

DETERMINANTS OF DIRECT DEMOCRACY

NADIA FIORINO
ROBERTO RICCIUTI

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Abstract

This paper investigates on the demographic, economic, political and cultural determinants of direct democracy in 87 countries using an index of direct democracy. The test is interesting since there are important variations across these countries in the referendum and initiative use. We apply a number of estimation techniques. We find that per capita income, education and a larger share of Catholic population are positive determinants, whereas ethnic fractionalization is depending on the estimation technique. Political rights and stability also work as prerequisites to direct democracy. Direct democracy seems independent from the institutional structure.

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Keywords: direct democracy, comparative politics, referendum.

Nadia Fiorino
Department of Institutions and
Systems for Economics
University of L'Aquila
Piazza del Santuario 19
67040 Roio Poggio (AQ)
Italy

Roberto Ricciuti
Department of Economics
University of Florence
Via delle Pandette 21
50127 Florence
Italy
roberto.ricciuti@unifi.it

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1. Introduction

The debate on direct democracy has triggered several studies that have essentially discussed the competence of the voters, the role the special interest groups that can fund election campaigns may have to subvert public policy process, the how direct democracy affects policy, the how direct democracy influences economic performance. An explicit theory of the circumstances that make direct democracy more or less likely to occur does not exist. Beginning from Tocqueville (1835) some influences on the extent of democracy have been proposed in the political science literature; some others stem as implication of the theoretical models on the studies on the democratic institutions. This paper departs from these hypotheses by presenting and empirically evaluating a number of economic, demographic, political and cultural determinants of direct democracy. Specifically, we investigate on the impact of these elements on a unique dataset of country index on citizen law making in 87 countries. This index refers both to the availability of direct democracy instruments and their actual use. Furthermore, we also consider the number of referendums that took place in the last four years. In this way we provide both a qualitative and a quantitative assessment of direct democracy.

Although we do not dwell on legal and institutional details, it is helpful to define a few terms and provide a little institutional context before proceeding. Direct democracy is a broad term that encompasses a variety of decision processes, including town meetings, recall elections, initiatives, and various forms of referendums. This paper focuses on the two most important and widely used processes, initiatives and referendums. The right of *initiative* is the right of citizens to put an issue onto the political agenda of a polity. The *referendum* is a ballot vote on a law already approved by the legislature, also qualified for the ballot by collecting a predetermined number of signatures. In both cases citizens are involved, by registering or signing an initiative and by taking part in the final decision-making in a referendum.¹

The rest of the paper proceeds as follows: In Section 2 we posit the theoretical hypotheses to explain the adoption of direct democracy. In section 3 we present the methodology to construct the Direct Democracy Index which is the indicator we use to

¹ There is some inconsistency in terminology from both substantive and formal point of view. Referendum is sometimes used as a broad term for all ballot propositions and sometimes for the particular process of challenging a government law by petition. Furthermore, we use *referendums* instead of *referenda* according to the recent literature.

measure direct democracy. Section 4 describes the data and specifies the variables used for the empirical analysis. We then present the results in Section 5. Section 6 offers some concluding remarks.

2. Towards a theory of the determinants of direct democracy

Empirical literature on the impact of economic, political and cultural factors on the extent of direct democracy is not developed, probably due to the lack of a formalized theory that explicitly refers to this issue.² Starting from Tocqueville (1835), political theorists have debated on the requisites for a successfully functioning of democratic institutions. More recently, Aghion *et al.* (2004) consider a problem of constitutional design in which a society has to choose the degree of insulation of its political leader. The political leader has to implement a reform, but voters do not know *ex ante* whether the executive will reform or just expropriate rents from the voters. This degree of insulation is captured by a (super) majority of individuals (M) that can block the action of the leader (expropriation or reform) once the aggregate shock on preferences is realized. If M is high, only a large majority of voters can block the reform. In contrast, a low M means that when in office the leader is kept checked by small fractions of the electorate. The model shows that: 1) in the absence of expropriation, or with no bad leaders, simple majority voting is chosen because with risk neutrality the representative voter *ex ante* does not want to prevent an *ex post* majority to stop a policy; 2) insulation is decreasing in the probability ($1 - p$) of expropriation and in the loss b from it. Thus, low protection of property rights (i.e. higher scope for expropriation) would require lower insulation; 3) insulation is increasing in the average benefit of the reform. With more expected benefit from the reform, the voter behind a veil of ignorance is willing to accept a higher risk of expropriation in order to increase the probability that the reform passes.

