Élections Canada

Why is Turnout Higher in Some Countries than in Others?

André Blais
Université de Montréal

Louis Massicotte
Université de Montréal

Agnieszka Dobrzynska
Université de Montréal

March 2003

www.elections.ca

Table of Contents

Executive Summary

The purpose of this study was to determine the impact of certain institutional variables on electoral participation. The study covers a total of 151 elections held in 61 "democratic" countries since 1990. The analysis is based on two measurements of voter turnout, using either the population of voting age or the number of people registered on the electoral lists as the denominator.

The research shows that:

1. voter turnout is a dozen points higher in countries where voting is compulsory, provided there is a penalty for failing to vote;
2. turnout is 5 to 6 points higher in countries where the electoral system is proportional or mixed compensatory;
3. turnout is some 10 points higher in countries where it is possible to vote by mail, in advance or by proxy than in countries where none of these options are available.

The data do not show, however, a systematic effect of elector registration methods. Nor does it appear that voter turnout is any higher in countries where polling day is a holiday.

It can be concluded that institutional factors such as compulsory voting and the voting system affect voter turnout, but so do administrative measures that determine how easy it is to vote.

Introduction

The purpose of this study was to determine the effect of certain institutional variables on voter turnout. This question has previously been explored by a number of authors. Powell (1982, 111-5) examined data from 29 democratic countries and confirmed the connection between compulsory voting and higher voter turnout. He stated that voluntary registration on lists of electors contributes to reduced turnout, and he minimized the impact of other factors, such as procedures for helping absentee electors to vote. Jackman's study (1987) covered 19 democratic countries and concluded that a proportional voting system, unicameralism, and compulsory voting were correlated with high turnout. Analyzing data from about 20 well-established democracies, Franklin (1996) maintained that compulsory voting, mail-in ballots, holding elections on holidays, and a proportional voting system helped to increase voter turnout.

These three studies were limited to so-called established democracies and all involved fewer than 30 countries. Believing it necessary to base generalizations on the largest possible number of cases and take the experiences of newly democratic countries into account, Blais and Dobrzynska (1998) examined voter turnout in 91 countries. They noted, in particular, the importance of compulsory voting and a proportional voting system, and the age at which people are entitled to vote (the turnout rate decreases as this age is reduced).

This study covered a total of 151 elections held in 61 "democratic" countries since 1990. A list of these countries is found in Appendix A. It consists of the 63 countries examined by Massicotte, Blais, and Yoshinaka (forthcoming) in their work on electoral legislation, ("the MBY study") minus two countries (Micronesia and Samoa) that had to be omitted because there was no information on turnout rates. The MBY study focused on countries with populations of over 100 000, to which Freedom House had given a score of 1 or 2 for political rights in 1996–97.[1] The statistical universe, therefore, consisted of about 60 countries that are generally recognized as democracies, some long-established and others more recent.

The methodology was based on the one used by Blais and Dobrzynska (1998). It aims to explain why voter turnout is higher (or lower) in some cases than in others. First of all, the effects of socio-economic and geographic variables on voter turnout were measured. Then the impact of institutional variables was examined. To ensure that this impact was not artificial, the effects of socio-economic and geographic variables were taken into account and neutralized. Two types of institutional variables were distinguished: macro-institutional variables related to voting procedures and compulsory voting, and variables related to electoral administration. Further information about the institutional variables can be found in Appendix B.

---

[1] Seventy-four countries met these two criteria. Two federations (Switzerland and the United States) had to be excluded because their electoral legislation varies from one state or canton to the next, and nine other countries could not be included because information was lacking.

1. Measuring Turnout

There are two methods in the literature for measuring turnout rates: either *the population of voting age* or *the number of people on the lists of electors* is used as the denominator.

1.1 Census Data

Neither of these two indicators is perfect. The first is based on official national population censuses. It is intended to be more inclusive because it includes people who, for one reason or another, are not registered on the lists of electors. It is often used in countries where there is significant under-registration on lists of electors, such as in the United States. However, it can be too inclusive. The usual procedure is to estimate the population of voting age, although this estimate includes people who do not have the right to vote, particularly because they are not citizens.[2] While some countries grant citizenship fairly easily to new arrivals, others are much more reluctant, and their total populations therefore include large numbers of non-citizens who are not entitled to vote. In addition, population censuses are conducted at different intervals in different countries (every five years in Canada, between seven and nine years in France) and also at times that do not necessarily coincide with election years. This makes adjustments necessary, which, especially for recent elections, can prove laborious and unsystematic.

