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Institutional Transformations, Polity and Economic Outcomes:
Testing the North-Wallis-Weingast Doorsteps Framework

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Testing the North-Wallis-Weingast Doorsteps Framework

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Abstract

This paper tests the theoretical framework developed by North, Wallis and Weingast (2009) on the transition from limited to open access societies. They posit that societies need to meet three doorstep conditions: (i) the establishment of rule of law among elites; (ii) the adoption of perpetually existing organizations; and (iii) the political control of the military. We identify indicators reflecting these doorsteps and graphically test the correlation between them and a set of political and economic variables. Finally, through Identification through Heteroskedasticity we test these relationships econometrically. The paper broadly confirms the logic behind the doorsteps as necessary steps in the transition to open access societies. The doorsteps influence economic and political processes, as well as each other, with varying intensity. We also identify income inequality as a potentially important force leading to social change.

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> In the infancy of societies, the chief of states shape its
> institutions; later the institutions shape the chiefs of state
> *Baron de Montesquieu*

I. INTRODUCTION

In 2009, Douglas North, John Wallis and Barry Weingast published an ambitious volume "Violence and Social Orders. A Conceptual Framework for Interpreting Recorded Human History" (hereafter referred to as NWW, 2009). [2] Their project aims at creating a synthesis across disciplines (economic, political and social sciences) of our understanding of different social orders. They argue that two social orders dominate our world. At one end of the spectrum, we find the *limited access society (or natural state)* in which the dominant elites create rents from limiting entry to the economic and political system. At the other end, economic and political competition governs access to resources in so-called *open access societies*.

Based on this synthesis, NWW lay out a unifying framework for the transition from limited to open access societies. Drawing on a wealth of historical examples, the authors posit that limited access societies need to meet three doorstep conditions before transition proper to an open access society can take place. The first doorstep involves that the elites adopt rules of law amongst themselves (in other words the establishment of rights and privileges for certain members of society). The second doorstep is the move towards perpetually lived organizations which ensure continuity in the country's operations and thus, provide a sense of predictability. In NWW words this requires "the identification of a set of organizational forms recognized by the state and courts whose organizational life extends beyond the lives of the organization's individual members." [3] This doorstep implies that the state itself be transformed into a perpetually lived organization. These first two doorsteps are instrumental in bringing about the transition from "personal" to "impersonal" relations and norms as the prevailing organization mode of society. The third doorstep involves complete political control of all military power.

For scholars and practitioners working on economic development issues, this transition framework certainly possesses a number of highly attractive and compelling features, despite some evident weaknesses.[4] We therefore believe that it is worth taking up the challenge, or invitation, expressed by the authors to operationalize the concepts discussed in this project in order to enhance our understanding of transition and its impact on economic and political

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[2] For a shorter version, see North, Wallis and Weingast (2006).

[3] NWW (2006).

[4] Bates (2010) remarks that the work focuses extensively on characterization and classification, and not on agency—the forces that might account for the patterns that NWW describe.

development.[5] Beyond the operationalization of the concepts, this paper aims to test NWW's conjectures on the links between the two prevailing social orders and the transition trajectories on the one hand, and economic and political performance on the other hand. Our starting point is that all countries in the world, at any point in time, are characterized by a blend of features of either one of the two main social orders, and thus, are somewhere on this transition trajectory. This allows us to test the core message of NWW (2009), namely that open access societies are better at delivering economic and political stability and development.

The paper is structured as follows: Section II provides a brief overview of the relevant literature. Section III develops indices representing the salient features of the three doorsteps by combining in an innovative way a number of existing institutional variables. Section IV graphically tests (supported by simple OLS and nonlinear regressions) the relationships between the countries' transition paths and variables representing economic and political performance. Finally, Section V uses Identification through Heteroskedasticity (IH) to empirically test the interactions between the doorsteps and variables pertaining to the economy and the polity.

Our work broadly confirms the validity of the NWW transition framework. The three doorsteps are indeed critical stepping stones towards better economic performance and more open political processes, although their relative important varies. We also identify strong interdependencies among the doorsteps, as argued by NWW, and among political, economic and institutional variables, bearing witness of the very complex nature of transitions. Finally our paper also indicates that income inequality can potentially be an important force of social change.

II. OVERVIEW OF RELATED LITERATURE

We divide the overview of the literature in two parts. The first part reminds the reader of the relevant concepts and theories of NWW (2009). The second part provides a brief review of the literature related to the econometric part in Section V of this paper.

A. The Essence of North-Wallis-Weingast

NWW (2009) develop an institutional explanation for the divergence in economic and political development across the world, based upon political, economic and sociological theories. Starting from the premise that the prime objective of any type of social order is to contain violence, they argue that there are broadly two social orders in the world today: an *open access* order and a *limited access* order. Both orders are able to solve the problem of containing violence but in very different ways. Most countries are characterized by limited

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[5] "We have not attempted statistical analysis because no straightforward measures of our concepts exist. We believe that our concepts can be operationalized, but the concepts of limited and open access in both economics and politics are subtle and multidimensional. Putting them into practice will require serious effort that is beyond the scope of this study. We value and encourage this effort." (NWW, 2009, p. 263)

access, which is why NWW call this social order the *natural state*. While the natural state has been in existence for the past 10,000 years, open access societies have only emerged over the last 300 years.

In limited access orders, elites contain violence through rent creation from limiting entry to the economic and political system. These societies are characterized by a *de-facto* non-democratic political system, few organizations which are mostly associated with the state, a small and centralized government, as well as a "predominance of social relationships organized along personal lines, including privileges, social hierarchies, laws that are enforced unequally, insecure property rights, and a pervasive sense that not all individuals are equal."

Open access orders sustain social stability through political and economic competition. These societies are characterized by a wealth of organizations, a big decentralized government, as well as "widespread impersonal social relationships, governed by rule of law, secure property rights, fairness, and equality—all aspects of treating everyone the same," leading to sustained political and economic development.

Although both orders are able to create social stability, stable and sustained economic growth and sustainable political development is most likely to occur under the open access order. Moreover, the same institutions will work differently under the two social orders.

The part of their study most relevant for our paper is the theory on the transition from the natural state to the open access order. Based on historical examples of transitions in the past 300 years, NWW present a number of conditions that need to hold before countries can transit to an open access order. They divide these "stylized steps" into three sets of *doorstep conditions*. Once a society has achieved the greatest part of these three doorstep conditions, it finds itself at the threshold of an open access society, which subsequently needs to be institutionalized. The three doorstep conditions are *the rule of law for the elites (doorstep 1)*, *existence of perpetually lived organizations (doorstep 2)*, and *consolidated political control of the military (doorstep 3)*. The authors argue that, typically, meeting the doorstep 1 condition precedes meeting the other doorsteps, but this is not a prerequisite. Once into the process, the three doorsteps interact at various levels so that, allowing for local circumstances, various configurations are possible.

Finally, the authors put forward a number of general principles: (i) transition is neither automatic nor irreversible; (ii) all steps in the transition must take place within the logic of the natural state and, thus, with the consent of the elites;[6] and (iii) shifts in economic and political access are deeply connected at all times.

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[6] According to NWW, this implies that the elites are not giving up something during the transition between the two social orders. Rather, "elites transform their unique and personal privileges into impersonal rights shared equally among elites" (p. 25). They show that in most of the pioneering cases, the transition was driven by institutions that were created, or measures that were taken, with other (mostly limited) objectives in mind—in other words, not with the intention of creating an "open access" society, because no one could imagine what such a society actually would entail.

B. Empirical Work

In our empirical section we analyze the interactions between the doorsteps on the one hand and some key economic variables (GDP per capita and income inequality) and democracy as a key variable related to the polity, on the other hand. While much has been written on the interaction between institutions and economic and political variables, only a small part of that literature is narrowly related to our work, because we are giving empirical content to the newly defined doorstep conditions by creating indicators reflecting these doorsteps.

Regarding the interactions between institutions and economic and political variables, research related to our work includes Acemoglu and Johnson (2005) on the impact of property rights institutions versus contracting institutions, Knack and Keefer (1995) and Clague et al. (1996a) on the impact of rule of law on economic growth, and Kaufman et al. (2002) on the impact of governance indicators. The paper closest to our approach, both in terms of methodology and selection of variables, is Rigobon and Rodrik (2005) who explore the interactions between institutions and economic and political variables. Another paper in the same realm is Meisel and Ould Aoudia (2008). Based on a new dataset covering institutional variables reflecting the degree of informality/formality in societies, they identify through a set of statistical techniques those institutional characteristics that may foster sustained growth take-offs. Meisel and Ould Aoudia identify two transition paths from low growth to high growth economies. The first one resembles the NWW three-doorstep path. The second one—which has been adopted by several Asian countries, and is in their view neglected by the NWW framework—is based on strong government leadership, whereby the coordinating role of the government reduces uncertainty and unpredictability stemming from prevailing informalities in society. [7]

In the IH regressions we also assess the interaction among a number of economic variables and between them and democracy, the main political variable. Several of these interactions have been explored extensively by economists and political scientists, while others have been left untouched. One feature of our work is that we analyze them in a multilateral way, while most of the research discussed below has analyzed bilateral interactions. The *democracy–growth* (or level of GDP per capita) *nexus* was the topic of pioneering work by Lipset (1959). Since then, many authors have probed this relationship. Without being exhaustive, these include Jackman (1973), Barro (1996 and 1999), Przeworski et al. (2000), Boix and Stokes (2003), Feng (2004), and Acemoglu et al. (2007). The overarching conclusion from this work is that the relationship between both is weak. Barro (1999) found that higher GDP per capital levels increase the propensity for democracy, but several other authors could not identify a significant relationship (i.e., the "modernization hypothesis" is only weakly corroborated). Conversely, there is also little evidence that democracy stirs growth directly. At best, some authors identify indirect connections going from democracy to growth (see, for instance, Przeworski et al., 2000 and Feng, 2004).

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[7] Given its originality, their database, last updated in de Crombrugghe et al. (2009), serves as a main source of data for our doorstep indicators.

The *growth–income inequality nexus* has also been studied extensively. The Kuznets effect (Kuznets 1955)—the degree of inequality increases first and then falls with per capita income—still remains broadly unchallenged. On the inverse relation—the impact of inequality on growth and development—most studies (Alesina and Rodrik, 1994, Persson and Tabellini, 1995, Alesina and Perotti, 1996, and more recently, Berg et al., 2008 and 2011) come to the conclusion that greater inequality puts a damper on economic growth and development, thereby contradicting Okun's (1973) thesis of a trade-off between income equality and economic efficiency.

The link between *polity and income inequality* has also been the topic of extensive research. Some authors have modeled how greater income inequality stirs a process of democratization (Acemogly and Robinson, 2000 and Zak and Feng, 2003). Others analyzed the dynamics between inequality and political instability and concluded that rising income inequality leads to political instability (Alesina and Perotti, 1996), and ultimately to lower economic growth. However, they did not explore whether political instability ultimately leads to more democracy or autocracy.

The work on the impact of democracy on inequality has been less conclusive. Bollon and Jackman (1985) do not find significant interactions in either direction. Perotti (1986), Muller (1988) and Feng (2004), by taking the length of the democratic episode as the explanatory variable, instead of the level of democracy, find a positive impact of democracy: more specifically, the longer the democratic experience lasts, the more likely it is that inequality will be reduced. Przeworski et al. (2000) only find a very weak relationship.

III. A COMPOSITE DOORSTEPS INDICATOR

We construct a composite indicator consisting of three sub-indices, intended to reflect a country's performance under the three doorstep conditions. In constructing the indicator we attempt to capture as closely as possible the criteria that NWW identify as critical elements of the three conditions. To enhance internal consistency among the data, we have selected a sample of low-, middle-, and high-income countries for which information from the same databases is available for each of the selected criteria.[8] Appendix Tables A2 through A4 describe the components of the doorstep indicators. The sources are listed in Table A1. For the majority of the selected criteria (17 out of 31) we have identified variables from the Institutional Profiles database (de Crombrugghe et al. (2009)). They actually selected the indicators with the NWW framework in mind. [9] The remaining 14 criteria cover the aspects of the doorsteps that are closely related to the standard concepts of good governance and are therefore taken from the well-known *Polity IV*, the World Bank's *IPD*, and *Economic Freedom of the World* databases.

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[8] This section builds on earlier work in Gollwitzer and Quintyn (2010). In the initial version of our index, some of the categories were measured by variables from different databases depending on data availability. This caused the problem that the same category potentially reflected slightly different things for different countries.

[9] See de Crombrugghe et al. (2009).

NWW's first doorstep condition, the rule of law for the elites, requires the "establishment of a judicial system in which individuals with the appropriate standing have access to rules and procedures […] whose decisions are binding and unbiased, at least with respect to elites" (NWW, 2009, p. 151).This concept should not be confused with the more traditional measures of the rule of law which apply to the entire society. This first doorstep only reflects a subset of the "general" rule of law: the elites agree to play according to certain rules amongst themselves. This necessarily also requires an independent control of the elites' obedience of the rules. Our indicator contains three components: first, the existence of rules for the elites; second, the independence and the impartiality of the judicial system; and third, the elites' respect for and compliance with the decisions of the courts.

The second doorstep condition captures the creation of perpetually lived organizations including the state itself, "capable of bearing rights and duties" and "independent of the identity of individual members at any given moment".[10] The separation of the institution from the individual leads to more continuity, stability and predictability in society. The second doorstep reinforces doorstep one and, together, they open the gate for the transition from personal to impersonal relations in society. We quantify this doorstep in two different categories. The first category assesses the stability and permanence of the political system, as a proxy for the perpetuity of the state. The second category evaluates the ease with which independent organizations can be created as an indication of a society's attitude towards organizations and of the legal role of organizations.

The third doorstep condition, the political control of the military, requires "the existence of an organization with control over all the military resources of the country; that control over the various military assets is consolidated in that organization; and a set of credible conventions that determine how force is used against individuals and coalition members".[11] Broadly, this doorstep concerns getting away from three different types of situations: (i) elites that have their own military powers (the type of situation that is discussed in e.g. Collier, 2009), (ii) military dictatorships, and (iii) situations where the military are looking over the shoulders of the politicians. In the second and third case, the military form an elite group of their own, and are, or stand ready to be, in control of the political process. Our measure consists of three categories, in line with the above definition. The first category evaluates political control of the legal armed forces. The second accounts for military interference in political life. The third measures the level of armed violence in society as a *de facto* measure of political control over all military activity.

A. Aggregation of the Index

For the three sub-indices, each category is the simple average of the standardized (0 worst to 1 best) variables contained in the individual category. The sub-index is the simple average of

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[10] NWW (2009): p. 26 and p.152.

[11] NWW (2009): p. 153.

the categories rescaled by the sample average. For example, to construct the first doorstep indicator D1 (rule of law for the elites) we take the average of its three categories and divide the resulting value by 0.62, the average value for our sample of countries. The overall doorsteps index is the simple average of the three sub-indices – again varying between 0 and 1. Our database consists of 108 low-, middle-, and high-income countries (Appendix Table A-5).[12]

B. Country Doorsteps Scores

Figures 1 through 4 present, respectively, the overall doorsteps scores and the scores under the individual doorsteps. Close observation indicates that a country's performance can differ greatly from doorstep to doorstep, indicating as suggested in the introduction, that transition is not a uniform process across countries. Five countries (Denmark, Finland, Australia, the Netherlands, and New Zealand) are consistently among the top ten performers, whereas only two countries (Zimbabwe and Mauritania) are among the worst ten countries for all four indicators.[13]

Figures 5 to 7 present the overall doorsteps indicator by income group. The bold horizontal lines represent the average overall index score (D_Overall). It is 1.27 for high income countries (HIC), 0.91 for middle income countries (MIC) and 0.80 for low income countries (LIC). The variance is the greatest for MIC because we have grouped together low- and upper- MIC. All top ten MIC performers are upper-MIC and the five worst scores are lower-MIC. Thus, the figures clearly demonstrate an interesting finding: the higher the overall doorstep score the more economically advanced a country tends to be.

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[12] As a test of robustness we also aggregated the eight categories into an overall indicator by obtaining the respective weights for the categories from Principal Component Analysis. This did not affect the relative ranks of the countries in any significant way.

[13] Interestingly, our scores for D1 are very similar to the corresponding category of the Bertelsman Transformation Index (political transformation). The Bertelsman Transformation Status Index (BTI) "explores the state of development achieved by 128 countries on their way to democracy under the rule of law and a market economy flanked by sociopolitical safeguards" and is thus to some extent comparable to our composite doorsteps indicator. However, it does not rank fully developed countries.

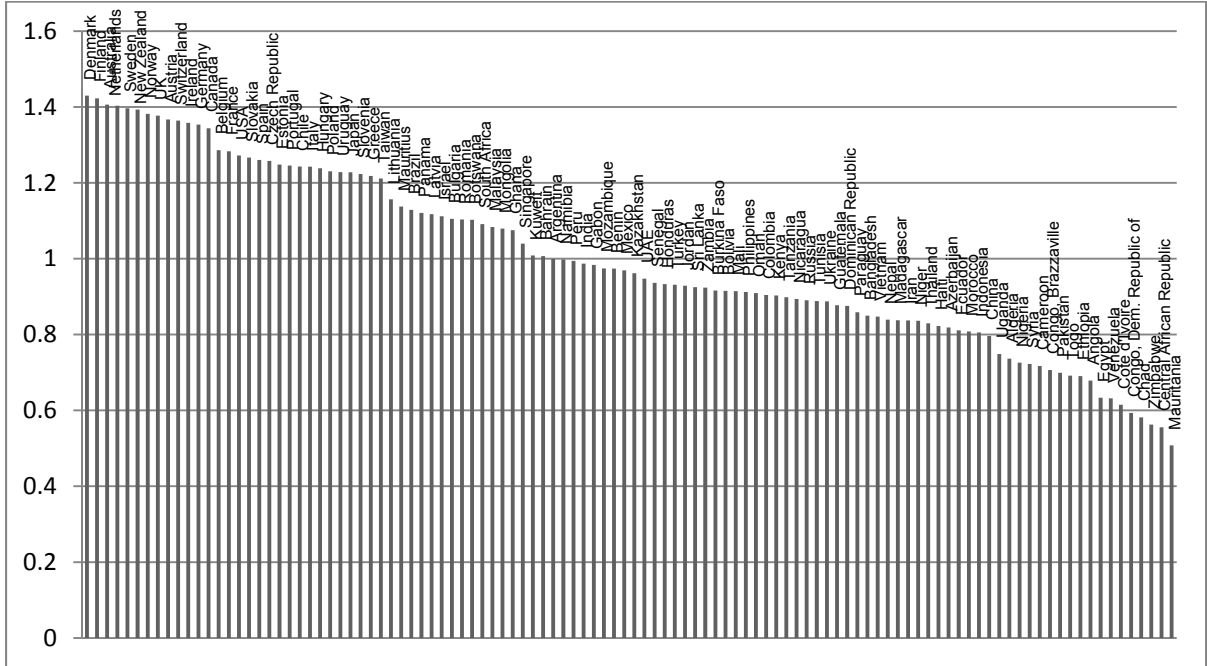Figure 1. Overall Doorsteps Indicator (D_Overall)