² The empirical analyses on direct democracy has mainly discussed on the relationship between initiatives and referendums and government spending (Matsusaka 1995; 2004; Feld and Matsusaka, 2003), and on the impact of direct democracy institutions on economic performance (Feld and Savioz, 1997; Blomberg *et al.*, 2004; Frey *et al.*, 2001). Most of these studies deal either with Switzerland or the US states. Barro (1999) represents the first study that assesses the determinants of democracy on a cross country basis. Barro analyzes a panel of 100 countries from 1960 to 1995 and tests the relationship between economic development and the country's propensity to experience democracy.

Aghion *et al.* (2004) use this framework to empirically discuss the determinants of the degree of insulation. To this end, they consider two sets of explanatory variables, institutions and racial fragmentation (political polarization, ethnic fractionalization, electoral laws and so on). The proxies for insulation vary from a simple dichotomy democracy vs. autocracy, to democratic forms of government. A dictator is the most insulated leader of all, as well as Presidential systems is the “most insulated” form of government, Semi-Presidential (or Hybrid) the middle level and Parliamentary systems the least insulated. Overall, the authors find significant evidence that various indices of insulations are positively correlated with measure of fractionalization and polarization. Thus, more polarized societies tend to have more “insulated” rulers. The dominant group knows that it cannot dominate the other groups unless its leader is sufficiently insulated. Also, forms of governments appear to be endogenous to ethnic fractionalization.

We use this theoretical framework to analyze direct democracy institutions, as such institutions represent a form of non-insulation. To our purpose we posit a number of hypotheses on the determinants of direct democracy that we aim to test in the next sections. Such hypotheses fall into three broad categories: economic, institutional and cultural ones.

Economic and demographic variables. Economic theory has investigated the relationship running from democracy to growth predicting opposing effects.³ On the one hand, democratic institutions guarantee checks and balances, limiting the possibility that politicians extract rents from public budget at expense of voters’ welfare. On the other hand, an expansion of democracy promotes rich to poor redistribution of income and may increase the power of interest groups. Evidence that democratizations yield subsequent economic growth is quite weak. Recently, Persson and Tabellini (2006) support that democracy is too blunt a concept and a significant relationship with economic growth depends on the details of democratic regimes such as electoral rules, forms of government, stability and persistence of democratic institutions.

In this paper we are interested in the reverse channel of such link; we focus on the impact of economic variables on direct democracy institutions. The hypothesis is loosely based on Lipset (1959), which discusses a broad category of economic development as determinant of democracy, including indices of wealth (per capita income), of urbanization

³ For a complete survey of economic theories on the link between democracy and growth, see Przeworski and Limongi (1993) and Przeworski *et al.* (2000).

and of industrialization. The key element of this hypothesis is that richer countries are more willing to promote democratic values and receptivity to democratic political tolerance norms. Starting from an early literature (Mauro, 1995, La Porta *et al.*, 1999) recently Alesina *et al.* (2003) point on ethnic heterogeneity as determinant of economic success both in terms of output (GDP growth) and the quality of institutions (measured by the extent of corruption, political freedom, etc.). The results show that the democracy index they use negatively impacts racial fractionalization.

Institutional variables. Political economics models (Tabellini and Persson, 2003) have investigated on the institutions of democratic regimes. This approach sheds light on how alternative institutional arrangements affect the binding force of checks and balances and, therefore, the accountability of the political the system. A central feature of this line of research is that in presidential regimes effective decision-making power is split among different politicians, who are separately and directly accountable to voters. Presidential systems are therefore predicted to have less rent extraction than parliamentary regimes. Majoritarian systems also have more direct accountability because voters seek consensus among individuals (under plurality rule) rather than among parties (broader coalitions of voters), which should restrict rent extraction. Furthermore, majoritarian elections are more effective in deterring political rents since the outcome of an election is generally more sensitive to the incumbent's performance. Following this line of reasoning, we argue that as presidential and majoritarian systems are more accountable to voters, under these systems blocking the implementation of legislation takes places indirectly, within the institutional structure of delegation of power. In other words, in presidential system and under majoritarian electoral rules (as opposed to proportional systems) voters are less interested in using direct democracy instruments. These instruments therefore work as corrective devices, which substitute other institutional arrangements in securing checks and balances between the bodies of government.

Cultural variables. The relationship between democracy and cultural factors has been in the political science since Lipset (1959). Lipset refers to education, predicting that a better educated population entails better chances for democracy and democratic practices. This positive relationship may be because education may teach individuals towards having a higher value of staying politically involved. Subsequent analyses have discussed the role of cultural conditions on democracy (Huntington, 1991; Putnam, 1993; Landes, 1998). These studies typically use the religious affiliation as a proxy for the "dimension" of the culture (i.e. ethic,

