

Democracy and Labor Market Institutions*

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Abstract

In this paper we examine the relationship between political and economic institutions. We first introduce a model by Acemoglu and Robinson (2008) on social conflict that predicts that if the majority of society has a political advantage in democracy that is sufficiently high, they are able to establish competitive labor market institutions which are beneficial for the majority but not for the (small) elite. The theory suggests that through this transmission belt of economic institutions one might link political institutions and economic outcomes and explain the ambiguous empirical evidence on this topic. As we test the effect of political on economic institutions empirically our approach differs from the existing literature as we explicitly relate democracy to labor market institutions. Using a panel of 40 countries and applying a linear fixed effects as well as a GLS model, our findings, however, do not support the predictions of the theory. Rather, we find evidence supporting competing theories of labor market institutions that relate the level of regulation to the legal origin of a country. Our results indicate that countries with common law legal origin are more likely to have less labor market regulation, and that furthermore higher stages of economic development have a decreasing effect on regulation as well.

Keywords: Political economics, social conflict, political institutions, democracy, labor market institutions

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"I do not see how one can look at figures like these without seeing them as representing possibilities. Is there some action a government could take that would lead the Indian economy to grow like Indonesia's or Egypt's? If so, what exactly? If not, what is it about the nature of India that makes it so? The consequences for human welfare involved in questions like these are simply staggering: Once one starts to think about them, it is hard to think about anything else."

(R.E. Lucas, 1988, p. 5)

Introduction

The relationship between democracy and economic growth, or more general, between political regimes and economic development has been well studied both in economics and political sciences. The reason is the impact of an answer to the question how political changes affect economic outcomes on academic research and applied work. However, due to the concepts involved, it seems to be too complex to be answered by proposing a simple association. Political regime types include a multitude of different ways to organize societies; thus, notions like *democratic* and *authoritarian* proved to be too crude to be able to describe the multifaceted phenotypes of existing and past polities. Furthermore, development cannot be captured by narrow concepts like GDP per capita or income growth. Rather, it is a “process of structured transformations, not only economic, that becomes manifest in the growth of income, productivity, consumption, investment, education, life expectancy, and employment” (Adam Przeworski, Alvarez, Cheibub, & Limongi, 2000). Consequently, given the complexity and the often poor quality of the data, evidence provided by academic research on the above question is mixed. It does however suggest a two way causal interaction. Thus, stressing the importance of dealing with this issue, it entails both the possibility of a development in a virtuous and a vicious circle.

Motivated by Lipset’s hypothesis that individual countries should become more democratic the richer they get (Lipset, 1959b), some scholars using cross-country regressions in fact reported a positive effect of development on democracy (Barro, 1999), while others argue that such results are driven by omitted variable bias or other caveats (Daron Acemoglu, Johnson, Robinson, & Yared, 2007). Research on whether democracy has significant effects on economic outcomes is ambiguous as well. While authors like Rodrik (1999) find evidence for such a link, others like Mulligan, Gil and Sala-i-Martin (2004) do not report significant effects.

With our research we do not aim at adding another paper on the relationship between political regimes and economic development. Nevertheless, we do think that the association between these two concepts needs further clarification as it is much more complex than sometimes suggested. Thus, we test a theory by Acemoglu and Robinson

(2008) that predicts a link between political institutions and economic outcomes through economic institutions. This theory of economic institutions as transmission belt between democracy and growth is based on a microeconomic model which incorporates individual rationality and uses a game theoretical approach to model interactions between different groups in society, the citizens and the elite. More precisely, the theory predicts that if the electoral advantage in democracy for the poor part of society, the citizens, is sufficiently high, economic institutions that are beneficial to them are more likely to emerge, and economic institutions will not be controlled by the rich class, the elite. Economic institutions play a crucial role in this setting as they are assumed to be less easy to change than policies and hence are thought to be used as commitment devices for future policies.

Consequently, unlike many theories in political sciences the theory does not leave open the question of individual motivations for pursuing a certain action or preferring a type of regime. Thus, the theory has the potential to help disentangling the complex relationship between democracy and development by distinguishing various types of democracies and relating them to different economic institutions. The resulting economic institutional setting, in turn, through existing research, can be linked to economic outcomes (Knack & Keefer, 1995; Douglass C. North, 1990) and trigger further investigations on how the interplay between political and economic institutions shapes policies and developmental outcomes. For instance, measures of restrictions on individual market activities like on capital mobility, trade openness and the like can be used as indicators of economic rights or institutions, and it can be argued that lower levels of e.g. capital mobility restrictions should be supportive of economic growth (A. Alesina & Perotti, 1994, p. 354). This underlines the importance of understanding the effect of political on economic institutions.²

Besides, the subject of this paper is closely linked to research investigating the effect of political institutions on economic policies. Studies in this field concentrate on the impact on fiscal outcomes, corruption and the size of governments and welfare programs, and do find systematic effects (see for instance Persson, 2002; Persson & Tabellini, 2000). This line of research focusing on the economic consequences of

² On the importance of the effect of institutions on growth see also Olson (1993) Niskanen (1997) and Acemoglu and Robinson (2000).

electoral rules and other political institutions are not only relevant given the interest in solving the puzzle of empirically observable differences in economic policies and institutions across countries. Due to the ongoing debate on and actual reforms of polities worldwide, including states switching from dictatorship to democracy, new insights could enrich the discussion on which electoral rules to choose.

Thus, this paper aims at specifically investigating the relationship between political and economic institutions. Hence, its subject is different from the literature which explores the causal relationship between democracy and growth (Bueno de Mesquita, Morrow, Siverson, & Smith, 2003), growth or economic outcomes in general and democracy (Daron Acemoglu, Johnson, Robinson, & Yared, 2008; Barro, 1999) or democracy and policies, as it neither concentrates on the outcomes nor on policies, which are easily changeable, but concentrates on economic institutions and stresses their importance as commitment device as advocated in the theory (Daron Acemoglu & Robinson, 2006, 2008).

The rest of the paper is organized as follows: In the first section on “The Theory” we introduce the theory we test empirically in this paper. In section 2 on “Previous Research and Related Literature” we provide an overview regarding the existing literature on the relationship between political institutions and economic outcomes, institutions, and policies. Then, in the section on “Methodology and Empirical Evidence” we motivate our choice of variables, both empirically and theoretically, apply two different models to a panel of 40 countries to test the theory introduced in the first section and present the regression results.

The Theory

The Model

In their paper on the “Persistence of Power, Elites, and Institutions” (2008) Acemoglu and Robinson construct a model to study the effect of changes in political institutions on economic institutions. Proposing a microeconomic model in which results are determined by the behavior of rationally and strategically acting agents, the authors aim at explaining differences in economic outcomes across political systems - transmitted from political institutions by economic institutions. Driving force in this model is the social conflict between the two types of agents that populate the economy: a small elite and numerous citizens which are the majority. While, due to the incentive structure, the elite prefers nondemocratic political institutions and repressive labor market institutions, the citizens aim at establishing democratic political institutions and competitive labor market institutions. The unique set-up directly relates economic outcomes to economic policies, economic policies to economic institutions and these finally to political institutions. Furthermore, Acemoglu and Robinson predict that changes in the latter ones under certain conditions lead to a pattern of *captured democracy*³ in which political institutions remain democratic but economic ones tend to favor the small elite. Hence, as economic institutions are shaping economic outcomes, the model explains the ambiguous empirical results of comparative developmental economics regarding the impact of political institutions on indicators like GDP per capita.⁴

As mentioned above, the economy in the model is populated by a small elite and numerous citizens who form the majority. In each period t the two types of agents compete for political power, as the group with the greatest amount is able to decide on the economic institutions in t and the political institutions in $t+1$. The political power of each group in period t is determined by both de jure and de facto power in t . In this context, de jure power refers to the power allocated by the political institutions (democracy or nondemocracy) prevalent in the legislative period t , like the power of parties acquired through elections in the case of democracy. De jure power is opposed or

³ The term „captured democracy“ is coined by the authors (Daron Acemoglu & Robinson, 2008, p. 285).

⁴ The empirical results are discussed in the section Previous Research and Related Literature on page 12 below.

rather complemented by de facto power⁵, which is determined by investments⁶ and the ability to organize interest groups collectively. Due to their small number and the associated higher expected returns of dominating political institutions, the elite have more incentives than the citizens to invest into de facto power (Mancur Olson, 1965). Hence, in summary, political power includes “anything that enables a social group to come close to its preferred policies, de jure or de facto” (Daron Acemoglu & Robinson, 2006, p. 174). With respect to the type of political institutions, democracy allocates more de jure power to the citizens, while nondemocracy allocates more de jure power to the elite. Consequently, when dominating political power, citizens will choose democracy and the elite nondemocracy. Regarding the labor market institutions, agents can choose between competitive and repressive ones. While the former ones lead to competitive wages for the citizens and zero profits for the elite, the latter ones pay positive returns to the elite and wages below the competitive wage level to the citizens. Thus naturally, the elite prefer repressive labor market institutions and the citizens competitive ones. Advancing to the preference structure of the agents, a change in political institutions has two effects: While altering the distribution of de jure political power among the two groups in society, probably best illustrated by the fact that democracy creates advantages for the citizens while non-democracy does for the elite, a change in the regime type at the same time alters incentives to invest into de facto political power. In the basic version of the model, the group with more political power is able to change both political institutions in the current period and economic institutions in the following one. Consequently, both sets of institutions are chosen according to the interests of the group in power, i.e. either non-democratic political institutions with repressive labor market institutions (chosen by the elite), or democratic institutions with competitive labor markets (chosen by the citizens). Referring to evidence from economic history, e.g. from Latin America, Acemoglu and Robinson, however, argue that economic institutions, through the use of de facto power,

⁵ Empirically, this is often found to be essential for e.g. the distribution of resources (see e.g. Daron Acemoglu & Robinson, 2008; Mancur Olson, 1965).

⁶ For illustrational purposes one can for instance think of investments in bribery or weapons. Thus, as the authors state, this approach is closely related to research on lobbying in democracy (see for instance Austen-Smith, 1987; Baron, 1994; G. M. Grossman & Helpman, 1996).

are easier to change than political institutions⁷ (Daron Acemoglu & Robinson, 2008, p. 283). Incorporating this feature of more durable political institutions into the model gives rise to the above mentioned results of *captured democracy*. Depending on a range of parameters, this pattern describes a situation in which democratic political institutions, i.e. those favoring the majority or the citizens, can coexist with economic institutions favoring the elite. Hence, hinging on the assumption that economic institutions are easier to change than political ones, this situation of *captured democracy* arises when the elite, due to sufficiently high investments, gains enough de facto power to change economic but not political institutions. This stems from the fact that the authors understand de facto power as the ability of a group to “challenge the system or [...] undertake a coup – that is, de facto ways of obtaining power” (Daron Acemoglu & Robinson, 2006, p. 174). The equilibrium distribution of resources and institutions, as mentioned above, depends on a range of parameters. Among others, the size of the parameter η , which measures “the citizens de jure power in democracy” (Daron Acemoglu & Robinson, 2006, p. 272), determines whether the elite decides to invest into de facto power to change economic and/or political institutions. Following Dahl’s (1971) argumentation the authors assume that agents behave rationally and strategically, i.e. they have well defined preferences over the possible outcomes, and consequently only invest if they are sure to be successful in changing institutions and if they prefer this change to the prior institutional arrangement.⁸ Hence, if for the elite either the cost of investing and successfully changing political or economic institutions is too high compared to the expected benefits, or the expected benefits from such a change are too low compared to the ex-ante cost, the individual rationally constraint is not fulfilled and the citizens keep the total power in democracy. In this case democracy will be prevented from being captured, where captured democracy is characterized by the fact that “democracy will survive but choose economic institutions in line with the elite’s interest” (Daron Acemoglu & Robinson, 2008, p. 285). Such capturing will not take place “if democracy creates a substantial advantage for the citizens in the form of a large value of η , then [...] this will end the

⁷ See Acemoglu and Robinson (2006) for a discussion of the mechanism of the persistence of political and economic institutions.

⁸ This is obvious from the timing of the events in the basic environment of the game between the elite and the citizens (Daron Acemoglu & Robinson, 2008, p. 273).

cycle of institutional persistence and make the permanent consolidation of democracy an equilibrium” (Daron Acemoglu & Robinson, 2008, p. 286). The reason is that a large democratic advantage for the citizens makes a successful change of institutions through the elite less probable, thus creating the need for higher investments into de facto power in order to change economic institutions. Consequently, the theory predicts that the higher the parameter value η , the more beneficial the economic institutions for the citizens in democracy, and hence the lower the degree of capturing.⁹ Thus, η can be interpreted as an indicator of the feasibility of solving the collective action problem of large groups (Mancur Olson, 1965, 1993), or the benefits of democracy for the majority in society. Nevertheless, it is important to note that the theory does not predict a monotonic or even linear relationship between the advantages of citizens in democracy and political or economic institutions that benefit the majority. The reason for this prediction is that the greater the democratic advantage of the citizens, the higher the future cost of democracy for the elite as competitive labor market institutions become more likely with an increasing democratic advantage, and the cost of sufficient investments into de facto power for the elite rises as well. Hence, this might encourage the elite to invest even more to either overthrow democracy or capture it, in the sense that democratic political institutions persist but economic ones become repressive.¹⁰ This is by virtue of the assumption that political institutions are more durable than economic ones. “When democratic institutions are “sufficiently strong”, however, the nature of the equilibrium changes qualitatively” and democracy may consolidate, as the incentives for the elite to invest into de facto power are destroyed. Given the somewhat paradoxical result of a greater democratic advantage for the citizens that over a certain range of this parameter value (η) leads to higher incentives for the elite to invest into de facto power and in this range hence increases the probability of economic institutions that favor the

⁹ In their theory Acemoglu and Robinson (2008) do not analyze models of endogenized economic institutions, nevertheless mention historic accounts of e.g. labor repressive institutions that can be classified as such. Other authors like Moore (1974) however, emphasize the role of endogenized institutions in facilitating democratic change for instance in Britain.

¹⁰ This has important consequences for the economic outcomes generated by different political systems, as democracy can lead to greater inefficiency given the higher investments of the elite into de facto power and wasteful, repressive labor market institutions that discourage citizens to direct their labor force to the most efficient occupation.

elite, the theory can be seen as a “first step in the investigation of the coexistence of persistence and change in institutions” (Daron Acemoglu & Robinson, 2008, p. 288). This theory thus has the potential to shed light on why certain political reforms were not successful in generating significant growth.

Institutions and Policies

Two major assumptions in this model drive the result that democratic political institutions might persist but economic ones are captured by the elite. In order to be able to test the theory, we have to make them explicit and clarify them. The first one is the assumed difference in the durability of political and economic institutions. The second one is the difference between economic institutions and economic policies, as the former ones essentially serve as commitment device for future choices.

Political versus Economic Institutions

Motivated by empirical observations, Acemoglu and Robinson (2008) assume that political institutions are more difficult to change than economic ones, i.e. it is more difficult to overthrow democracy or autocracy than to alter for instance labor market institutions. This idea is implemented in the model by simply assuming that the elite require more political power to change political institutions, than to change economic ones. Hence, situations can arise in which the elite invest sufficient resources into de facto power to change labor market institutions, however not enough to introduce nondemocracy as well. As outlined above, the authors call this pattern “captured democracy”. For the case of consolidated democracy with competitive labor market institutions, i.e. when the elite neither has sufficient power to change political nor to alter economic institutions, the term “absorbing state” is used.