Figure 2. D1
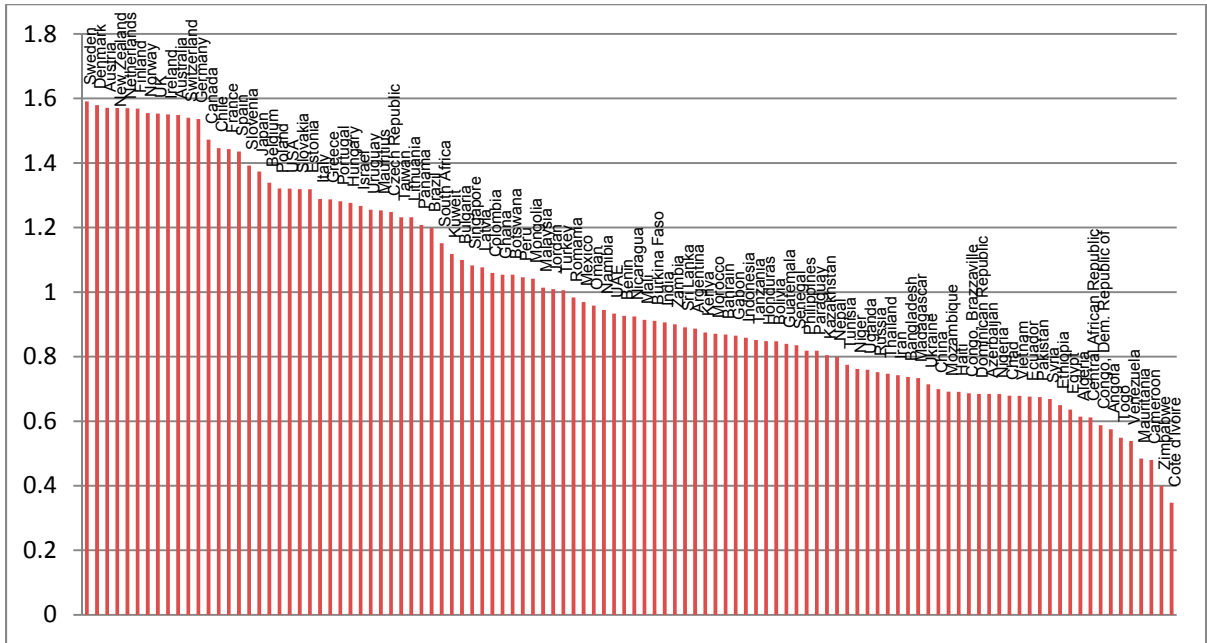
Figure 3. D2
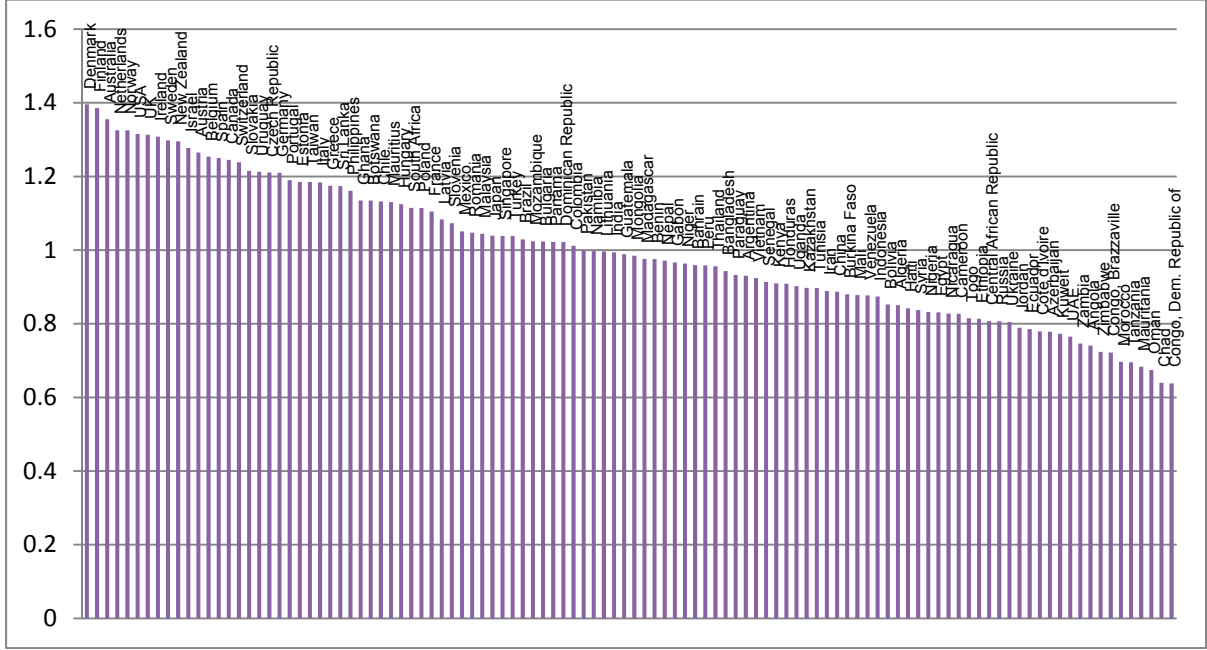
Figure 4. D3
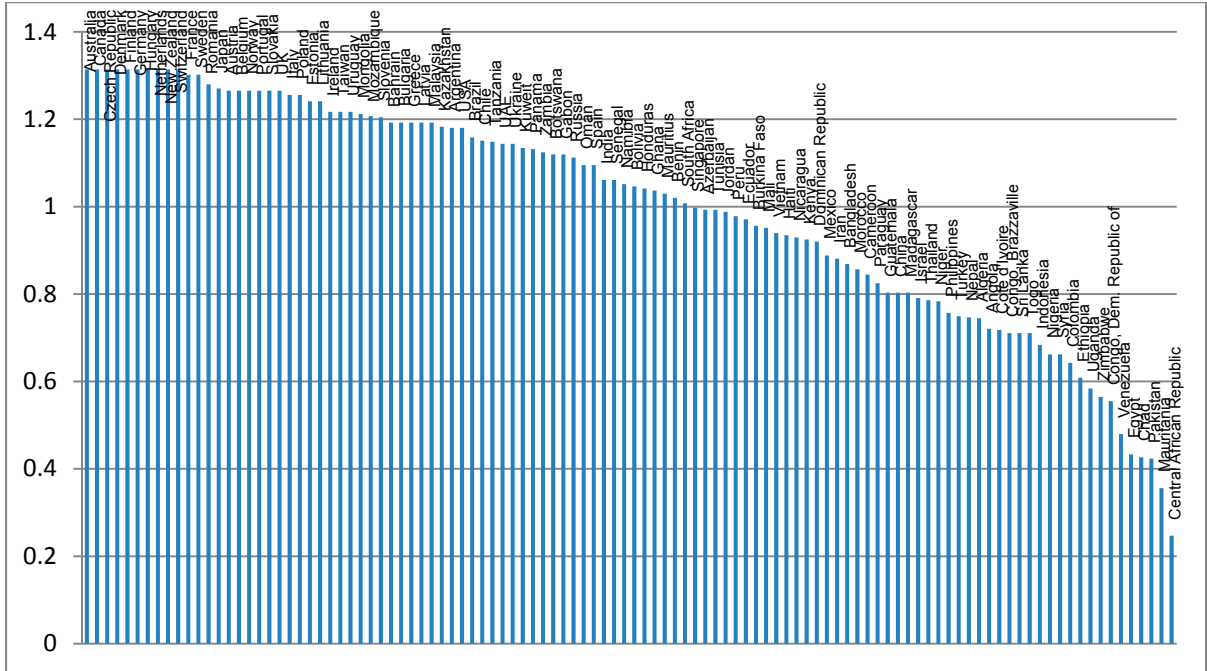
Figure 5. D_Overall for High Income Countries
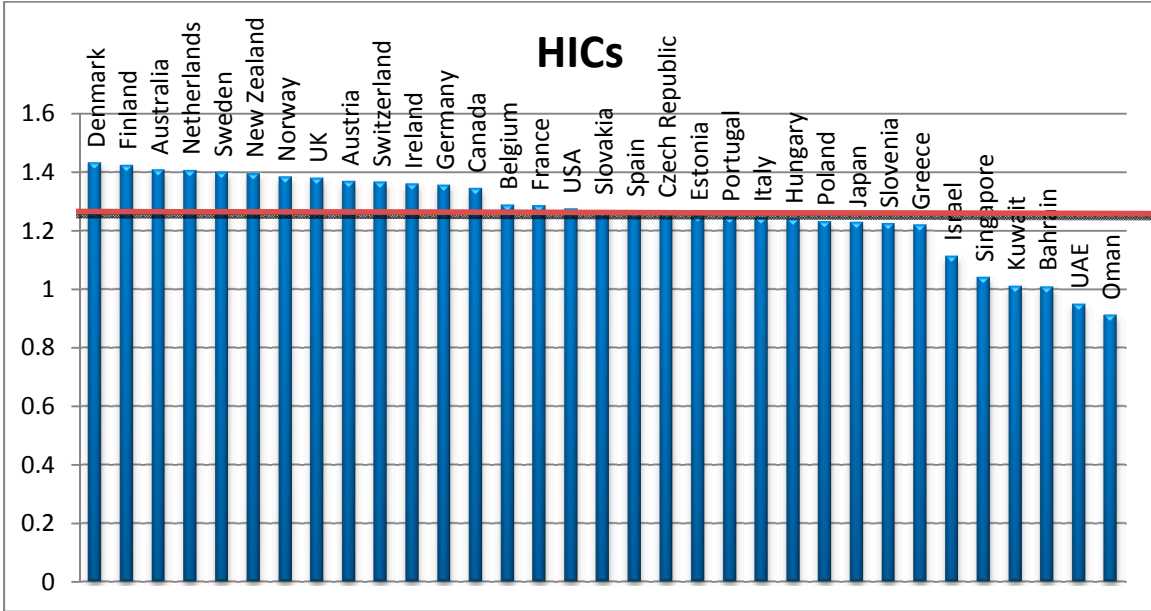
Figure 6. D_Overall for Middle Income Countries
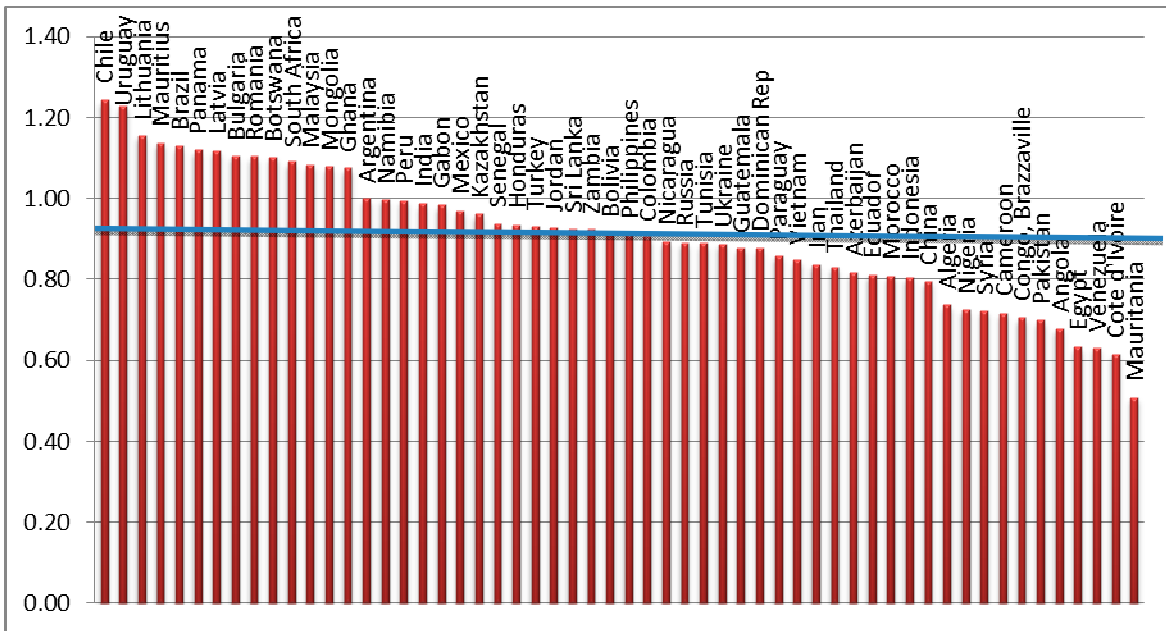
Figure 7. D_Overall for Low Income Countries
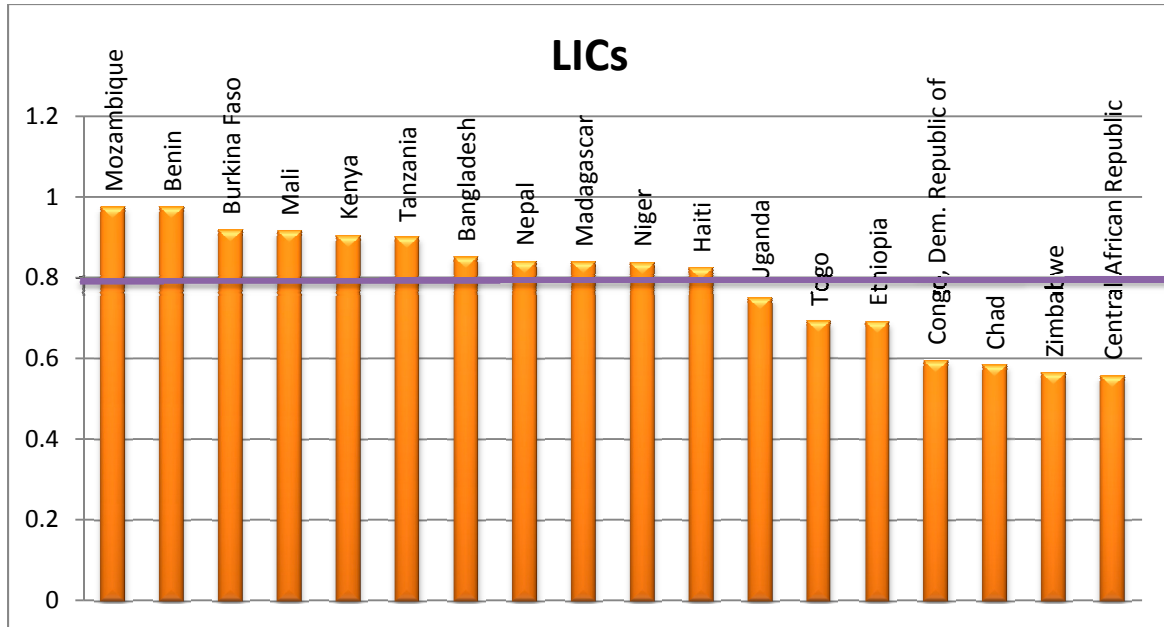
C. Correlations within and between the Doorsteps

To understand which categories are most decisive for a country's performance under the three doorsteps, we study the Spearman rank correlation between D1, D2, D3 and their respective categories (Appendix Table A6). Suffice it to note that none of the three sub-indices is driven by an individual category.

Next, we study the correlation between the overall index and the three individual doorsteps to find out if any one of them is the driving component of the overall index. The first doorstep is most strongly correlated with the overall index (see Appendix Table A7). Yet, none of the three sub-indices seems to play a singularly dominant role. Moreover, the three sub-indices are strongly and significantly correlated with each other. To some extent these high correlations may be the result of what might be called a "consistency bias". As we are using different variables from the same databases for the three doorstep indicators, it is likely that due to consistency checks and corrections within the individual databases a country's relative score will be similar across variables and therefore across doorsteps.

Finally, we analyze if any individual category is particularly closely correlated with the overall index. Appendix Table A 8 shows that three categories are very strongly correlated with the overall index. These are—in decreasing magnitude of the correlation—military interference in political life, elites' respect for the courts' decisions, and independence and impartiality of the judicial system. The weakest correlation is with the first category of the second doorstep, stability and permanence of the political system

IV. Doorsteps and Performance – A Graphical Analysis

One of the central themes in the NWW transition framework is that changes in economic and political competition are inherently linked during the transition process. [14] From their study, we distill a number of political and economic variables that are—according to their theory—symptomatic for the impact generated by the transition processes. By jointly considering a country's performance under the doorstep indicators and these "symptom" variables we are able to, at least partially, test the NWW theoretical framework. It should be emphasized that, while the transition process described by NWW occurs within countries over long periods of time, we can only test their framework in a cross-country setting (given the lack of data for the doorstep indicators over an adequately long period of time). However, as indicated earlier, our sample contains a broad range of countries with respect to their position along the transition process. Therefore we can claim that the NWW transition framework is identified in our analysis.

We run correlations between the three doorstep indicators (D1, D2 and D3) as well as the average of the three (D_Overall) and the symptom variables and depict the correlations in scatterplots with the corresponding values of the correlation coefficient ρ (with stars indicating the significance level).[15]

We analyze three political and five economic symptoms. The variables pertaining to the political ambit are democracy, equal access, and corruption. The economic variables are the size of government, social welfare, income inequality, macroeconomic stability and bank credit to the private sector. For each of these symptoms we select at least one variable for the graphical analysis. Whenever appropriate, the variables are standardized to range between 0 (worst) and 1 (best).

A. Political Symptoms

Democracy

The most prominent political symptom is democracy. NWW argue that "the eponymous characteristic, open access, is central to all open access orders. The civil society encompasses a wide range of organizations independent of the state. Open access also fosters competition in all systems, specifically in politics and economics. Systematic competition of the state means these states are democratic".[16] For the purposes of our study we select the Economist Intelligence Unit (EIU) Overall Score of Democracy Index. The overall score consists of five

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[14] "Economic and political access are deeply connected. Political responsiveness in open access orders reflects shifts in economic interests. This in turn, leads political officials to provide a range of public goods and services that respond to economic opportunities" NWW, 2009, p. 145).

[15] Following the conventional labeling, *** indicates a significance level of one percent, ** five percent, and * ten percent.

[16] NWW (2009): p. 113.

categories: the electoral process, functioning of the government, political participation, political culture, and civil liberties.[17]

Figure 8 shows a strong, positive and significant correlation between the symptom variable and all of the doorstep indicators. The correlation is weakest for the third doorstep, i.e. political control of the military. Without being able to establish causality, we can make a few more inferences from these charts. The EUI index establishes a continuum between fully authoritarian and fully democratic societies.[18] The spectrum runs from political systems that have no democratic features whatsoever, over systems that have adopted, at varying degrees, some *institutions (or procedures) of democracy* such as elections and multiparty systems (without being full-fledged democracies), to those systems that have also adopted what is often called the *spirit, or the culture, of democracy*. The latter, much harder to measure, implies, among others, that losing parties accept the judgment of voters and allow for a peaceful transfer of power. More generally, a democratic culture presupposes mechanisms and mindsets to deal with conflict and strive for consensus building (Diamond, 2008). The EIU index allows making this distinction between democracy as the sum of institutions and democracy as a state of mind by the four categories it introduces. It distinguishes between authoritarian regimes (scores between 0 and 3.99), hybrid regimes (4–5.99), flawed democracies (6–7.99) and full democracies (8–10).

With that distinction in mind, our results show that only the countries that are more than three quarters up the ladder of doorstep one are fully democratic (rating above .8 in our charts). This finding corroborates some of the central theses of NWW. They argue that "the lesson that the same institution works differently under limited as opposed to open access applies with particular force to the transfer of democratic institutions into natural states. For example, elections will not necessarily lead to democracy in the natural state." Indeed, our chart shows that, as long as elites do not fully embrace the rule of law (D1), any attempt at democracy remains flawed. Regarding D2, we notice the strongest concentration of countries in the 0.6-0.8 democracy range, implying that the formation of perpetual organizations in social and political live and the transition to flawed democracies are connected. As for D3, we find a high concentration of full democracies at the extreme end of the doorstep achievement. Evidently, as long as there is no unified political authority over the military, fully-fledged democracy remains an illusion. Conversely, mainly flawed and hybrid democracies are associated with average levels of D3—militias often decide on the electoral verdict, irrespective of the ballot-box result.