tolerance, trust), yet they do not investigate on democracy as an univocal concept, they rather refer to democracy as a government performance. Putnam (1993) analyzes the effect of public good provision, while Landes (1998) is concerned with the flow of people, goods and ideas between countries. Furthermore, many cultural explanations of democratic institutions and policies have a political element to them, as Landes's emphasis on the use of intolerance for political ends makes clear. Huntington (1991) explains that Catholic Church in 1960s became a powerful force toward democratization, probably to maintain its membership. Recently, Matsusaka (2005) and Glaeser *et al.* (2006) turn to the link between education and democracy. Matsusaka in reviewing the existing theory on the changes that direct democracy may have on public policy, affirms that the rising education among the population and the falling of the information costs due to the communication technology revolution have dramatically reduced the knowledge advantage that elected officials had over ordinary citizens. The result of these trends is that important policy decisions are shifting from legislatures to the people by eclipsing legislatures in setting policy agenda. Matsusaka bases such assertion by simply reporting data on the growing amount of higher education in the American population; yet he does not provide any statistical test for this claim, as he focuses on the review of the literature about the initiative and the referendum to highlight some key issues for the future. Glaeser *et al.* (2006) discuss the link running from education to democracy arguing that schooling teaches people to interact with others and raises the benefits of civic participation. Democracy has a wide potential base of support but offers weak incentives to its defenders, whereas dictatorship provides stronger incentives to a narrower base. As education raises the benefits of civic participation, it raises the support for more democratic regimes relative to dictatorships.

3. An index of direct democracy

To measure direct democracy we use the Direct Democracy Index (DDI) obtained by three sources: Kaufmann (2004) for 43 European countries, Hwang (2005) for 33 Asian countries, and Madroñal (2005) for 17 Latin American countries. Due to data availability, our dataset is restricted to 87 countries. This index is a unique measure of the quality of direct democracy and its performance by applying the procedures the country's political system

provides in order to proposing, approving, amending, and deleting laws through popular initiative and referendums.⁴

Kaufmann (2004) gives a country-rating into seven categories is provided for 43 European countries. Each country is classified as: 1) radical democrat; 2) progressive; 3) cautious; 4) hesitant; 5) fearful; 6) beginner and, finally, 7) authoritarian. Hwang (2005) and Madroñal (2005), instead, use a four-category rank, and after careful reading of each country report, we have re-ranked these countries in the 7 previous categories. The only country ranked 7 is Switzerland, and then there are 10 countries ranked 6. 13 countries are ranked 5, while 11 are classed 4, 9 are ranked 3, 18 are classed 2, and the largest group (25) are ranked 1. In the estimation we have converted this ranking so that they lie between 0 and 1 scale, as it is common in this literature, to use OLS estimation techniques. Furthermore, as a robustness check we have used an ordered probit for the original ranking. For the ease of exposition, in Table 1 we have assigned a number in the 1 to 7 scale for each category, with 7 being the country rated as radical democrat, and 1 the countries with the lowest level of direct democracy.

We need to point out a few limitations of this index. First, it does not tell anything about which kind of topics are called for referendums and initiatives. For example, we cannot distinguish whether a country is more inclined to have referendums on economic or civil issues, for example. Second, the index mixes together the legal possibility of having referendums and initiatives and the actual choice of exercising them. Since these two circumstances belong to different characteristics of each country (the constitution and the law, on the one hand, and parties or movements in the political arena, on the other hand), and we cannot discriminate between them. Third, it is a subjective index, therefore the way it is constructed lacks transparency. For this reason we complement this qualitative analysis with a

⁴ For example, Matsusaka and McCarty (2001) find that the amount of time allowed to collect signatures does not seem to matter for the impact of direct democracy, while the number of signatures does matter. In the index these features are given equal weight. However, subjectivity may have some positive features, since it takes into account both the actual referendums and initiatives and the quality of the process. The index is a subjective measure of direct democracy that takes into account both the actual referendums and initiatives and the quality of the process. Consider the case of Belarus. In this country 9 referendums have been held from 1995 to 2004, but the country has the lowest possible score. Referendums were proposed and used by President Lukashenko to increase its power at the expenses of the legislature, and a positive vote has been allegedly obtained by the means of arrests of political adversaries and pressures on the population.

quantitative one, by regressing the number of referendums that took place from 2000 to 2005 on the same regressors.

