital

---

[12]Note that this description of timing is without loss of generality. In particular, the same timing holds under democracy, where the 'ruling elite' consists of all people populating the economy. Clearly, they will offer to maintain the democratic status quo on the first stage. And clearly, there is, maybe apart from some odd idiosyncratic chaps, no opposition against keeping the status quo in this case. Even more important, there will be hardly an opposition to democracy that would be large and powerful enough to overthrow the system.

endowments of landowners and landless, which asymptotically converge, regardless of the political environment and the level of public good provision. As an index of relative inequality in capital endowments, consider the ratio of individual i's capital endowment to the average capital endowment per head in the economy,

$$\lambda_t^i := \frac{k_t^i}{k_t} \ , \ i \in \{E, P\} \,. \tag{12}$$

We can then state the following result:

Lemma 1. *Relative capital endowments of landowners and landless converge over the course of generations, with $\lim_{t \to \infty} \lambda_t^E \searrow 1$ and $\lim_{t \to \infty} \lambda_t^P \nearrow 1$.*

Proof. Using the expressions for average per capita income, and the expressions for equilibrium factor prices, one has

$$\lambda_t^i = \frac{y_{t-1}^i}{y_{t-1}} = (1 - \alpha) + \frac{\alpha n^i}{\tilde{k}_{t-1}(G_t) + n} + \frac{\alpha \tilde{k}_{t-1}}{\tilde{k}_{t-1}(G_t) + n} \lambda_{t-1}^i. \tag{13}$$

The initial conditions $k_0^E = k_0^P = 0$ imply that $\lambda_t^E > 1$ and $\lambda_t^P < 1 \ \forall t > 0$. Relative inequality in capital endowments of family i converge to a steady state value

$$\lambda_*^i = \frac{(1 - \alpha)\left(\tilde{k} + n\right) + \alpha n^i}{\tilde{k}(1 - \alpha) + n},$$

which depends on the steady state value of $\tilde{k}$. Due to unbounded technical progress, incomes and capital endowments increase over generations, implying $\lim_{t \to \infty} \tilde{k}_t = \infty$. Since land is fixed, using l'Hôpital's rule, this implies that $\lim_{t \to \infty} = \lambda_*^i = \frac{(1 - \alpha)}{(1 - \alpha)} = 1$, $i \in \{E, P\}$, which proves convergence. Moreover, condition (13) implies that $\lambda_t^P = (1 - \alpha) + \frac{\alpha \tilde{k}_{t-1}}{\tilde{k}_{t-1}(G_t) + n} \lambda_{t-1}^P$ with $\frac{\partial \lambda_t^P}{\partial \tilde{k}_{t-1}} = \frac{\alpha n}{\left(\tilde{k}_{t-1}(G_t) + n\right)^2} \lambda_{t-1}^P > 0$. However, since $\gamma \lambda_t^E + (1 - \gamma) \lambda_t^P = 1 \ \forall t$, this implies also that $\frac{\partial \lambda_t^E}{\partial \tilde{k}_{t-1}} < 0$, which proves the directions of convergence. $\square$

The following comparative statics results are useful for later reference:

Lemma 2. *Everything else unchanged, the relative capital endowments of landlords λ^E adapt as follows to changes in the environment: (i) $\partial \lambda_t^E / \partial a < 0$ and $\partial \lambda_t^E / \partial A < 0$, (ii) $\partial \lambda_t^E / \partial \gamma < 0$, (iii) $\partial \lambda_t^E / \partial n > 0$.*

Proof. The results follow from inspection of condition (13), since $\frac{\partial \lambda_t^E}{\partial a} = \frac{\alpha(n - n^E)}{\left(\tilde{k}_{t-1} + n\right)^2} \frac{\partial \tilde{k}_{t-1}}{\partial a} < 0$ and because $\partial A / \partial a > 0$, $\frac{\partial \lambda_t^E}{\partial \gamma} = \frac{-\alpha}{\tilde{k}_{t-1} + n} \frac{n}{\gamma^2} < 0$, and $\frac{\partial \lambda_t^E}{\partial n} = \frac{1/\gamma - \lambda_{t-1}^E}{\left(\tilde{k}_{t-1} + n\right)^2} \alpha \tilde{k}_{t-1} > 0$ due to the facts that $1/\gamma - \lambda_{t-1}^E = (1 - \alpha)(1/\gamma - 1) > 0$ and that $\frac{\partial \lambda_t^E}{\partial \tilde{k}_{t-1}} < 0$. $\square$

12

From a certain point during the development process onwards, economic development and public good provision are complements, in the sense that from a certain level of development onwards, it is efficient to invest in infrastructure, where the efficient level of public good provision is denoted by G^*.