A more detailed picture of the relation between the doorsteps and democracy is provided by a three-dimensional bivariate Kernel Density Curve for D_Overall and democracy in Figure 9,

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[17] Since we are not using EIU data for the construction of the doorsteps indicators and none of the categories overlaps directly with any of our index components, the two indicators should be relatively independent in construction.

[18] Others, on the other hand, argue that there is a strict dividing line between autocracy and democracy. Przeworski et al. (2000) for example, use strict criteria and consider the autocracy-democracy spectrum as a 0-1variable.

using Stata.[19] The area under the curve represents the density (i.e. the probability that a certain combination of values of the two variables occurs given our sample) and thus adds up to one. "Hills" thus represent high probability densities. From the plot we can see that there are three clusters: first, countries which perform very well under the doorsteps and have "full democracy" scores (the hill in the upper right-hand corner); second, countries which perform below-average under the doorsteps and with very low democracy scores (the hill in the lower left hand corner); and third, the hill in the middle, countries with below-average to average performance under the doorsteps and medium levels of the EIU democracy measure (top hybrid and flawed democracies). The flat region in the upper left-hand corner indicates that it is very unlikely for a country with low levels of the overall index to be a perfect democracy. All of this is in line with what the NWW theory predicts.

Equal Access

A critically important political characteristic of open access orders is the suppression of discrimination. NWW explain that "perhaps the most central feature of open access orders is the transformation of a society based on elites to one based on mass citizenry. This transformation also combines beliefs in equality and open access to markets, the institutional apparatuses of rule of law, and mass political participation." [20] The authors argue that equal access to different types of public goods is usually provided in a certain sequence starting with the rule of law, followed by mass education and infrastructure, and finally equal participation in labor markets including the provision of social insurance systems.

To capture this extension of citizenship, we construct an indicator of equal access consisting of the average of four variables from the Institutional Profiles Database including equal access to schooling, equal access to public health care, equal treatment in administrative procedures, and equal access to public employment (A9040–A9043). Figure 10 shows a significant and positive correlation between doorsteps and our measure of equal access. In the case of D3, the correlation is quadratic. This correlation is strongest for the average of the three doorsteps suggesting that in order to provide all citizens with equal access to the institutions mentioned earlier, a country has to fulfill all three doorstep conditions. As the original variables have four possible scores (from 1 to 4), the average of the four variables still displays clear ranks and the scores are not normally distributed.

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[19] The bivariate kernel density estimate of observations $z_i = (x_i, y_i)$ is given by $f_\sigma(x, y) = \frac{1}{n}\sum_{i=0}^{n}(x - x_i K\sigma y - y_i = 1ni = 1nK\sigma(z - z_i)$, where $K\sigma$ is the discrete version of bivariate normal $N(0, \sigma 2I)$.

[20] NWW (2009): p. 118.

Figure 9. Doorsteps and Democracy
Bivariate Kernel Density
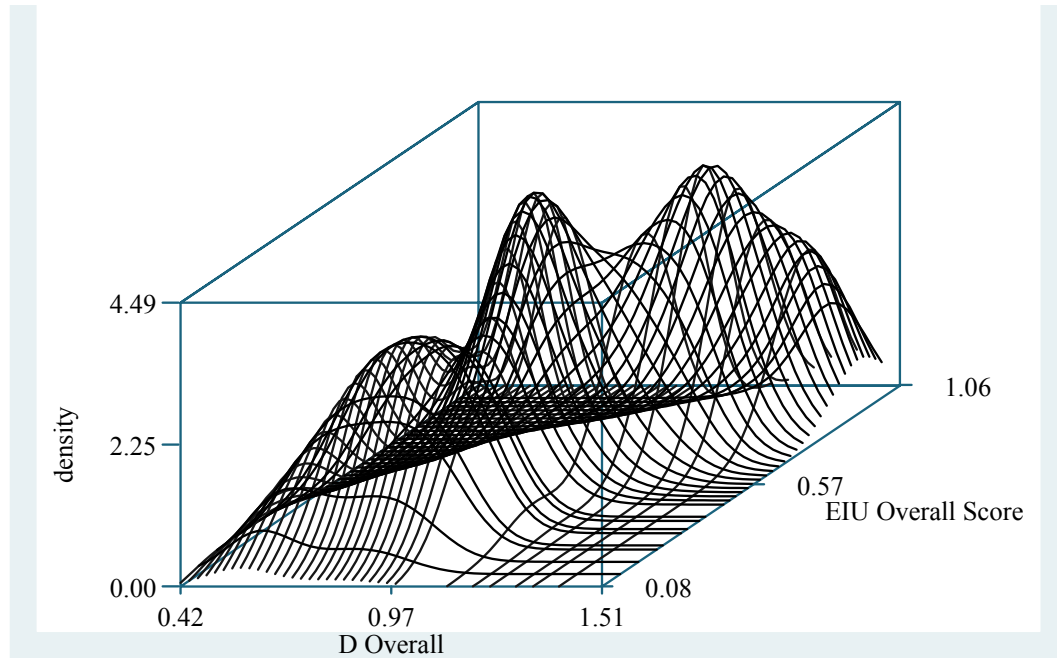
Corruption

The transition to an open access society involves the dissolution of the classical patron-client framework (or clientelism) on which the functioning of all natural states is based. In (basic) natural states all forms of organizations are "closely associated with the (private) individual identities of the elites who inhabit them".[21] As a result, relations in such societies are predominantly personal and informal. These features, according to NWW, are one of the primary reasons for the high levels of corruption which prevail in most limited access orders. In fact, in the logic of the NWW framework, corruption is an inherent byproduct of the working of that social order. As societies move towards mature natural states and finally open access orders, credible institutions evolve which provide a measure of rule of law for organizations and facilitate the emergence of impersonal and formal relationships—and are therefore accompanied by a decrease in corruption. We measure corruption along the Transparency International Corruption Perception Index (CPI).

The relationship between the doorsteps and corruption is quadratic. We therefore also report the correlation coefficients between corruption and the squared doorsteps scores, ρ_{sq}. As Figure 11 shows, the correlation is strongest for the first doorstep. Overall, there seem to be increasing returns in terms of reducing corruption to a country's improvement in the doorstep conditions. As a country better meets the doorstep conditions, the level of corruption

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[21] NWW (2009): p. 73.

diminishes at an increasing rate. In that interaction, the establishment of a rule of law for the elites seems to be the most critical factor. It takes about three-quarters of the doorstep condition before corruption levels reach the 50 percent mark on the CPI scale. The two clusters in Figure 12 confirm this: countries with below-average performance under the doorsteps are very likely to have high levels of corruption (a low CPI score), whereas countries with higher levels of D_Overall tend to be characterized by low levels of corruption (a higher CPI score).

An interesting and much studied question is the extent to which the creation of democratic institutions is accompanied by a reduction in corruption. Figure 13 shows that as countries develop from natural states into open access societies, they tend to make more initial progress in terms of democracy (with the caveats mentioned earlier about what democracy represents in reality in those phases) than in terms of corruption. Countries which are well-advanced along the transition path from a fragile to a mature natural state tend to have medium scores under the democracy indicator but very poor scores under the corruption indicator. This confirms in fact that many of the "flawed democracies" still show several features of clientelism (Khan, 2005). Only once countries have passed the average score of the overall doorstep index, corruption is waning faster, while further democratic reforms take shape.

Figure 12. Doorsteps and Corruption
Bivariate Kernel Density
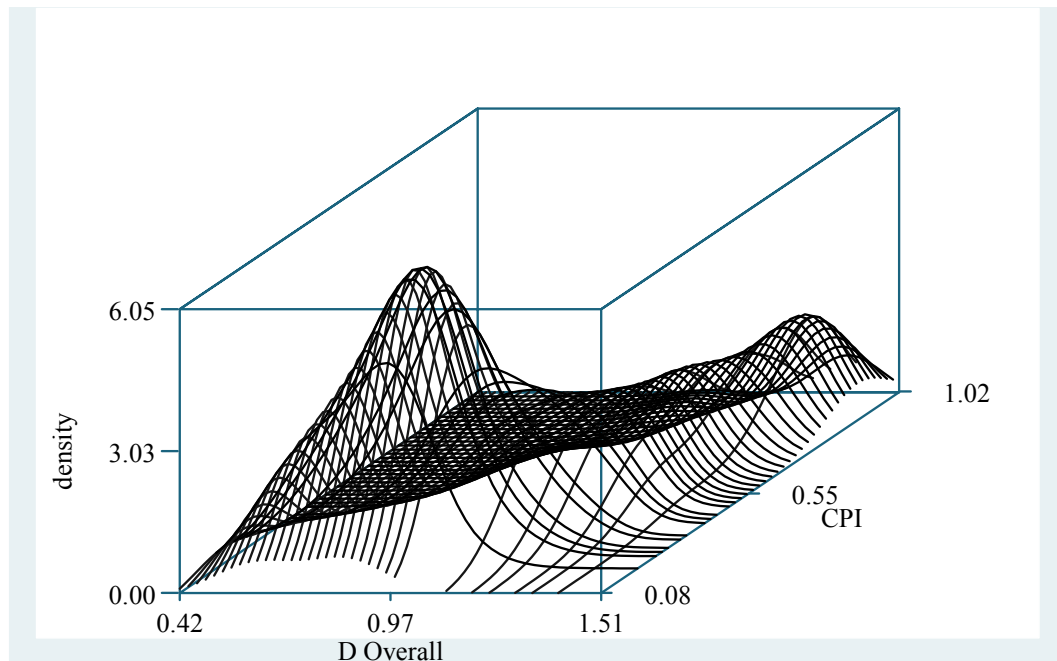
Figure 13. Corruption versus Democracy
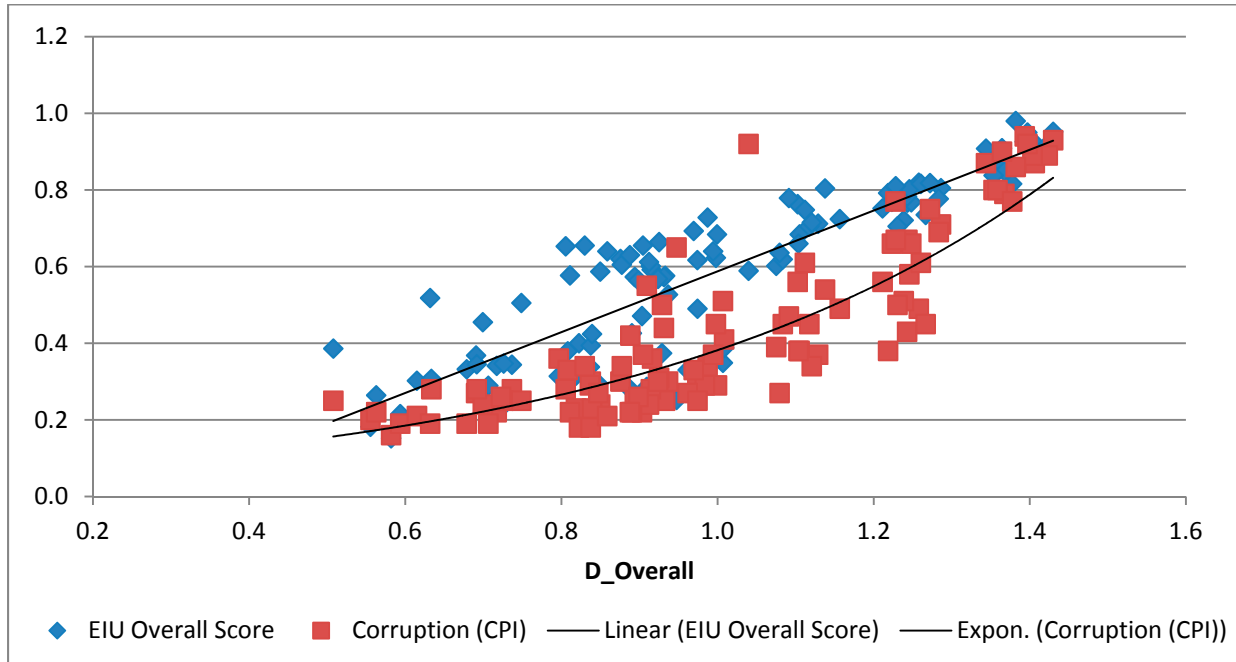
B. Economic Symptoms

Size of Government

One of the most notable characteristics of the transition from limited to open access orders is the growth of government. As countries move from basic into mature natural states and finally into open access orders, the extension of citizenship, described above, is accompanied by an increasing provision of public goods. This entails increased public spending on education, infrastructure and social insurance programs. Big governments in open access orders, NWW argue, "are therefore not an aberration but an integral feature of these societies".[22]

The size of government is proxied by two WEO variables: total government expenditure as ratio to GDP, and education expenditure as percentage of GNI. Figure 14 shows a positive and significant correlation between doorsteps and the ratio of government expenditure to GDP. The bivariate Kernel density plot in Figure 15 confirms that governments with lower average doorsteps scores tend to spend less than countries with higher scores of D_Overall.

Underlying this trend is, among others, the gradual switch from private good (or patronage good) provision under the patron-client personal relationships to public good provision

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[22] NWW (2009): p. 122.

through the government budget under systems based on impersonal relationships (Kahn, 2005 and Mwangi Kimenyi, 2006).

We detect a significant quadratic correlation between the doorstep indicators and the ratio of government expenditure on education to GNI (Figure 16), suggesting that there are increasing returns in terms of education to a country's progress under the doorstep conditions. This correlation is strongest for the second doorstep. Assume a country starts off with an average performance (1.00) under the first doorstep and achieves an improvement of 0.2 points. This will lead to an increase in the ratio of government expenditure on education to GNI by 40 percent. This finding confirms that governments of institutionally advanced countries tend to spend more on public goods which enhance equality across society.

Social Welfare

Because open access orders are based on the concepts of equality, sharing and inclusion of all, or at least a significant part, of the population, "all open access orders have institutions and policies that share the gains of and reduce the individual risks from market participation".[23] These include universal education, widespread infrastructure and social insurance programs. We capture social welfare by the territorial coverage of public services (as measured in the Institutional Profiles database).[24] This variable captures the transition from the provision of private goods inherent in the patron-client relations in limited access societies, to public goods, delivered on an impersonal and formal basis in open societies.[25]

The indicator is quadratically positively and significantly correlated with all three individual doorsteps (Figure 17). This suggests that a country's progress along the doorsteps is associated with an ever increasing and more equally spread provision of schooling, healthcare, clean water, electricity, road networks, and waste management. As long as a society is dominated by patron-client relations, supply of these services is often limited to those parts of the country where the ruling elite has its base (Mwangi Kimenyi. 2006). As countries advance along the doorsteps, these relations start to wane and are replaced by an impersonal supply, available to the entire population.

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[23] NWW (2009): p. 111.

[24] The variable comprises six categories including public schooling, basic healthcare, potable water and sewage purification, electricity, road network, and solid waste.

[25] As such, this variable mirrors to a large extent the size of government. In limited access orders, a critical mass of funds flows outside the official government budget through, and to, patron-client networks. The provision of private goods dominates and territorial coverage is uneven (see also Khan, 2005 and Mwangi Kimenyi 2006. Gray and Khan, 2005 offer a case study on Tanzania).

Figure 15. Doorsteps and Government Expenditure
Bivariate Kernel Density
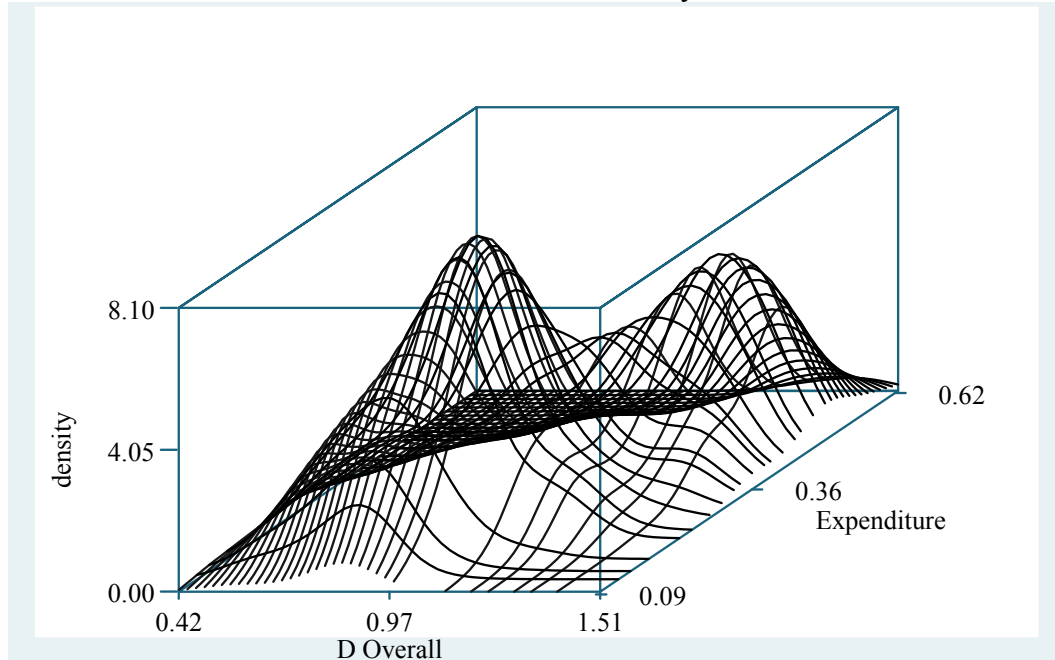
Income Inequality

As a result of the provision of gain-sharing and risk-reducing institutions, typical for open access orders, we should expect a more homogenous income distribution in countries as they go through the transition process. We measure income distribution with an adjusted Gini coefficient.[26]

The correlation (Figure 18) is clearly nonlinear (quadratic), negative and significant. Interestingly, the correlation is strongest for the third doorstep condition: better political control of the military is associated with a reduction in income inequality. The correlation with the first and second doorstep has the same form and sign but is less pronounced. The curve demonstrates the well-known Kuznets-curve: in the initial stages of the transition, there is a tendency for inequality to increase, after which it starts to go down at an accelerated rate. The kernel density plot in Figure 19 clearly distinguishes between two groups of countries in our sample: the large group with low to average doorstep scores and relatively high levels of income inequality and the smaller group with close to perfect doorstep scores and low levels of income inequality. Overall, our findings confirm NWW's claim that the transition from a limited to an open access order is associated with a reduction in income inequality.

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[26] The Gini coefficients are adjusted for the type of income, survey coverage and continent dummies.