Table 1 – The Direct Democracy Index

Country	Score	Country	Score
Afghanistan	1	Luxembourg	5
Albania	2	Kyrgyz Republic	2
Argentina	2	Lao, People's Dem.	1
Armenia	1	Latria	5
Australia	6	Macedonia	2
Austria	5	Malaysia	1
Azerbaijan	1	Maldives	2
Bangladesh	2	Malta	4
Belarus	1	Mexico	1
Belgium	5	Moldova	2
Bhutan	1	Mongolia	1
Bolivia	1	Nepal	1
Brazil	2	Netherlands	6
Brunei	1	New Zealand	6
Bulgaria	5	Nicaragua	1
Cambodia	1	Norway	5
Chile	2	Pakistan	1
China	1	Panama	2
Colombia	3	Paraguay	3
Costa Rica	1	Peru	3
Croatia	3	Philippines	6
Cyprus	3	Poland	5
Czech Republic	5	Portugal	5
Denmark	6	Romania	4
Ecuador	3	Russian Federation	1
El Salvador	2	Singapore	1
Estonia	4	Slovak Republic	6
Finland	4	Slovenia	6
France	5	Spain	5
Georgia	2	Sri Lanka	1
Germany	4	Sweden	5
Greece	3	Switzerland	7
Guatemala	2	Taiwan	4
Honduras	1	Tajikistan	2
Hungary	4	Thailand	1
Iceland	3	Turkey	2
India	4	Turkmenistan	2
Indonesia	1	Ukraine	1
Ireland	6	United Kingdom	4
Italy	6	Uruguay	5
Japan	4	Uzbekistan	2
Kazakstan	2	Venezuela	3
Korea, Rep.	4	Vietnam	1
Lithuania	6		

Sources: Kaufmann (2004), Hwang (2005) and Madroñal (2005).

4. Model and data

Using the index presented in the previous section, we now investigate the correlates of direct democracy. We estimate a number of models and specifications. Our first approach is to regress a model that considers demographic, economic, institutional and cultural variables. The model is the following:

$$DDI_i = \alpha_0 + \alpha_1 \mathbf{ECDEM}_i + \alpha_2 \mathbf{INST}_i + \alpha_3 \mathbf{CULT}_i + \varepsilon_i \quad (1)$$

where DDI is the variable defined in the previous Section, \mathbf{ECDEM} is a vector of economic and demographic variables, \mathbf{INST} is a vector of institutional variables, \mathbf{CULT} is a vector of religious and cultural variables, and ε is an error term. \mathbf{ECDEM} includes the log of GDP per capita in the year 2000, the log of population and the urbanization rate and a measure of ethnic fractionalisation. \mathbf{INST} consists of two dummy variables for majoritarian and presidential systems. \mathbf{CULT} includes the percentages of population that are Catholic and Muslim; and the log of school attainment. We always include dummies for Latin American and Asian countries. Because income and direct democracy may be affected by reverse causation, we use latitude as instrument.⁵

We also estimate a second model, focusing on some indicators of quality of government broadly discussed in the literature (La Porta *et al.*, 1999). The model takes the following specification:

$$DDI_i = \beta_0 + \beta_1 \mathbf{Z}_i + \beta_2 VAR_i + \varepsilon_i \quad (2)$$

where \mathbf{Z} is a vector of variables that were significant in the first model, and VAR is the variable of interest that we add once at a time. These variables include control of corruption (measuring the exercise of public power for private gain, including both petty and grand corruption and state capture), political civil and human rights, political stability (measuring the likelihood of violent threats to, or changes in, government, including terrorism), rule of law (the extent to which property rights are protected by the police and courts), and government

⁵ Acemoglu *et al.* (2005) address the same issue concerning democracy in a panel setting, by using past savings rates and changes in the incomes of trading partners.

effectiveness (measuring the competence of the bureaucracy and the quality of public service delivery).

Some of these variables may be endogenous to direct democracy. For example, higher corruption may negatively affect the likelihood of a country to use initiatives and referendums because the civil society is not endowed with instruments such as free press that make it possible to have an open discussion on political and economic issues. At the same time, in a country with a low *DDI* politicians will tend to keep issues apart from the people and under-invest in social capital to avoid being more closely scrutinised by voters, reducing the room for corruption. To deal with the reverse causality between this set of variables and direct democracy, we use the legal origin of each country: British (common law), French, German, Scandinavian (all part of the civil law tradition), and Socialist, as instruments. In a number of papers Shleifer with his co-authors has argued that legal origins have an impact on institutions and therefore on outcomes (Glaeser and Shleifer, 2002 provide a theoretical interpretation of these differences). Legal origins affect judicial independence and this has an effect on the protection of property rights (La Porta *et al.*, 2004); legal origins influence the regulation of entry and this affects corruption (Djankov *et al.*, 2002); the quality of government and political rights impinge on the legal origins (La Porta *et al.*, 1999).

Figure 1 shows the average value of the Direct Democracy Index according to the legal origin. The British, French and socialist origin have basically the same average, the Scandinavian and German ones have higher values, but represent a minority of our sample (10 countries). The main traditions of common, civil and socialist law do not show strong differences in direct democracy: if any, the two furthest (common law and socialist) in their nature are the closest in terms of direct democracy.