1.2 Official Electoral Data

The official turnout rate based on a comparison between the number of voters and the number of registered electors is also open to criticism. Its reliability depends on the quality of the methods for drawing up the lists of electors and the honesty with which these methods are followed, two factors that can vary enormously from one country to the next. There are no guarantees that all the people who are entitled to vote are on the lists of electors or that people who are not entitled to vote, or no longer entitled to vote, are not listed. Despite its acknowledged imperfections, though, this turnout rate is the one most used in official documents.

Both measurement methods have their biases. Calculations based on the population of voting age may underestimate voter turnout, because the denominator is artificially swollen by people who are not entitled to vote. On the other hand, calculations based on the number of registered electors may overestimate turnout (if the lists, and therefore the denominator, do not include all the people entitled to vote), or may underestimate turnout (if the lists are artificially swollen by duplicate or fictitious registrations). For this reason, both measurements were used in our analysis. Appendix C shows voter turnout calculated in both ways for every election included in this study. It should be noted that information on voter turnout using the population of voting age is more often unavailable, especially for the most recent elections.

---

[2] A recent study (McDonald and Popkin, 2001) shows that calculating the turnout based on the population of voting age leads to a significant underestimation of the turnout in the United States. The same study indicates that there has been no decline in voter turnout in the United States when consideration is given to the growing number of Americans who are not entitled to vote because they are not citizens or are in prison.

2. Turnout and Socio-economic and Geographic Variables

Tables 1A and 1B compare voter turnout with a series of socio-economic and geographic variables. From the outset, we created a special variable for *Mali*, where the turnout rate of barely 20 percent is unique. There were no other elections with turnout rates of less than 40 percent. Mali is clearly a "deviant" case, and it seemed advisable to treat it as such in our statistical analysis. Appendix D provides information about how to read and interpret the following regression analyses.

2.1 Social and Economic Development

The existing literature (Powell, 1982) suggests that economic development can have major effects on the political involvement of citizens. Economic development promotes the creation and dissemination of socio-economic resources such as access to information and higher education levels and income. Furthermore, economic development transforms the relations among different groups in society, thereby creating a diversity of interests. All of this may well amplify the political involvement of citizens and stimulate voter turnout. In our model, we included the usual indicator of economic development, *gross domestic product per capita*.[3]

Literacy rates and *life expectancy at birth* also seem to be important factors. Political involvement requires certain civic skills (Verba, Schlozman and Brady, 1995) and a certain quality of life (Moon, 1991). We therefore included these two measurements in our analysis.

2.2 Size and Density

Another major factor is the size of the country. According to some authors (Verba and Nie, 1972; Oliver, 2000), attitudes that stimulate voter turnout develop more easily in relatively small political environments where community relations are closer and more direct. We used a *population* measurement to examine the relationship between the size of the country and voter turnout.

We added another variable, population *density*. We assumed that, in countries with higher population densities, electors are more concentrated and easier to mobilize (Lipset, 1981).

---

[3] All the socio-economic data are taken from electronic files produced by the World Bank: *World Development Indicators, 1999–2001*. Washington, DC: Development Data Group, The World Bank.

2.3 Geography

The final factor included at this stage concerns the influence of geography. We assumed that, in some regions, voter turnout tends to be higher or lower because of a similar political culture or environment. We therefore created five variables reflecting each country's location in a particular continent: *Africa, North America, South America, Asia* and *Oceania* (with Europe serving as the reference point). We made another major distinction for *Eastern Europe* because its recent Communist past may have given rise to a particular political culture in this region.[4]

As shown in Tables 1A and 1B, turnout rates are higher in countries that are smaller in population and economically more developed,[5] and lower in North America and Eastern Europe. The two turnout indicators show the same relationships, although they are more significant when the denominator is the number of registered electors, partly because there are more cases.

---

[4] In this study, Eastern Europe included the following countries: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

[5] The two correlations are logarithmic, which means that the greatest difference is between countries with the smallest populations and lowest GDPs per capita and all other countries.