Figure 19. Doorsteps and Income Inequality
Bivariate Kernel Density
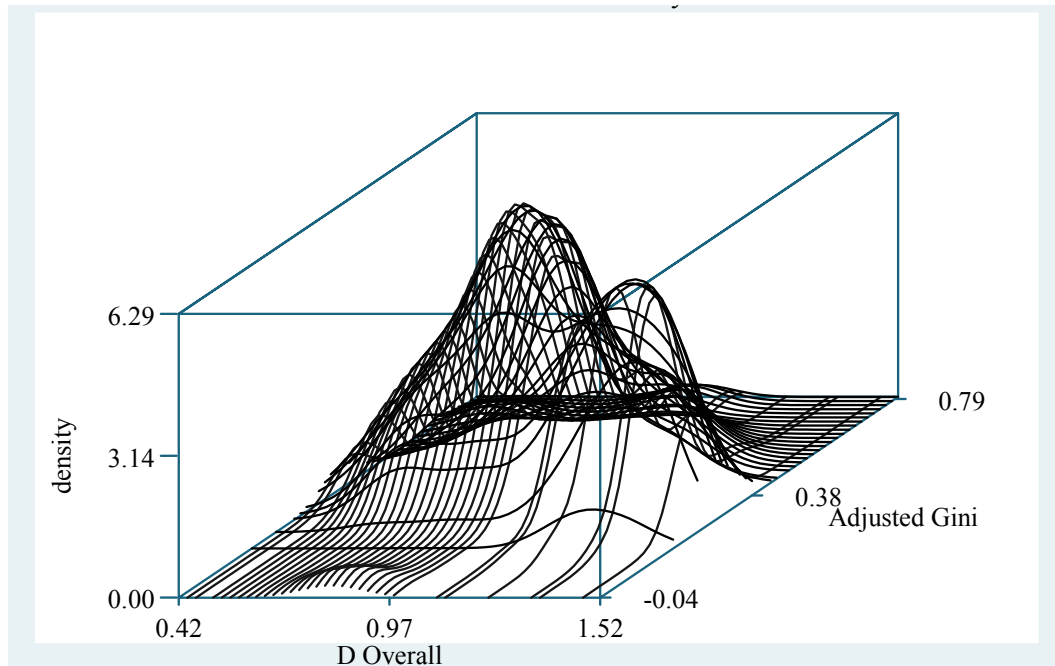
Macroeconomic Stability

NWW maintain that open access economies can better withstand external shocks than natural states "in part because natural states face far more self-induced problems, such as macroeconomic imbalances that cause regime instability." [27] The greater stability in open access societies derives mainly from the advantages of market competition, such as prices reflecting marginal costs, spill-over effects between different sectors, and international competition. All of these factors enhance the adaptive efficiency of economies. Open access orders therefore tend to have lower levels of inflation ("very few open access orders have experienced hyperinflation") [28] and experience fewer episodes of negative growth.[29] *Ceteris paribus*, fewer periods of negative growth lead to higher average incomes. We measure macroeconomic stability by CPI inflation and GDP per capita.

Figure 20 demonstrates that the correlation between inflation and all doorstep indicators is negative and quadratic. Interestingly, the shape of the curves (most clearly for D1) suggests that during the initial phase of transition from fragile and basic to mature natural states,

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[27] NWW (2009): p. 135.

[28] NWW (2009): p. 135.

[29] NWW (2009, pp. 4) emphasize that open access societies do not have higher positive growth rates but fewer periods of negative growth than natural states, which tend to grow faster than more advanced countries when they grow.

inflationary risk increases. Once a certain threshold level of institutional development in terms of the doorsteps has been reached, the risk for inflation decreases at a progressive rate. This correlation is weakest for the second doorstep.[30]

Figure 21 shows a surprisingly strong, positive quadratic correlation of GDP per capita with the doorsteps. In spite of a few outliers, the correlation coefficient for the squared value of the first doorstep and GDP per capita is over 0.8. This suggests that as countries develop rules for the elites, the average GDP per capita grows at an increasing rate. The correlation with the other two doorsteps is slightly weaker but still highly significant and above 0.7.

Bank credit to the private sector

As open access orders are characterized by impersonal exchange and impersonal, enforceable and impartial rules across all segments of society, access to credit for the private sector is facilitated significantly relative to limited access orders. We should observe higher levels of private sector credit in countries further along the transition path.[31]

The ratio of private sector credit to GDP exhibits a strongly positive and significant quadratic correlation with the doorstep conditions, especially with the average doorstep indicator. Figure 22 shows that, as a country advances along the doorsteps criteria, the private sector's access to commercial bank credit increases exponentially. It seems to be impossible for a country to provide the private sector with easy access to credit unless at least average levels of the doorstep conditions have been achieved. However, good performance under the doorsteps is no guarantee for high levels of private sector credit. Indeed, data from our sample suggests that a country can perform well under the doorsteps and still have only limited provision of private sector credit.

Three-way correlations

Territorial coverage of public services and government expenditures
Finally, we consider a few of the key economic symptoms jointly with the doorsteps in order to deepen our understanding of the joint dynamics along the transition path. First, it is interesting to study how the increase in social welfare interacts with the evolution in public expenditure. From Figure 23 we see that the proportional increase in the provision of public services is far bigger than the proportional increase in government expenditure as a country advances along the doorsteps. This suggests that, as a country moves towards an open access society an ever increasing component of government expenditure is targeted at social welfare (public services). The establishment of social welfare is therefore not only based upon an increase but also upon a restructuring of public expenditure. As described by NWW, this is a mechanism for sharing the gains of economic development. Furthermore, an economies-of-

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[30] This is consistent with our earlier finding (Gollwitzer and Quintyn, 2010) that a higher rule of law for the elites is associated with lower inflation.

[31] See Haber, North and Weingast (2008) for the theoretical framework behind this. Quintyn and Verdier (2010) show empirical evidence that financial systems develop best in systems with checks and balances.

scale effect could be an additional explanation for the nonlinear increase in the provision of public services against the linear increase in expenditure.

GDP per capita and income inequality

Next we consider the joint dynamics of income levels and income inequality. Figure 24 demonstrates that income inequality only starts to decrease well beyond the average level of the overall index, whereas GDP per capita starts to increase at a faster rate after the threshold level of approximately D_Overall = 0.8 has been passed. This suggests (i) that the wealth-cake first has to be big enough before elites/governments are willing to share it (the Kuznets-effect), and (ii) that this moment more or less coincides with the moment when the transition from a mature natural state into an open access society is within reach.

Income inequality and democracy

The previous observation is corroborated by a comparison of income inequality and transition to democracy. Figure 25 shows that the reduction of income inequalities is not only preceded by economic development but also by political reforms. As a country advances along the transition path, it seems that the first moves towards democratic institutions are undertaken long before income inequalities are reduced. The first signs of reductions in income inequality seem to coincide with the point where countries have already gone half way through the doorstep conditions, and where they enter the stage of "flawed democracies" (0.6 on the democracy scale). Overall, genuine moves towards the reduction of income inequalities seem to take place only in the very final stages of the transition towards an open access society, and when countries transit into full democracy (around the 0.8 marker).

Figure 23. Government Expenditure versus Territorial Coverage of Public Services
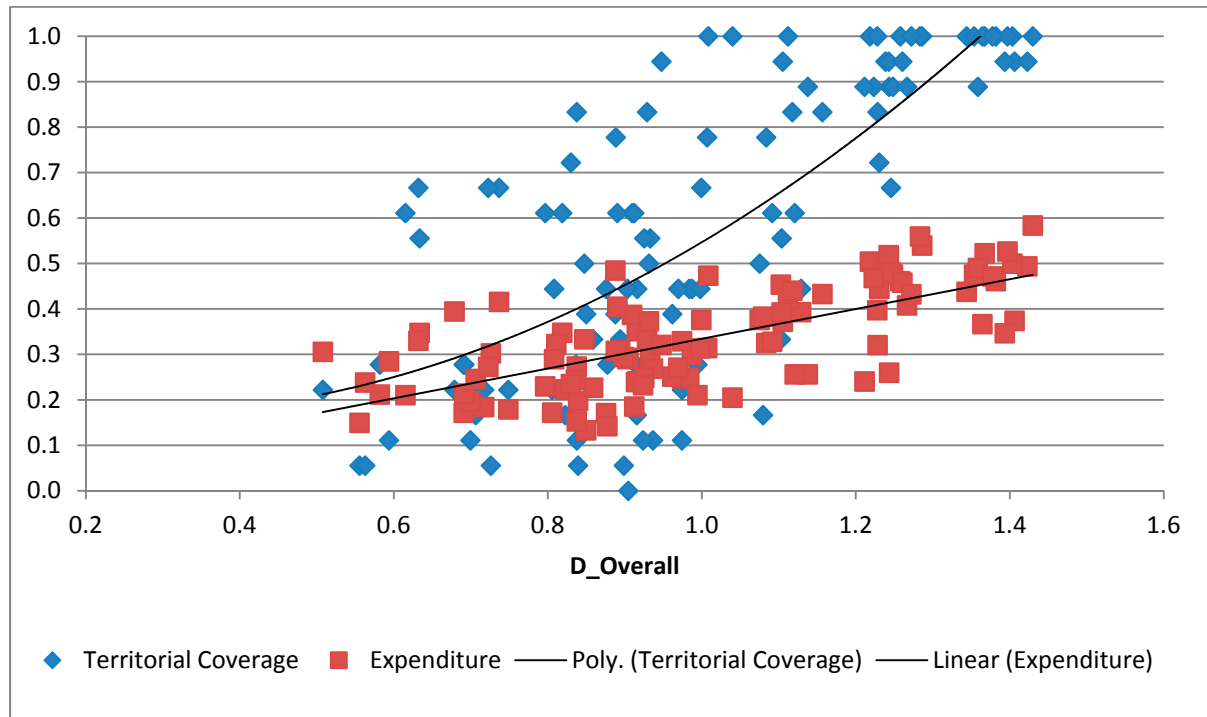
Figure 24. GDP per Capita versus Income Inequality
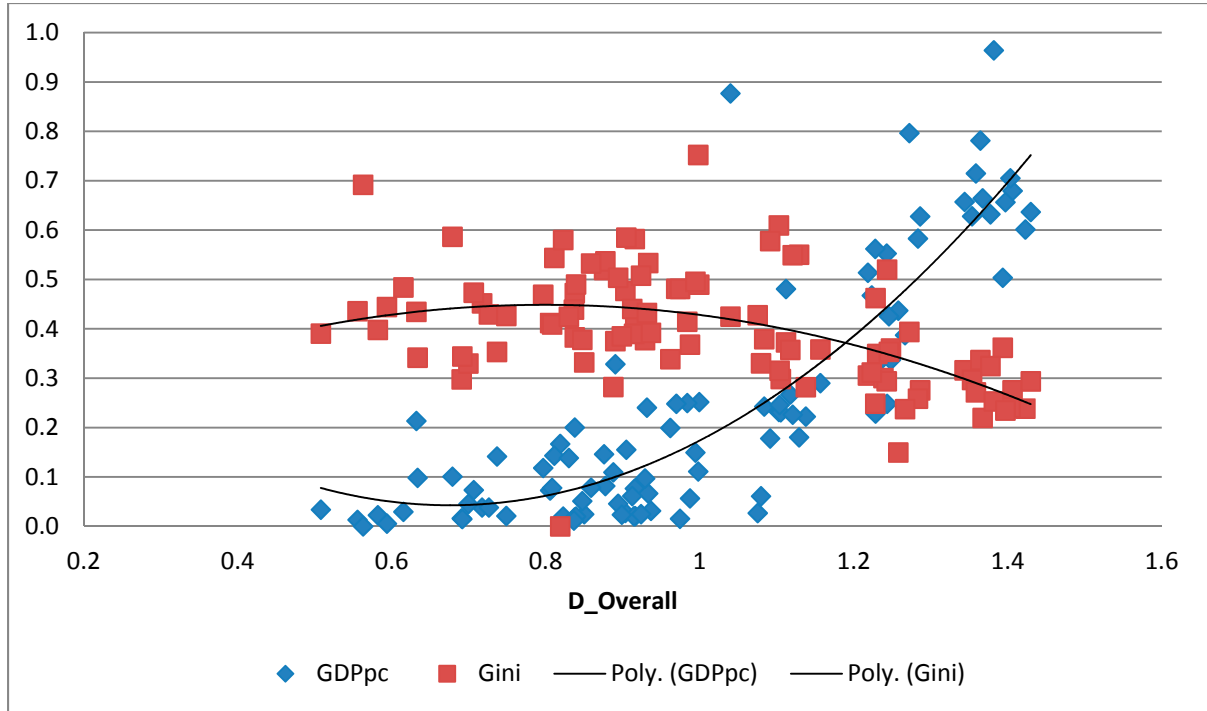
V. Doorsteps, Economy and Polity—Econometric Analysis

A. Methodology

To explore the interactions between the doorsteps and political and economic variables, we turn to an econometric approach. The first hurdle we need to take—recognized by all researchers working on institutions and their impact on economic and political variables—is that of endogeneity, as the doorstep conditions not only affect the symptom variables but are themselves influenced by the politico-economic environment. The most straightforward solution to this problem is to resort to an IV approach. However, the IV approach requires the identification of an instrument that directly affects the doorsteps but does not affect the symptom variables through any other channel than the doorsteps. In our view, this is an impossible task.

We therefore resort to the methodology applied by Rigobon and Rodrik (2005) in a paper closely related to ours, which estimates the interrelationships among economic institutions, political institutions, openness, and income levels. They propose an alternative identification strategy, Identification through Heteroskedasticy (IH). The IH approach does not require the identification of an instrumental variable. Instead, identification is achieved by "exploiting

Figure 25. Democracy versus Income Inequality
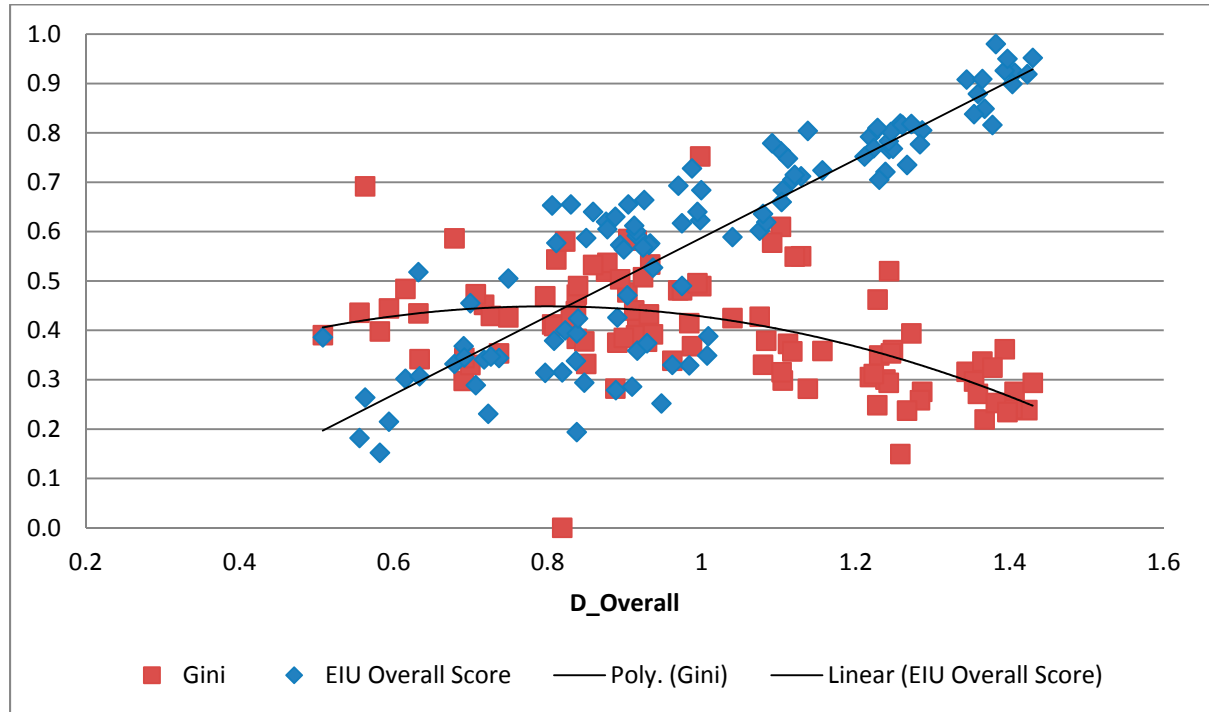
plausible differences in the variances of the error terms across sub-samples of the data."[32]

Assume we can describe the relationship between the doorsteps and the politico-economic environment in the following way:

$$Y = \alpha D + e$$

$$D = \beta Y + v$$

where Y is the political or economic symptom and D is the vector of doorsteps. The idea is to split the data into two sub-samples with different relative variances of the structural shocks but across which the parameters of interest (α and β) are identical.[33] "As long as relative variances of the structural shocks differ across sub-samples, this difference provides us with a 'probabilistic instrument', and allows us to solve the problem of identification." [34]

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[32] Rigobon and Rodrik (2005): p. 536. The IH approach goes back to work by Wright (1928) and was refined by Rigobon. See Rigobon (2003) for an application in another context.

[33] These two assumptions are in fact implicit in much of the applied macro work.

[34] Rigobon and Rodrik (2005): p. 536. Note that we need to estimate four unknowns $\hat{\alpha}, \hat{\beta}, \sigma_e^2, \sigma_v^2$ while the data yield estimates of only three moments, var(Y), var(D), and cov(Y,D). Now if we can split the data into two sub-samples A and B with identical parameters α and β but different variances for the random shocks ($\sigma_{e,A}^2 \neq \sigma_{e,B}^2$ and $\sigma_{v,A}^2 \neq \sigma_{v,B}^2$), then we obtain two separate variance-covariance matrices for the two sub-samples and six moments, which are enough to solve the six unknowns ($\hat{\alpha}, \hat{\beta}, \sigma_{e,A}^2, \sigma_{e,B}^2, \sigma_{v,A}^2, \sigma_{v,B}^2$). "In other words, splitting

We split the countries in our data sample into those that have been colonized by European powers and the others. Our final sample includes 93 countries with data for 2009. The colonized group consists of 57 countries, the non-colonized of 36. [35]

We first apply the methodology to explore the interactions between the three doorsteps (D1, D2 and D3), democracy and GDP per capita (one key political variable, and one key economic variable). In a second model we will include an additional economic variable, income inequality. [36]

B. Doorsteps, Democracy and GDP per capita

The five-by-five matrix (not counting the two exogenous variables) obtained from the first model allows us to test several of the hypotheses underlying the NWW framework for transition to open access societies. It provides a wealth of interactions, which bears witness of the complexity of the relations between institutional, political and economic variables.

The results are presented in Table 1. The left side of the matrix can be divided into four quadrants. The top right quadrant provides information on the impact of the doorsteps on the economic and political variables. The bottom left tells us about feedback mechanisms from these variables to the doorstep conditions. These two quadrants are the essence of the NWW framework. The bottom right indicates to what extent the doorsteps interact with each other. The top left informs us on the interactions between the economic and political variables. In fact, this is the only quadrant where we can draw some comparisons between our findings and the existing literature. Because the doorsteps are new concepts in the sense that they consist of institutional variables brought together in a previously untested way, almost no comparisons with the existing literature on economic and political institutions can be made in the other quadrants. Finally, the three rightmost columns report the coefficients of the exogenous variables and the constant term. The exogenous variables are insignificant in most of the cases.

Starting with the top right quadrant, we observe that doorsteps 1 and 2 have a positive and significant impact on both democracy and GDP per capita, while the impact of the third doorstep is insignificant. These results indicate that efforts to bring all military powers under

the sample adds two new unknowns (two additional variances) while generating three bits of useful information, and therefore identifies the system. Moreover, if our equations contain truly exogenous variables, the system becomes over-identified. This in turn enables us to insert additional endogenous regressors."

[35] Due to data problems, the following countries of the original sample were excluded: Azerbaijan, Bahrain, Benin, Czech Republic, Kuwait, Mauritania, Oman, Singapore, Spain, Sri Lanka, Syria, Taiwan, Tunisia, United Arab Emirates, and Zimbabwe.

[36] The Gauss codes are available upon request from the authors.

political control seem less decisive or important than advances in establishing rule of law among elites or the establishment of perpetual organizations in the transition to more democracy and on the road to higher GDP per capita.