It is typical in the empirical literature to use ordinary least squares methods, and its variations, although data are categories, although in the normalised (0, 1) space. In both models we correct estimates for heteroscedasticity, to take care of the fact that the democracy index takes discrete values. We also address this issue by also re-estimating equation (1) with ordered probit.

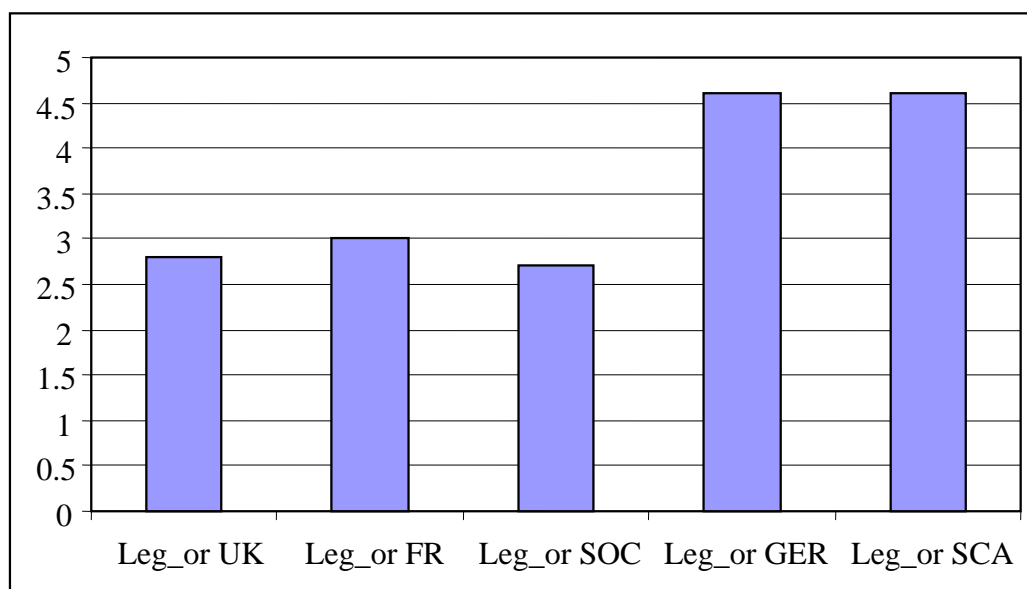


Fig. 1 – Direct democracy index by legal origins

The variable *DDI* comes from Kaufmann (2004), Hwang (2005) Madroñal (2005), fractionalization is taken from Alesina *et al.* (2003); Persson and Tabellini (2003) is the source of institutional variables; control of corruption, political rights, political stability, rule of law, and government effectiveness are from Kaufmann *et al.* (2005) for the year 2000, the remaining variables are taken from La Porta *et al.* (1999). Table 2 gives summary statistics for the variables involved in our analysis.

Table 2 – Summary statistics

Variable	Mean	Variance	Min	Max
Asia	0.351	0.480	0.000	1.000
Control of corruption	0.199	1.128	-1.364	2.451
DD index (0,1)	0.428	0.261	0.143	1.000
Ethnic fractionalization	0.339	0.216	0.002	0.796
Government effectiveness	0.281	1.059	-1.681	2.252
Latin America	0.176	0.382	0.000	1.000
Log income per capita	7.650	1.318	4.997	10.151
Log infant mortality	3.357	0.844	1.979	5.188
Log population	1.059	0.764	-1.397	3.117
Log school attainment	1.623	0.487	0.177	2.435
Majoritarian	0.536	0.501	0.000	1.000
Number of referendums	1.244	2.670	0.000	15.000
Political rights	0.225	1.032	-2.322	1.719
Political stability	0.255	0.982	-2.246	1.693
Presidential	0.494	0.502	0.000	1.000
Rule of law	0.203	1.059	-1.618	2.054
Share of Catholics	36.240	41.214	0.000	97.300
Share of Muslims	14.657	29.430	0.000	99.900
Urbanization rate	60.076	22.002	14.000	100.000

5. Results

Table 3 reports the results of equation (1). As income may himself be the result, not the cause, of direct democracy, we use the absolute value of the latitude as instrument. We start with economic and demographic variables: the first column of Table 3 shows that income per capita is positive and significant, meaning that direct democracy is an ordinary good that is consumed more in richer societies. The idea of Aghion *et al.* (2004) that in more fragmented societies a group imposes restrictions on political liberty to impose control on the other groups is not verified. Ethnic fractionalization is negative as the theory predicts, but is not significant. Both geographical dummies are significantly negative. Adding institutional and religious variables (column 2) strongly improve the goodness of fit of the model. While majoritarian voting rule and presidential system appear do not cause direct democracy institutions, the share of Catholics is significantly positive, but the size of the coefficient is very small. In the regression shown in column (3) we add the log of school attainment; the impact of the education variable reduces the significance of income, but does not change the main results of the model. Furthermore, the variable is always significant, providing evidence for the link between education and democracy highlighted by Glaeser *et al.* (2006). The log of infant mortality and the urbanization rate (in columns 4, 5 and 6) are not significant. Overall, the goodness of fit is satisfactory and the joint significance of the variables is quite high.