Acemoglu and Robinson (2008) claim that the pattern of captured democracy might explain why empirically political reforms in developing countries have often failed to lead to a sustained growth path. Stating historical examples, they furthermore argue that changes in political institutions did not necessarily change economic outcomes. They reason, that this occurred precisely because the elite was still able to control e.g. labor market institutions, and thus set up repressive ones. Examples include the abolition of

slavery in the US south and the accompanied extension of the franchise, where repressive wages and uneducated labor however persisted while the change in franchise occurred, the numerous transitions to democracy in South America in the mid 1980's that failed to generate significant growth, and the experience of states in Sub-Saharan Africa where many attempts to introduce more democratic polities didn't stimulate growth either (Daron Acemoglu & Robinson, 2008).

Institutions versus Policies

In the theory introduced above both political and economic institutions play a major role in determining both political regimes and payoffs, or economic outcomes in general. In the setup of the model, economic policies, however, do not enter explicitly.¹¹ Nevertheless, in order to test the theory and assess the empirical relationship between political and economic or labor market institutions, it is crucial to distinguish between the latter ones and economic policies.

Without being explicit about the exact role of institutions in social conflict, the authors attribute an essential characteristic to institutions, without which the model would not work: durability and the ability to influence the allocation of political power in the future. Given the relative greater durability of institutions compared to policies, institutions commit to future actions, hence eliminate uncertainty (Douglass C. North, 1990) and can be used as commitment device (D. C. North & Weingast, 1989).¹² Hence, institutions stand in stark contrast to policies, which are easy to change and hence do not commit to future actions. This separation has important implication for our empirical analysis in the following part of the paper, as we have to define variables that comply with these characteristics.

¹¹ A broad range of related models on coups, revolutions and political transitions in general, however, make the choice between policies and institutions explicit. By virtue of this set-up the role of institutions as commitment device is incorporated explicitly given that agents have to choose explicitly between committing to e.g. future redistribution and hence lower the long term threat of a revolution by choosing appropriate institutions, or whether to lower the threat of revolutions only temporarily by choosing redistributive public policies. See for instance Acemoglu and Robinson (2000) and the references therein.

¹² On the useful role of institutions as commitment device in a slightly different model see Acemoglu and Robinson (2006).

The underlying view of institutions used in Acemoglu and Robinson (2008) goes back at least to the seminal work of Douglass C. North who defines institutions as “the rules of the game in a society, or, more formally, [...] the humanly devised constraints that shape human interaction” (1990, p. 3).

Previous Research and Related Literature

Motivated by Acemoglu and Robinson (2006, 2008), we test a possible causal relationship between political and economic institutions. Hence, our subject is different from other research that either investigates the link between democracy and economic outcomes/policies or the determinants of political regimes. Nevertheless, the relationship between political and economic institutions is closely related to both of these lines of research as the distinction between institutions, outcomes and policies is sometimes ambiguous and the possibility of reverse causality always present. Furthermore, the theory we aim at testing here provides a possible explanation for the direction of causality by making explicit the role of economic institutions as transmission belt between political institutions and economic outcomes and policies.

The above mentioned lines of research can be classified into two broad categories with different starting points with respect to cause and effect: The first one is concerned with the determinants of political and especially democratic institutions and emphasizes the effect of economic development on political regime types and transitions. It argues that the existence of the prerequisites for investment and subsequent economic growth, like secure property rights, can be chosen by any form of government, no matter whether dictatorial or democratic, and that democratic institutions are more likely to develop in rich economies with an educated population. The second one studies the link between democracy or political institutions in general and economic outcomes, institutions, and policies. It hence stresses the important and unique role of democracy in establishing property rights and other institutional prerequisites that spur growth and development.

The Determinants of Political Regimes

The positive relationship between economic development and democracy is among “the most notable empirical regularities in political economy” (Daron Acemoglu, et al., 2008, p. 808) and at the core of modernization theory. It greatly influenced Lipset (1959b) in his formulation of the idea that democracy cannot be established without prior economic development, which is also known as the “Lipset hypothesis”. In particular, Lipset (1959) states that transitions to democracy only occur in sufficiently rich countries

with sufficiently educated populations. Furthermore, modernization theory argues that democracy sometimes arises even naturally after a certain standard of income or level of education has been attained. Similar views are often found as well in the non-technical literature on political economy and democracy (e.g. Huber, Rueschemeyer, & Stephens, 1993; Rueschemeyer, Stephens, & Stephens, 1992). As in this context the notion of development is interpreted in a broad way it hinges on the interpretation of the term as a “process of structured transformations, not only economic, that becomes manifest in the growth of income, productivity, consumption, investment, education, life expectancy, and employment” (Adam Przeworski, et al., 2000: 1). Dahl (1971), in contrast to this deterministic view of history, uses a similar “economics based” approach to democratic transitions as Acemoglu & Robinson (2008), whose theory is to be tested here. He formulates a theory of democratization which is based on the assumption that the likelihood of a country to democratize increases “the more the costs of suppression exceeds the cost of toleration” (Dahl, 1971, p. 15). By arguing that the cost of suppression rises with an increasing standard of living Dahl essentially combines his economics based approach with Lipset’s hypothesis. Thus, according to his theory, polyarchy¹³ is more likely in more developed countries. He even gives absolute thresholds and states that high levels of socio-economic development with levels of “GNP per capita over about \$700-800 are most favorable to polyarchy”¹⁴ (Dahl, 1971, p. 203). An extension of the view that agents, when deciding on whether to undertake coups or revolutions, which are assumed to be socially inefficient in the sense that they are costly but not productive, take into account expected payoffs, is the argument that regime changes are more likely to occur during economic recessions as the cost of instability for any party involved is lower in these periods (Daron Acemoglu & Robinson, 2001).¹⁵ Hence, this “[...] suggests that a possible reason for the greater success of richer societies

¹³ Dahl prefers to call real-world systems polyarchies rather than democracies as he only distinguishes them along two dimensions, their competitiveness (or degree of liberalization) and their inclusiveness (of participation). However, “since democracy may involve more dimensions than the two [...] and since [...] no large system in the real world is fully democratized” (Dahl, 1971) he uses the term *polyarchy*.

¹⁴ Dahl’s book was first published in 1971 and hence these numbers are likely to refer to 1970’s levels of GNP. This however, is not stated explicitly.

¹⁵ Empirical support for this claim is provided by Haggard and Kaufman (1995) and Przeworski et al. (1996).

in consolidating democracy is their economic stability” (Daron Acemoglu & Robinson, 2001, p. 939). Furthermore, such views on strategically interacting agents taking into account expected payoffs form the basis of theories of social conflict that try to explain democratizations by for instance threats of revolutions (see for instance Ades & Verdier, 1996; H. I. Grossman, 1991; Roemer, 1985)

Empirical evidence, however, on whether the proposed positive association between development and democracy is due to a causal relationship is mixed.

As mentioned above, the importance of the accumulation of human and physical capital and subsequent development for the emergence of democratic institutions was reintroduced by Lipset (1959b) into modern political thought. He refers, however, to Aristotle as being the first one to point to development as a cause of sustained democracy. Several authors confirm this hypothesis. With respect to income per capita, Persson and Tabellini (2006) find a negative effect of an increase in income on the exit rates from democracy, but no effect on the exit rates from autocracy. Similarly, Przeworski et al. (2000) present results that show the tendency of rich countries to stay democratic, whereas poor ones more often suffer (antidemocratic) coups.¹⁶ Nevertheless, Przeworski et al. (2000) are not able to establish neither a monotonic relationship nor a causal effect between measures of development and democracy. Opposed to this view that development makes democratic regimes more stable but does not affect democratic transitions, Boix and Stokes (2003) show how development can cause democracies to come into existence, implicitly arguing that Przeworski and associates did not deal adequately with sample selection and model specification issues.

One of the most cited articles in this context is Barro (1999), who studies a large panel of over 100 countries for more than three decades. His results indicate that increases in per capita income are a strong predictor of improvements in electoral rights, which is used as an indicator of democracy. A higher degree of urbanization, however, seems to have adverse effects on democracy.

Furthermore, testing the effect of human capital, operationalized as average educational attainment, on democratic institutions, Persson and Tabellini (2006) confirm

¹⁶ These results provide empirical support for the theoretical argument above that due to greater economic stability richer societies are more successful in sustaining democracy.

the hypothesis of Lipset (1959b) and report statistically significant positive coefficients: Hence, they conclude that “education reduces the risk of exit from democracy and increases the risk of exit from autocracy” (Persson & Tabellini, 2006, p. 27). Also theoretically many researchers have established a connection between education as an integral part of modernization and democratization. Almond and Verba (1989), for a political-sociological account, motivate a possible effect of education on democracy with increased political participations and the underlying attitudes that change with educational attainment. Beside social characteristics that influence both education and political attitudes, they argue that psychocultural variables like authority patterns in pre-adult situations and (unintentional) exposure to political views shape peoples political opinions. Glaeser, Ponzetto, and Shleifer (2007) build on this link and develop a formal model of regime stability in which education raises the benefits of civic participation and hence increases the likelihood of successful democratization while decreasing the success probability of anti-democratic coups.¹⁷ Theoretically their model specifically makes use of the socialization hypothesis which states that formal education lowers the cost of social interaction by teaching how to interact successfully and productively with others (ibid), which helps to overcome problems of collective action by facilitating and reducing the cost of coordination (Gradstein & Justman, 2002; Helliwell & Putnam, 2007). For research that emphasizes the role of civic engagement see Almond and Verba (1989), Lipset (1959a), Inglehart and Welzel (2005), and Hadenius and Teorell (2005). Diamond (1992) in turn stresses the impact of ideology.

Glaeser, LaPorta, Lopez-de-Silanes, and Shleifer (2004) and Papaioannou and Siourounis (2008b) do confirm these predictions and find that education has a statistically significant impact on democratic transitions. Glaeser, Ponzetto, and Shleifer (2007) furthermore only find empirical evidence for a positive effect of education on democracy, not the other way around, i.e. that democracy leads to more education. Acemoglu, Johnson et al. (2008) and (2005), however, by augmenting existing regression approaches with for instance country specific effects, provide evidence that there is only little causal

¹⁷ They, however, measure the success of an regime type by the raw number of people supporting it, not by monetary investments as for instance in Acemoglu and Robinson (2008) and they furthermore do not use the usual participation constraint to determine the number of supporters for a political regime.

effect of income and education on democracy. They identify two possible caveats that lead to the rejection of previous results on which basis authors established the above mentioned causal relationship from developmental indicators to democracy: Reverse causality and omitted variable bias. Their data suggest that the positive association of income and education on the one hand and democracy on the other is driven by other, so far omitted variables like culture, which are captured by country fixed effects, as there is no relationship and particularly no positive correlation between changes in income or education and several measures of democracy in their regressions. Hence, they argue that controlling for factors that affect both economic development and democracy can explain the empirical observation. This is also the argument of the “critical junctures hypothesis” (Daron Acemoglu, et al., 2007, p. 2). This states that the above mentioned factors that affect both the political and economic setting in a country are especially influential during “critical junctures”. Thus, according to the hypothesis, differences among these factors in e.g. Britain, France, Germany, and Japan were the reason why the former two established a consolidated democracy while the latter two moved towards fascism and Russia as well as China became communist states (Moore, 1974, p. 475).¹⁸ Even Lipset (1959b, p. 72) argued that “unique events may account for either the persistence or the failure of democracy in any particular society” and refers to Max Weber who stressed the importance of key historical events as well.

Castelló-Climent (2008) however argues that when applying another Generalized Method of Moments (GMM) estimator instead of the first difference estimation method used by Acemoglu, Johnson et al. (2005) and taking into account not only the average years of schooling but also the distribution of education within a society, results confirm the statistically significant positive impact of education and equality of education on variables measuring the degree of democracy. Thus, this work ties in with other models on political transitions that emphasize the influence of equality (however, mostly of variables like income and wealth) on democratic transitions (see for instance Daron Acemoglu & Robinson, 2000; Daron Acemoglu & Robinson, 2001; C. Boix & Garicano, 2001; Bourguignon & Verdier, 2000). Bobba and Coviello (2007) provide further

¹⁸ A similar idea can be found in Acemoglu and Johnson (2001).

evidence that is in line with Castelló-Climent's (2008) findings. Applying the Blundell-Bond system GMM (Blundell & Bond, 1998) instead of the Arellano-Bond first-difference GMM (Arellano & Bond, 1991) and regarding the level of human capital as endogenous given the forward looking nature of investments into it, Bobba and Coviello (2007) report a significant relationship between past levels of education and changes in the degree of democracy.

Linking Political Institutions with Economic Policies, Institutions, and Outcomes

In the following we provide an overview of the existing literature in political economy that deals with the effect of political institutions on economic policies, institutions, and outcomes. Contrasting the line of research known as growth literature which investigates the effect of economic variables like trade and education on growth, the “intersection of the endogenous growth literature and the new political economy [...] [reviewed here] [...] argues that economics alone cannot fully explain the enormous variance across countries in growth and, more generally, in economic outcomes and policy choices” (A. Alesina & Perotti, 1994, p. 351). Given this argumentation and the crucial role that economic institutions play in economic development, we will not only review the literature on the link between political and economic institutions, but also on the link between political institutions and economic outcomes and policies. We regard this as the logical consequence of the importance of economic institutions for economic development¹⁹ and the distribution of economic resources. Additionally, disentangling the processes that link regime types and development and testing whether the proposed transmission belt proposed by Acemoglu and Robinson (2008) entails the potential to solve the puzzle why democratic political reforms in developing countries sometimes fail to lead to significant economic development (Daron Acemoglu & Robinson, 2008). We chose to distinguish between the concepts of economic policies and institutions as the theory tested here separates them clearly with respect to their role in social conflict. Those in power are assumed to be able to change both policies and institutions. Policies, however, as laws on taxation, are easier to change and hence do not provide the security

¹⁹ On the relationship between economic institutions and growth see for instance de Haan and Sturm (2000) and de Vanssay and Spindler (1994).

to groups they favor to enjoy these privileges in the future as well. Only institutions, like openness to trade or the possibility for workers to be organized in unions, due to their relative longevity, can be used as commitment device and guarantee future benefits.²⁰ Outcomes, in turn, in this theory are not directly decided on by the government or those in power. Rather, they are the result of the interplay between political and economic institutions, arrangements, and policies. In the following sections we will provide an overview of the more recent empirical results which are related to this topic.²¹ For an overview on the theoretical models that argue in favor or against a positive correlation or even a causal relationship between democracy and economic development see Papaioannou and Siourounis (2008a) who distinguish between “skeptical” and “development theories”. Mulligan, Gil, and Sala-i-Martin (2004) provide an overview on theories of voting that aim at explaining differences in economic outcomes across political regimes.