Lemma 3. *There is a unique generation $\underline{t}$, for which public good provision becomes efficient for the economy as a whole, and will be efficient for all subsequent generations, while it was not efficient for preceding generations: $\exists$ a unique $\underline{t}$: $G_t^* = 0$ $\forall t < \underline{t}$ and $G_{t'}^* > 0$ $\forall t' \geq \underline{t}$.*

Proof. Efficiency of public good provision for a generation t implies that marginal benefits outweigh marginal costs, i.e.

$$\alpha \left((1+G)A_t k_t\right)^{\alpha-1} A_t k_t \; \geq \; 1 \, .$$

The result follows since for low levels of development, i.e. k and A, this condition is not (necessarily) satisfied, while monotony of development and hence growth in A and k ensures that there must be a unique generation t for which the condition eventually holds. $\square$

What sort of public sector would be implemented prior to $\underline{t}$? Clearly, under oligarchy, the elites would simply produce without bothering to set-up an infrastructure themselves, whose marginal costs for them amount to $1/\gamma$. But even under democracy, no group, neither landlords nor landless, would endorse public good provision. The landlords, since it would be inefficient, and the landless, since direct redistribution would benefit them more. Intuitively, public goods complement technology in the production process, so if technology is not sufficiently advanced, the provision of public goods is not worthwhile. This leads to the following result.

Lemma 4. *Public goods are provided only if it is overall efficient to provide at least some public goods.*

Proof. Net income of individual i from a purely redistributive state is $y^i + \tau(y - y^i)$. Hence, landless individuals $i \in P$ enjoy a net gain from redistribution since $y^P \leq y$, while landlords suffer a net loss. Now consider public good provision. For $t < \underline{t}$, the marginal benefit from providing public good provision is lower than the marginal cost, implying lower net individual income $y^i(G)(1 - \tau(G)) = y^i(G) - G$ for any individual i when a positive amount of G is provided, compared to $G = 0$. Thus, $G_t|_{t<\underline{t}} = 0$ under landlord oligarchy, as well as under democracy, since in that case the median voter prefers redistribution to public good provision. $\square$

Note also that, even though landlords can decide autonomously about financing and providing public infrastructure G for themselves, by the very

fact that G is a public good, they cannot exclude landless from using that infrastructure, and benefitting in terms of income.

Without loss of generality, let us now consider a landlord oligarchy. While the landless have no influence on the creation and structure of a public sector, the elite, since public good provision is productive, face a trade-off between providing it themselves retaining exclusive political power, and giving up power in exchange for a broader financial (tax) basis available for the public good. Even though starting from an oligarchic system with the landlord elite monopolizing all political power, eventually democracy arises. This is shown in the following two results. The first one, which reflects arguments made by Lizzeri and Persico (2004), implies that eventually the elite benefits more from giving up political power in exchange for more efficient production, than from retaining power, regardless of its potential superiority in terms of conflict power. Let G_t^E denote the level of public good the elite would provide if the landlords were to finance it fully by themselves, while $\check{G}_t$ denotes the level of infrastructure alternatively provided were democracy with universal financing implemented. Then we have the following result:

Proposition 1. *There is a unique generation of landlords $\check{t} \geq \underline{t}$, which is the first generation in the sequence of generations, for which voluntarily offering democracy with limited redistribution is a strictly dominant strategy:*

$$\exists \ a \ unique \ \check{t}: \quad y_t^E - \frac{G_t^E}{\gamma} \leq \left(1 - \frac{\check{G}_t + \check{T}_t}{y_t(\check{G}_t)}\right) y_t^E(\check{G}_t) \quad \forall t \geq \check{t}, \qquad (14)$$

while (14) is not satisfied $\forall t < \check{t}$.