To estimate equation (2), we include the variables that have been consistently significant in Table 3: log of income per capita, share of Catholics, log of school attainment, plus the two geographical dummies. In all regressions we use the absolute latitude and the British, the French, the Scandinavian and the socialist legal origins as a set of instruments respectively for the income and for the governance variables. We omit the German legal origin. In each of the five estimations presented in Table 4 we include one of the governance variables at a time: control of corruption, government effectiveness, political rights, political stability and rule of law.

We find that the only two significant variables are those concerned with the political infrastructure of a country: political rights and political stability. The positive coefficients of these variables suggest that the higher the quality of the democratic process, the higher the likelihood of using direct democracy as one of the available tools; moreover, a more stable democracy enables voters to decide directly more than a democracy in which there are

frequent changes and struggles among different groups. The goodness of fit is satisfactory, and the joint significance of the variables is quite high.

Table 3 – 2SLS results

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.145** (0.063)	-0.226** (0.079)	-0.325* (0.202)	-0.796* (0.372)	-0.220* (0.100)	-0.288** (0.137)
Log income per capita	0.090*** (0.020)	0.094*** (0.019)	0.067* (0.035)	0.095* (0.055)	0.092** (0.031)	0.095* (0.039)
Log population	0.021 (0.030)	0.002 (0.028)	0.040 (0.046)	0.029 (0.044)	0.001 (0.033)	
Ethnic fractionalization	-0.205 (0.107)	-0.129 (0.096)	-0.167 (0.135)	-0.198 (0.151)	-0.128 (0.093)	-0.150 (0.113)
Majoritarian		-0.063 (0.045)	-0.043 (0.053)	-0.051 (0.055)	-0.063 (0.039)	
Presidential		-0.072 (0.057)	-0.027 (0.076)	-0.040 (0.094)	-0.072 (0.061)	
Share of Catholics		0.0033*** (0.0006)	0.0026*** (0.0007)	0.0025*** (0.0007)	0.0027*** (0.0007)	0.0029*** (0.0006)
Share of Muslims		-0.0007 (0.0007)	-0.0009 (0.0013)	-0.0014 (0.0018)	-0.0006 (0.0005)	
Log school attainment			0.129* (0.066)	0.155* (0.079)	0.179* (0.096)	0.194** (0.090)
Log infant mortality				0.075 (0.120)	0.099 (0.126)	
Urbanization rate					0.0001 (0.0017)	-0.0019 (0.0021)
Asia	-0.125** (0.055)	0.065 (0.058)	0.121 (0.074)	0.131* (0.071)	0.065 (0.060)	0.078 (0.061)
Latin America	-0.125* (0.063)	-0.231** (0.070)	-0.211* (0.111)	-0.230* (0.124)	-0.233** (0.092)	-0.229*** (0.074)
Obs.	87	79	53	53	50	54
R ²	0.443	0.608	0.678	0.682	0.652	0.665
Overid. p-value	0.312	0.419	0.112	0.228	0.287	0.571
F	14.54***	14.60***	14.95***	13.14***	23.44***	21.75***

Numbers in parentheses are robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Log of income per capita is instrumented with the absolute value of the latitude

A robustness check is provided in Table 5, where we estimate equation (1) with ordered probit, therefore taking into explicit account the ordinal nature of the data on direct democracy. The most notable difference with respect to Table 3 is the significance of ethnic fractionalization that has a negative coefficient, as the theory of endogenous institutions suggests. Infant mortality and urbanization are also significant. All other variables have basically the same behaviour of the 2SLS estimates. Again, the joint significance of the variables is very high, but the pseudo-R² is lower.

Table 4 – Governance indicators and direct democracy

	(1)	(2)	(3)	(4)	(5)
Control of corruption	0.019 (0.043)				
Government effectiveness		-0.148 (0.124)			
Political rights			0.300*** (0.102)		
Political stability				0.073* (0.036)	
Rule of law					0.106 (0.171)
Obs.	53	53	53	53	53
R ²	0.642	0.679	0.734	0.661	0.665
F	22.96***	20.87***	24.74***	22.63***	20.19***

Numbers in parentheses are robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. Covariates include log of income per capita, the share of Catholics, log of school attainment, and the two geographical dummies. Log of income per capita is instrumented with the absolute value of the latitude, governance indicators are instrumented with British, French, Scandinavian and socialist legal origins.