Table 1A Determinants of Voter Turnout: Socio-economic and Geographic Factors

Independent Variables	Dependent Variable: Turnout by Number of People Registered on the Lists of Electors	
	Regression Coefficient	**(Error)**
Africa	-3.67	(5.28)
North America	-8.16**	(3.49)
South America	3.11	(4.05)
Asia	0.71	(3.61)
Oceania	5.02	(4.36)
Eastern Europe	-8.08*	(4.12)
Illiteracy	0.13	(0.14)
Life expectancy	-0.48	(0.31)
Population density	0.0003	(0.01)
Population (log)	-3.90***	(1.23)
GDP per capita (log)	14.67**	(6.08)
Mali	-38.60***	(11.63)
Constant	68.73***	(19.23)

Number of cases   148
Adjusted R^2 0.32
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
*** significant at 0.01 (two-tailed test)

Table 1B Determinants of Voter Turnout: Socio-economic and Geographic Factors

Independent Variables	Dependent Variable: Turnout Rate by Population of Voting Age	
	Regression Coefficient	**(Error)**
Africa	-4.62	(6.74)
North America	-8.51[*]	(4.41)
South America	0.07	(5.04)
Asia	-3.90	(4.71)
Oceania	8.78	(5.56)
Eastern Europe	-6.52	(5.10)
Illiteracy	0.11	(0.18)
Life expectancy	-0.36	(0.38)
Population density	0.01	(0.01)
Population (log)	-3.14[*]	(1.62)
GDP per capita (log)	12.33	(7.63)
Mali	-34.40[***]	(12.60)
Constant	62.15[**]	(24.48)

Number of cases   108
Adjusted R^2 0.29
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
*** significant at 0.01 (two-tailed test)

3. Turnout and Macro-institutional Variables

Tables 2A and 2B show the correlation with the macro-institutional variables once the effects of the socio-economic and geographic variables mentioned in the previous paragraph have been neutralized.

3.1 Compulsory Voting

The most important variable is legislation imposing *compulsory voting*. Its influence has been seen in all the studies analyzing the effects of institutional factors on turnout. All other things being equal, turnout as a function of the number of registered electors is 13 percent higher in countries where voting is compulsory and penalties are imposed for failure to comply (Table 2A). However, turnout does not seem to be affected by the obligation to vote when there are no penalties for failure to comply.

The results are quite divergent when looking at turnout in comparison with the population of voting age (Table 2B). In this case, compulsory voting does not seem to have any effect, whether enforced by penalties or not. This result does not seem very credible to us, in view of the fact that all previous studies have found that compulsory voting increases turnout and the fact that the abolition of compulsory voting in the Netherlands in the early 1970s effectively reduced turnout there by about 10 percentage points. We have more confidence in the results when turnout is calculated on the basis of registered electors (Table 2A). What our study shows, and what has never been shown by any previous research, is that compulsory voting does not really have any effect unless penalties are stipulated for electors who decide to abstain. A merely symbolic obligation is not sufficient.

3.2 Voting System

Voter turnout is 5 or 6 percentage points higher in countries in which the *voting system is proportional or mixed compensatory*. This result is consistent with what was found in previous research. It appears that electors are more inclined to vote when the voting system seems fairer for all parties, including small ones (Blais and Dobrzynska, 1998).

Table 2A Determinants of Voter Turnout: Socio-economic, Geographic and Macro-institutional Factors

Independent Variables	Dependent Variable: Turnout by Number of People Registered on the Lists of Electors	
	Regression Coefficient	(Error)
North America	-4.23	(2.93)
Eastern Europe	-6.69**	(2.59)
Population (log)	-3.27***	(1.09)
GDP per capita (log)	9.57***	(2.42)
Compulsory voting with penalties	12.60***	(3.32)
Compulsory voting without penalties	-3.82	(2.90)
PR and mixed compensatory	4.80**	(2.19)
Mali	-39.33***	(10.65)
Constant	56.84***	(10.80)

Number of cases   148
Adjusted R^2 0.40
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
*** significant at 0.01 (two-tailed test)

Table 2B Determinants of Voter Turnout: Socio-economic, Geographic and Macro-institutional Factors

Independent Variables	Dependent Variable: Turnout by Population of Voting Age	
	Regression Coefficient	(Error)
North America	-5.62	(3.81)
Eastern Europe	-6.35[*]	(3.37)
Population (log)	-2.93[*]	(1.51)
GDP per capita (log)	10.98[***]	(3.10)
Compulsory voting with penalties	0.18	(4.41)
Compulsory voting without penalties	1.59	(3.88)
PR and mixed compensatory	6.11[**]	(2.86)
Mali	-34.59[***]	(12.06)
Constant	46.70[***]	(14.24)