Proof. Note that for $t < \underline{t}$: $G_t = 0$, so the elite's income under democracy is strictly lower than under oligarchy, whenever $\tau > 0$, and (14) does not hold. However, also note that the marginal income gain of a member of the elite with respect to public good provision is positive, since[13]

$$\frac{\partial y^E}{\partial G} = \alpha A \frac{k^E \left(\alpha \tilde{k}(G) + n\right)}{\left(\tilde{k}(G) + n\right)^{2-\alpha}} > 0 \,. \qquad (15)$$

Consider now the elite's most preferred level of G under oligarchy, which is given by $G_t^E = \arg\max \left[y_t^E(G_t)\left(1 - \frac{G_t}{\gamma y_t^E(G_t)}\right)\right]$. This implies, given $t > \underline{t}$, a tax rate faced by a member of the elite of $\tau_t^E = \frac{G_t^E}{\gamma y_t^E(G_t^E)}$, which must be compared to the respective tax rate faced under democracy. Consider the respective income of an elitist individual, given the same taxation as

_____

[13]As a corollary, note that this marginal income gain is larger for the elite than for the average individual or for a member of the people, for whom in the numerator k or k^P apply, respectively, instead of k^E.

under oligarchy, $y_t^E(\check{G}_t)\left(1 - \tau_t^E\right)$. Given identical gross incomes under both regimes, from condition (14), landlords would then prefer democracy if $1 - \frac{G_t^E}{\gamma y_t^E(G_t^E)} \leq 1 - \frac{\check{G}_t + T}{y_t(\check{G}_t)}$. Rearranging, it turns out that this is true if $y_t(\check{G}_t) \geq \gamma y_t^E(G_t^E)$. Now note that due to the monotonicity of individuals' incomes in G, and since $\gamma < 1/2$, the public good provision required under democracy to make landlords as well off as under oligarchy is smaller than the value under oligarchy. On the other hand, even providing the same amount as under oligarchy, implying the same gross income, would clearly make the elite better off under democracy. Note that this could be financed under democracy, while still leaving room for positive redistribution $T > 0$. As long as this redistribution is limited to the extent that net incomes are still higher under democracy, the elite will prefer the latter regime. Moreover, once democracy is offered, there is no way for the elite to prefer oligarchy to democracy at a later stage, since this, although eliminating redistribution, would necessarily decrease G and hence decrease incomes. □

However, as indicated before, democratization eventually also arises when the disenfranchised landless are powerful enough to implement democratization by force, i.e. when

$$\gamma k_t^E < (1 - \gamma)k_t^P \,, \tag{16}$$

provided that it is in their interest to have a democracy.

Proposition 2. *There is a unique generation $\hat{t}$, up to which the landlord elite dominates the landless people in terms of conflict power, but starting with which the landless people overcome the elite in terms of conflict power: $\exists$ a unique $\hat{t}$: $\gamma k_{t+\tau}^E < (1 - \gamma)k_{t+\tau}^P \ \forall \tau \geq 0$, while the inequality "$\geq$" holds $\forall \tau < 0$.*

Proof. The result follows directly from dividing condition (11) by k_t and applying Lemma 1. □

This result reflects the possibility for a transition towards democracy under the threat of revolution, as studied by Acemoglu and Robinson (2001, 2003). As a corollary, it is possible to characterize the conditions under which a particular transition regime arises by referring to the timing of the respective transitions.

Corollary 1. *An economy experiences a democratization from above when $t \nearrow \check{t} \leq \hat{t}$, while it experiences a democratization from below when $t \nearrow \hat{t} < \check{t}$.*

An implication of this result is that a strong and entrenched elite is unlikely to propose a democratic transition. To conclude, given our assumption about technical progress, there will eventually be a democratic offer in this

economy, which entails democratization from above, if it is in the elite's own interest to extend the suffrage, or democratization from below, if the people have become powerful enough to challenge the elite's political predominance. As seen before, the former scenario implies $\check{t} \leq \hat{t}$, while the latter implies $\check{t} > \hat{t}$. We now analyze the consequences of both scenarios.