Political Institutions and Economic Outcomes

Research on comparative development has stressed the influence of political institutions on economic outcomes. In this context, the term “economic outcome” is mostly understood as economic growth or development, operationalized by different indicators. Evidence on this well-studied relationship, however, is mixed. While authors like Rodrik (1999), Persson and Tabellini (2006; 2003), Besley, Persson and Sturm (2006), Besley and Kudamatsu (2006), and Kohlscheen (2006) report a significant influence of political institutions on economic outcomes, others like Mulligan, Gil and Sala-i-Martin (2004), Helliwell (1994) and Barro (1996) reject this claim. Furthermore, the difficulty of adequately operationalizing and choosing variables like political regimes arises frequently and impedes robust conclusions (A. Przeworski & Limongi, 1993). Thus, as existing research does not seem to solve this puzzle, the necessity to disentangle the link between political regimes and economic outcomes becomes even more urgent.

²⁰ The seminal contribution on institutions as commitment device is North and Weingast (1989), as well as Weingast (1997).

²¹ For a comprehensive survey of the earlier literature on the effect of democracy on economic growth and development we refer to Roubini (1990) and Sirowy and Inkeles (1990).

In the following we will provide a more detailed overview of the literature that investigates the impact of political institutions on economic outcomes and distinguish two broader categories of outcomes that receive special attention in economic research. These categories comprise growth and development as well as fiscal outcomes. Furthermore, we additionally review research on whether political institutions themselves matter or the stability of them.

Political Institutions and Growth and Development

Research on the effect of political regimes on growth and development can be broadly categorized according to the methodologies it makes use of. Interestingly, the conclusions seem to vary with the regression approaches, too. While cross country or pooled time series regressions in general do not find robust effect of political institutions on development (see e.g. Rodrik & Wacziarg, 2005; Sirowy & Inkeles, 1990), regressions using within country variation are more supportive of an average effect of democracy on measures of human development and growth. The former ones, however, due to the very setup of the methodology, depend on large datasets and hence focus on long term relationships only which might have the disadvantage of neglecting the effect of changes in political institutions, like the effects of sudden democratizations which are of a short term nature.

One of the most widely cited articles using cross country data is Barro (1996). His regression results indicate that democracy has a weakly negative, nonlinear effect on economic growth, as intermediate levels of democracy seem to affect growth marginally positively, while low levels of democracy, contrary to high levels, have a slightly negative influence on the dependent variable. The coefficients of the latter two independent (dummy) variables, however, are not statically different from zero. Barro (1996) argues that those studies reporting significant positive effects of political freedom on growth suffer from omitted variable bias. Furthermore his results indicate an inverse u-shaped pattern: For low levels of democracy more political freedom can enhance growth, while this relation is vice versa for high levels of democracy. Hence, according to these results, intermediate levels of democracy are better than low or high levels when considering economic growth. Nevertheless, pointing out that the overall relation is far

from perfect Barro stresses the preliminary nature of the results. Given these findings, Plümper and Martin (2003) develop a political-economic model that explains this inverse u-shaped relationship between levels of democracy and growth. Assuming that governments choose between generating rents or investing in public goods to gain support from voters, their model suggests that in polities with low democracy indexes it is optimal to secure votes by generating rents and underinvest into public goods. With medium levels of democracy, it becomes more efficient to assure political support by investments into public goods. However, if levels of democracy increase further, governments tend to overinvest into public goods reaching inefficiently high levels. The authors also find empirical support for their theory and show that democracy levels and government share of GDP are related in a u-shaped manner. Thus, Plümper and Martin (2003, p. 44) argue that “a country’s regime type crucially affects the instruments governments choose to attract political support”. Hence, the rationale is similar to the one proposed by Acemoglu and Robinson (2008), even though the linkages between regime types and economic outcomes are different in the models. On the contrary, Tavares and Wacziarg (2001) argue that democracy enhances growth through policy decisions that improve the accumulation of human capital and reduce income inequality, but at the same time impedes growth by reducing physical capital accumulation. Other authors, in turn, stress the growth enhancing interplay between political and economic freedom (Bhagwati, 2002; Bhalla, 1997).

Persson and Tabellini (2006) separately test whether exits from democracy and autocracy have an effect on growth. While finding that a higher probability of staying in democracy has a positive and statistically significant effect on economic growth, the coefficient on the probability of staying in autocracy is only marginally significant, but positive as well. The coefficient on the propensity to exit autocracy is negative, however, suggesting “that the negative effect of political instability dominates the expected benefit of becoming a democracy” (Persson & Tabellini, 2006, p. 33). This asymmetry is similar to the one reported by the authors for income per capita. Similar results are furthermore reported by Przeworski et al. (2000). Testing across regimes, Persson and Tabellini (2006) furthermore find that the impact of staying in autocracy hurts growth. Similarly, the probability of staying in democracy is positively affecting growth, despite is marginal

significance. This effect however vanishes when omitting the expectations of a regime change as control variable. Hence, the authors stress the importance of expectation regarding regime changes, as they help to correctly assess the effect of political institutions on growth. Londregan and Poole (1990) apply a similar approach, but find that political instability, measured by past coups and the current propensity for coups, does not seem to affect growth rates. Rodrik and Wacziarg (2005), exploiting short-run within country differences by using yearly data, and Rodrik (2000), as well reject the claim of Persson and Tabellini (2006) that democratizations lead to economic instability which in turn negatively affects growth and argue that rather democratic regime transitions follow periods of low growth rates and subsequently decrease economic volatility and, if anything, have a positive effect on growth. Focusing on the “Third Wave of Democratization”²² (Huntington, 1991) and using annual data, the results of the dynamic analysis of Papaioannou and Siourounis (2008a) reveal a comparable pattern and the authors argue that while growth might be low during political transitions the long term impact of democracy on growth, in line with Hayek’s (1960) hypothesis, is positive. Investigating the effect of democratizations on growth by exploiting within country variations like Papaioannou and Siourounis (2008a), Roll and Talbot (2003) and Persson (2005) as well reach the conclusion that democratic reforms are correlated with long-run growth, albeit with a considerable time lag. Conducting a broad meta-study on existing results, Doucouliagos and Ulubasoglu (2008), too, conclude that through indirect effects democracy has a robust and significant effect on long run growth.

Political Institutions and Fiscal Outcomes

Political institutions, furthermore, have an effect on fiscal outcomes. Even though especially fiscal outcomes are the result of an interplay between political and economic institutions as well as policies, we decided to include this topic here as we focus on the long term effects of political institutions on fiscal outcomes – as clear as the empirical evidence is able to distinguish between short term policy effects and long term

²² The notion of the “Third Wave of Democratization” was coined by Huntington (1991) to describe the transition from some thirty states from autocracy to democracy, starting with Portugal in 1974, and ending with the transition of the countries belonging to the former Soviet Union in 1990.

institutional influence. We however acknowledge the caveat of separating the individual effects of the three broad factors mentioned above.

After surveying the literature on budget deficits in OECD countries, Alesina and Perotti (1995) conclude that both the “tax smoothing theory”²³ (Barro, 1979; R. E. Lucas & Stokey, 1983) as well as the “fiscal illusion”²⁴ explanation (Buchanan & Wagner, 1977) are not sufficient to explain the cycles of government budget deficits and surpluses. They furthermore assess the explanatory power of intergenerational models and conclude that not intergenerational models, but those that model distributional conflicts between different groups or parties (and hence are related to the theory tested here) are better suited to explain the empirical observations. Their conclusion that distributional conflict as well as budget institutions and procedures matter is supported by further research. Balassone and Giordano (2001) as well as Roubini and Sachs (1989) stress the difficulties of multiparty coalitions to reconcile their budgetary agendas and reach a compromise that does not adversely affect balanced budgets. Alt and Lowry (1994) highlight the importance of strict budgetary institutions and swift reactions to exogenous revenue shocks while Poterba (1994) explores the budget deficit reducing effect of one party governments through rapid fiscal adjustments, and Hallerberg, Strauch and von Hagen (2006) combine the findings of Alt/Lowry and Poterba. They observe that in the EU15 two kind of debt reducing institutions developed: While one party or multi-party governments where party ideologies are closely aligned are able to reduce their debt by delegation of the decision power, e.g. to the minister of finance, in more ideologically dispersed coalitions fiscal contracts and policy rules are effective. Similar results for

²³ The tax smoothing theory, formulated for a closed economy with a benevolent social planner who aims at keeping the tax rate constant, argues that budget deficits and surpluses are varied in order to achieve a constant tax rate. Due to decreasing marginal utility the overall utility of the agents is increased by an only intertemporally balanced budget and deficits (surpluses) as buffer against high (low) government spending, but a resulting constant tax rate.

²⁴ The fiscal illusion explanation of budget deficits states that opportunistic politicians that want to stay in power exploit that voters do not understand the intertemporal budget constraints of a government and the concept of Ricardian Equivalence. Voters are assumed to underestimate future tax burdens that are necessary to finance current spending and overestimate the utility of current benefits. As a consequence, deficits occur. While this is not in line with traditional economic theory as it is unclear why “illusions” of voters should be biased in one direction (instead of stochastic errors that lead to correct estimations on average) behavioral economics and the concept of hyperbolic discounting might explain such behavior. Nevertheless, it is still a puzzle how one can explain differences across countries within this theoretical framework (cf. also A. Alesina & Perotti, 1995).

Latin America are reported by Alesina, Hausman, Hommes and Stein (1996). Furthermore, they seem to be especially needed in coalitions with dispersed ideologies of the partners, as Balassone and Giordano (2001) find that even if all coalition partners have a balanced budget on their agenda, due to compromises, budget deficits are the higher the more dispersed the political views of the coalition partners. In general, evidence shows that institutions are the more effective the more they limit universalism, reciprocity and parliamentary amendments (von Hagen, 1991, 1992).²⁵ Hence, this research strongly suggests that political and budgetary institutions do influence fiscal outcomes. Hallerberg and von Hagen (1997) investigate which of these two kinds of institutions matter most and conclude that budgetary institutions and rules reflect the underlying political institutions and have a direct effect on debt levels. This view is supported by Alesina and Perotti (1999) and de Haan and Sturm (1994). A reason for the effectiveness of clear and transparent budgetary institutions might be the reduced opportunity for opportunistic behavior by politicians (Benito & Bastida, 2009). The result of Alt and Lassen (2006) that the dependency of public debt levels on electoral cycles is reduced when transparent budget rules are present further supports this hypothesis. Consistently, Ozler and Tabellini (1991) further find that in developing countries political instability is associated with higher debt levels as instability increases the preference for present over future government consumption. In general, however, the evidence presented here highlights the difficulties of empirically separating the individual effect of political institutions from the effect of economic institutions and policy choices, which are likely to be endogenous and influence fiscal outcomes as well.

Political Institutions and Stability

Given, however, the sometimes ambiguous nature of the literature on the effect of democracy on economic development and especially on growth, many researcher argue that “establishing democratic institutions is not the “deus ex machina” that resolves all the problems” (A. Alesina & Perotti, 1994, p. 355). Rather, researchers argue that

²⁵ Feld and Kirchgässner (2001), however, investigating the case of Swiss municipalities, suggest that direct democratic processes might be more effective than budgetary rules and procedures to reduce public debt. This is at odds with the “fiscal illusion” hypothesis as proposed by Buchanan and Wagner (1977) and others.

political stability matters and is often not accounted for (Persson & Tabellini, 2006). However, defining and operationalizing political stability is one of the major caveats to conclusive results. Empirically, two predominant approaches can be identified. The first one combines various measures of sociopolitical instability²⁶, the other uses executive turnover or regime changes as proxy for stability²⁷. Furthermore, one can distinguish between two different views on the nature of the relationship between political instability and growth. One line of argumentation starts with instability and states that it reduces the incentives to accumulate human as well as physical capital and thus harms growth (see e.g. A. Alesina, et al., 1996). The other one, especially being advocated by researchers from political sciences, argues that due to structural changes that induce shifts in power, economic growth leads to either higher instability, or, by reducing tensions, leads to lower political instability (D.C. North, 1981; M. Olson, 1963). Unlike with respect to the relationship between democracy and economic outcomes, however, evidence on the negative effect of instability on growth seems to be fairly robust (Mankiw, Phelps, & Romer, 1995; Persson & Tabellini, 1999a).

Political Institutions and Economic Policies

Another, related question is whether certain political regimes on average tend to choose certain policies. As we are investigating the effect of political institutions on economic ones it seems appropriate to focus on those policies that are sometimes confounded with economic institutions: transfers and subsidies like unemployment benefits and pensions, for instance. This ambiguity even extends to political institutions, as Glaeser et al. (2004) point out that many indexes of political institutions do not actually measure institutions and hence e.g. indexes of property rights might also reflect policies rather than institutions, chosen by dictators.

²⁶ see e.g. Venieris and Gupta (1986) showing that higher instability negatively affects savings rates, which are traditionally considered to spur growth, Ozler and Tabellini (1991) finding evidence that an increase in instability leads to an increase in government debt, or Barro (1991) reporting that political instability measured by number of coups d'état and political assassinations directly harms growth.

²⁷ See e.g. Cukierman, Edwards, and Tabellini (1992) relating instability with higher public debt levels, Alesina, Ozler, Roubini, and Swagel (1996) confirming Londregan and Poole's (1990) result that poverty leads to higher political instability, but contrary to Londregan and Poole's findings report that higher instability leads to less growth, Persson and Tabellini (2006) reporting higher levels of instability during regime transitions which harm growth.

Regarding the classification of transfers, subsidies, and the like as policies we certainly acknowledge the empirical persistence of these concepts, especially when it comes to existence or nonexistence. However, as most empirical studies do not focus on whether transfers, subsidies or similar concepts exist at all but rather on their variance within and across states (see for instance Persson, 2002; Persson & Tabellini, 2000 and the references therein) we decided to classify them as policies, given the relative ease and frequency with which for instance the amount of transfers can be changed.²⁸

Furthermore, transfers and subsidies are relevant as they are the fastest growing part of governments' budgets in the post WWII period (Persson & Tabellini, 2000) and form a central part of modern welfare states. Thus, dealing with this issue has the potential to shed light on the relationship between political institutions and government spending. Additionally, there seems to be general agreement on the positive influence of certain policy choices which e.g. lead to lower taxes or transparency in government on growth and development (Bueno de Mesquita, et al., 2003; D. C. North & Weingast, 1989; A. Przeworski, 2001).