Table 1. IH Estimation of Interaction between Doorsteps, Democracy, and GDPpc with Colony Split

	democracy	GDPpc	D1	D2	D3	nat'l res	area	const
democracy		0.146*	0.306*	0.267*	0.001	-0.187	-0.029	-0.018
		(2.438)	(10.31)	(3.521)	(1.024)	(0.943)	(0.211)	(0.094)
GDPpc	0.195*		0.358*	0.456*	-0.09	0.386*	0.114	0.473*
	(2.483)		(10.13)	(5.808)	(0.924)	(1.736)	(0.788)	(2.498)
D1	0.527*	0.472*		0.379*	0.177	0.058	-0.086	-0.233
	(4.761)	(4.734)		(2.677)	(1.092)	(0.16)	(0.344)	(0.828)
D2	0.248*	0.246*	0.211*		-0.092	-0.279*	-0.003	-0.799*
	(4.369)	(5.382)	(7.518)		(1.199)	(1.683)	(0.026)	(4.775)
D3	0.316*	0.047	0.091*	0.261*		-0.124	0.089	-0.601*
	(5.203)	(0.894)	(3.031)	(3.664)		(0.745)	(0.772)	(2.311)

t-values in brackets; asterisks indicate significance level of 95%

Turning to the bottom left quadrant, we observe strong positive feedback mechanisms from democracy on all three doorsteps, providing evidence of a virtuous process among the various institutions. We also observe a very strong impact of GDP levels on doorsteps 1 and 2 but not on the third doorstep. Considering these two quadrants jointly yields the picture that doorsteps 1 and 2 can set a transition towards democracy in motion, and that progress in adopting democratic institutions leads to further improvements in D1 and D2, and also in D3. So, political unification of the military (and other armed forces in the country) seems to emerge as a result of further democratization, rather than as a force behind it. In addition, political unification of armed forces in the country is driven more by the move towards more democracy, than by reaching higher levels of GDP per capita.

The strong and positive effect of GDP per capita on the first two doorsteps also suggests the existence of feedback mechanisms from higher GDP levels to improvements in the doorsteps. Meisel and Ould Aoudia (2008) have demonstrated that these strong correlations may also testify to the experience of countries (mainly in South-East Asia) where transitions to higher levels of GDP preceded significant improvements in the doorsteps. They argue that in several countries strong central government was able to reduce or mitigate uncertainty and unpredictability stemming from prevailing informality in society. In other words, government coordination offsets low D1-type of rule of law and several of those countries moved toward improvements in the doorstep conditions at much later stages of economic development.

They claim that, by focusing entirely on the primacy of doorstep conditions, NWW neglect this channel of transition and its importance. [37]

The interactions between the doorsteps (bottom right) strengthen our insights regarding the dominant role of doorsteps 1 and 2. Both doorsteps have a significant impact on the others, while the impact of D3 turns out to be insignificant. In other words, D3 seems to follow more from virtuous developments in the two other doorsteps.[38] We also notice strong feedback mechanisms between doorsteps 1 and 2. As indicated above, this type of interaction forms one of the central theses of NWW. Once elites accept the rules of the game among themselves, an onset is given for the creation of perpetual political organizations (i.e., the position of president, for instance, is no longer inseparably connected with the person in the function). This could then have positive ramifications for economic organizations as well. Once this separation spreads throughout social life, this might have further beneficial effects on obedience of the rule of law (first among the elites, and later on in all layers of society).

Regarding the interactions between the economic and the political variables, the results show that GDP per capita and democracy have a positive and significant impact on each other. The finding on the GDP-democracy nexus is in line with the pioneering contribution on the topic by Lipset (1959), as well as with Barro (1999), who both found that higher GDP per capital levels increase the propensity for democracy. Several other authors could not identify a strong relationship (i.e., the "modernization hypothesis" is only weakly corroborated).[39]

With respect to the impact of democracy on GDP per capita levels, research has been rather scarce (most of the research has focused on the impact of democracy on economic growth). Among the studies relevant for our work, both Przeworski (2000) and Feng (2004) find that the impact of democracy on the level of GDP per capita is positive, but mainly runs through indirect channels. [40] Our results indicate that both economic and political variables are driven by changes in the underlying institutions—a thesis that is also entertained by Rigobon and Rodrik (2005)—but that direct channels also play a part.

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[37] While our model demonstrates that there is indeed a strong impact from GDP per capita levels on the doorsteps, we believe that *initial* improvements in D1 are a necessary condition for better economic performance. The features that Meisel and Ould Aoudia (2008, p.22) ascribe to those governments (including elites giving priority to development, creating a common interest in development, and developing a strategic vision) cannot be achieved without progress in doorstep 1.

[38] These findings are somewhat different from the assertions in NWW. They claim that political unification of the military enforces obedience to the rule of law for elites and through this, facilitates the establishment of perpetual organizations. We only find weak evidence of the first link.

[39] See for instance, Przeworski et al. (2000), Rigobon and Rodrick (2005), and Acemoglu et al. (2007).

[40] Feng (2004) showed a number of indirect channels through which better political institutions have an impact on wealth, such as better capital formation, better education, easier demographic transitions, and better protection of property rights.

C. Doorsteps, Democracy, GDP per capita and Income Inequality

We proceed by adding income inequality to our model (Table 2). This more complex model broadly confirms the findings from the first model, and adds some interesting interactions. Starting again with the top right quadrant, we observe, just like in the previous model, a positive and significant effect of doorsteps 1 and 2 on democracy. Doorstep 3 is again not significant. We also get the same picture as before with respect to the impact of the doorsteps on GDP per capita: D1 and D2 have a positive and significant impact. The new part in this model concerns the interactions with income inequality. The results are somewhat mixed: progress along D1 and D3 leads to a reduction in income inequality. So, we do note that, while progress in D3 remained without impact on democracy and GDP per capita, this doorstep condition seems to play a role in reducing income inequality. As discussed before, progress along doorstep 3 might encompass several developments such as the transition from military dictatorship to civil rule, but also the disarmament, or the unification, of armed factions associated with several elites in society. Both types of developments could in principle have an impact on income inequality in the economy. Surprisingly, the move towards more perpetual organization (D2) seems to lead to more inequality. This finding is one of the few mysteries in this model and deserves further future analysis.

The results in the bottom left corner also confirm our earlier findings regarding the feedback mechanisms from democracy and GDP per capita to the doorsteps. The impact coming from income inequality is only significant for D3. The sign is positive, meaning that more inequality pushes for improvements in the doorstep condition, a point to which we will return later in this analysis when we discuss the interactions with democracy.

Table 2. IH Estimates of Interactions between Doorsteps, Democracy, GDPpc, and Income Inequality with Colony Split

	democracy	Gini	GDPpc	D1	D2	D3	nat'l res	area	const
democracy		0.424*	0.211*	0.332*	0.284*	0.054	-0.178	-0.039	0.175*
		(2.177)	(3.665)	(10.89)	(3.669)	(0.562)	(0.886)	(0.275)	(2.638)
Gini	-0.138*		-0.041*	-0.036*	0.107*	-0.147*	-0.108*	0.029	-0.493*
	(6.159)		(2.439)	(3.412)	(4.433)	(5.219)	(1.877)	(0.767)	(10.01)
GDPpc	0.188*	-0.336*		0.327*	0.403*	-0.052	0.359	0.116	0.285*
	(2.255)	(1.629)		(9.023)	(4.895)	(0.476)	(1.569)	(0.787)	(3.876)
D1	0.502*	-0.002	0.507*		0.355*	0.198	0.047	-0.091	-0.024*
	(4.268)	(0.006)	(5.258)		(2.456)	(1.12)	(0.129)	(0.367)	(2.373)
D2	0.239*	-0.025	0.275*	0.208*		-0.119	-0.296*	-0.002	-0.839*
	(4.015)	(0.151)	(6.135)	(7.335)		(1.43)	(1.785)	(0.025)	(13.717)
D3	0.514*	0.849*	0.009	0.072*	0.37*		0.017	0.081	-0.049
	(7.994)	(5.078)	(0.174)	(2.394)	(5.15)		(0.101)	(0.709)	(0.534)

t-values in brackets; asterisks indicate significance level of 95%

The interaction mechanisms between the doorsteps are almost a copy of what we observed in the previous 5x5 model. In essence, they confirm that changes in D1 and D2 reinforce each other and have a significant impact on the third doorstep.

To top left quadrant sheds light on the interactions of the variables related to economy and polity. The results support our earlier findings on the interactions between democracy and GDP per capita. The most interesting new findings are that greater inequality leads to more democracy and lower GDP per capita. The latter finding, significant at the 10 percent level, is in line with most research on the topic, such as Alesina and Rodrik (1994), Persson and Tabellini (1995), Alesina and Perotti (1996) and Berg, Ostry and Zettlemeier (2008 and 2011) who all find that more income inequality suppresses GDP growth, or GDP per capita levels, in a significant way.

The other highly interesting finding is undoubtedly that income inequality has a significant and positive impact on democracy. It reflects the role that income inequality can play as a push factor in social transitions: higher inequality seems to open the door directly for more democracy. In addition, we observed a similar effect on doorstep 3. This finding is consistent with those of other researchers, most notably Acemoglu and Robinson (2000) and Zak and Feng (2003). Acemoglu and Robinson (2000) argue that the move toward wider voting rights in Europe in the 19th century was a response to political pressures stemming from greater income inequality.

The push for democratic rights for larger groups of society is also observable in what has been termed the "Arab Spring": growing inequality within society is thought to have had an impact on the dissatisfaction of the population with their situation and therefore on the likelihood of reform. [41] Projected against our framework, the sequence in some countries following the Arab Spring could be as follows: inequality ultimately leads to democratic rights, but in order to move from the first steps of democracy (where countries establish the basic democratic institutions) to genuine democracy, progress along the first doorstep still needs to be taken. So in the language of our estimated model, the feedback mechanisms from democracy to the doorstep conditions need to play out.

We also observe that the impact of democracy on inequality is negative and significant (i.e., more democracy leads to less income inequality). In general, the literature on this connection is rather inconclusive. Bollen and Jackman (1995) find no significant relationship between inequality and democracy in any direction. Our finding is in line with Perotti (1996), Muller (1988) and Feng (2004), who also find that democracy reduces inequality. However, instead of taking the level of democracy, they consider the length of the democratic episode, arguing that the longer democratic processes settle in, the more they have an impact on inequality. Finally, higher levels of GDP per capita also lead in a significant way to lower inequality.

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[41] Berg and Ostry (2011). For a fuller account, see Malik and Awadallah (2011).

We summarize this empirical section with four key findings: (i) progress with respect to doorstep conditions one and two (rule of law for the elites, establishment of perpetual institutions) contributes to improvements in the political environment and in economic performance, the latter measured here by GDP per capita; (ii) once progress in meeting the doorstep conditions is set in motion, we experience strong feedback mechanisms from both democracy and GDP per capita; (iii) we find strong indications that, in line with the NWW theory, improvements in the rule of law for elites and the development of perpetual organizations strongly reinforce each other, while both also lead to progress in D3. The latter seems to have negligible effects on both other doorsteps; and finally (iv) higher income inequality pushes directly for more democracy and induces upward changes in D3.

D. Robustness Checks

First of all, we would like to be sure that identification can be obtained using the proposed colony split. As indicated before, proper identification requires that the two sub-samples have different relative variances of the structural shocks. Table 3 presents means and variances of the structural shocks after the model with eight variables presented in table 2 has been estimated. From the F-test at the bottom of the table we learn that in four out of eight cases the differences in variance are significantly different from zero across the subsamples. This is sufficient to allow us to estimate the coefficients using heteroskedasticy. Moreover, the addition of two exogenous variables to the model allows us to apply exclusion restrictions by assuming that the endogenous variables have no impact on the two exogenous ones. As such, our system of equations becomes overidentified, which lessens the problem of identification.

Table 3. Differences in Variance across Sub-samples (s1, 36 countries and s2, 57 countries)

	democracy	Gini	GDPpc	D1	D2	D3	natl. res.	area
mean s1	-0.55	0.36	-0.55	-0.63	-0.59	-0.12	1.94	0.02
variance s1	0.18	0.18	0.16	0.08	0.14	0.39	0.34	1.42
mean s2	0.33	-0.21	0.32	0.35	0.34	0.08	7.75	-0.02
variance s2	0.18	1.11	0.16	0.15	0.20	0.50	1.33	0.72
F-test	0.46	4.59E-10*	0.47	0.03*	0.13	0.21	2.29E-06*	0.01*

As a next step, we re-estimate the two models using a different split. Following Rigobon and Rodrik we split our data in this test between countries that are located in continents aligned on an East-West axis versus countries in continents aligned on a North-South axis. This geographic split (GEO) goes back to an argument developed by Diamond (2007) on how geography interacts with technology transfer. He points out that agricultural technologies travel easier on an East-West axis than North-South because the latter involves traversing different ecological and climatic zones, which has an impact on the suitability and adaptability of these technologies.

These two new model estimates broadly confirm the results generated by our earlier models. In the 5x5 model (without income inequality) (Table 4) the signs of all coefficients remain the same, and the size of most coefficients remains in the same range (with a p-value of 0.98 under the F-test, we cannot reject the hypothesis that all coefficient estimates are the same

across the two 5x5 models). The only difference is really that under the GEO split the reciprocal effects of democracy and GDP per capita are less significant than under the colony split. All other conclusions hold.

Table 4. IH Estimation of Interaction between Doorsteps, Democracy, and GDPpc with GEO Split

	democracy	GDPpc	D1	D2	D3	nat'l res	area	const
democracy		0.041	0.268*	0.319*	0.093	-0.183	-0.021	0.154
		(0.62)	*(7.318)*	*(3.81)*	*(0.931)*	*(0.782)*	*(0.154)*	*(0.861)*
GDPpc	0.152*		0.341*	0.463*	-0.052	0.338	0.10	0.767*
	(1.76)		*(9.666)*	*(5.093)*	*(0.493)*	*(1.169)*	*(0.71)*	*(3.888)*
D1	0.43*	0.465*		0.377*	0.204	0.007	-0.095	-0.086
	(2.848)	*(4.342)*		*(2.207)*	*(1.054)*	*(0.012)*	*(0.344)*	*(0.328)*
D2	0.297*	0.157*	0.198*		-0.096	-0.238	-0.001	-0.62*
	(4.412)	*(2.838)*	*(5.847)*		*(1.069)*	*(1.008)*	*(0.02)*	*(4.116)*
D3	0.273*	0.145*	0.141*	0.145*		-0.175	0.07	-0.417
	(3.83)	*(2.52)*	*(4.133)*	*(1.80)*		*(0.766)*	*(0.613)*	*(1.565)*

t-values in brackets; asterisks indicate significance level of 95%

A comparison of the two 6x6 models (table 5) confirms our findings regarding the relevance of the NWW transition framework and several of the other earlier findings. With the exception of one coefficient in the model, all signs remain the same and all coefficient estimates are in the same broad range. The only changes concern the impact of doorsteps 1 and 2 on Gini. The first one is now positive (and significant) and the second one is insignificant. So these two results introduce some uncertainty regarding the true impact of the doorsteps on income inequality. [42]

VI. Conclusions

This paper has graphically and econometrically tested one of the most interesting parts of NWW (2009)—their framework for transition from a limited access society to an open access order. In general, our findings confirm the validity of the NWW transition framework: the three doorstep conditions—acceptance of the rule of law for the elites, move toward perpetually lived organizations, and the consolidated political control of the military—are indeed critical in the politico-economic development of societies.

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[42] The significant change in the coefficient of D1, and only of this variable, increases the p-value of the F-test marginally to 0.047. If we do not take into account this one variable, we cannot reject the hypothesis of similar coefficients across the two splits.

Table 5. IH Estimates of Interactions between Doorsteps, Democracy, GDPpc, and Income Inequality with GEO Split

	democracy	Gini	GDPpc	D1	D2	D3	nat'l res	area	const
democracy		0.487*	0.117*	0.281*	0.275*	0.13	-0.177	0.004	0.372*
		(1.918)	(1.899)	(7.446)	(3.204)	(1.202)	(0.698)	(0.281)	(7.043)
Gini	-0.153*		-0.077*	0.043*	0.032	-0.121*	-0.009	-0.033	-0.629*
	(5.456)		(3.551)	(2.759)	(0.94)	(3.174)	(0.851)	(0.691)	(15.379)
GDPpc	0.182*	-0.393		0.285*	0.427*	-0.009	0.333	0.104	0.577*
	(2.091)	(1.439)		(7.569)	(4.480)	(0.074)	(1.075)	(0.696)	(8.042)
D1	0.394*	-0.121	0.494*		0.359*	0.205	-0.014	-0.095	0.005
	(2.719)	(0.215)	(4.83)		(2.07)	(0.992)	(0.025)	(0.341)	(0.056)
D2	0.295*	0.166	0.212*	0.209*		-0.154	-0.257	-0.005	-0.589*
	(4.523)	(0.701)	(4.122)	(6.122)		(1.59)	(1.08)	(0.043)	(12.25)
D3	0.194*	0.72*	0.081	0.127*	0.493*		-0.08	0.06	-0.153*
	(2.835)	(3.178)	(1.5)	(3.705)	(6.046)		(0.346)	(0.529)	(1.689)

t-values in brackets; stars indicate significance level of 95%

Our graphical analysis of the correlation between the doorstep indices and a range of variables belonging to the economy and the polity yields some interesting insights, the most important ones being the following: (i) as long as elites do not act according to certain rules of law established among themselves, the introduction of democratic institution remains flawed; (ii) as countries transit from limited- into open access societies, they initially tend to make more progress in establishing democratic institutions than in reducing corruption indicating that in the early stages of democracy clientelism, and the inseparable corruption, still dominate; (iii) as a country moves towards an open access order, the government tends to spend a growing proportion of its budget on public services, and public goods gradually replace patronage goods; finally (iv) a country's income level starts to rise long before income inequality is reduced (the Kuznets effect). In fact, income inequality only starts to decline significantly once the transition from a natural state into an open access society is within reach.

Whereas the graphical analysis can only provide us with insights into the correlations between the doorsteps and the economic and political symptom variables, the econometric procedure of IH allows us to make inferences on the causality of these relationships. Hence, it presents a richer picture of the complex interactions between institutions and economic and political variables. Our results show that the acceptance of the rule of law among the elites (D1) and the move toward perpetual organization (D2) are the driving forces behind changes in the polity towards more democracy, and in the economic performance (on both accounts, the impact of D3 is almost negligible). Having said this, D3 turns out to have a significant impact in setting in motion reductions in income inequality. This is the only firm finding regarding the impact on income inequality. The impact of D1 and D2 remains uncertain as the respective coefficients are not stable across model specifications.

We also note relatively strong feedback mechanisms from democracy and GDP per capita towards all three doorsteps (the impact of GDP per capita on D3 remains limited). So, once institutional processes have been set in motion toward a more open society, changes in the polity and the economy stimulate further improvements in the doorsteps, introducing a virtuous cycle.

Our results also underline the existence of strong interactions between D1 and D2, very much in line with the NWW theory. The establishment of the rule of law for elites greatly facilitates progress along D2, i.e., the establishment of perpetual (political and economic) organizations in society, the basis for more vibrant economic activity and civil society. These, in turn, stimulate further expansion of the rule of law into society. Progress along both doorsteps also strongly influences improvements in D3. However, we did not find strong feedback from D3 towards D1 and D2. Combined, these three sets of findings lead to the conclusion that, while political unification of all armed forces in the country is an essential third doorstep, improvements in this doorstep seem to follow, rather than lead, other institutional and economic developments during the transition.

Our models also identify relatively strong direct links between democracy and GDP per capita. In addition, the broader (6x6) model shows that income inequality plays a crucial role in the transition process: greater inequality seems to be a driving force behind moves towards more democracy—a relation which seems to work mainly directly. This last finding—one of the most interesting ones in this paper—leads us to some final observations regarding the NWW transition theory.