First, consider the case of democratization from below, so the generation t that approaches $\hat{t} < \check{t}$. In this case, the members of the people can implement whatever constitution they like. Since we do not allow for expropriation of land-endowments, the landless will always prefer to establish a democracy in order to set-up a redistribution scheme that allows them to partake of land rents and capital rents accrueing to the landowners.[14] The decision problem of the median voter, who happens to own no land, would then look like as follows:

$$\max_{\{\tau,G,T\}} (1-\tau)y_t^P(G) + T \;\; \text{s.t.} \;\; T + G - \tau y_t(G) \leq 0, \;\; \text{and} \;\; \tau - 1 \leq 0 \,. \;\; (17)$$

The solution of this problem implies the following results:

Proposition 3. *In the case of democratization from below, the emerging democratic regime is characterized by a public sector with full redistribution, i.e. $\hat{\tau} = 1$, efficient public good provision, i.e. $\hat{G} = G^*$ as $\frac{\partial y(\hat{G})}{\partial \hat{G}} = 1$, and, consequently, a redistribution scheme of $\hat{T} = y(G^*) - G^*$.*

Proof. The results follow directly from the Kuhn-Tucker conditions of problem (17). □

Since the landlord elite lacks conflict power to effectively influence this outcome, they have no possibility to avoid full redistribution of their incomes. Nevertheless, however, they have an incentive to fully and optimally invest their endowments.

It is obvious that the elite will try to avoid such an outcome and attempt to limit redistribution in democracy as much as they can. This consideration is relevant when the elite can actually propose democracy and the rules under which democracy should be pursued. In particular, consider the

---

[14]We do not allow for discriminatory taxation, which would essentially mean expropriation of part of all endowments, including land. However, for the purpose of the paper, which is studying the constitutional design in the context of the democratic transition, this assumption is without loss of generality, see also Cervellati, Fortunato, and Sunde (2004) for a more general treatment of this issue. We also could relax this assumption and allow for a proletarian oligarchy appropriating all land resources, which would only tend to delay the democratization process. Even if people would opt for an oligarchy to their own favor, due to Lemmata 1 and 4, and analogous to Proposition 1, public good provision eventually becomes essential also for them as the rulers in a people's oligarchy. Hence, there arises a generation in the course of development, during which the proletarian oligarchs themselves will wish to implement a democratic regime allowing them to share the costs of public good provision with the previously disenfranchised.

first generation, $\check{t}$, of the elite for which offering democratization is more profitable than the status quo of oligarchy. When making the offer of extending the suffrage, they have the possibility to make this offer dependent on their design proposal for the democratic constitution, in which they explicitly limit redistribution to $\bar{T}$.[15] The consequences of fixing $\bar{T} \geq 0$ in the constitution for the allocation of resources, and public goods provision in particular, are condensed in the following proposition:

Proposition 4. *When offering democratization voluntarily (from above), the ruling elite enforces a sufficiently low constitutional limit to redistribution of $\bar{T}$ and taxation $\bar{\tau}$. The implemented democratic regime is characterized by a public sector with the maximum possible redistribution $\check{T} = \bar{T}$, as much taxation as possible, and inefficiently high public good provision, i.e. $\check{G} > G^*$.*

Proof. For illustration purposes, consider the extreme case, when the elite actually forbids redistribution by constitution, i.e. $\bar{T} = 0$. The people's Langrangian of this problem reads $L = (1-\tau)y^P - \lambda_1(G - \tau y^P) - \lambda_2(\tau - \bar{\tau})$.[16] Then, consider the case in which people actually tax as much as possible, so that $\check{\tau} = \bar{\tau}$ and $\lambda_2 \geq 0$. Then, $\lambda_1 \geq 1$, and by analyzing the first order condition with respect to G, we find that $\frac{\partial y^P}{\partial G} \leq 1$ which implies by concavity that $\check{G} \geq G^*$, with strict inequality if people are not fully indifferent at full taxation (i.e. if $\lambda_1 > 1$). Of course, if the constitutional constraint is sufficiently high not to effectively constrain the people's actions, the landless median voter could still implement a tax rate of one, induce efficient public goods provision, and redistribute the residual tax revenues as transfers. Hence, for the redistribution limit to be a binding constraint, it must hold that $\bar{T} < y(G^*) - G^*$. $\qquad \square$