Table 5 – Ordered probit results

	(1)	(2)	(3)	(4)	(5)
Log income per capita	0.501** (0.134)	0.629*** (0.141)	0.407** (0.228)	0.768* (0.408)	1.226** (0.464)
Log population	0.095 (0.182)	0.011 (0.214)	0.525 (0.284)	0.248 (0.311)	
Ethnic fractionalization	-1.121** (0.541)	-0.805 (0.636)	-1.717* (0.739)	-1.561* (0.921)	-1.859** (0.888)
Majoritarian		-0.347 (0.269)	-0.007 (0.354)	-0.324 (0.387)	
Presidential		-0.382 (0.340)	-0.455 (0.428)	-0.140 (0.503)	
Share of Catholics		0.018*** (0.004)	0.020*** (0.006)	0.019*** (0.006)	0.021*** (0.005)
Share of Muslims		-0.0005 (0.0044)	0.0015 (0.0112)	-0.0024 (0.0122)	
Log school attainment			1.240* (0.682)	1.476** (0.755)	2.358** (0.739)
Log infant mortality				0.637 (0.755)	1.364** (0.673)
Urbanization rate					-0.024* (0.013)
Asia	-0.684* (0.355)	0.318 (0.407)	0.909 (0.577)	0.971 (0.612)	0.830 (0.540)
Latin America	-0.484 (0.311)	-1.355*** (0.526)	-1.345** (0.586)	-1.469** (0.621)	-1.403** (0.550)
Obs.	87	79	53	51	50
Pseudo-R ²	0.165	0.245	0.283	0.284	0.303
Wald	57.83***	104.41***	52.27***	51.38***	57.42***

Numbers in parentheses are robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 6 – Count data results

	(1)	(2)	(3)
Constant	-2.880** (1.353)	-1.600** (1.024)	-1.833** (0.703)
Log income per capita	0.085** (0.038)	0.309** (0.169)	2.016* (1.085)
Log population	0.061 (0.152)	0.819** (0.309)	1.198** (0.573)
Ethnic fractionalization	0.046 (0.538)	0.607 (0.786)	
Majoritarian	0.129 (0.244)	0.327 (0.306)	
Presidential	0.261 (0.274)	-0.371 (0.525)	
Share of Catholics	0.016*** (0.004)	0.021** (0.008)	0.018* (0.011)
Share of Muslims	-0.015*** (0.005)	-0.044 (0.053)	0.014 (0.021)
Log school attainment		1.158** (0.578)	0.773** (0.390)
Log infant mortality			-2.512* (1.435)
Urbanization rate			-0.067* (0.037)
Asia	-1.044*** (0.387)	-1.624 (1.825)	-2.168* (1.954)
Latin America	-0.864** (0.325)	-0.485 (0.395)	-0.590 (0.515)
Obs.	79	53	50
Wald	52.59***	67.66***	34.91***

Numbers in parentheses are robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

As highlighted in the previous section, an important caveat of the result we have presented is that they are based on a qualitative index of direct democracy. Table 6 turns to the results of the count data estimates employing as dependent variable the number of referendums that took place from 2000 to 2005, instead of the Direct Democracy Index. The source of these data is the Research Centre on Direct Democracy (2006). The findings do not differ much from previous estimates. The log of income per capita and the share of Catholics are positive and significant, although less than in previous estimates. In contrast, the log of population becomes significantly positive. Log of school attainment, infant mortality and the urbanization rate are all significant. Some problems arise with the geographical dummies. The Latin America dummy is negative but often insignificant, whereas Asia is negative and sometimes significant, though not at a very high level. Although these results are consistent to previous ones, we take them carefully since we cannot control for endogeneity, and the

number of referendums is a too simplistic measure that does not take into account the quality of the democratic process (plebiscites are a form of direct democracy, but are ineffective at scrutinising the executive power).

6. Conclusions

In this paper we have addressed the issue of the determinants of direct democracy. In doing so, we have exploited a newly assembled dataset that encompasses 87 countries. We have estimated a number of models, with an emphasis on controlling for possible reverse causality effect with direct democracy. Taken as a whole, the results confirm the theoretical link between education and democracy, as well as the idea that democracy is an ordinary good, that is consumed more as long as income increases. While the share of Catholics seems to shape direct democracy, non consistent results across estimation techniques are obtained for population and urbanization. Across the many models we assess, direct democracy does not significantly relate to institutional variables like presidential system and majoritarian voting rules, and there is not large evidence supporting the influence of ethnolinguistic heterogeneity. Data also show that political rights and political stability affect direct democracy, indicating that direct democracy comes after some political preconditions are fulfilled. Finally, Latin America tends to be systematically related with less direct democracy.