The use of IH has allowed us to look beyond the NWW transition framework and provide some additional insights in the dynamics of transitions. NWW posit as one of the crucial preconditions of the transition that changes need to begin with behavior consistent with the logic of the natural state. While this was certainly true in the past, it does not necessarily hold in all current transitions, as NWW recognize. First, societies that embark now on a transition have a better sense as to where they are heading than the elites of 200–300 years ago. Secondly, *external* forces now play a much more important role than in the past. The literature has identified a number of such potential external forces, such as urbanization, transparency in public (and private) office, the spread of information technology, and globalization, all factors that may drive natural states into transitions.

Thus, unlike in the historical examples provided by NWW, the reform process today in several countries no longer follows an "unintended" path for the elites, but is often forced upon them. Our results indicate that rising income inequality can also serve as a force that could put elites on a transition path. This finding is consistent with earlier work on the topic (Acemoglu and Robinson, 2000, Zak and Feng 2003, and Collier, 2009), and also with the emerging interpretation of the developments that led to the "Arab Spring." In some of these countries, we have observed direct moves towards democratic rights. In line with the logic of the NWW framework and our results, further progress towards an open society should now come from the feedback mechanisms between democracy and the doorstep conditions.

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Figure 8. Doorsteps and Democracy

Figure 8a. D1 and Democracy

ρ = 0.8567***
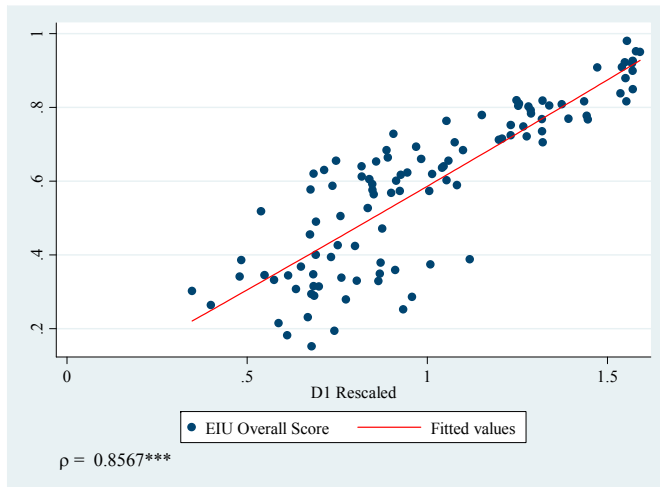
Figure 8b. D2 and Democracy

ρ = 0.8593***
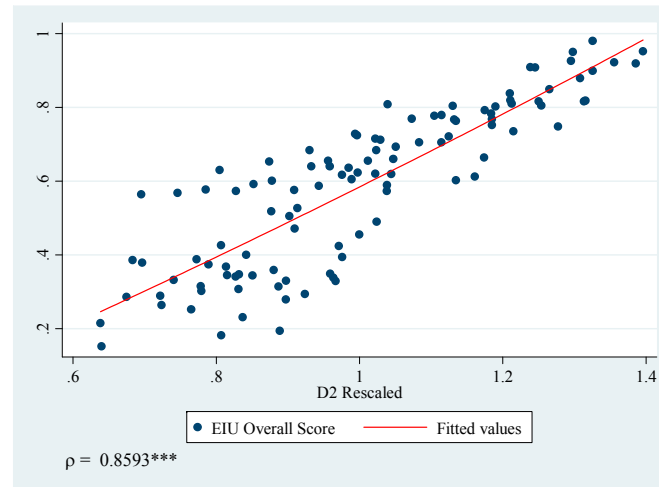
Figure 8c. D3 and Democracy

ρ = 0.6820***
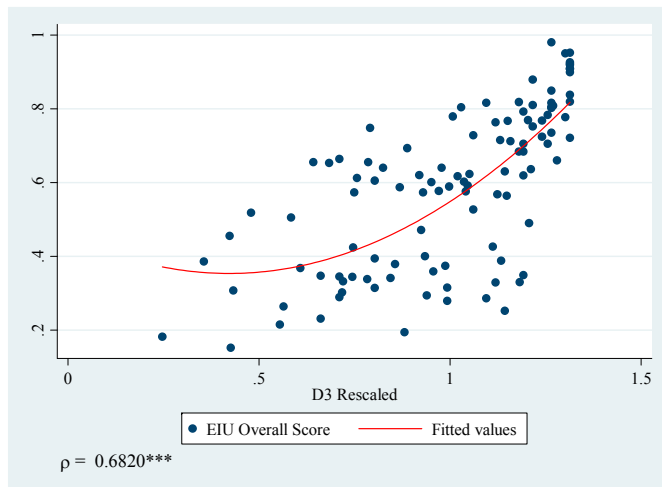
Figure 8d. D_Overall and Democracy

ρ = 0.8715***
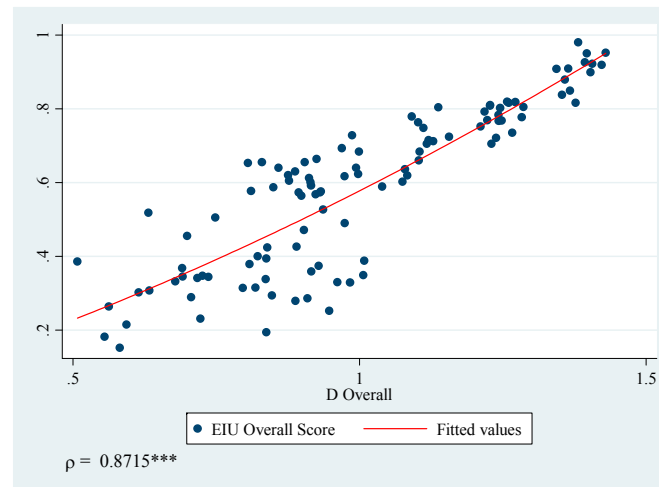
Figure 10. Doorsteps and Equal Access

Figure 10a. D1 and Equal Access

ρ = 0.7124***
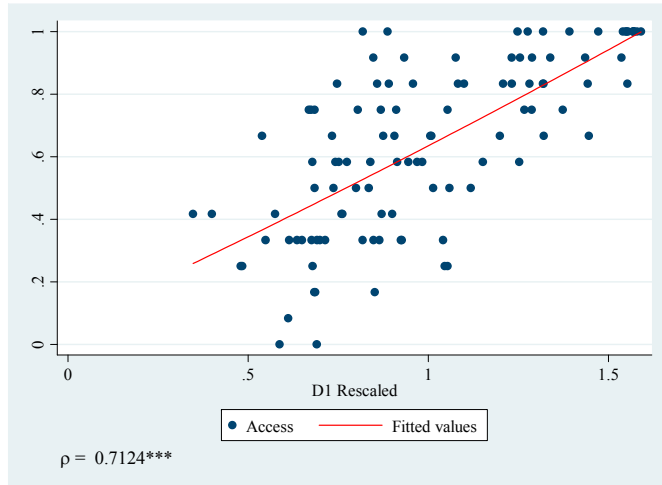
Figure 10b. D2 and Equal Access

ρ = 0.7029***
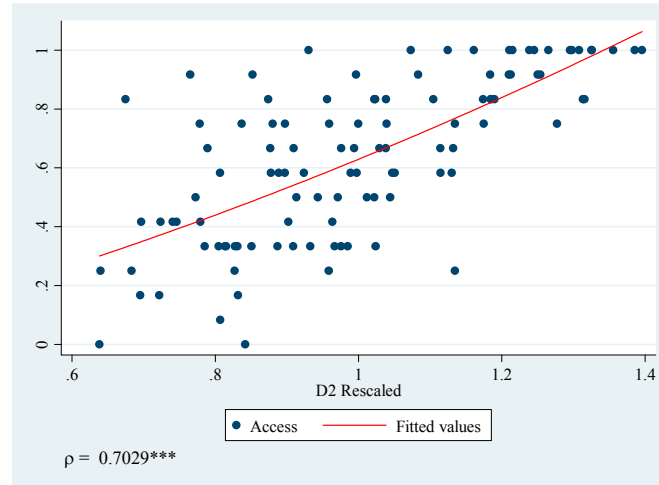
Figure 10c. D3 and Equal Access

ρ = 0.5909***
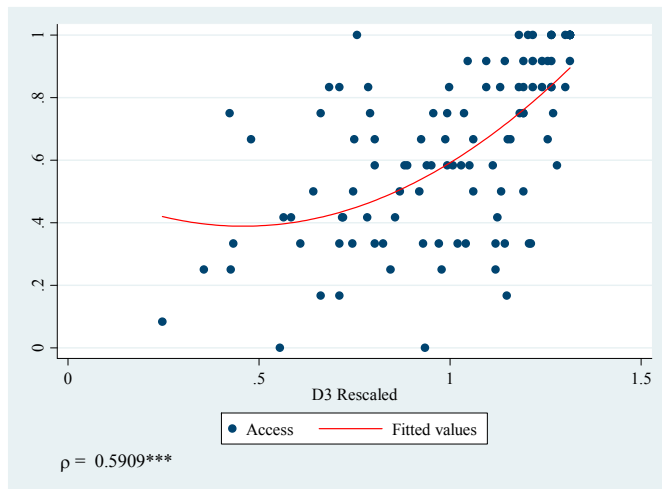
Figure 10d. D_Overall and Equal Access

ρ = 0.7303***
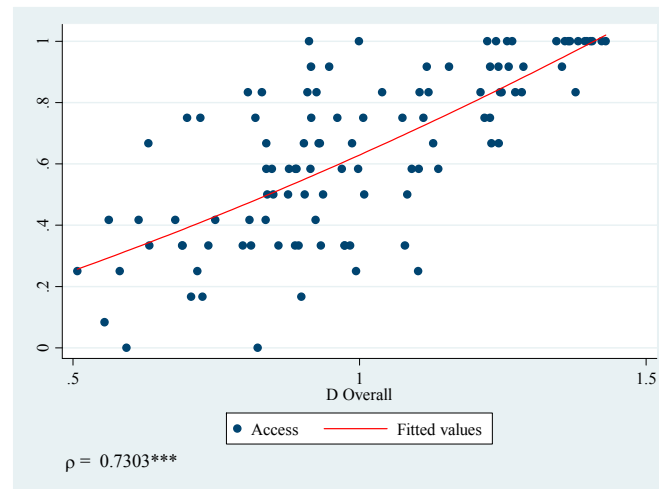
Figure 11. Doorsteps and Corruption

Figure 11a. D1 and Corruption

ρ = 0.8838***
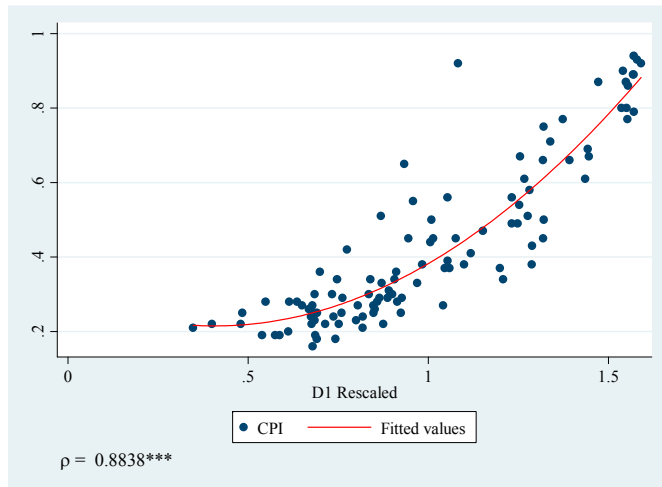
Figure 11b. D2 and Corruption

ρ = 0.7763***
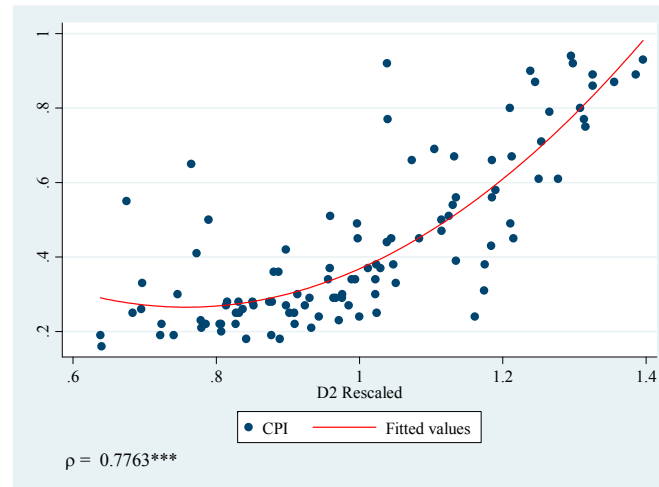
Figure 11c. D3 and Corruption

ρ = 0.6597***
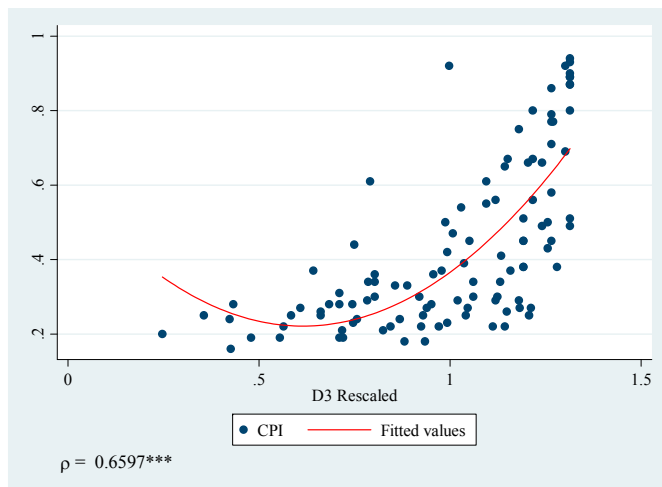
Figure 11d. D_Overall and Corruption

ρ = 0.8534***
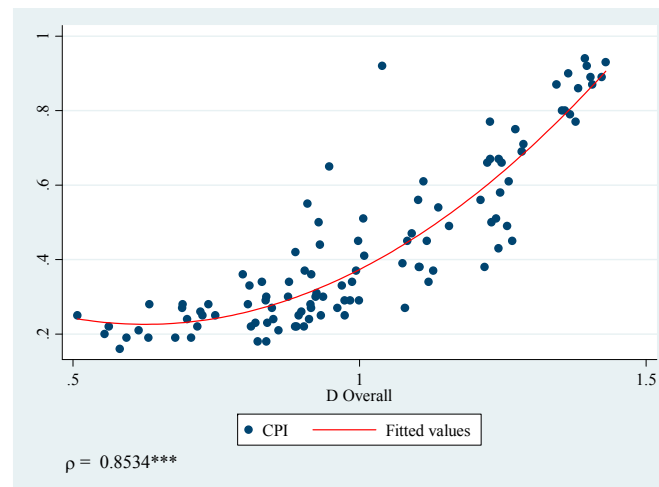
Figure 14. Doorsteps and Government Expenditure

Figure 14a. D1 and Government Expenditure

ρ = 0.6863***
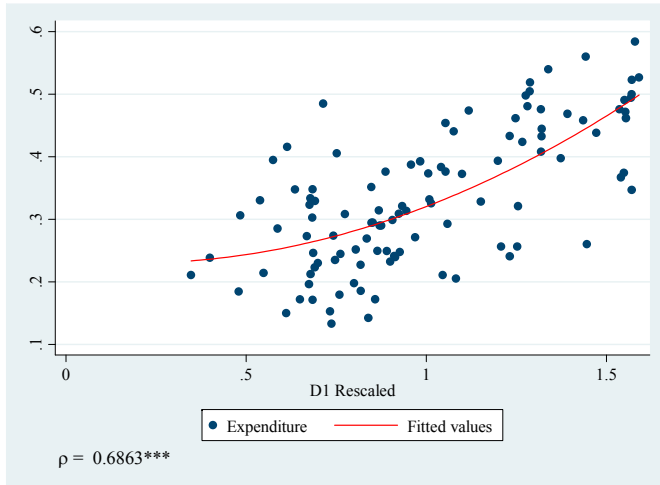
Figure 14b. D2 and Government Expenditure

ρ = 0.5465***
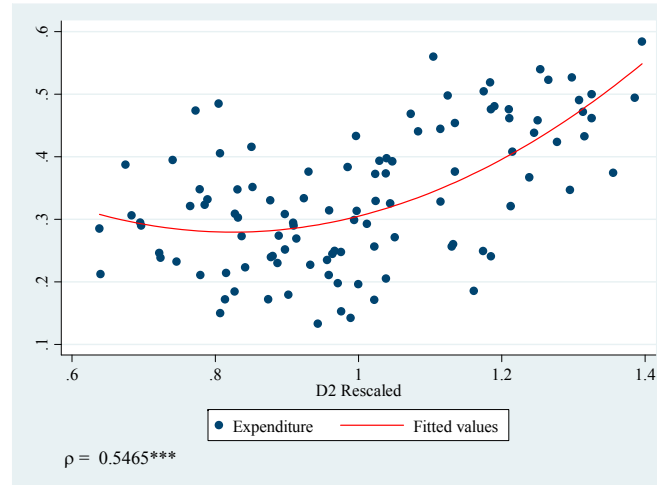
Figure 14c. D3 and Government Expenditure

ρ = 0.6575***
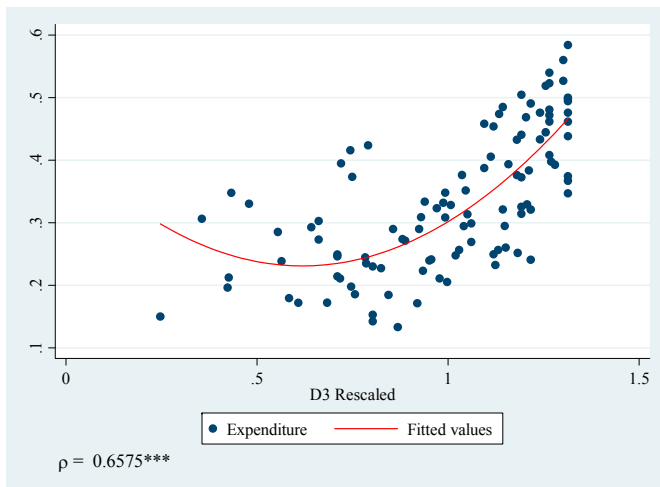
Figure 14d. D_Overall and Government Expenditure

ρ = 0.7010***
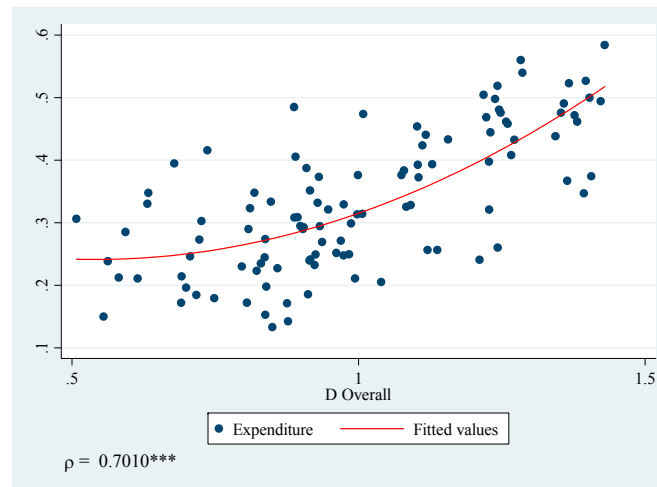
Figure 16. Doorsteps and Education Expenditure
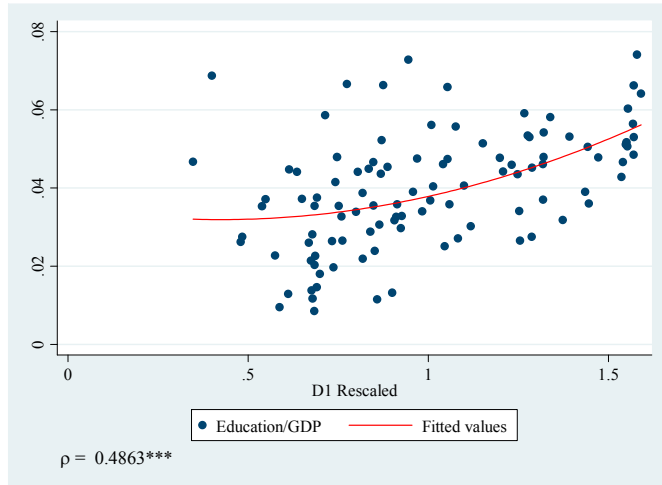
Figure 16a. D1 and Education Expenditure