Following Persson and Tabellini (2000) it seems useful to distinguish between general and targeted redistribution policies. While the former ones target broad social groups like for instance those receiving pensions, the latter ones hand out transfers to more narrow groups. As broad programs target large parts of societies they more likely reflect the interests of the majority, while smaller programs in turn might only serve narrowly defined special interest group. Hence, given the subject of this paper, the literature on broad spending programs is more closely linked than the research on targeted redistribution. Additionally, many aspects of economic policies have similar characteristics as public goods with respect to nonexcludability and nonrivalry (Bergstrom & Goodman, 1973; Bueno de Mesquita, et al., 2003; Musgrave, 1959). Milesi-Ferretti, Perotti, and Rostagno's (2002) findings support the appropriateness of such a classification: Using a panel of OECD countries and continuous measures of electoral systems, they report empirical evidence in favor of their model's predictions that majoritarian (proportional) systems have a positive effect on spending on public

²⁸ On this issue we refer as well to Acemoglu and Robinson (2006, p. 177 ff.).

policies and public goods (transfers). They argue that transfers are easier to target to specific groups than public goods or policies which by definition accrue to all citizens, but can be targeted geographically and hence be directed towards voting districts. Nevertheless, their findings suggest furthermore that the larger the voting districts, the broader the spending. This pattern is confirmed by Persson and Tabellini (1999b). Lizzeri and Persico (2001) extend these results and show that a winner-takes-all representation leads to smaller amounts spend by government. Using a cross section of five-year averages on the size of budgets and the composition of government spending and controlling for economic and social variables, Persson and Tabellini (1999b) as well as Persson, Roland, and Tabellini (2000) report similar results and find a significant negative effect of presidential systems on the overall size of public spending. Using dummy variables to identify the different electoral systems and concentrations of power, the evidence for a systematic effect of other electoral systems on the level of public goods is weak, however. Nevertheless, in a later publication, Persson (2005, p. 22) is able to conclude that “reforms of authoritarian political regimes into parliamentary, proportional and permanent democracies seem to foster the adoption of more growth-promoting structural policies, whereas reforms into presidential, majoritarian and temporary democracy do not“.

Bueno de Mesquita et al. (2003) adopt a different approach and relate a variety of policy and institution choices as well as economic and political phenomena to the size of the selectorate, i.e. the set of people that select the government’s leadership, and the size of the winning coalition, i.e. the subset of the selectorate that is sufficiently large to “endow the leadership with political power over the remainder of the selectorate as well as over the disenfranchised members of the society” (Bueno de Mesquita, et al., 2003, p. 51). Their empirical tests of the model and other, related approaches (see e.g. Lott & Kenny, 1999 on the size of the selectorate) point into a similar direction as the one presented above.²⁹

A further line of research investigates the relationship between political institutions and the development of alternative budgetary rules and procedures

²⁹ Given the quite different approach and use of variables we however do not discuss it in detail.

(Hallerberg & von Hagen, 1997). Only a few contributions, however, investigate the link between budgetary institutions and the size of government. Perotti and Kontopoulos (2002), for instance, contrary to Roubini et al. (1989), do not find a significant effect of budgetary rules but of political institutions, specifically of size fragmentation operationalized as coalition size (number of parties in a coalition) and cabinet size (number of spending ministers) on public spending. Others add that the size of government is related to frequency of government changes (Jakob de Haan & Sturm, 1994), which thus has to be controlled for. Borge, Falch and Tovmo (2008), furthermore, argue that political and budgetary procedures do affect the efficiency of public spending. Schuknecht, Afonso and Tanzi (2003) support this view. They suggest that the size of governments might be negatively associated with efficiency and to a lower degree with performance due to diminishing marginal productivity, and that the size of government spending thus works as a transmission belt between political institutions, budget rules and efficiency. On this see also the argumentation given in the section on Political Institutions and Economic Outcomes on page 18 regarding the inverse u-shaped relationship between levels of democracy and public goods and possible overinvestment, leading to lower growth rates (Plümper & Martin, 2003).

Political Institutions and Economic Institutions

We now proceed to the relationship between political and economic institutions, the core of this paper. As outlined before, there seems to be a broad agreement on the impact of economic institutions on growth and development. The question of whether economic institutions, however, might work as the missing or at least ambiguous link between political institutions and economic outcomes, to the best of our knowledge has not yet been in the focus of thorough empirical investigations that focused on many other variables than the standard ones, namely property rights and trade restrictions. Nevertheless, while it seems to be an “intellectual consensus” (Glaeser, et al., 2004) that growth and development are both enhanced by secure property rights (D. Acemoglu, Johnson, & Robinson, 2005; Easterly & Levine, 2003; Hall & Jones, 1999; Knack & Keefer, 1995; Douglass C. North, 1990; Rodrik, Subramanian, & Trebbi, 2002) and free trade (Frankel & Romer, 1999; Lederman & Maloney, 2003; Wacziarg, 2001; Wacziarg

& Welch, 2003),³⁰ even with respect to these two variables, empirical results do not indicate a monotone relationship with democracy. Furthermore, it seems to be ambiguous as well whether political institutions are the main determinant of economic institutions, as suggested by Acemoglu and Robinson (2008).

With respect to property rights and the rule of law, after reviewing the empirical evidence and himself finding a positive but insignificant effect of electoral rights on a rule of law index, Barro (1999, p. 173 f.) concludes that “the link between democracy and property rights is unclear” and the evidence that electoral rights stimulate the maintenance of the rule of law not very strong. Furthermore, he uses the measure of electoral rights as the dependent variable and shows that there is no evidence either that higher values of the rule of law index promote electoral rights. However, given that he finds a positive relationship between economic growth and electoral rights as well as between the maintenance of the rule of law and growth, he points out that instead of political institutions (here operationalized as electoral rights) shaping economic ones (maintenance of the rule of law in general and property rights in particular), the relationship could be the reverse and indirect, as property rights could stimulate growth and growth might promote democracy. Thus, the possibility of reverse causality is always present when investigating the relationship between political and economic institutions. Other authors’ results like those of Sirowy and Inkeles (1990) point into a similar direction and Przeworski and Limongi (1993) even call the idea that democracy promotes property rights a “recent assumption” and “far-fetched”.

Research on the influence of political institutions on trade liberalization is mainly conducted in political sciences, oftentimes focusing on foreign economic policy. Furthermore, little is written on the determinants of trade liberalization, and as most of the literature focuses on the influence of the global politico-economic system (see e.g. Keohane, 2005), even less research has dealt with domestic determinants like political institutions. First of all, we do however ask the careful reader for patience regarding the

³⁰ Rodrik (2008), however, argues that striving for the implementation of first best economic institutions, like perfect contract enforcement and property rights, in developing countries (and supposedly also in more developed ones) does not produce the best economic outcomes in the short run. He stresses rather to implement appropriate institutions in the sense that these second best institutions take into account country specific market and government failures, as these would produce superior economic outcomes.

issue of classifying trade liberalization as economic institution despite the fact that especially researchers in political sciences regard it as belonging to foreign economic policy. We will only postpone it until we have introduced the overall results of the literature on this topic, as the classification issues then become much clearer. A few studies do however investigate whether there is a democratic difference in commercial protection and trade liberalization³¹. Focusing on the difference between democracies and autocracies rather than on variations between countries that are classified as having similar regime types, Mansfield, Milner and Rosendorff (2000) investigate the relation between political institutions and trade barriers. Focusing on constraints on the chief executive as pivotal difference between democracies and autocracies they report much more open trade relations between pairs of two democratic states than between mixed pairs, i.e. comprising a democracy and an autocracy. Nevertheless, they were not able to report a significant difference in trade when comparing pairs of democratic and pairs of autocratic states. The results however seem to be driven as well by the choice of countries to be part of international trade agreements, international organizations or alliances in general. This brings us back to the question whether it is appropriate to classify trade liberalization as economic institution. Given the influence of membership in international organizations and trade agreements on trade liberalization, a decision that cannot be reverted frequently, and as Mansfield, Milner and Rosendorff (2002, p. 479) furthermore stress the role of trade agreements as credible commitment device, a characterization that mirrors the one of institutions, we believe that it is appropriate to classify the level of trade liberalization or free trade as economic institution. The empirical results of Mansfield, Milner and Rosendorff (2002) underline our claim and furthermore demonstrate the influence of regime types on the decision to allow for free trade. On average, a democracy is about twice as likely as an autocracy to enter a trade agreement. The results of both studies conducted by Mansfield, Milner and Rosendorff are robust with respect to different operationalizations of regime types and the inclusion of a wide

³¹ The implicitly underlying argument of course is that trade barriers negatively affect the volume of international trade, and that international trade is the higher the lower the barriers. On this relationship see for instance Rodrik (1994).

range of control variables.³² Milner and Kubota (2005) verify it especially for developing countries, while, applying a cross sectional approach, Mulligan et al. (2004) cannot reject the hypothesis that democracies and noncommunist autocracies have the same openness to trade. Nevertheless, the coefficient of the dummy variable for communist states enters significantly, indicating that on average communist states limit international trade. Investigating the rationale behind liberalizing trade, Giavazzi and Tabellini (2005) as well as Tabellini (2005) furthermore conclude that it is more likely that democracy leads to openness, but that reverse causality cannot be ruled out.

These studies however, do not take into account that for instance the decision to enter a trade agreement might depend on certain characteristics of the specific political institutions in a country, for instance that a state has to be democratic. Hence, depending on the distribution of democracy and autocracy across countries, this might explain why democracies are more likely to enter trade agreements and cooperate.

Thus, concluding, the overview on the existing literature that deals with the influence of regime types on economic institutions makes obvious how little researchers actually know about the interplay between political and economic institutions as the overall number of studies on this topic is quite small, the existing studies raise questions about endogeneity, reverse causality, and omitted variable bias, and the number of economic institutions covered is very small.

The Joint Dynamics between Economic and Political change

As this section has shown, academic research has not yet reached a conclusion on how to disentangle the relationship between political institutions on the one hand and economic outcomes, policies, and institutions on the other one. Few doubt that there is no robust relationship at all. However, evidence does not suggest a single direction of causality. Hence, the empirical observed pattern urges to either include the possibility of both directions and to consider the joint dynamics of political and economic change, or to choose appropriate techniques to exclude one direction. However, most of the times

³² Dai (2002), however, augments the model introduced by Mansfield, Milner and Rosendorff (2000) and argues that political regimes are not sufficient to explain levels of trade liberalization. Nevertheless, empirical evidence supporting the claim is missing.

either side of the two way relationship has been studied separately. Nevertheless, counterexamples exist and good examples for research designs that take these challenges into account are, among others, Persson and Tabellini (2006), Bueno de Mesquita et al. (2003), and Przeworski et al. (2000). This is especially staggering given the existing theoretical predictions that point into the direction of joint dynamics, or as Olson (1993, p. 567) argues, that “the conditions necessary for a lasting democracy are the same necessary for the security of property and contract rights that generate economic growth”. Consequently, he supports the view of a “virtuous circle” or “positive feedback loop between democracy and economic development” (Persson & Tabellini, 2006, p. 3) once a polity has entered an era of democracy.

Methodology and Empirical Evidence

As we have seen in the previous section, evidence on the joint dynamics between political and economic change is far from being disentangled, and especially research on the relationship between political and economic institutions only covers a small subset of all economic institutions one can think about. Hence, in the following we will extend the analysis to other economic institutions in order to unravel the way political and economic institutions interact. This will be done, as outlined in the section on “The Theory” starting on page 5, by testing the model of Acemoglu and Robinson (2008) and its prediction, namely that a democratic advantage, that is above a certain threshold for the majority of society, i.e. the citizens, will lead to economic institutions that are more beneficial for the citizens.

As sketched in the above argumentation, such investigation in the long run aims at closing the gap in existing research regarding the role of institutions in development, by identifying possible transmission belts between political institutions and economic outcomes. This is one of the key challenges in this area of research as identified by Acemoglu, Johnson, and Robinson (2005).

The Data

In order to assess the above prediction we need both indicators for political as well as for economic institutions, and furthermore have to specify the appropriate control variables. Hence, in the following we will discuss both theoretically and based on empirical issues the question of operationalization of institutional variables.

Operationalizing Economic Institutions

As introduced in the section on “Political Institutions and Economic Institutions”, little research has been conducted so far on the relationship between these two variables. Furthermore, existing studies have mainly focused on property rights and the rule of law (Barro, 1999) or trade liberalization (Mansfield, et al., 2000) as the dependent variables. Given that Acemoglu and Robinson’s predictions regarding the influence of a democratic advantage for citizens on economic institutions explicitly mention labor market

institutions and its either repressive or competitive nature, we decided to extend the existing literature to this type of institutions.

In the empirical literature labor market institutions mainly have been assessed with respect to its influence on economic growth, productivity (Arnal, Ok, & Torres, 2001; Arpaia & Mourre, 2005; Eichengreen & Iversen, 1999), and unemployment (Bruno & Sachs, 1985). The effects of labor market institutions on the mentioned economic outcomes, however, are generally seen as ambiguous given the endogenous nature of institutions³³ and the many, partly unidentified, transmission possibilities by which arrangements in the labor market can affect short-term dynamics and long-run equilibria (Arpaia & Mourre, 2005; Schettkat, 2001). Regarding the view that labor market institutions are not only exogenous determinants of economic outcomes, three main views can be distinguished that give different explanations for the endogeneity of this kind of institutions. The first one, set forth in the model of Acemoglu and Robinson (2008) as well, regards social conflict between different groups in societies over rents as the driving force of the formation of labor market arrangements.³⁴ The second one views the legal origin of a country as major determinant of labor market institutions. While, however, Botero et al. (2005), in their widely cited article, argue that common law legal origins lead to less regulated labor market and hence leave workers less protected, Hefeker and Neugart (2010) in their recent paper challenge this view and provide empirical evidence that supports the claim that due to larger discretionary possibilities for courts in common law systems³⁵, countries with such legal origin are more likely to protect workers and adopt labor market regulations than countries with civil law. Given the proximity of this issue to our research question we will control for the legal origin of countries in our regression. The third view on the endogeneity of labor market institutions follows the argumentation of an efficiency hypothesis in the sense that when choosing

³³ We will discuss this view of endogenous labor market institutions in the following and refer to the references there.

³⁴ On this view especially see Saint-Paul (1999) and publications of Acemoglu of this topic, e.g. Acemoglu (2005).

³⁵ The influence of legal origin on regulatory practices and in particular the positive effect of common law legal origin on less market regulation has been extensively investigated. For a short overview see Hefeker and Neugart (2010).

labor market institutions, social costs and benefits are evaluated to efficiently address existing local market failures (Blank & Freeman, 1994).

Given the ambiguous empirical results, different databases have been set up to build quantitative indicators on for instance the costs of regulation (World Bank Doing Business database), reform progress (OECD), de facto labor practices (Global Labor Survey by Chor and Freeman (2004)), or a more general overview (composite index on labor market regulation by The Fraser Institute) (Arpaia & Mourre, 2005).

Given the panel structure, the frequent updates and the quality of the index on economic freedom published by The Fraser Institute (Gwartney, Lawson, & Hall, 2011) we decided to follow Hefeker and Neugart (2010) and use a sub-index of the Economic Freedom Index of The Fraser Institute (sub-index 5B, which measures labor market regulations) as a proxy for labor market institutions.³⁶ This index ranges from 0 to 10, with higher values indicating less regulation. Given that the index comprises information on labor market regulations such as minimum wages, hiring and firing practices, the share of the labor force whose wages are set by centralized collective bargaining, and unemployment benefits system, we are confident that such a measure is an appropriate proxy for the benefits workers receive from labor market institutions. Due to the liberal view of The Fraser Institute one could however argue that the index is biased. Nevertheless, if it is biased in one direction, it is very likely that all data is equally distorted, hence only complicating the interpretation of the size of the regression coefficients. Regardless, the general criticism of Kuruvilla, Hossain, and Berger (2010) who argue that current measures of e.g. collective bargaining are flawed as they focus on the existence of rights, and not on practice, applies here as well. Given our time and resource constraints, however, we stick to the measure of The Fraser Institute, albeit acknowledging measurement problems and interpreting our results with the necessary caution.