Rigorously speaking, the members of the landlord elite have an incentive to limit redistribution to a minimally possible level, that is, absent

---

other constraints, they will go for $\bar{T} = 0$.[17] Moreover, the results are equivalent if the elite were to enforce a constitutional limit to taxation $\tau < \bar{\tau}$, rather than limiting redistribution. Similar arguments apply then, since the landless will always strictly prefer to spend tax revenues on public goods as long as $G < G^*$, rather than on transfers T, because the marginal benefits from infrastructure are higher. Also here, the elite has an incentive to allow for sufficient taxation in order to facilitate efficient public good provision. Redistribution transfers in this case are determined residually as $\check{T} = \bar{\tau}y(G^*) - G^*$.

So summarize, our results indicate that eventually a democratic transition arises. However, the the circumstances under which the transition to democracy takes place are crucial in determining the constitutional design, and hence the structure of the economy after democratization. What essentially matters in this respect is the relative bargaining power of the different groups struggling for political influence in the economy. If the ruling elite decides voluntarily to give up oligarchic power, it can in exchange influence the structure of the democracy to be implemented. If, on the other hand, the elite tries to hold on to the status quo, but eventually is forced to concede democratization, the terms of the democratic regime are less favorable for the oligarchs as their influence is limited. Consequently, if possible, the elite optimally trims the constitution to their favor, in particular by limiting the redistributive activities and and promoting productive, efficiency enhancing activities of the state. Essentially, our results imply that the larger the bargaining power of the elite during the transition to democracy, the smaller the size of the state in terms of taxes and tax revenues, and the larger the share of tax revenues spent on the provision of productive public goods, relative to the share of tax revenues spent on unproductive redistribution. Another noteworthy issue in this respect is the double cost the elite faces during the transition to democracy. On the one hand, members of the elite have to pay taxes, which partly go to finance redistributive transfers, in case they cannot be fully avoided. On the other hand, the elite loses the power to decide about issues such as public good provision, since the residual decision rights are taken on by the median voter under democracy. The case of democratization from below shows that the latter fact constitutes the real cost of democratization, while taxes and implicit redistribution in terms of proportional taxation are only second-order effects. Rather, taxation can very well be to the elite's advantage since universal taxation under democracy allows them to share the costs of public goods provision.

Let us finally analyze how the dynamics of economic and political development are affected by observable characteristics of the economy. In

---

[17]Note that this is a consequence of the myopic preferences we assume. If the founding fathers of democracy care about a stable system with limited social unrest, they are likely to allow at least for some positive redistribution.

18

particular, we investigate the comparative statics of the timing and the consequential regime of a democratic transition with respect to inequality in land, i.e. n and γ (or n/γ, respectively) and technological progress a (or level of development A) by studying their impact on the crucial state variables, the stock of physical capital k available in the economy and the level of inequality in capital endowments implied by λ^E, λ^P (and $\lambda := \lambda^E/\lambda^P$).[18] The first essential information concerns the effect of inequality in capital endowments (or parent's incomes) on the likelihood of a democratic transition of either type:

Proposition 5. *Everything else equal, larger inequality in capital endowments (or incomes) increases the likelihood of a democratic transition from above and decreases the likelihood of a democratic transition from below.*

Proof. For proving the first claim, consider condition (14) and derive both sides of the condition with respect to λ_t^E. The resulting conditions are $\left(\tilde{k}(G^E) + n\right)^\alpha \frac{\alpha \tilde{k}(G^E)}{\tilde{k}(G^E)+n}$ for the left hand side, and $\left[1 - \frac{\check{G}}{y(\check{G})}\right] \frac{\alpha \tilde{k}(\check{G})}{\tilde{k}(\check{G})+n}$ for the right hand side, respectively. Since $G^E < \check{G}$, the ratio constituting the respective second terms is larger for the latter condition. Moreover, $\left(\tilde{k}(G^E) + n\right)^\alpha = y(G^E)$, and hence, since $\check{G} = G^*$ and since the democratic offer from above only applies for generations $t \geq \underline{t}$, the first term is also larger for the latter condition, implying that a larger λ^E tends to make a democratic offer from the elite more likely. Concerning the second claim, consider (11). Clearly, a larger λ^E (and the implied smaller λ^P) tends to strengthen the conflict potential of the elite, making a democratic transition enforced by the people less likely. $\square$