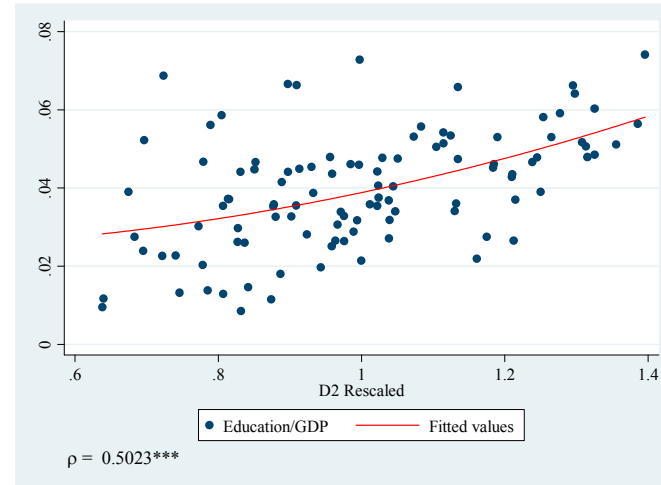
ρ = 0.4863***

Figure 16b. D2 and Education Expenditure

ρ = 0.5023***

Figure 16c. D3 and Education Expenditure
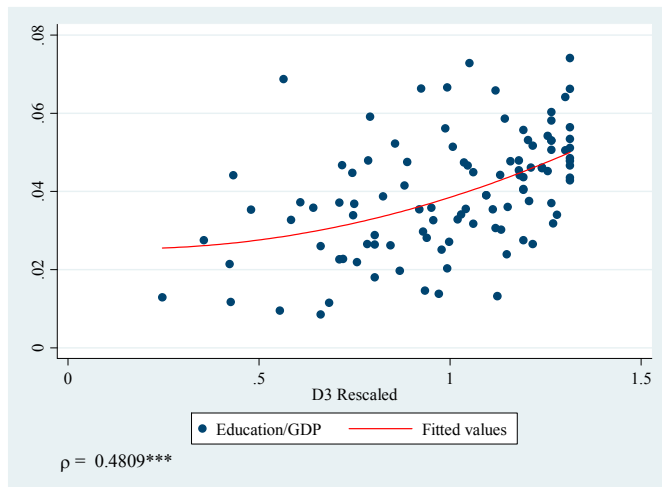

ρ = 0.4809***
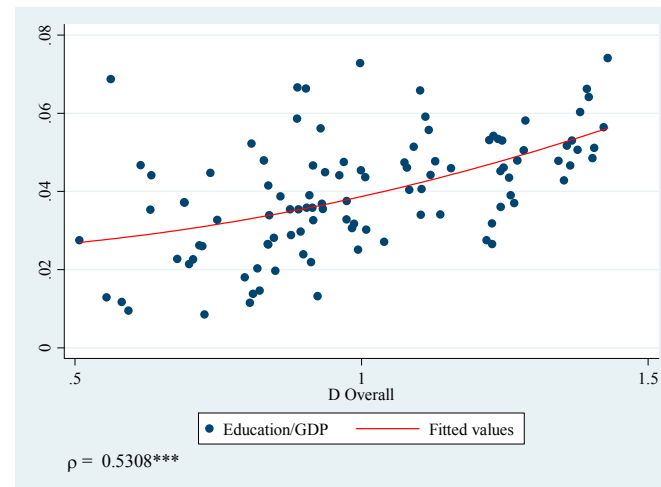
Figure 16d. D_Overall and Education Expenditure

ρ = 0.5308***

Figure 17. Doorsteps and Territorial Coverage of Public Services

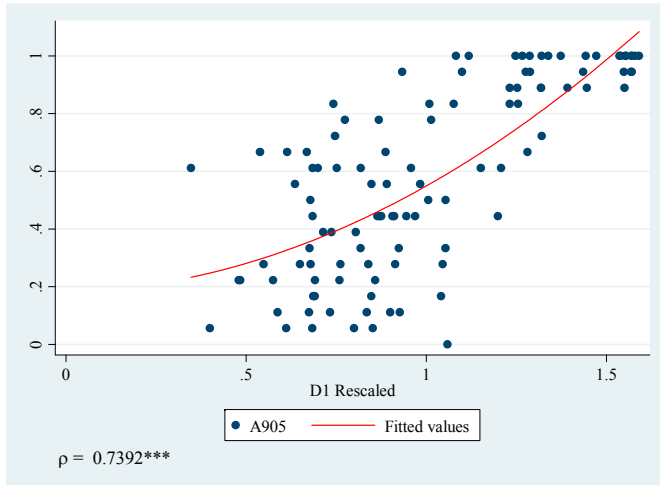### Figure 17a. D1 and Territorial Coverage of Public Services

ρ = 0.7392***

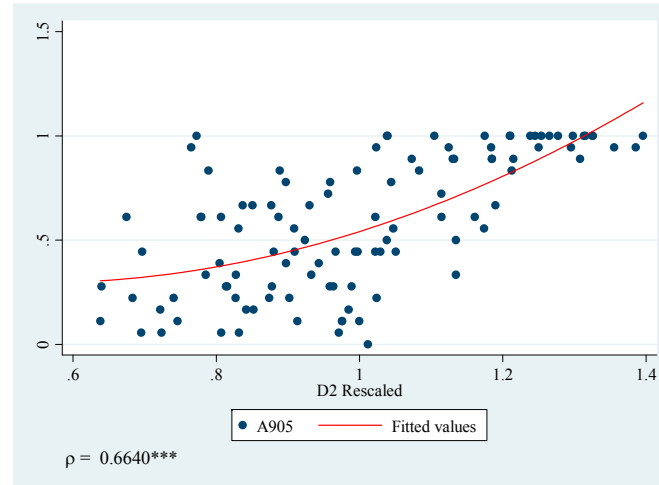### Figure 17b. D2 and Territorial Coverage of Public Services

ρ = 0.6640***

Figure 17c. D3 and Territorial coverage of Public Services
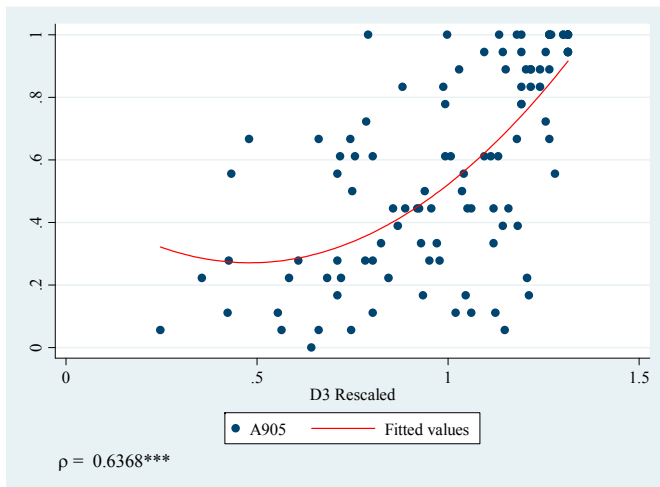

ρ = 0.6368***

Figure 17d. D_Overall and Territorial Coverage of Public Services

ρ = 0.7490***
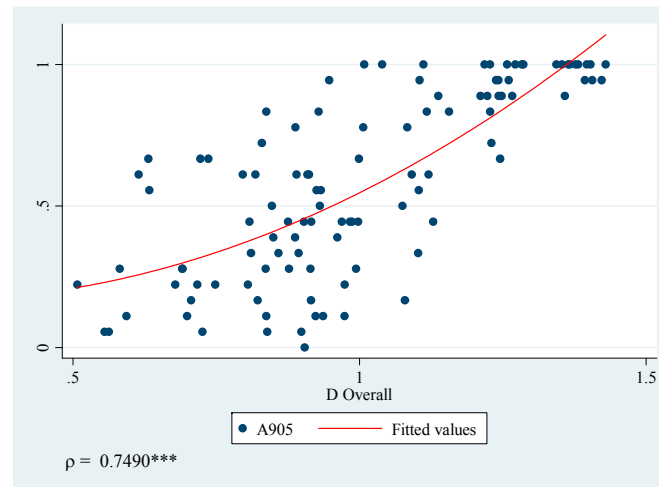
Figure 18. Doorsteps and Income Inequality

Figure 18a. D1 and Income Inequality

ρ = -0.4410***
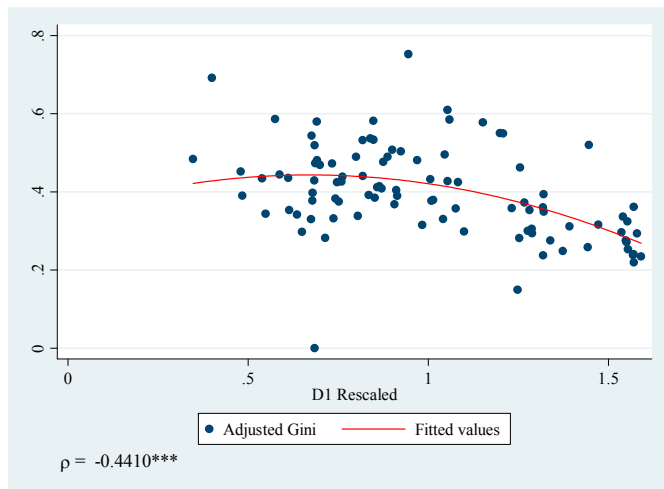
Figure 18b. D2 and Income Inequality

ρ = -0.3876***
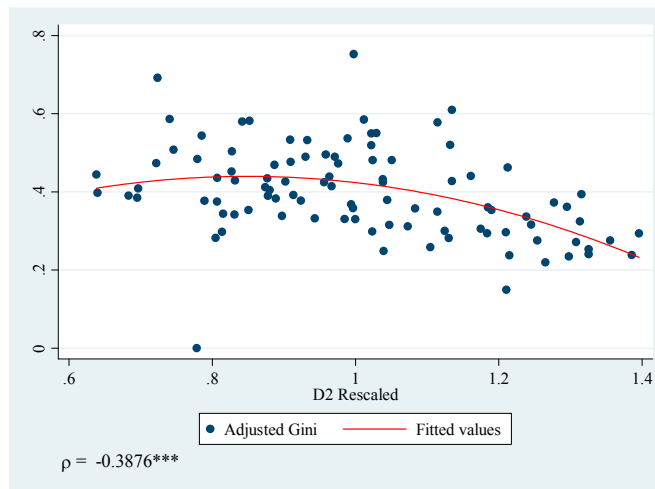
Figure 18c. D3 and Income Inequality

ρ = -0.3821***
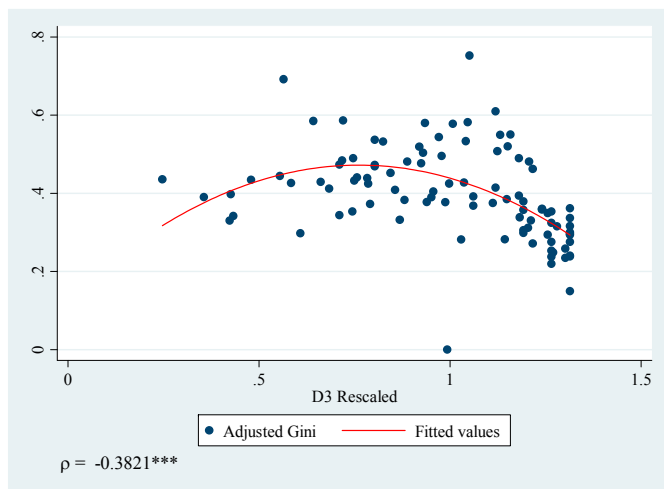
Figure 18d. D_Overall and Income Inequality

ρ = -0.4408***
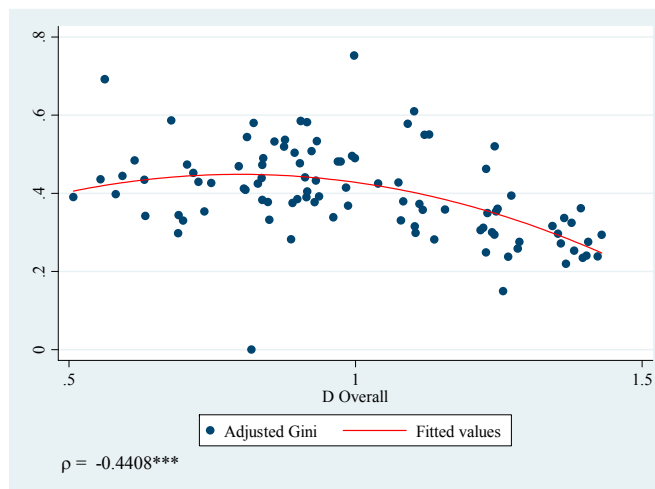
Figure 20. Doorsteps and Inflation

Figure 20a. D1 and Inflation

ρ = -0.3973***
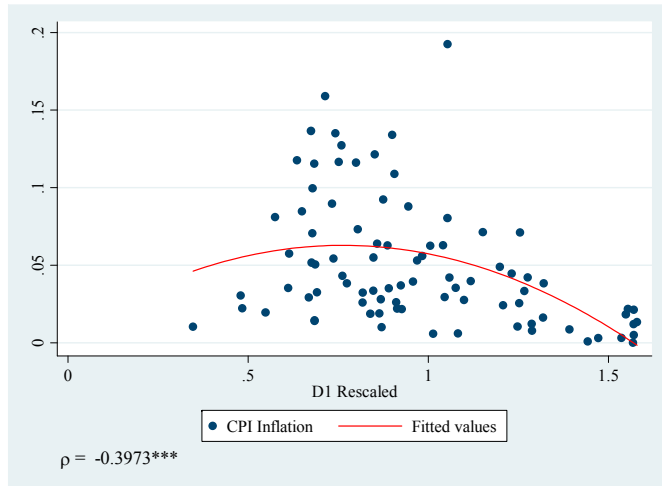
Figure 20b. D2 and Inflation

ρ = -0.3567***
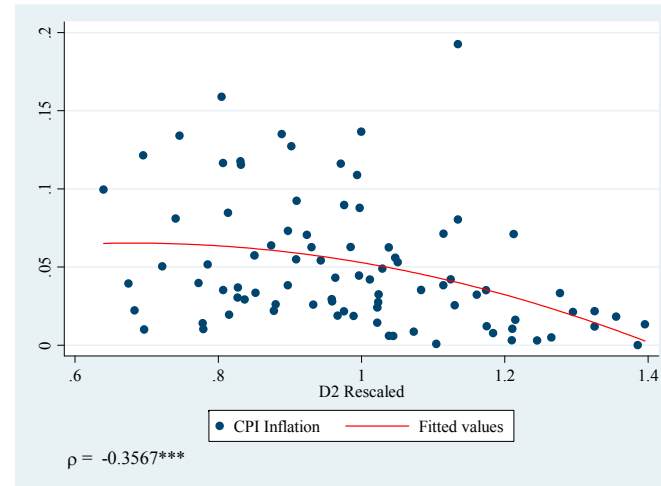
Figure 20c. D3 and Inflation

ρ = -0.3070***
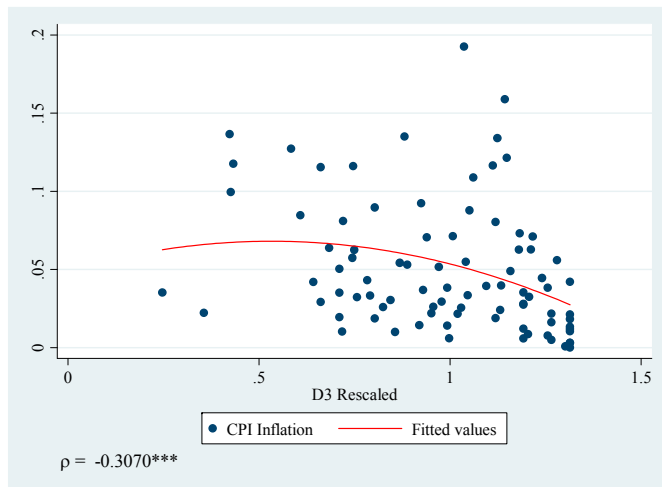
Figure 20d. D_Overall and Inflation

ρ = -0.3944***
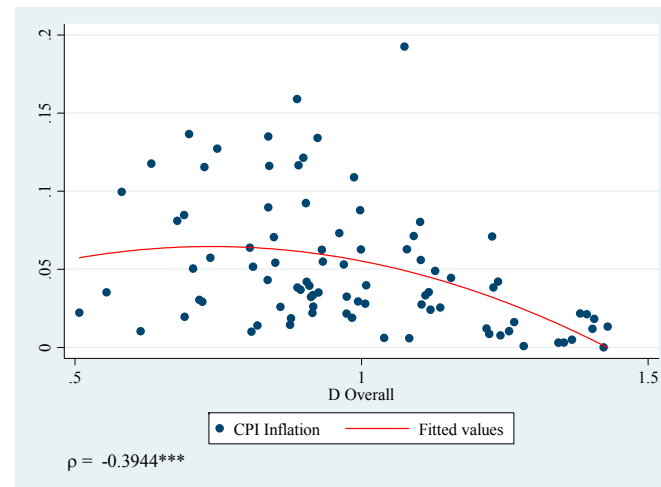
Figure 21. Doorsteps and GDP per Capita

Figure 21a. D1 and GDP per Capita

ρ = 0.7924***
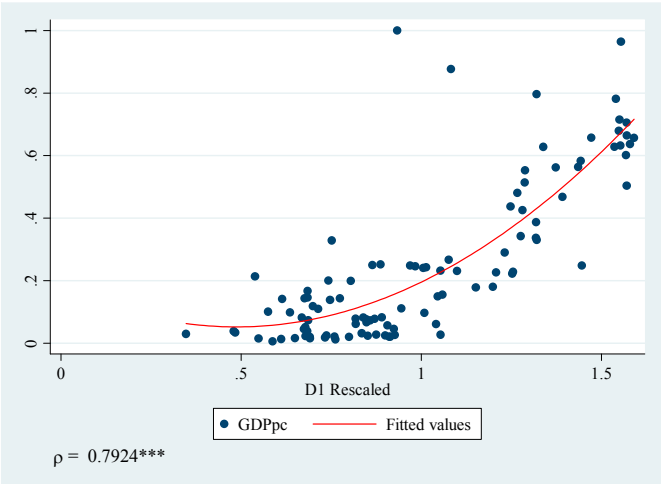
Figure 21b. D2 and GDP per Capita

ρ = 0.7058***
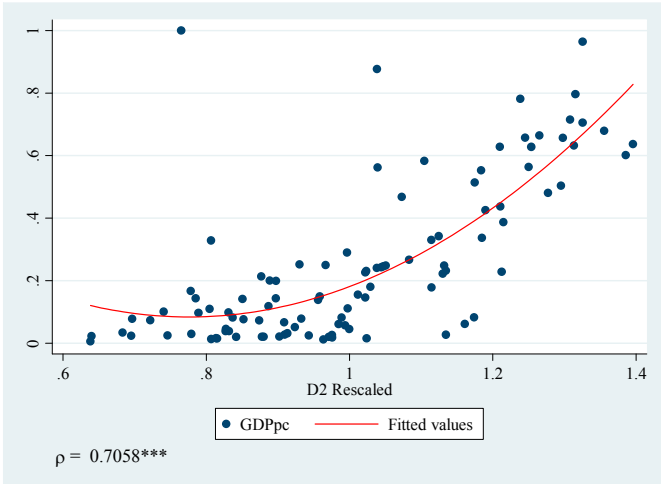
Figure 21c. D3 and GDP per Capita