Further work should address the issue of time, therefore exploring changes of direct democracy in a panel data setting, both with qualitative and quantitative indicators. Furthermore a distinction between social and economic issues on the one hand and individual rights issues on the other hand needs also to be investigated.

References

- Acemoglu, D., S. Johnson, J.A. Robinson and P. Yared (2005). Income and Democracy, mimeo.
- Aghion, P., Alesina, A. and Trebbi, F. (2004). Endogenous Political Institutions, *Quarterly Journal of Economics*. 119: 565-612.
- Alesina, A., A. Devleeshauwer, W. Easterly, S. Kurlat and R. Wacziarg, (2003). Fractionalization, *Journal of Economic Growth*. 8: 155-194.
- Blomberg, S.B., G.D. Hess and A. Weerapana (2004). The Impact of Voter Initiatives on Economic Activity, *European Journal of Political Economy*. 20: 207–26.
- Barro, R. (1999). Determinants of Democracy, *Journal of Political Economy*. 107: 158-183.
- Djankov, S., R. La Porta, F. López-de-Silanes and A. Shleifer (2002). The Regulation of Entry, *Quarterly Journal of Economics*. 117: 1-37.
- Feld, L.P. and J.G. Matsusaka (2003). Budget Referendums and Government Spending: Evidence from Swiss Cantons, *Journal of Public Economics*. 87: 2703-2724.
- Feld, L.P. and M.R. Savioz (1997). Direct Democracy Matters for Economic Performance: An Empirical Investigation, *Kyklos*. 50: 507–538.
- Frey, B.S., M. Kucher and A. Stutzer (2001). Outcome, Process and Power in Direct Democracy. New Econometric Results, *Public Choice*. 107: 271-293.
- Glaeser, E.L., G. Ponzetto and A. Shleifer (2006). Why Does Democracy Need Education?, NBER Working Paper No. 12128.
- Glaeser, E.L. and A. Shleifer (2002). Legal Origins, *Quarterly Journal of Economics*. 117: 1193-1229.
- Huntington, S. (1991). *The Third Wave: Democratization in the Twentieth Century*, Norman: University of Oklahoma Press.
- Hwang, J-Y. (2005). *Direct Democracy in Asia: A Reference Guide to the Legislation and Practice*. Taiwan Foundation for Democracy Publication.
- Landes, D. (1998). *The Wealth and Poverty of Nations*, New York: W. W. Norton.
- Lipset, S.M. (1959). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *American Political Science Review*. 53, 1: 69-105.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1999). The Quality of Government, *Journal of Law, Economics and Organization*. 15: 222-279.
- La Porta, R., F. Lopez-de-Silanes, C. Pop-Echeles and A. Shleifer (2004). Judicial Checks and Balances, *Journal of Political Economy*. 112: 445-470.
- Kaufmann, B. (2004). *Initiative and Referendum Monitor 2004/2005*. IRI Europe, Amsterdam.
- Kaufmann, D., A. Kraay, and M. Mastruzzi (2005). Governance Matters IV: Governance Indicators for 1996-2004, The World Bank, Washington.
- Madroñal, J.C. (2005). *Direct Democracy in Latin America*. Mas Democracia and Democracy International.
- Matsusaka, J.G., (1995). Fiscal Effects of the Voter Initiative: Evidence from the Last 30 Years, *Journal of Political Economy*. 103: 587– 623.
- Matsusaka, J.G. (2004). *For the Many or the Few: The Initiative, Public Policy, and American Democracy*, Chicago: University of Chicago Press.
- Matsusaka, J.G. (2005). Direct Democracy Works, *Journal of Economic Perspectives*. 19: 185-206.
- Matsusaka, J.G. and N.M. McCarty (2001). Political Resource Allocation: Benefits and Costs of Voter Initiatives, *Journal of Law, Economics, and Organization*. 17: 413-448.
- Mauro, P. (1995). Corruption and Growth. *Quarterly Journal of Economics*, 110 (3):681-712.
- Persson, T. and G. Tabellini (2003). *The Economic Effects of Constitutions*, Cambridge, MIT

- Press.
- Persson, T. and G. Tabellini (2006). Democracy and Development: The Devil in the Details. *American Economic Review Papers and Proceedings*. 96: 319-324 .
- Przeworski, A., Limongi, F. (1993). Political Regimes and Economic Growth. *Journal of Economic Perspective*, 7: 51-69.
- Przeworski, A., M. Alvarez, J. Cheibub, and F. Limongi (2000). *Democracy and Development: Political Institutions and Well-Being in the World 1900-1950*, Cambridge University Press.
- Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton: Princeton University Press.
- Research Centre on Direct Democracy (2006). Database on Direct Democracy, University of Geneva, www.c2d.unige.ch
- Tocqueville de, A. (1835). *Democracy in America*. London: Saunders and Otley.

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