In other words, higher income inequality tends to result more likely in a democratization from above, implying a small public sector with little redistribution and a large share of tax revenues spent on infrastructure provision, and the other way around. The next step is therefore to examine the impact of exogenous parameters, like a, A, n and γ on the state variables and hence the dynamic development path.

Proposition 6. *Everything else equal, faster technological progress a and a more industrialized structure of the economy implied by a higher level of development A lead to a sooner democratization, and increase the likelihood of a democratization from below. A larger importance of land resources n increases the likelihood of democratization from above, decreases the likelihood of democratization from below, and has an ambiguous effect on the timing of democratization. Finally, a smaller elite of landowners γ implies*

---

[18]Due to the assumption that capital can be only formed through bequests, considering inequality in endowments is equivalent to considering inequality in incomes of the respective parent generation since $\lambda_t^E = \frac{k_t^E}{k_t} = \frac{y_{t-1}^E}{y_{t-1}}$.

19

sooner democratization but an ambiguous effect on the relative likelihood of the different regimes occurring.

Proof. Note that, following Lemma 2, $\frac{\partial \lambda^E}{\partial a} < 0$ and $\frac{\partial \lambda^E}{\partial A} < 0$, such that a transition from above is less likely. Moreover, consider the effects of a higher level of development on inequality to see that $\frac{\partial \lambda}{\partial A} = \frac{\partial}{\partial A}\left(\frac{\lambda^E}{\lambda^P}\right) = \frac{\partial}{\partial A}\left(1 + \frac{\alpha n/\gamma}{A(1+G)k+n}\right) < 0$, making a transition from below according to condition (11) more likely, i.e. decreasing $\hat{t}$. Finally, note that A or a, respectively, increase the level of effective physical capital $\tilde{k}$, and hence increase the desirability of public goods provision according to Lemma 3 leading to a lower $\check{t}$, and therefore unambiguously to a sooner transition regardless of the transition regime. To see the second claim, again consider condition (11), and note that a larger n strengthens the elite's relative conflict power, hence increasing $\hat{t}$, while, from Lemma 2, n increases λ^E, and therefore, by Proposition 5, implies a lower $\check{t}$. Finally, a smaller γ tends to weaken the elite in comparison to the people in terms of conflict power, since $\frac{\partial \lambda^E/\lambda^P}{\partial \gamma} = \frac{\alpha n}{\tilde{k}+n}\frac{-1}{\gamma^2} > \frac{-1}{\gamma^2} = \frac{\partial}{\partial \gamma}\frac{1-\gamma}{\gamma}$, thus decreasing $\hat{t}$. On the other hand, from Lemma 2, a smaller γ implies a larger λ^E, and thus a lower $\check{t}$. $\qquad\square$

This result implies that oligarchies with smaller elites tend to be less stable and disintegrate sooner. The same is true if economic development is faster, which is in line with empirical findings by Boix and Stokes (2003) that economic development speeds up the arrival of democratization. Moreover, faster growth and higher levels of development tend to favor democratization from below, implying larger welfare states, while economies where land resources are important tend to rather democratize on the initiative of the landlord elite, implying constitutions with small public sectors and little redistribution. Interestingly, land resources make no clear prediction on the timing of democratization, while the size of the elite seems to be ambiguous with respect to the transition regime and hence the constitutional design. The following section briefly discusses these implication in the light of historical evidence.