Using sub-index 5B on Labor Market Regulation of the Economic Freedom Index by The Fraser Institute, which generates the variable *lmr* as a proxy for the

³⁶ Detailed explanations of the construction of this index and the variables are given in the Appendix.

advantageousness of labor market institutions, we construct a panel of 40 countries³⁷ from all over the world. Given that the index is only available on a five year basis starting in 1970 until 2009 (the last period covers only four years), we include all those countries that have at least five observations to have a considerable time variation. As some countries have up to nine observations, others however only the minimum amount of five, the panel is unbalanced and consists of 243 country-year observations. Furthermore, in order to control for prior levels of labor market regulation we include the five year lag of the variable *lmr*, named *lmr_5*. Thus, the first observation for each country can always only be used as a control variable. Therefore, the number of observations for each country that is suitable to be used as dependent variables is reduced by one, resulting in four to eight observations that enter the regression.

Table 1: Summary Statistic of the variable lmr

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>lmr</i>	243	5.38107	1.57943	2.6	9.1

Table 1 presents a summary of the variable *lmr*, which can range from 0 to 10. In our sample with mean 5.38, the minimum value, indicating the highest observable level of labor market regulation in the panel, is 2.6 (the Netherlands in 1975 and 1985), the maximum value, indicating the lowest observable level of labor market regulation in the panel, is 9.1 (United States of America in 2005 and 2009).

Political Institutions

While research on the economic consequences of political institutions has only advanced through the last decades, political scientists already before had produced a broad range of literature on this topic. They did however, concentrate on political phenomena, such as the propensity of events of crisis and war, the number of parties, or

³⁷ The countries comprise (alphabetically): Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Denmark, Egypt, Finland, France, Germany, Greece, India, Ireland, Israel, Italy, Japan, Jordan, South Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, United States.

the survival of leaders (for more recent accounts see Bueno de Mesquita, et al., 2003; Cox, 1997) .

Nevertheless, these investigations also triggered theoretical work on political institutions that tried to define the crucial characteristics of democracy. While in current research political scientists stress the importance of two electoral characteristics, namely district size and the electoral formula³⁸, early political thought started with ideas on the forms of government. These were mainly discussed considering the relations between the different political institutions which exercise power and not so much the relation between the state and society, which was regarded to belong to the forms of state.

Regarding the forms of government, Bobbio (1989, p. 100 ff.) identifies three major lines of classical thought. The typology of Aristotle, who uses a trichotomy of monarchy (tyranny), aristocracy (oligarchy) and politeia (democracy)³⁹ based on the number of rulers. Machiavelli reduces these to two as he sees the main difference to be between one ruler and a ruling collective. This is, as he argues, due to the necessity, in the latter case, to establish at least simple rules to take decisions collectively. Finally, Montesquieu (Cohler, Miller, & Stone, 1989) used the legacy of governments to distinguish between limited and despotic regimes which differ in the extent to which they are constrained by law. In modern thought Kelsen (1945), adopting Kantian notions, draws the distinction between forms of government with respect to the origination of norms: in autonomy, norms are created by the citizens, i.e. by the subjects they apply to, while in heteronomy norms are not determined by the subjects. Only in recent history, authors like Schumpeter (1994) and Dahl (1971) emphasized competition or contestation to be included in a typology of forms of government.

Huntington (1991), with a similar view as Dahl (1971), uses a more procedural approach and unlike others, does not define democracy “in terms of “the will of the people (source)” and “the common good (purpose)” (Huntington, 1991, p. 6; brackets in original). Rather, he follows Schumpeter who defines “the democratic method” as the “institutional arrangement for arriving at political decisions in which individuals acquire

³⁸ i.e. "how votes are translated into seats" (Persson, 2002, p. 887). In general e.g. Persson distinguishes between proportional and majoritarian (“the winner takes all”) representation.

³⁹ The notions in brackets describe, according to Aristotle, the corrupt forms of monarchy, aristocracy and politeia, respectively.

the power to decide by means of a competitive struggle for the people's vote" (Schumpeter, 1994, p. 269). Huntington, however, subsequently combines the procedural approach which "implies the existence of those civil and political freedoms to speak, publish, assemble, and organize that are necessary to political debate and the conduct of electoral campaigns" (Huntington, 1991, p. 7) with Dahl's above mentioned two dimensions of polyarchy⁴⁰ and defines "a twentieth-century political system as democratic to the extent that its most powerful collective decision makers are selected through fair, honest, and periodic elections in which candidates freely compete for votes and in which virtually all the adult population is eligible to vote" (Huntington, 1991, p. 7). Dahl (1983, p. 362), in a later work additionally not only stressed the importance of equal access to ballots, but also the effective participation of the citizenry, their "enlightened understanding", as well as "control of the agenda of decision making processes.

Empirically, however, it seems that Huntington's (1991, pp. 9 f.) view that elections are at the core of democracy and Diamond, Linz and Lipset's (1988) focus on "institutionalized, regular and meaningful competition in the selection of leaders and the determination of policymaking" are the most practical, albeit minimal approaches.

Measuring Democracy

This paper does not try to offer a new classification of political regime types. Rather, we use different existing ones but pre-select them on the basis of their theoretical appropriateness and rootedness in political theory. As we test the theory by Acemoglu and Robinson (2008) which predicts that if democracy generates benefits for the (relatively poor) majority, and if these benefits are above a certain threshold, economic institutions will be beneficial for the citizens, we have to control for different shades of democracy. More precisely, we have to control for differences in the benefits for the citizen and measure these differences among democracies. In this context we will use the terms "autocracy" or "authoritarian/autocratic regime" and dictatorship interchangeably.

⁴⁰ The two dimensions are competitiveness (or degree of liberalization) and inclusiveness (of participation).

Hence, as we use continuous measures of political regime⁴¹ types, the two classifications democracy and dictatorship should be seen as opposing ends of a continuum.

Operationalizing Political Institutions

As our discussion and prior research suggest, the use of indexes that reveal different shades of political regimes on the continuum between democracy and autocracy and that furthermore are transparent with respect to the impact of their sub-dimensions is needed. This is especially relevant as many measures that concentrate on one feature of political institutions are not rooted in political theory.⁴²

In the research on democracy there are two general approaches on how to deal with measures of political institutions. While on the one hand many researchers argue that it is especially promising to use variables that allow to control for shades of democracy and autocracy (cf. Daron Acemoglu & Robinson, 2008; Gleditsch & Ward, 1997), others defend the approach of using dichotomous measures in regimes as being the most useful ones (cf. Adam Przeworski, et al., 2000), at the same time however stressing the need to move away from narrow thinking about regime types, as they would not capture the differences detailed enough (A. Przeworski & Limongi, 1993).

Aiming at reconciling both the feasibility regarding the construction and use of indexes as well as the rootedness in political theory, we also have to take into consideration the theory we test and its demands. Thus, even though the model by Acemoglu and Robinson (2008) technically works with a dichotomous measure of political regimes (democracy vs. nondemocracy) and economic institutions (competitive vs. repressive), it seems straightforward that the social conflict between the elite and the citizens translates into different levels of political and economic institutions, capturing the idea that institutions can take on values in between the ends of a measure. Furthermore, having in mind the theoretical argumentation that benefits in democracy have to be above a certain threshold for economic institutions to be more beneficial, it becomes clear that while institutions in the model technically are dichotomous, benefits

⁴¹ In line with Przeworski et al. (2000, p. 18) I use the notion “regime” to describe “the system of relations between the society and the state”.

⁴² As a counter example see for instance Bueno de Mesquita et al. (2002) for their measure of the size of the selectorate and the size of the winning coalition as indexes of regime types.

describe a continuum. Consequently, for empirical research to be able to take into account a continuum of benefits, the index of institutions has to be continuous, too. Thus, we follow Acemoglu et al. (2008) and apply a continuous measure that focuses on the level of democracy.

With respect to such continuous measurement of political institutions two measures prevail beside the variety of others that exist. These two are the Freedom House index on civil and political rights⁴³ (Gastil, 1990, various years) and the different publications of the Polity index (Jaggers & Gurr, 1995) with the newest version being the Polity IV dataset.

As the latter one is widely used in research on political economics, political theory emphasizes the role of electoral rule and procedures, and Persson and Tabellini (2006, p. 41) recommend to “allow for more heterogeneity between countries” by for instance controlling for different forms of government or degrees of centralization, we decided to use the indicator of political institutions provided by the Polity IV dataset, which does exactly this and furthermore is rooted in political theory (Eckstein, 1973, 1975).

Other measures of political institutions of course exist⁴⁴, but given their less widespread use and lower availability, we think it is appropriate to use an accepted and extensively tested dataset like Polity IV.

Evolving over the years from a database focused on persistence and change of political regimes to today’s country-year case format, the original Polity I database was created by Ted Robert Gurr and Harry Eckstein (Eckstein, 1975). Using the polity, which can be a “political or governmental organization; a society or institution with an organized government; state; body politic” (Webster’s New World College Dictionary as cited in Marshall, Jaggers, & Gurr, 2011, p. 1) as research object, Eckstein and Gurr identify three basic types of norms that determine the legitimacy of regimes and on which the Polity dataset is based: personal (executive recruitment), substantive (directiveness

⁴³ This index is used e.g. by Acemoglu et al. (2007). As Bollen (1990) develops a related indicator many researchers follow Bollen and Barro (1999) and supplement the Freedom House index by these variables for the years 1950, 1955, 1960 and 1965.

⁴⁴ For instance Persson and Tabellini classify countries as majoritarian or proportional and presidential or parliamentary (see Persson, 2002, p. 891).

and responsiveness—executive constraints), and participation (political competition) norms.

In order to facilitate quantitative research on political institutions, the Polity IV dataset provides annual measures for institutionalized democracy and autocracy, represented by the variables *DEMOC* and *AUTOC*, respectively.⁴⁵

Derived from sub-categories of authority characteristics, both of the variables are additive eleven-point scales ranging from 0 to 10, with 0 indicating the lowest compliance with the criteria characterizing democracy and autocracy, respectively, as identified by Eckstein and Gurr, and 10 indicating the highest compliance. The composite democracy index consists of the following four categories: The openness and competitiveness of executive recruitment, constraints on the chief executive, and competitiveness of political participation. The composite autocracy index is created in a similar way and consists of the following five sub-dimensions: The competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive (see Marshall, et al., 2011; for more details we refer to our appendix).⁴⁶ The *DEMOC* and *AUTOC* variables together, i.e. the difference between the democracy and the autocracy score, form the composite Polity index which enables to control for different shades of democracy and autocracy by using one combined measure. The *POLITY* variable, defined as the subtraction of the autocracy score from the democracy score, ranges from -10 to +10, with -10 indicating full autocracy, and +10 full democracy. In order to facilitate the use of the data in time-series and panel data analyses, in 2002 the variable *POLITY2* was added to the dataset, which corresponds to the *POLITY* variable except that former values outside the range of -10 to 10, which indicated cases of foreign interruption, anarchy, or transitions, respectively, were converted to values between -10 and 10. Thus, given the selection of countries (which was determined by the availability of the variable *lmr*, which measures the level of labor market regulation) we added values of the democracy score for each of the country year observations in our panel, measured by the *POLITY2*

⁴⁵ A detailed description of all variables used is given in the Appendix.

⁴⁶ For an analysis of the Polity III dataset and the underlying methodology (which is the same used in the Polity IV version) see Gleditsch and Ward (1997).

variable. In order to reduce problems of simultaneous causality we use the one year lag of this variable, and named it *dem_1*.

Table 2: Summary statistic of the variable dem_1

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>dem_1</i>	243	8.144033	4.03495	-9	10

Table 2 presents a summary of the variable *dem_1*, which can range from -10 to 10. In our sample with mean 8.14, the minimum value, indicating the lowest observable level of democracy in the panel, is -9 (Argentina in 1979), the maximum observable value in the panel, indicating the highest value of democracy (also in absolute terms) is 10 (among many others e.g. attained by Sweden in all observations).

Furthermore, in order to test for the theory's (Daron Acemoglu, et al., 2008) prediction that the advantage for the citizens in democracy has to be sufficiently large for the economic institutions to be beneficial for the poor, we do not only apply the lagged continuous composite democracy-autocracy score *dem_1* but furthermore create a dummy variables for countries that have a *dem_1* score above a certain threshold. Thus, for countries having a *dem_1* score larger than or equal to 6 in a certain year, we create a dummy named *pure6dem_1*. Letting a value of 1 (for *pure6dem_1*) indicate that countries have a *dem_1* score above or equal to 6 in a certain year, we find 215 country-year observations being above or equal to this threshold. Otherwise the value of *pure6dem_1* is 0.

Control Variables

Having specified our dependent and main independent variable of interest we motivate the choice of our remaining control variables in the following.

As already indicated in the section on "Operationalizing Economic Institutions" we follow Botero (2005) and include dummy variables for different legal origins. Using

Botero et al.'s specifications and their dataset,⁴⁷ we define dummy variables for the following legal origins (variable names in parentheses) which have the value of 1 (and otherwise 0) if a country has the specified legal origin⁴⁸: common law (*locom*), socialist law (*losoc*), French law (*lofrench*), Germanic law (*logerm*) and Scandinavian law (*loscandi*). Thus, we can additionally test for the claim of Botero et al. (2005) that countries with common law as legal origin regulate less their labor markets.

Furthermore, in order to control for the stage of development we include the natural logarithm of GDP per capita as control variable, named *lnrdgpc*. A similar approach was e.g. suggested by Tanzi and Davoodi (1997). The data is obtained from the Penn World Tables 7.0, and reports PPP GDP per capita (chain series), at 2005 constant prices (Heston, Summers, & Aten, 2011), as applied by Acemoglu et al. (2008), and of course many others.

As other theories on labor market regulation that do not follow the social conflict view stress the importance of ideology regarding regulation in general and labor market regulation in particular, inspired by Hefeker and Neugart (2010), we additionally create the dummy variable *execlt5* which takes the value 1 (and 0 otherwise) if the executive of a country has belonged to the political left for five consecutive years. Given that the dataset by Hefeker and Neugart was not available for us, we coded this variable ourselves using the World Bank Indicators of Political Institutions⁴⁹ (Beck, Clarke, Groff, Keefer, & Walsh, 2001). Using the above definition and the World Bank data we have in total 49 country-year observations with a value of 1 for the variable *execlt5*. The following tables provide summary statistics for all the variables we use.

⁴⁷ Dataset downloadable at:

<http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html>

⁴⁸ The dummy variables are of course based on categories that are pairwise mutually exclusive.