ρ = 0.6253***

Figure 21d. D_Overall and GDP per Capita

ρ = 0.7773***

Figure 22. Doorsteps and Private Sector Credit

Figure 22a. D1 and Private Sector Credit

ρ = 0.6876***

Figure 22b. D2 and Private Sector Credit

ρ = 0.5972***

Figure 22c. D3 and Private Sector Credit

ρ = 0.5221***

Figure 22d. D_Overall and Private Sector Credit

ρ = 0.6723***
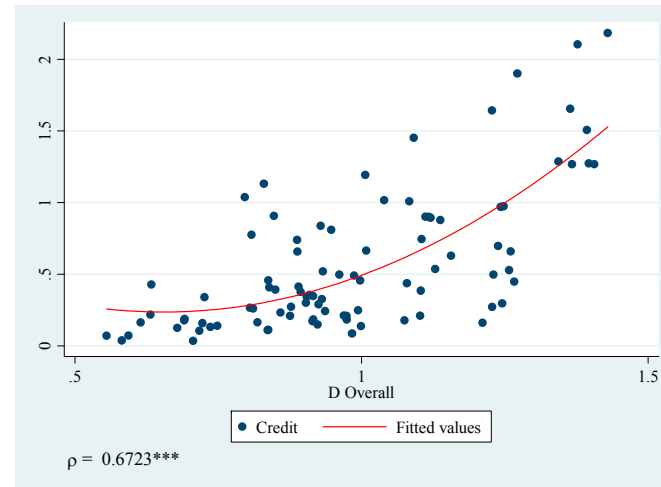
Table A–1. Description of Databases

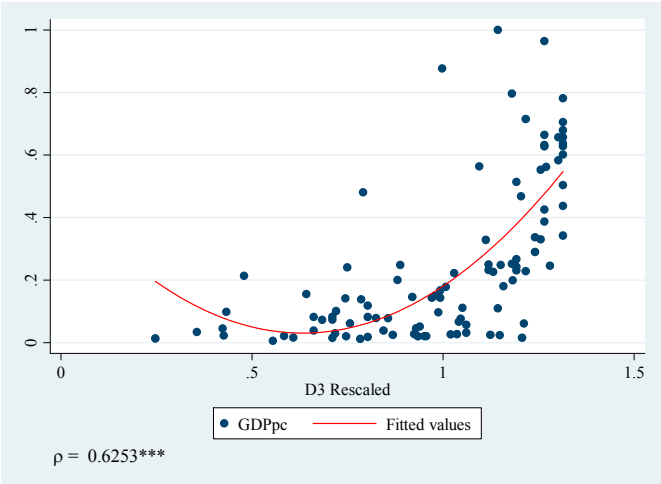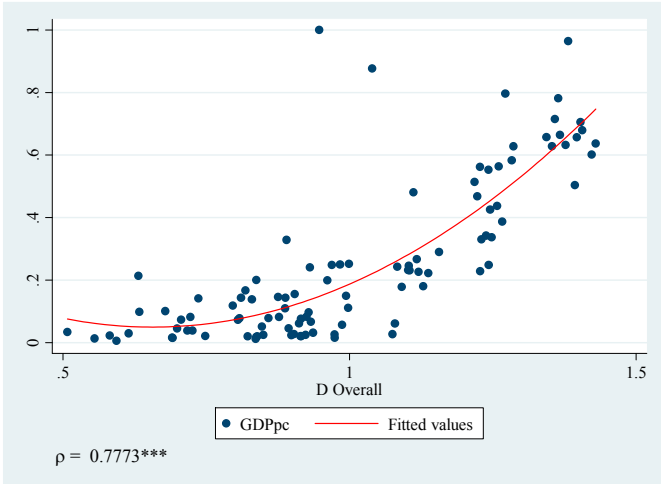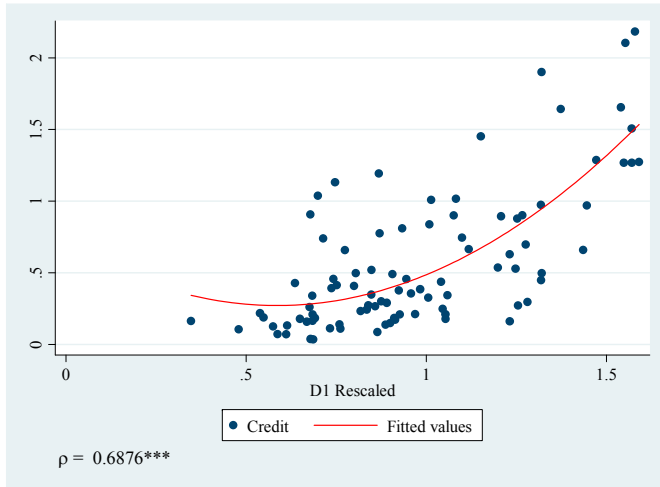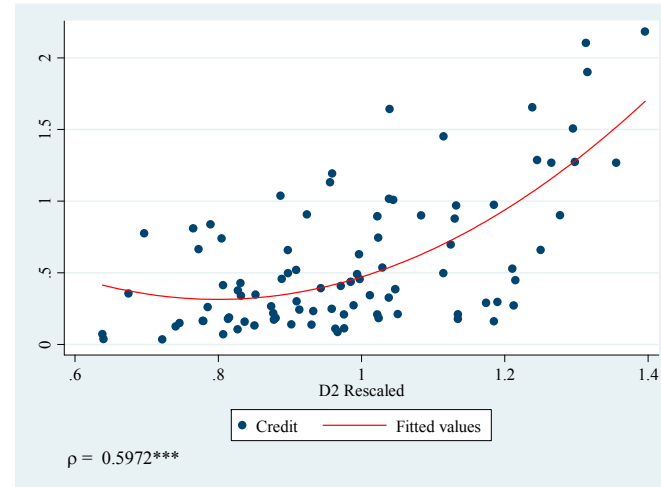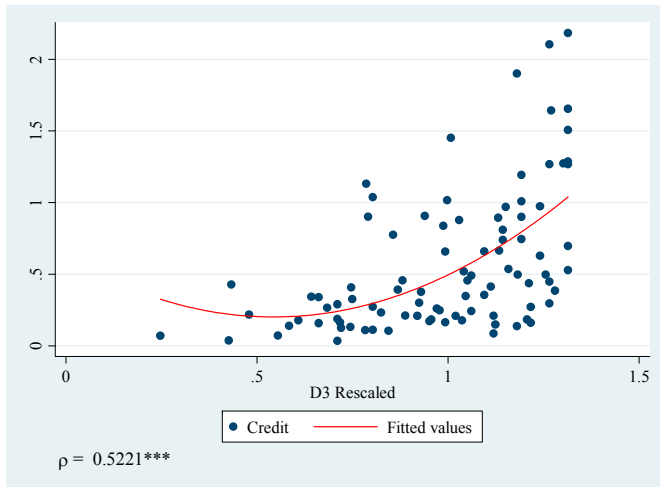| NAME OF DATABASE	DESCRIPTION OF DATABASE
Institutional Profiles Database (IPD)	A database on the institutional characteristics of developed and developing countries compiled by Meisel, Ould Aoudia et al. We use both the 2006 and the 2009 version of this database. The 2006 version contains information on 85 countries, whereas the 2009 version contains information on 123 countries. Note that a few of the variables of the 2006 database are not included in the 2009 database. We always used the most recent available information.
Polity IV	A dataset compiled by Marshall and Jaggers. It contains information on political regime characteristics and transitions covering "all major, independent states in the global system" over the period between 1800 and 2008 Unless otherwise indicated, we use data for 2008.
Economic Freedom of the World (EFW)	A database developed for the Economic Freedom Network and compiled by Gwartney, Lawson et al. The current (2010) version contains information on economic freedom in 141 nations between 1979 and 2008. Unless otherwise indicated, we use data for 2008.
Database of Political Institutions (DPI)	This dataset is published by the World Bank and has been compiled by Keefer, Clarke, Walsh, and Groff. The most recent version (2010) contains data on political institutions in 178 countries between 1975 until 2009. Unless otherwise indicated, we used data from 2009.

Table A–2. Components of the First Doorstep

DOORSTEP 1			
CATEGORY	VARIABLE NAME	DATABASE	DESCRIPTION
1) *Existence of rules for the elite*	XREG	Polity IV (2009)	Regulation of chief executive recruitment
	XCONST	Polity IV (2009)	Constraints on the executive (where constraints are defined as institutionalized limitations)
	PARREG	Polity IV (2009)	Existence and range of binding rules on when, whether and how political preferences are expressed
	ICC	2009	Dummy: 1 if ICC membership is enacted (as measure of the immunity of members of the government)
2) *Independence and impartiality of the judicial system*	A3050	IPD (2009)	Independence of the justice system from the government
	2B	EFW (2008)	Impartiality of the courts
	2E	EFW (2008)	Integrity of the legal system
3) *Elite's respect for the courts' decisions*	A604	IPD (2009)	Government's respect for contracts
	A600	IPD (2009)	Security of property rights
	A601	IPD(2009)	Security of contracts between private agents

Table A–3. Components of the Second Doorstep

DOORSTEP 2			
CATEGORY	VARIABLE NAME	DATABASE	DESCRIPTION
1) *Stability and permanence of the political system*	A105	IPD (2009)	Stability of the political system (where stability is measured in terms of the change in and compliance with rules concerning the head of state's accession to power)
	A500	IPD (2009)	Dialogue structures headed by the political authority to find a common interest among stakeholders
	Interregnum	Polity IV	Number of *Interregnum* periods in Polity IV between 1995 and 2008 accounting for the periods of collapse of the political system and divided by 14
	Age of parties	DPI (2006)	Average age of political parties in 2009
	Finittrm	DPI (2006)	Dummy: 1 if there is a constitutional limit on the number of years an executive can serve
	Constitutional stability		Number of changes in the constitution between 1995 and 2009 divided by 15
2) *Ease of creating organizations*	A602	IPD (2006)	Form of contracts between private agents (oral or written form; with or without mediation)
	A504	IPD (2006)	Degree to which organizations are representative of all stakeholders
	B300	IPD (2009)	Administrative steps required for the creation of an organization
	B700	IPD (2009)	Ease of market entry for new firms in production sector
	D100	IPD (2009)	Freedom of association
	D101	IPD (2009)	Pluralism and autonomy of trade unions

Table A–4. Components of the Third Doorstep

DOORSTEP 3			
CATEGORY	VARIABLE NAME	DATABASE	DESCRIPTION
1) *Political control over the legal armed forces*	A201	IPD (2009)	Political authority's control over the legal armed forces
	MILITARY	DPI (2009)	Dummy: 1 if the Chief Executive is a military officer (0-1 reversed for consistency)
	Parliamentary oversight	2009	Dummy: 1if parliament oversees military- and defense-related operations
2) *Military interference in political life*	A1002	IPD (2009)	*De iure* and *de facto* participation of the armed forces in political life
	2D	EFW (2008)	Measure of military interference in the rule of law and in the political process
	DEFMIN	DPI (2009)	Dummy: 1 if the Defense Minister is a military officer (0-1 reversed for consistency)
3) *Level of armed violence*	A2000	IPD (2009)	Security of persons and goods
	A2001	IPD (2009)	Conflicts of ethnic, religious and regional nature
	A2002	IPD (2009)	Violent actions by underground political organizations

Table A–5. Country Doorsteps Scores

COUNTRY	D1	D2	D3	D_OVERALL
Algeria	0.61	0.85	0.74	0.74
Angola	0.58	0.74	0.72	0.68
Argentina	0.89	0.93	1.18	1.00
Australia	1.55	1.36	1.31	1.41
Austria	1.57	1.27	1.27	1.37
Azerbaijan	0.68	0.78	0.99	0.82
Bahrain	0.87	0.96	1.19	1.01
Bangladesh	0.74	0.94	0.87	0.85
Belgium	1.34	1.25	1.27	1.29
Benin	0.93	0.98	1.02	0.97
Bolivia	0.85	0.85	1.05	0.92
Botswana	1.05	1.13	1.12	1.10
Brazil	1.20	1.03	1.16	1.13
Bulgaria	1.10	1.02	1.19	1.11
Burkina Faso	0.91	0.88	0.96	0.92
Cameroon	0.48	0.83	0.84	0.72
Canada	1.47	1.25	1.31	1.34
Central African Republic	0.61	0.81	0.25	0.56
Chad	0.68	0.64	0.43	0.58
Chile	1.45	1.13	1.15	1.24
China	0.70	0.89	0.80	0.80
Colombia	1.06	1.01	0.64	0.90
Congo, Brazzaville	0.69	0.72	0.71	0.71
Congo, Dem. Republic of	0.59	0.64	0.55	0.59
Cote d'Ivoire	0.35	0.78	0.72	0.61
Czech Republic	1.25	1.21	1.31	1.26
Denmark	1.58	1.40	1.31	1.43
Dominican Republic	0.68	1.02	0.92	0.88
Ecuador	0.68	0.79	0.97	0.81
Egypt	0.64	0.83	0.43	0.63
Estonia	1.32	1.18	1.24	1.25
Ethiopia	0.65	0.81	0.61	0.69
Finland	1.57	1.39	1.31	1.42
France	1.44	1.10	1.30	1.28
Gabon	0.86	0.97	1.12	0.98
Germany	1.54	1.21	1.31	1.35
Ghana	1.05	1.13	1.04	1.08
Greece	1.29	1.17	1.19	1.22
Guatemala	0.84	0.99	0.80	0.88
Haiti	0.69	0.84	0.93	0.82
Honduras	0.85	0.91	1.04	0.93
Hungary	1.28	1.12	1.31	1.24
India	0.91	0.99	1.06	0.99
Indonesia	0.86	0.87	0.68	0.81
Iran	0.74	0.89	0.88	0.84
Ireland	1.55	1.31	1.22	1.36

Table A−5. Country Doorsteps Scores (continued)

COUNTRY	D1	D2	D3	D_OVERALL
ISRAEL	1.27	1.28	0.79	1.11
Italy	1.29	1.18	1.26	1.24
Japan	1.37	1.04	1.27	1.23
Jordan	1.01	0.79	0.99	0.93
Kazakhstan	0.80	0.90	1.18	0.96
Kenya	0.88	0.91	0.92	0.90
Kuwait	1.12	0.77	1.13	1.01
Latvia	1.08	1.08	1.19	1.12
Lithuania	1.23	1.00	1.24	1.16
Madagascar	0.73	0.98	0.80	0.84
Malaysia	1.01	1.04	1.19	1.08
Mali	0.91	0.88	0.95	0.91
Mauritania	0.48	0.68	0.36	0.51
Mauritius	1.25	1.13	1.03	1.14
Mexico	0.97	1.05	0.89	0.97
Mongolia	1.04	0.98	1.21	1.08
Morocco	0.87	0.70	0.86	0.81
Mozambique	0.69	1.02	1.21	0.97
Namibia	0.94	1.00	1.05	1.00
Nepal	0.80	0.97	0.75	0.84
Netherlands	1.57	1.33	1.31	1.40
New Zealand	1.57	1.30	1.31	1.39
Nicaragua	0.92	0.83	0.93	0.89
Niger	0.76	0.96	0.78	0.84
Nigeria	0.68	0.83	0.66	0.73
Norway	1.55	1.33	1.27	1.38
Oman	0.96	0.67	1.10	0.91
Pakistan	0.67	1.00	0.42	0.70
Panama	1.21	1.02	1.13	1.12
Paraguay	0.82	0.93	0.82	0.86
Peru	1.05	0.96	0.98	0.99
Philippines	0.82	1.16	0.76	0.91
Poland	1.32	1.11	1.26	1.23
Portugal	1.28	1.19	1.27	1.25
Romania	0.98	1.05	1.28	1.10
Russia	0.75	0.81	1.11	0.89
Senegal	0.84	0.91	1.00	1.04
Singapore	1.08	1.04	1.12	1.08
Slovakia	1.32	1.22	1.27	1.27
Slovenia	1.39	1.07	1.20	1.22
South Africa	1.15	1.11	1.01	1.09
Spain	1.44	1.25	1.10	1.26
Sri Lanka	0.89	1.17	0.71	0.93
Sweden	1.59	1.30	1.30	1.40
Switzerland	1.54	1.24	1.31	1.36
Syria	0.67	0.84	0.66	0.72

Table A–5. Country Doorsteps Scores (concluded)

COUNTRY	D1	D2	D3	D_OVERALL
Taiwan	1.23	1.18	1.22	1.21
Tanzania	0.85	0.70	1.15	0.90
Thailand	0.75	0.96	0.79	0.83
Togo	0.55	0.82	0.71	0.69
Tunisia	0.77	0.90	0.99	0.89
Turkey	1.01	1.04	0.75	0.93
UAE	0.93	0.77	1.14	0.95
Uganda	0.76	0.90	0.58	0.75
UK	1.55	1.31	1.27	1.38
Ukraine	0.71	0.80	1.14	0.89
Uruguay	1.26	1.21	1.22	1.23
USA	1.32	1.32	1.18	1.27
Venezuela	0.54	0.88	0.48	0.63
Vietnam	0.68	0.92	0.94	0.85
Zambia	0.90	0.75	1.12	0.92
Zimbabwe	0.40	0.72	0.56	0.56

Table A–6. Spearman Rank Correlations

Table A–6–a. D1 and its Categories

	D1	D1- Category 1	D1- Category 2	D1- Category 3
D1 p-value	1.00			
D1- Category 1 p-value	0.84 0.00	1.00		
D1- Category 2 p-value	0.87 0.00	0.60 0.00	1.00	
D1- Category 3 p-value	0.90 0.00	0.62 0.00	0.75 0.00	1.00

Table A–6–b. D2 and its Categories

	D2	D2 – Category 1	D2 – Category 2
D2	1.00		
D2- Category 1	0.73 (0.00)	1.00	
D2- Category 2	0.89 (0.00)	0.36 (0.00)	1.00

Table A–6–c. D3 and its Categories

	D3	D3- Category 1	D3- Category 2	D3- Category 3
D3 p-value	1.00			
D3- Category 1 p-value	0.81 (0.00)	1.00		
D3- Category 2 p-value	0.91 (0.00)	0.63 (0.00)	1.00	
D3- Category 3 p-value	0.89 (0.00)	0.64 (0.00)	0.72 (0.00)	1.00

Table A–7. Spearman Rank Correlations: D_Overall, D1, D2, and D3

	D_Overall	D1	D2	D3
D_Overall p-value	1.00			
D1 p-value	0.96 (0.00)	1.00		
D2 p-value	0.86 (0.00)	0.82 (0.00)	1.00	
D3 p-value	0.92 (0.00)	0.82 (0.00)	0.67 (0.00)	1.00

Table A–8. Spearman Rank Correlations: D_Overall and all Categories

	D_Overall
D1- Category 1 p-value	0.81 (0.00)
D1- Category 2 p-value	0.83 (0.00)
D1- Category 3 p-value	0.86 (0.00)
D2- Category 1 p-value	0.57 (0.00)
D2- Category 2 p-value	0.80 (0.00)
D3- Category 1 p-value	0.81 (0.00)
D3- Category 2 p-value	0.87 (0.00)
D3- Category 3 p-value	0.77 (0.00)