4   The Historical Context and Empirical Relevance

The main implications of the model presented in the last section correspond well with empirical findings of earlier empirical contributions. Recently, the interdependencies of democratization, sustainability of democracy and economic development have received a revived research interest among economists and political scientists. Some contributions found that economic development apparently serves to stabilize democratic systems,

but found no causal effect of economic development on the timing of democratization, see Przeworski *et al.* (1997, 2000). Recent empirical evidence, however, seems to indicate that there is a positive causal effect of economic development on the probability that a country democratizes as well as a positive effect of development on the stability of democracies, see Boix and Stokes (2003).

Moreover, evidence suggests that economic development together with the political institutions in place determine the size of the public sector, as well as its structure in terms of infrastructure and transfers, such as unemployment benefits, health care and retirement pensions, see Boix (2001), who also finds that public sectors are significantly larger under democratic than under oligarchic regimes. Alesina and Glaeser (2004, ch. 2) provide evidence concerning redistribution in the U.S. and European countries, which experienced entirely different transitions towards democracy. With regard to the transition scenario corresponding to the theoretical model, the U.S. as well as the U.K. experienced democratic transitions from above, which were mainly initiated and determined by ruling classes and landowners, compare also the description in Lizzeri and Persico (2004). On the other hand, France, and also Germany, rather experienced transitions that were characterized by substantial pressure on the elites to extend the franchise.[19] In close concordance to the theoretical predictions, the size of the public sector as measured by total government spending in the year 2000 is larger in the latter countries, with government spending of around 30 and 37 percent in the U.S. and the U.K., respectively, while the corresponding numbers for France and Germany are about 49 and 43 percent, respectively, compare Alesina and Glaeser (2004, Table 2.1). The theoretical predictions with regard to the structure of the public sector, as measured by the share of public spending on purely redistributive activities such as social programs, is also in line with empirical evidence. In 1998, the U.S. and the U.K. spent around 14.6 percent and 24.7 percent of all expenditures on social programs, while France and Germany spent 29 percent and 27 percent, respectively, see Alesina and Glaeser (2004, Table 2.2), indicating a tendency towards more redistribution in countries that experienced a democratization from below.

The predictions that higher levels of development tend to favor democratization from below, as well as that the importance of land resources tend to favor democratization from above are supported by the findings of Boix (2001). Different regressions of the size of the public sector using a large panel data set of countries not only reveal a larger public sector in democ-

---

[19]While the French democracy essentially goes back to the revolution of 1789, extension of the franchise in Germany was associated with several waves of social unrest, as was the case for the revolution in 1848, the socialist movement which led Bismarck to introduce the welfare state, and the revolution in 1919 to mention just the most prominent milestones of the transition.

racies, but in particular a negative effect of the size of the share of the agricultural sector in total production as well as a positive effect of per capita income on the size of government, see Boix (2001, Table 3).

Acemoglu and Robinson (2004, ch. 2) provide a survey of the cross-country evidence on the patterns of democracy. Their main conclusions are that richer countries are more likely to be democratic, that more equal countries are generally less likely to be democratic, and that democracies are more redistributive than oligarchies with an increase in redistribution following democratization. All these facts are in line with the theoretical predictions. In particular, we have shown that richer countries on a higher level of economic development experience a democratic transition sooner, and that a larger elite (larger γ) tends to delay the democratic transition. Moreover, the model implies that redistribution primarily arises under democracy, in particular if the extension of the franchise happened under the pressure of conflict from the people.

Some important issues still remain to be addressed. After their critique of the work of Przeworski *et al.* (1997, 2000), Boix and Stokes (2003) claim that the most puzzling, yet unanswered questions regarding the links between economic development and democratization concern the findings of different effects of economic development on the propensity to democratize in different historical contexts. In particular, they raise the question why early during industrialization oligarchies appear to have been less stable to democratization than at later stages of development, and why economic development after World War II seems to have mainly helped to stabilize democracies rather than to induce democratization of non-democratic regimes. This paper provides a simple answer: because the economies that democratized early on differ in several other respects than the level of economic development from those economies that democratized later, or have not democratized yet altogether. In particular, the distribution of power among oligarchs and people might differ substantially due to different capital accumulation histories, land resources, and group sizes, thus making comparisons only in terms of level of development difficult. However, more empirical work needs to be done to rigorously test the implications of the theory, and to show that these are in line with the historical experience. Nevertheless, from the results presented so far we conclude that the model squarely fits the historical facts.