⁴⁹ Source: DPI2010 Database of Political Institutions, available at:

<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0..contentMDK:20649465~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>

Table 3: Summary statistics of the continuous variables *lmr*, *lmr_5*, *dem_1*, and *lnrgdpch*

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>lmr</i>	243	5.38107	1.57943	2.6	9.1
<i>lmr_5</i>	243	5.114403	1.556803	1.8	9.1
<i>dem_1</i>	243	8.144033	4.03495	-9	10
<i>lnrgdpch</i>	243	9.793295	0.7103	7.356511	10.81858

Table 4: Summary statistics of the dummy variables *pure6dem_1*, *execlt5*, *losoc*, *lofrench*, *logerm*, and *loscandi*

Variable	Obs.	Mean	Obs. var=1	Min	Max
<i>pure6dem_1</i>	243	0.884774	215	0	1
<i>execlt5</i>	243	0.201646	49	0	1
<i>locom</i>	243	0.27572	67	0	1
<i>losoc</i>	243	0.049383	12	0	1
<i>lofrench</i>	243	0.378601	92	0	1
<i>logerm</i>	243	0.164609	40	0	1
<i>loscandi</i>	243	0.131687	32	0	1

The Regression Model and Empirical Findings

In order to test the above hypothesis we apply two distinct models to our panel to investigate whether democracy affects labor market institutions in the way predicted by the theory. As a simple test, we first apply a linear fixed effects model to our data, then moving on to a second one employing generalized least squares (GLS), taking into account heteroscedasticity of errors between countries, as well as panel specific autocorrelation of the error terms. Furthermore, in order to capture all variations that our control variables do not account for, like historical factors that are not already captured by the exogenous variables, we apply country and time fixed effects to the GLS model. These specifications are standard in the literature in political economics and thus our

results will be comparable to the already existing ones. The slightly more advanced set-up of the generalized least squares is necessary given the possible correlation between the observations and given that we have to consider a possible AR1 autocorrelation structure (Hefeker & Neugart, 2010).

Linear Fixed Effects Model

In order to get a first impression of the relationships between the variables we apply a simple linear regression model to our panel data. Following Acemoglu et al. (2008) we add country fixed effects to control for time invariant factors that determine the outcome of the dependent variable for single countries and are not already controlled for. In the following we present the empirical results of our first model. Since we use country fixed effects in this model we however cannot control for legal origin.

To test the theory as thoroughly as possible, we first make use of the continuous democracy variable *dem_1*, i.e. the one year lag of the *POLITY2* variable, and then of the dummy for high democracy observations. The results are summarized in Table 5 and Table 6.

In a first step we simply regress the variable for labor market regulation on its five year lagged value, including country fixed effects. Given that in our panel the time dimension is quite small, our estimators are likely to suffer from the Nickell bias (Nickell, 1981). Hence, we cannot interpret the size of the coefficients. The positive value of the coefficient indicates, however, that the level of labor market regulation converges over time. Adding the one year lagged democracy variable to the equation does however not produce significant results for the variable *dem_1*. Furthermore, the sign of the coefficient on lagged democracy in this specification is positive. As higher values of the labor market regulation index *lmr* indicate lower levels of regulation, neglecting the insignificance of the estimate at any standard significance level, this would indicate that a higher level of democracy actually reduced the level of labor market regulation and thus led to decreasing benefits for the citizen in the model. Nevertheless, once controlling for the logarithm of GDP per capita, the coefficient on lagged democracy turns negative and now has the sign predicted by the theory, indicating that an increase in democracy is associated with an increase in labor market regulation. The coefficient however is still

insignificant at all standard levels, while the ones for the five year lag of labor market regulation and the (log of) GDP per capita are highly significant. Adding furthermore the variable for the political orientation of the executive does not alter results and the coefficient on *execlt5* is insignificant. Again, neglecting this and looking at the negative sign, we could conclude (only of course with significant coefficients) that a left political orientation of the executive for five consecutive years increased labor market regulation and thus augmented the benefits for the poor part of society, when speaking in terms of the theory we test. Hence, given our first test of the model, we cannot find any evidence for the influence of democracy on labor market regulation.

Table 5: Regression Results – Linear Fixed Effects Model with continuous democracy variable

	(1)	(2)	(3)	(4)
Variable	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>
<i>lmr_5</i>	0.66 ^{***} (0.06)	0.66 ^{***} (0.06)	0.49 ^{***} (0.06)	0.48 ^{***} (0.06)
<i>dem_1</i>		0.03 (0.03)	-0.01 (0.03)	-0.01 (0.03)
<i>lnrgdpch</i>			1.59 ^{***} (0.24)	1.65 ^{***} (0.24)
<i>execlt5</i>				-0.27 (0.14)
Constant	1.98 ^{***} (0.32)	1.79 ^{***} (0.38)	-12.62 ^{***} (2.20)	-13.08 ^{***} (2.20)
Observations	243	243	243	243
# countries	40	40	40	40
R^2	0.361	0.364	0.477	0.487
Adjusted R^2	0.245	0.245	0.377	0.385

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Now, we change our model specifications and instead of controlling for the advantage of the citizens in democracy by the continuous democracy variable *dem_1* we employ the dummy democracy variable. Thus, we apply the dummy variable for high democracy values, i.e. the variable *pure6dem_1* which takes the value of 1 (and 0 otherwise) for countries with a *dem_1* score larger or equal to 6. Doing so, however, does not change our results significantly, except that now the dummy variable for the political orientation of the executive enters the equation significantly at the 10 percent level, indicating an increasing effect on regulation. The coefficients of the democracy dummy, our main variable of interest, still only have the predicted sign when adding log of GDP per capita, but are insignificant at the 10 percent level throughout. These results are robust to other threshold levels than 6 of the *dem_1* score (results not shown). Furthermore, also when controlling for very low levels of the *dem_1* score, i.e. including a dummy variable for country-year observations with levels of for instance smaller or equal to -6, coefficients are not significant at any conventional level (results not shown). Consequently, we neither can infer that very low levels nor that very high levels of democracy have a significant effect on labor market regulation.

Thus, given our simple linear model specifications including country fixed effects, even when using a threshold level of democracy (as advocated by the theory) instead of the continuous democracy score, we do not find evidence that increases in democracy lead to increases in labor market regulation. We cannot even conclude that the level of democracy has any influence on regulation. Rather, our model predicts that the level of regulation is significantly influenced by the stage of development and the executive's political orientation, even when controlling for prior levels of regulation. Regarding the direction of the effects, the results suggest that higher stages of development, as measured by the proxy GDP per capita, lead to less labor market regulation, while executives with a left political orientation who are in power for five consecutive years, increase labor market regulations, *ceteris paribus*.

Table 6: Regression Results – Linear Fixed Effects Model with dummy variable for high democracy value

	(1)	(2)	(3)
Variable	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>
<i>lmr_5</i>	0.66 ^{***} (0.06)	0.49 ^{***} (0.06)	0.48 ^{***} (0.06)
<i>pure6dem_1</i>	0.18 (0.31)	-0.16 (0.29)	-0.17 (0.28)
<i>lnrgdpch</i>		1.59 ^{***} (0.24)	1.65 ^{***} (0.24)
<i>execlt5</i>			-0.27 [*] (0.14)
Constant	1.83 ^{***} (0.41)	-12.53 ^{***} (2.18)	-13.02 ^{***} (2.18)
Observations	243	243	243
# countries	40	40	40
R^2	0.362	0.477	0.487
Adjusted R^2	0.243	0.377	0.386

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Generalized Least Squares

After testing the theory with the above fixed effects model, in the following we use a generalized least square regression analysis with country and time fixed effects. This is necessary as theory and previous studies cannot rule out neither heteroscedasticity

nor a panel specific AR1 autocorrelation structure of the error terms. Using the correct STATA specifications⁵⁰ in the GLS model, we can, however, take this into account.

Our newest observation for the dependent variable is for 2009, the ones before ranging from 1975 to 2005 in 5 year intervals. Normally, under the above stated specifications that account for heteroscedasticity and an AR1 autocorrelation structure this would pose problems and we would have to drop the observations for 2009, as the time variable has to be spaced constantly. Thanks to the option *force* for the STATA command, however, we are able to retain these observations and continue with the panel comprising 243 country-year observations.

Again, the coefficients are likely to suffer from the Nickell bias, and hence we are not able to interpret their size. Table 7 summarizes the regression results for the GLS model with country and year fixed effects, using the continuous, one year lagged democracy score *dem_1*.

As in the simple linear fixed effects model, regressing the labor market regulation variable on its 5 year lag gives a positive coefficient, indicating a convergence towards a steady state. Adding the continuous, one year lagged democracy variable *dem_1* does not lead to significant results. However, when controlling for the stage of development the coefficient on the democracy measure gets marginally significant at the 10 percent level with the sign predicted by the theory. Nevertheless, controlling for left political orientation of the executive alters the significance of the democracy measure, while it keeps the predicted sign. Only log GDP per capita and the 5 year lagged labor market regulation variable continue to be highly significant, as throughout the five regressions with the continuous democracy variable. Again, as in the linear fixed effects model above, beside the persistence of labor market institutions, the results indicate that an increase in the stage of development leads to less labor market regulation. Given that the GLS model allows us to control for a country's legal origin we are able to test the claim of competing theories of labor market institutions that regulation is driven by common law. Our results as stated in Table 7 support this explanation, as the coefficients on the legal origins common law and socialist law are highly significant at the 1 percent level,

⁵⁰ The STATA command reads:
xtgls with country and year fixed effects and options panels(het) corr(psar1) force

while the democracy score is insignificant except in regression (3), where it is marginally significant. This however is only the case when exclusively controlling for lagged regulation and the stage of development. Furthermore, our results let us conclude that the other legal origins only have marginal influence on regulation.

Changing the democracy measure from the continuous representation to the dummy variable for high democracy country-year observations (those observations that have a *dem_1* score above or equal the threshold level of 6), *pure6dem_1*, gives us the results as presented in Table 8. In this setting, the high democracy dummy variable is marginally significant with the predicted sign, not only when simultaneously controlling for lagged regulation and the stage of development (as with *dem_1*, the continuous democracy variable), but also when adding the control for left political orientation's of the executive in five consecutive years (regression (4)). Adding, however, the controls for legal origins renders the coefficient on democracy insignificant, suggesting that legal origin beside the stage of development, which always enters significantly and with a positive sign, might be the determining factor of labor market regulations. Again, these results are robust with respect to changes of the threshold level of democracy (results not reported). Also, replicating the regression with dummy variables for observations with low values of democracy (e.g. values of *dem_1* smaller or equal to -6) does not generate results that indicate that low values of democracy might lead to less labor market regulation (results not reported).

Thus, concluding we do not find evidence in favor of the prediction of the theory that if the democratic advantage for the majority of society is sufficiently high, labor market institutions will be beneficial (for the poor). Rather, our findings point into the direction of the importance of legal origin and economic development as determinants of labor market regulations. Our results indicate that both economic development and common law legal origin lead to less regulation, contrary to the findings of Hefeker and Neugart (2010) who apply a similar approach but do not use measures of democracy as explanatory variable.

Table 7: Regression Results – GLS Model with continuous democracy variable

	value				
Variable	(1)	(2)	(3)	(4)	(5)
	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>
<i>lmr_5</i>	0.91 ^{***} (0.02)	0.92 ^{***} (0.02)	0.90 ^{***} (0.02)	0.90 ^{***} (0.02)	0.85 ^{***} (0.03)
<i>dem_1</i>		-0.00 (0.01)	-0.02 [*] (0.01)	-0.02 (0.01)	-0.01 (0.01)
<i>lnrgdpch</i>			0.25 ^{***} (0.06)	0.25 ^{***} (0.06)	0.26 ^{***} (0.08)
<i>execlt5</i>				0.03 (0.08)	-0.08 (0.09)
<i>locom</i>					0.58 ^{***} (0.15)
<i>losoc</i>					1.13 ^{***} (0.16)
<i>lofrench</i>					0.29 [*] (0.14)
<i>logerm</i>					0.31 [*] (0.14)
Constant	0.68 ^{***} (0.12)	0.69 ^{***} (0.13)	-1.50 ^{**} (0.54)	-1.55 ^{**} (0.55)	-1.84 [*] (0.75)
Observations	243	243	243	243	243
# countries	40	40	40	40	40

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Regression Results – GLS Model with dummy variable for high democracy value

Variable	(1)	(2)	(3)	(4)
	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>	<i>lmr</i>
<i>lmr_5</i>	0.91 ^{***} (0.02)	0.90 ^{***} (0.02)	0.90 ^{***} (0.02)	0.84 ^{***} (0.03)
<i>pure6dem_1</i>	-0.10 (0.11)	-0.28 [*] (0.13)	-0.28 [*] (0.13)	-0.18 (0.13)
<i>lnrgdpch</i>		0.23 ^{***} (0.05)	0.24 ^{***} (0.05)	0.27 ^{***} (0.07)
<i>execlt5</i>			0.00 (0.08)	-0.07 (0.09)
<i>locom</i>				0.56 ^{***} (0.16)
<i>losoc</i>				1.05 ^{***} (0.16)
<i>lofrench</i>				0.29 (0.15)
<i>logerm</i>				0.25 (0.14)
Constant	0.78 ^{***} (0.16)	-1.25 [*] (0.50)	-1.30 [*] (0.51)	-1.80 [*] (0.72)
Observations	243	243	243	243
# countries	40	40	40	40

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusion

In this paper we examine the relationship between political and economic institutions. We first introduce a model on social conflict that predicts that if the majority of society has a political advantage in democracy that is sufficiently high, they are able to establish competitive labor market institutions which are beneficial for the majority but not for the (small) elite. The theory suggests that through this transmission belt of economic institutions one might link political institutions and economic outcomes and explain the ambiguous empirical evidence on this topic.

We test this claim empirically using labor market regulation as proxy for economic institutions in general and labor market institutions in particular. Thus, our approach differs from the existing literature as we explicitly relate political institutions or democracy to labor market institutions, which to the best of our knowledge has not been done yet. Reviewing the existing literature on possible relationships between these two sets of institutions as well as on political institutions and economic outcomes, we aim at disentangling their linkage. We then move on to test whether political institutions i) influence labor market institutions, and ii) whether labor market institutions might serve as transmission belt between political regimes and economic variables.

Using a panel of 40 countries our findings however do not support the predictions of the theory that a sufficiently large democratic advantage for the majority leads to more beneficial labor market institutions. Rather, we find evidence supporting competing theories of labor market institutions that relate the level of regulation to the legal origin. Regarding the legal origin we report results that indicate that countries with common law legal origin are more likely to have less labor market regulation. Increasing economic development seems to work in the same direction.

Further research on this topic should further broaden it using different proxies for economic institutions as well as for labor market regulation, and thus investigate the robustness of the evidence provided here.

References

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. In P. Aghion & S. Durlauf (Eds.), *Handbook of economic growth* (Vol. 1, pp. 385-472): Elsevier B.V.
- Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2005). From Education to Democracy? *The American Economic Review*, 95(2), 44-49.
- Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2007). Reevaluating the modernization hypothesis. *National Bureau of Economic Research Cambridge, Mass., USA*.
- Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2008). Income and Democracy. *The American Economic Review*, 98(3), 808-842.
- Acemoglu, D., & Robinson, J. A. (2000). Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective. *The Quarterly Journal of Economics*, 115(4), 1167-1199.
- Acemoglu, D., & Robinson, J. A. (2001). A Theory of Political Transitions. *American Economic Review*, 91, 938-963.
- Acemoglu, D., & Robinson, J. A. (2006). *Economic Origins of Dictatorship and Democracy*. New York, USA: Cambridge University Press.
- Acemoglu, D., & Robinson, J. A. (2008). Persistence of Power, Elites, and Institutions. *American Economic Review*, 98(1), 267-293.
- Ades, A., & Verdier, T. (1996). The rise and fall of elites: A theory of economic development and social polarization in rent-seeking societies. *DELTA Working Papers*.
- Alesina, A., Ozler, S., Roubini, N., & Swagel, P. (1996). Political Instability and Economic Growth. *Journal of Economic Growth*, 1(2), 189-211.
- Alesina, A., & Perotti, R. (1994). The Political Economy of Growth: A Critical Survey of the Recent Literature. *The World Bank Economic Review*, 8(3), 351-371.
- Alesina, A., & Perotti, R. (1995). The Political Economy of Budget Deficits. *Staff Papers - International Monetary Fund*, 42(1), 1-31.
- Alesina, A. F., Hausman, R., Hommes, R., & Stein, E. (1996). Budget institutions and fiscal performance in Latin America: National Bureau of Economic Research Cambridge, Mass., USA.
- Alesina, A. F., & Perotti, R. (1999). Budget deficits and budget institutions. In J. M. Poterba (Ed.), *Fiscal Institutions and Fiscal Performance*. Chicago: University of Chicago Press.
- Almond, G. A., & Verba, S. (1989). *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Newbury Park, CA: Sage Publications.
- Alt, J. E., & Lassen, D. D. (2006). Transparency, Political Polarization, and Political Budget Cycles in OECD Countries. *American Journal of Political Science*, 50(3), 530-550.
- Alt, J. E., & Lowry, R. C. (1994). Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States. *The American Political Science Review*, 88(4), 811-828.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277.
- Arnal, E., Ok, W., & Torres, R. (2001). Knowledge, work organisation and economic growth. *OECD Labour Market and Social Policy Occasional Papers*, No. 50.
- Arpaia, A., & Mourre, G. (2005). Labour market institutions and labour market performance: A survey of the literature. *European Commission, Economic Papers*, No. 238.

- Austen-Smith, D. (1987). Interest groups, campaign contributions, and probabilistic voting. *Public Choice*, 54(2), 123-139.
- Balassone, F., & Giordano, R. (2001). Budget Deficits and Coalition Governments. *Public Choice*, 106(3/4), 327-349.
- Baron, D. P. (1994). Electoral competition with informed and uninformed voters. *American Political Science Review*, 33-47.
- Barro, R. J. (1979). On the Determination of the Public Debt. *Journal of Political Economy*, 87(5), 940-971.
- Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics*, 106(2), 407.
- Barro, R. J. (1996). Democracy and Growth. *Journal of Economic Growth*, 1(1), 1-27.
- Barro, R. J. (1999). Determinants of Democracy. *Journal Political Economy*, 107(6), 158-183.
- Beck, T., Clarke, G., Groff, A., Keefer, P., & Walsh, P. (2001). New tools in comparative political economy: The Database of Political Institutions. *World Bank Economic Review*, 15(1), 165-176.
- Benito, B., & Bastida, F. (2009). Budget Transparency, Fiscal Performance, and Political Turnout: An International Approach. *Public Administration Review*, 69(3), 403-417.
- Bergstrom, T. C., & Goodman, R. P. (1973). Private demands for public goods. *The American Economic Review*, 63(3), 280-296.
- Besley, T., & Kudamatsu, M. (2006). Health and Democracy. *The American Economic Review*, 96(2), 313-318.
- Besley, T., Persson, T., & Sturm, D. (2006). Political Competition and Economic Performance: Theory and Evidence from the United States Munich Discussion Paper No. 2006-4.
- Bhagwati, J. N. (2002). Democracy and Development: Cruel Dilemma or Symbiotic Relationship? *Review of Development Economics*, 6(2), 151-162.
- Bhalla, S. S. (1997). Freedom and economic growth: a virtuous cycle? In J. Elster, P. Dasgupta, A. Hadenius & D. Tarschys (Eds.), *Democracy's Victory and Crisis* (pp. 195–241). Cambridge: Cambridge University Press.
- Blank, R. M., & Freeman, R. B. (1994). *Evaluating the connection between social protection and economic flexibility*. Chicago: University of Chicago Press.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, 87(1), 115-143.
- Bobba, M., & Coviello, D. (2007). Weak instruments and weak identification, in estimating the effects of education, on democracy. *Economics Letters*, 96(3), 301-306.
- Bobbio, N. (1989). *Democracy and Dictatorship*. Cambridge, UK: Polity Press.
- Boix, C., & Garicano, L. (2001). Democracy, Inequality, and Country-Specific Wealth. *Unpublished Mimeo Department of Political Science, University of Chicago*, 153 pages.
- Boix, C., & Stokes, S. C. (2003). Endogenous Democratization. *World Politics*, 55(4), 517-549.
- Bollen, K. A. (1990). Political democracy: Conceptual and measurement traps. *Studies in Comparative International Development*, 25(1), 7.
- Borge, L.-E., Falch, T., & Tovmo, P. (2008). Public Sector Efficiency: The Roles of Political and Budgetary Institutions, Fiscal Capacity, and Democratic Participation. *Public Choice*, 136(3/4), 475-495.
- Botero, J., Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2005). The regulation of labor. *Quarterly Journal of Economics*, 119, 1339–1382.

- Bourguignon, F., & Verdier, T. (2000). Oligarchy, democracy, inequality and growth. *Journal of development Economics*, 62(2), 285-313.
- Bruno, M., & Sachs, J. (1985). *Economics of Worldwide Stagflation*. Cambridge, MA: Harvard University Press.
- Buchanan, J. M., & Wagner, R. E. (1977). *Democracy in Deficit: The Political Legacy of Lord Keynes*. New York: Academic Press New York.
- Bueno de Mesquita, B. D., Morrow, J. D., Siverson, R. M., & Smith, A. (2002). Political Institutions, Policy Choice and the Survival of Leaders. *British Journal of Political Science*, 32, 559-590.
- Bueno de Mesquita, B. D., Morrow, J. D., Siverson, R. M., & Smith, A. (2003). *The Logic of Political Survival*. Cambridge, MA: MIT Press.
- Castelló-Climent, A. (2008). On the distribution of education and democracy. *Journal of development Economics*, 87(2), 179-190.
- Chor, D., & Freeman, R. (2004). The 2004 Global Labor Survey: Workplace Institutions and Practices Around the World. *NBER Working Paper 11598*.
- Cohler, A. M., Miller, B. C., & Stone, H. S. (Eds.). (1989). *Montesquieu: Spirit of the Laws*. Cambridge: Cambridge University Press.
- Cox, G. W. (1997). *Making Votes Count*. New York: Cambridge University Press.
- Cukierman, A., Edwards, S., & Tabellini, G. (1992). Seigniorage and Political Instability. *The American Economic Review*, 82(3), 537-555.
- Dahl, R. A. (1971). *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.
- Dahl, R. A. (1983). *Dilemmas of Pluralist Democracy: Autonomy vs. Control*. New Haven, CT: Yale University Press.
- Dai, X. (2002). Political Regimes and International Trade: The Democratic Difference Revisited. *The American Political Science Review*, 96(1), 159-165.
- de Haan, J., & Sturm, J.-E. (1994). Political and Institutional Determinants of Fiscal Policy in the European Community. *Public Choice*, 80(1/2), 157-172.
- De Haan, J., & Sturm, J. E. (2000). On the relationship between economic freedom and economic growth. *European Journal of Political Economy*, 16(2), 215-241.
- De Vanssay, X., & Spindler, Z. A. (1994). Freedom and growth: Do constitutions matter? *Public Choice*, 78(3), 359-372.
- Diamond, L. (1992). Economic development and democracy reconsidered. *American behavioral scientist*, 35, 450-499.
- Diamond, L., Linz, J., & Lipset, S. M. (Eds.). (1988). *Democracy in Developing Countries: Africa*. Boulder, CO: Lynne Rienner.
- Doucouliafos, H., & Ulubasoglu, M. A. (2008). Democracy and Economic Growth: A Meta-Analysis. *American Journal of Political Science*, 52(1), 61-83.
- Easterly, W., & Levine, R. (2003). Tropics, germs, and crops: how endowments influence economic development. *Journal of Monetary Economics*, 50(1), 3-39.
- Eckstein, H. (1973). Authority Patterns: A Structural Basis for Political Inquiry. *The American Political Science Review*, 67(4), 1142-1161.
- Eckstein, H. (1975). *Patterns of Authority: A Structural Basis for Political Inquiry*. New York: John Wiley & Sons.
- Eichengreen, B., & Iversen, T. (1999). Institutions and economic performance: evidence from the labour market. *Oxford Review of Economic Policy*, 15(4), 121.

- Feld, L. P., & Kirchgässner, G. (2001). Does Direct Democracy Reduce Public Debt? Evidence from Swiss Municipalities. *Public Choice*, 109(3/4), 347-370.
- Frankel, J. A., & Romer, D. (1999). Does trade cause growth? *American Economic Review*, 379-399.
- Gastil, R. D. (1990). The comparative survey of freedom: Experiences and suggestions. *Studies in Comparative International Development*, 25(1), 25.
- Gastil, R. D. (various years). Freedom in the World. from Freedom House:
- Giavazzi, F., & Tabellini, G. (2005). Economic and political liberalizations. *Journal of Monetary Economics*, 52(7), 1297-1330.
- Glaeser, E. L., Ponzetto, G. A. M., & Shleifer, A. (2007). Why Does Democracy Need Education? *Journal of Economic Growth*, 12(2), 77-99.
- Glaeser, E. L., Porta, R. L., Lopez-De-Silanes, F., & Shleifer, A. (2004). Do Institutions Cause Growth? *Journal of Economic Growth*, 9(3), 271-303.
- Gleditsch, K. S., & Ward, M. D. (1997). Double Take: A Reexamination of Democracy and Autocracy in Modern Polities. *The Journal of Conflict Resolution*, 41(3), 361-383.
- Gradstein, M., & Justman, M. (2002). Education, social cohesion, and economic growth. *The American Economic Review*, 92(4), 1192-1204.
- Grossman, G. M., & Helpman, E. (1996). Electoral competition and special interest politics. *The Review of Economic Studies*, 63(2), 265.
- Grossman, H. I. (1991). A general equilibrium model of insurrections. *The American Economic Review*, 912-921.
- Gwartney, J., Lawson, R., & Hall, J. (2011). *Economic freedom of the world - 2011 Annual Report*. Canada: Economic Freedom Network.
- Hadenius, A., & Teorell, J. (2005). Cultural and economic prerequisites of democracy: Reassessing recent evidence. *Studies in Comparative International Development (SCID)*, 39(4), 87-106.
- Haggard, S., & Kaufman, R. R. (1995). *The political economy of democratic transitions*. Princeton, NJ: Princeton University Press.
- Hall, R. E., & Jones, C. I. (1999). Why Do Some Countries Produce So Much More Output Per Worker Than Others? *The Quarterly Journal of Economics*, 114(1), 83-116.
- Hallerberg, M., Strauch, R., & Von Hagen, J. (2006). The design of fiscal rules and forms of governance in European Union countries. *GESY University of Mannheim Working Paper, No. 150*.
- Hallerberg, M., & von Hagen, J. (1997). Electoral institutions, cabinet negotiations, and budget deficits in the European Union: National Bureau of Economic Research Cambridge, Mass., USA, Working Paper No. 6341.
- Hayek, F. A. (1960). *The Constitution of Liberty* (Vol. 231). Chicago: University of Chicago Press.
- Hefeker, C., & Neugart, M. (2010). Labor market regulation and the legal system. *International Review of Law and Economics*, 30(3), 218-225.
- Helliwell, J. F. (1994). Empirical linkages between democracy and economic growth. *British Journal of Political Science*, 24(02), 225-248.
- Helliwell, J. F., & Putnam, R. D. (2007). Education and Social Capital. *Eastern Economics Journal*, Vol. 33 (No.1).

- Heston, A., Summers, R., & Aten, B. (2011). Penn World Table Version 7.0. from Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, URL: <http://pwt.econ.upenn.edu/> . :
- Huber, E., Rueschemeyer, D., & Stephens, J. D. (1993). The Impact of Economic Development on Democracy. *Journal of Economic Perspectives*, 7(3), 71-85.
- Huntington, S. P. (1991). *The Third Wave* (Vol. 4). Norman, OK: University of Oklahoma Press.
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change, and democracy: The human development sequence*: Cambridge University Press.
- Jagers, K., & Gurr, T. R. (1995). Tracking Democracy's Third Wave with the Polity III data. *Journal of Peace Research*, 32(4), 469-482.
- Kelsen, H. (1945). *General Theory of Law and State*. Cambridge, MA: Harvard University Press.
- Keohane, R. O. (2005). *After hegemony: Cooperation and discord in the world political economy*. Princeton, N.J.: Princeton University Press.
- Knack, S., & Keefer, P. (1995). Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Indicators. *MPRA Paper* (No. 23118).
- Kohlscheen, E. (2006). Sovereign risk: Constitutions rule. *Oxford Economic Papers*, 62(1), 62.
- Kuruvilla, S., Hossain, J., & Berger, S. (2010). Assessment of the Progress of Nations on Core Labor Standards: Measures of Freedom of Association and Collective Bargaining. *Articles & Chapters, Cornell University, Paper 310*.
- Lederman, D., & Maloney, W. F. (2003). Trade structure and growth. *World Bank Policy Research Working Paper, No. 3025*.
- Lipset, S. M. (1959a). Democracy and Working-Class Authoritarianism. *American Sociological Review*, 24(4), 482-501.
- Lipset, S. M. (1959b). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *The American Political Science Review*, 53(1), 69-105.
- Lizzeri, A., & Persico, N. (2001). The Provision of Public Goods under Alternative Electoral Incentives. *The American Economic Review*, 91(1), 225-239.
- Londregan, J. B., & Poole, K. T. (1990). Poverty, The Coup Trap, and the Seizure of Executive Power. *World Politics*, 42(2), 151-183.
- Lott, J. J. R., & Kenny, L. W. (1999). Did women's suffrage change the size and scope of government? *Journal of Political Economy*, 107(6), 1163-1198.
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3-42.
- Lucas, R. E., & Stokey, N. L. (1983). Optimal fiscal and monetary policy in an economy without capital. *Journal of Monetary Economics*, 12(1), 55-93.
- Mankiw, N. G., Phelps, E. S., & Romer, P. M. (1995). The growth of nations. *Brookings papers on economic activity*, 1995(1), 275-326.
- Mansfield, E. D., Milner, H. V., & Rosendorff, B. P. (2000). Free to Trade: Democracies, Autocracies, and International Trade. *The American Political Science Review*, 94(2), 305-321.
- Mansfield, E. D., Milner, H. V., & Rosendorff, B. P. (2002). Why Democracies Cooperate More: Electoral Control and International Trade Agreements. *International Organization*, 56(3), 477-513.
- Marshall, M. G., Jagers, K., & Gurr, T. R. (2011). Polity IV Project - Political Regime Characteristics and Transitions, 1800 - 20120: Center for Systemic Peace and Societal-Systems Research.