5   Conclusion

We have provided a simple dynamic model of economic and political development that is able to reproduce several recent theories about the endogenous transition towards democracy and the determinants of the design of constitutions within a single framework. The main mechanism implies that

economic development is a prerequesite for a democratic transition. Moreover, depending on the economic environment, this transition is triggered either by the ruling elite in the initial oligarchy, leading to a democratization 'from above'; or by the initially disenfranchised people, whose threat to go to open conflict and mount a revolution initiates a democratic transition 'from below'. However, we show that the transition regime is crucial for the design of the democracy after the transition. In particular, the more influence the elite has, as exemplified by the situation of a democratization from above, the more it will be able to tilt the constitutional design towards its own favor, for example by implementing constitutional limits to redistribution or taxation. On the other hand, if the elite is forced by the people to democratize, its influence on the constitutional design are limited, implying a larger public sector, and a larger weight of redistributive purposes in public expenditure. The implications of the model are shown to be in line with empirical findings and historical facts.

References

ACEMOGLU, D., AND J. ROBINSON (2000): "Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective," *Quarterly Journal of Economics*, (4), 1167–99.

——— (2001): "A Theory of Political Transitions," *American Economic Review*, 91(4), 938–63.

——— (2003): "A Theory of Political Development," *mimeo, MIT*.

——— (2004): *Economic Origins of Dictatorship and Democracy*. unpublished book manuscript, available at http://web.mit.edu/daron/www.

AGHION, P., A. ALESINA, AND F. TREBBI (2004): "Endogenous Political Institutions," *Quarterly Journal of Economics*, 119(2), 565–612.

ALESINA, A., AND E. L. GLAESER (2004): *Fighting Poverty in the U.S. and Europe: A World of Difference*. to appear in: Oxford University Press, Oxford.

BOIX, C. (2001): "Democracy, Development, and the Public Sector," *American Journal of Political Science*, 45(1), 1–17.

BOIX, C., AND S. C. STOKES (2003): "Endogenous Democratization," *mimeo, University of Chicago*.

CERVELLATI, M., P. FORTUNATO, AND U. SUNDE (2004): "From Hobbes to Rousseau: Inequality, Development, and Democratization," *mimeo, IZA, Bonn and Universitá di Bologna*.

FERNANDEZ, R., AND D. RODRIK (1991): "Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty," *American Economic Review*, 81(5), 1146–55.

GRADSTEIN, M. (1999): "Optimal Taxation and Fiscal Constitution," *Journal of Public Economics*, 72, 471–485.

——— (2004a): "Governance and Growth," *Journal of Development Economics*, 73(2), 505–518.

——— (2004b): "Inequality, Democracy, and the Emergence of Institutions," *CEPR Discussion Paper*, 4187.

LIZZERI, A., AND N. PERSICO (2004): "Why did the Elites Extend the Suffrage? Democracy and the Scope of Government, with an Application to Britain's 'Age of Reform'," *Quarterly Journal of Economics*, 119(2), 707–765.

MESSNER, M., AND M. POLBORN (2004): "Voting on Majority Rules," *Review of Economic Studies*.

OXOBY, R., AND H. LLAVADOR (2004): "Partisan Competition, Growth and the Franchise," *Universitat Pompeu Fabra Discussion Paper*, 730.

PERSSON, T., G. ROLAND, AND G. TABELLINI (2000): "Comparative Politics and Public Finance," *Journal of Political Economy*, 108(6), 1121–1161.

PERSSON, T., AND G. TABELLINI (2003): *The Economic Effect of Constitutions*. MIT Press, Cambridge, Massachusetts.

PRZEWORSKI, A., M. ALVAREZ, J. A. CHEIBUB, AND F. LIMONGI (2000): *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge University Press, New York.

PRZEWORSKI, A., AND F. LIMONGI (1997): "Modernization: Theories and Facts," *World Politics*, 49.

TICCHI, D., AND A. VINDIGNI (2003): "Endogenous Constitutions," *mimeo, University of Stockholm*.