- Milesi-Ferretti, G. M., Perotti, R., & Rostagno, M. (2002). Electoral Systems and Public Spending. *The Quarterly Journal of Economics*, 117(2), 609-657.
- Milner, H. V., & Kubota, K. (2005). Why the move to free trade? Democracy and trade policy in the developing countries. *International Organization*, 107-143.
- Moore, B. (1974). *Soziale Ursprünge von Diktatur und Demokratie: die Rolle der Grundbesitzer und und Bauern bei der Entstehung der modernen Welt*. Frankfurt am Main: Suhrkamp.
- Mulligan, C. B., Gil, R., & Sala-i-Martin, X. (2004). Do Democracies Have Different Public Policies than Nondemocracies? *The Journal of Economic Perspectives*, 18(1), 51-74.
- Musgrave, R. A. (1959). *The theory of public finance: a study in public economy*. New York: McGraw-Hill.
- Nickell, S. (1981). Biases in Dynamic Models with Fixed Effects. *Econometrica*, 49(6), 1417-1426.
- Niskanen, W. A. (1997). Autocratic, democratic, and optimal government. *Economic Inquiry*, 35, 464-479.
- North, D. C. (1981). *Structure and change in economic history*. New York: Norton.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.
- North, D. C., & Weingast, B. R. (1989). Constitutions and commitment: the evolution of institutions governing public choice in seventeenth-century England. *Journal of economic history*, 49(4), 803-832.
- Olson, M. (1963). Rapid growth as a destabilizing force. *The Journal of Economic History*, 23(04), 529-552.
- Olson, M. (1965). *The Logic of Collective Action*. Cambridge: Harvard University Press.
- Olson, M. (1993). Dictatorship, Democracy, and Development. *American Political Science Review*, 87(3), 567-576.
- Ozler, S., & Tabellini, G. (1991). External Debt and Political Instability: National Bureau of Economic Research, Cambridge, MA, USA, Working Paper No. 3772.
- Papaioannou, E., & Siourounis, G. (2008a). Democratisation and Growth. *The Economic Journal*, 118(532), 1520-1551.
- Papaioannou, E., & Siourounis, G. (2008b). Economic and social factors driving the third wave of democratization. *Journal of Comparative Economics*, 36(3), 365-387.
- Perotti, R., & Kontopoulos, Y. (2002). Fragmented fiscal policy. *Journal of Public Economics*, 86(2), 191-222.
- Persson, T. (2002). Do Political Institutions Shape Economic Policy? *Econometrica*, 70(3), 883-905.
- Persson, T. (2005). Forms of democracy, policy and economic development. *NBER Working Paper, No. 1117*.
- Persson, T., Roland, G., & Tabellini, G. (2000). Comparative Politics and Public Finance. *Journal of Political Economy*, 108(6), 1121-1161.
- Persson, T., & Tabellini, G. (1999a). Political economics and macroeconomic policy. In J. Taylor & M. Woodford (Eds.), *Handbook of Macroeconomics* (Vol. 1, pp. 1397-1482). Amsterdam: North-Holland.
- Persson, T., & Tabellini, G. (1999b). The size and scope of government: Comparative politics with rational politicians. *European Economic Review*, 43(4-6), 699-735.
- Persson, T., & Tabellini, G. (2000). *Political Economics: Explaining Economic Policy*. Cambridge, MA: MIT Press.

- Persson, T., & Tabellini, G. (2006). Democratic capital: The nexus of political and economic change. *IGIER Working Paper, No. 308*.
- Persson, T., & Tabellini, G. E. (2003). *The Economic Effects of Constitutions*. Cambridge, MA: The MIT Press.
- Plümer, T., & Martin, C. W. (2003). Democracy, Government Spending, and Economic Growth: A Political-Economic Explanation of the Barro-Effect. *Public Choice, 117*(1/2), 27-50.
- Poterba, J. M. (1994). State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics. *Journal of Political Economy, 102*(4), 799-821.
- Przeworski, A. (2001). *Why Democracy Survives in Affluent Societies?* Paper presented at the New York University Department of Politics Political Economy Seminar.
- Przeworski, A., Alvarez, M., Cheibub, J., & Limongi, F. (1996). What makes democracies endure? *Journal of Democracy, 7*(1), 39-55.
- Przeworski, A., Alvarez, M., Cheibub, J. A., & Limongi, F. (2000). *Democracy and Development: Political Institutions and Well-Being in the World 1950-1990*. New York: Cambridge University Press.
- Przeworski, A., & Limongi, F. (1993). Political regimes and economic growth. *The Journal of Economic Perspectives, 7*(3), 51-69.
- Rodrik, D. (1994). The Rush to Free Trade in the Developing World: Why So Late? Why Now? Will It Last? In S. Haggard & S. B. Webb (Eds.), *Voting for Reform: Democracy, Political Liberalization, Economic Adjustment* (pp. 61-88). New York: Oxford University Press.
- Rodrik, D. (1999). Democracies Pay Higher Wages. *The Quarterly Journal of Economics, 114*(3), 707-738.
- Rodrik, D. (2000). Participatory Politics, Social Cooperation, and Economic Stability. *The American Economic Review, 90*(2), 140-144.
- Rodrik, D. (2008). Second-Best Institutions. *The American Economic Review, 98*(2), 100-104.
- Rodrik, D., Subramanian, A., & Trebbi, F. (2002). Institutions rule: the primacy of institutions over geography and integration in economic development. *NBER Working Paper*.
- Rodrik, D., & Wacziarg, R. (2005). Do Democratic Transitions Produce Bad Economic Outcomes? *The American Economic Review, 95*(2), 50-55.
- Roemer, J. E. (1985). Rationalizing revolutionary ideology. *Econometrica: Journal of the Econometric Society, 85*-108.
- Roll, R., & Talbott, J. (2003). Political freedom, economic liberty, and prosperity. *Journal of Democracy, 14*(3), 75-89.
- Roubini, N. (1990). The Interaction between Macroeconomic Performance and Political Structures and Institutions: The Political Economy of Poverty, Growth and Development. *background paper for the 1990 World Development Report of the World Bank*.
- Roubini, N., & Sachs, J. (1989). Government Spending and Budget Deficits in the Industrial Countries. *Economic Policy, 4*(8), 100-132.
- Roubini, N., Sachs, J., Honkapohja, S., & Cohen, D. (1989). Political and economic determinants of budget deficits in the industrial democracies. *European Economic Review, 33*(5), 903-933.
- Rueschemeyer, D., Stephens, E. H., & Stephens, J. D. (1992). *Capitalist Development and Democracy*. Cambridge, UK: Polity Press.

- Saint-Paul, G. (1999). Toward a Theory of Labor Market Institutions. *Universitat Pompeu Fabra, mimeo*.
- Schettkat, R. (2001). How Bad Are Welfare-State Institutions for Economic Development? The Amazing Vitality of the European Tigers. *Challenge*, 44(1), 35-55.
- Schuknecht, L., Afonso, A., & Tanzi, V. (2003). Public Sector Efficiency: An International Comparison. *European Central Bank Working Paper Series, No. 242*.
- Schumpeter, J. A. (1994). *Capitalism, Socialism and Democracy* (Reprinted 1992, 5 ed.). London: Routledge.
- Sirowy, L., & Inkeles, A. (1990). The effects of democracy on economic growth and inequality: A review. *Studies in Comparative International Development*, 25(1), 126.
- Tabellini, G. (2005). The role of the state in economic development. *Kyklos*, 58(2), 283-303.
- Tanzi, V., & Davoodi, H. (1997). Corruption, Public Investment, and Growth. *International Monetary Fund, Working Paper no. 97/139*.
- Tavares, J., & Wacziarg, R. (2001). How democracy affects growth. *European Economic Review*, 45(8), 1341-1378.
- Venieris, Y. P., & Gupta, D. K. (1986). Income distribution and sociopolitical instability as determinants of savings: a cross-sectional model. *The Journal of Political Economy*, 873-883.
- von Hagen, J. (1991). A note on the empirical effectiveness of formal fiscal restraints. *Journal of Public Economics*, 44(2), 199-210.
- von Hagen, J. (1992). Budgeting procedures and fiscal performance in the European Community. *Economic papers*(96), 1-79.
- Wacziarg, R. (2001). Measuring the dynamic gains from trade. *The World Bank Economic Review*, 15(3), 393-429.
- Wacziarg, R., & Welch, K. H. (2003). Trade liberalization and growth: New evidence. *NBER Working Paper*.
- Weingast, B. R. (1997). The Political Foundations of Democracy and the Rule of Law. *American Political Science Review*, 91(No. 2), 245-263.

Appendix

Data Sources

In the following we define the variables used in our regression models and state their sources:

- *lmr*: measures labor market regulation and is the sub-index 5B of the Area 5: Regulation of Credit, Labor, and Business of The Fraser's Institute Index on Economic Freedom. It ranges from 0 to 10, with higher values indicating less regulated labor markets. Sub-index 5B includes furthermore the following subcategories:

- i. Hiring regulations and minimum wage
- ii. Hiring and firing regulations
- iii. Centralized collective bargaining
- iv. Hours regulations
- v. Mandated cost of worker dismissal
- vi. Conscription

(Gwartney, et al., 2011)

- *lmr_5*: is the 5 year lag of the variable *lmr* (see above).
(Own coding based on *lmr*)
- *dem_1*: is the one year lag of the variable *POLITY2* from the Polity IV database. The Polity IV dataset provides annual measures for institutionalized democracy and autocracy, represented by the variables *DEMOC* and *AUTOC*, respectively. It is based on sub-categories of authority characteristics and both of the variables are additive eleven-point scales ranging from 0 to 10, with 0 indicating the lowest compliance with the criteria characterizing democracy and autocracy, respectively, and 10 indicating the highest compliance. The composite democracy index consists of the following four categories: The openness and competitiveness of executive recruitment, constraints on the chief executive, and competitiveness of political participation. The composite autocracy index is created in a similar way and consists of the following five sub-dimensions: The competitiveness of

political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. The *DEMOC* and *AUTO* variables together, i.e. the difference between the democracy and the autocracy score, form the composite Polity index. This *POLITY* variable, defined as the subtraction of the autocracy score from the democracy score, ranges from -10 to +10, with -10 indicating full autocracy, and +10 full democracy. In 2002 the variable *POLITY2* was added to the dataset, which corresponds to the *POLITY* variable except that former values outside the range of -10 to 10, which indicated cases of foreign interruption, anarchy, or transitions, respectively, were converted to values between -10 and 10.

(Marshall, et al., 2011)

- *lnrgdpch*: is the natural logarithm of the variable *rgdpch*. The variable *rgdpch* is obtained from the Penn World Tables 7.0, and reports PPP GDP per capita (chain series), at 2005 constant prices.
(Heston, et al., 2011)
- *execlt5*: is a dummy variable that takes the value of 1 (and 0 otherwise) if the executive of a country in a certain year belonged to the political left AND didn't change political orientation for five consecutive years, with last year being the year of the observation. The information of the political orientation (left) is based on the variable *execrlc* World Bank Indicators on Political Institutions, DPI2010 Database of Political Institutions, available at: <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20649465~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>
(Beck, et al., 2001)
- legal origin dummies: based on the dataset used in Botero et al. (2005) (Dataset downloadable at:

<http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html>).

Legal origin dummies include: common law (*locom*), socialist law (*losoc*), French law (*lofrench*), Germanic law (*logerm*) and Scandinavian law (*loscandi*).

(Botero et al. (2005))

- *pure6dem_1*: dummy variable for country year observations that have a *dem_1* score above or equal to the threshold of 6. A value of 1 for this variable indicates that countries have a *dem_1* score above or equal to 6 in a certain year. Based on the *dem_1* variable (see above).
(Own coding based on *dem_1*)
- *yr*: variable for the year of the observation, from The Fraser's Institute dataset which was used to construct the variable *lmr*.
(Gwartney, et al., 2011)
- *cntry_code*: variable to identify countries numerically.
(Own coding)

Stata Code

Using STATA version 9 the following code was used:

*Linear Fixed Effects Model**Continuous Democracy Variable dem_1*

```
xtreg lmr lmr_5, i(cntry_code) fe
eststo xtreg1
xtreg lmr lmr_5 dem_1, i(cntry_code) fe
eststo xtreg2c
xtreg lmr lmr_5 dem_1 lnrgdpch, i(cntry_code) fe
eststo xtreg3c
xtreg lmr lmr_5 dem_1 lnrgdpch execlt5, i(cntry_code) fe
eststo xtreg4c
esttab xtreg1 xtreg2c xtreg3c xtreg4c using table_xtreg_c_v2.rtf, se b(2)
star() label
```

Dummy Democracy Variable pure6dem_1

```
xtreg lmr lmr_5 pure6dem_1, i(cntry_code) fe
eststo xtreg2d
xtreg lmr lmr_5 pure6dem_1 lnrgdpch, i(cntry_code) fe
eststo xtreg3d
list lmr
xtreg lmr lmr_5 pure6dem_1 lnrgdpch execlt5, i(cntry_code) fe
eststo xtreg4d
esttab xtreg2d xtreg3d xtreg4d using table_xtreg_d_v1.rtf, se b(2)star()
label
```

*GLS Model**Continuous Democracy Variable dem_1*

```
xtgls lmr lmr_5, panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls1
xtgls lmr lmr_5 dem_1 , panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls2c
xtgls lmr lmr_5 dem_1 lnrgdpch, panels(het) corr(psar1) force i(cntry_code)
t(yr)
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5, panels(het) corr(psar1) force
i(cntry_code) t(yr)
xtgls lmr lmr_5 dem_1 lnrgdpch, panels(het) corr(psar1) force i(cntry_code)
t(yr)
eststo gls3c
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5, panels(het) corr(psar1) force
i(cntry_code) t(yr)
eststo gls4c
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5 locom, panels(het) corr(psar1)
force i(cntry_code) t(yr)
```

```

eststo gls4c1
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5 locom losoc, panels(het)
corr(psar1) force i(cntry_code) t(yr)
eststo gls4c2
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5 locom losoc lofrench, panels(het)
corr(psar1) force i(cntry_code) t(yr)
eststo gls4c3
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5 locom losoc lofrench logerm,
panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls4c4
xtgls lmr lmr_5 dem_1 lnrgdpch execlt5 locom losoc lofrench logerm
loscandi, panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls4c5
esttab gls1 gls2c gls3c gls4c gls4c5 table_gls_c_v1.rtf, se b(2) star() label

```

Dummy Democracy Variable pure6dem_1

```

xtgls lmr lmr_5 pure6dem_1 , panels(het) corr(psar1) force i(cntry_code)
t(yr)
eststo gls2d
xtgls lmr lmr_5 pure6dem_1 lnrgdpch, panels(het) corr(psar1) force
i(cntry_code) t(yr)
eststo gls3d
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5, panels(het) corr(psar1) force
i(cntry_code) t(yr)
eststo gls4d
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5 locom, panels(het) corr(psar1)
force i(cntry_code) t(yr)
eststo gls4d1
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5 locom losoc, panels(het)
corr(psar1) force i(cntry_code) t(yr)
eststo gls4d2
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5 locom losoc lofrench,
panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls4d3
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5 locom losoc lofrench logerm,
panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls4d4
xtgls lmr lmr_5 pure6dem_1 lnrgdpch execlt5 locom losoc lofrench logerm
loscandi, panels(het) corr(psar1) force i(cntry_code) t(yr)
eststo gls4d5
esttab gls2d gls3d gls4d gls4d5 using xtgls_d_v1.rtf, se b(2) star() label

```