Number of cases   108
Adjusted R^2 0.30
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
***   significant at 0.01 (two-tailed test)

4. Turnout and Electoral Administration

Tables 3A and 3B show the correlation with electoral administration variables once the effects of socio-economic and macro-institutional variables have been neutralized. It turns out, first, that the variables related to *registration* (whether obligatory or not; whether it is possible to register the day of the election; and whether the government is responsible for taking the initiative to register electors[6]) have hardly any effect on voter turnout. The ability to register on the day of the election even seems to have the perverse effect of lowering turnout as calculated on the basis of the population of voting age (Table 3B). But here, too, we think that the more credible data are those on turnout as a function of the number of registered electors, and these data show a correlation that is not significant (Table 3A).

4.1 Lists of Electors

It is surprising that the procedure for registering on the lists of electors does not seem to have a clear effect on voter turnout. Traditionally, the low turnout in the United States has been attributed to the difficulty of registering on the lists of electors (see in particular Wolfinger and Rosenstone, 1980; Powell, 1986). The various measures taken in the U.S. to facilitate registration have had, in fact, a modest but real effect on voter turnout (Knack, 1995; Brians and Grofman, 2001). It should be pointed out that the American studies are based on more detailed information than we had on the way in which the assorted measures were applied in various U.S. states. It is, perhaps, because our data were not sufficiently precise that we did not observe any significant effect. However, we should also point out that the registration procedures in the United States are so peculiar to that country that the applicability of American studies is necessarily limited.

4.2 Polling Day

We also wanted to check the hypothesis that turnout can be increased by holding the *vote on a holiday*. Franklin (1996) presented results that seemed to confirm this hypothesis, but his study, in contrast to ours, did not have any controls for socio-economic and geographic factors. Our own data indicate that this does not seem to be a really significant factor.

---

[6] The government is deemed here to take the initiative in the registration process when a public agency takes the *initial* steps to register people who have just gained the right to vote, and not the people themselves. In Canada, the enumeration procedure (until 1997) and the register of electors procedure (since 1997) both fall into the category of registration systems in which the government takes the initiative. Since enumeration is not very common in the rest of the world, it is difficult to distinguish its specific effects from those of other methods for which the government takes the initiative.

4.3 Ease of Voting

Finally, we created an "ease of voting" variable that indicates whether it is possible to *vote by mail, in advance* or *by proxy*.[7] This variable has a positive, significant coefficient when turnout is calculated on the basis of registered voters (Table 3A). Our results suggest that turnout is indeed higher when the electoral legislation facilitates the exercise of the right to vote. More specifically, all other things being equal, turnout is about 10 percent higher in countries where it is possible to vote by mail, in advance or by proxy, than in countries where none of these options are available.

It has been suggested that the *length of the election period* can have an effect on voter turnout. Electors may be bored by campaigns that last too long and therefore go to vote in smaller numbers. On the other hand, campaigns that are too short may not be able to arouse voter interest. So far as we know, these hypotheses have never been tested in a systematic fashion, and we do not have complete data that would enable us to do so.

---

[7] The variable assumes the value 0 when none of the options is available, and 0.33 when only one option is available under the electoral legislation. The variable assumes the value 0.66 when two options are available and 1 when all three are available.

Table 3A Determinants of Voter Turnout: Socio-economic, Geographic and Macro- and Micro-institutional Factors

Independent Variables	Dependent Variable: Turnout by Number of People Registered on the Lists of Electors	
	Regression Coefficient	(Error)
Eastern Europe	0.18	(3.85)
Population (log)	-3.34***	(1.22)
GDP per capita (log)	8.28***	(2.93)
Compulsory voting with penalties	13.28***	(2.80)
PR and mixed compensatory	4.20*	(2.19)
Compulsory registration	3.79	(2.45)
Registration on polling day	-4.80	(3.07)
Government initiative	0.85	(2.43)
Holiday	-0.26	(2.72)
Easy to vote	11.04**	(4.35)
Mali	-33.42***	(11.14)
Constant	55.54***	(13.74)

Number of cases   119
Adjusted R^2 0.46
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
*** significant at 0.01 (two-tailed test)

Table 3B Determinants of Voter Turnout: Socio-economic, Geographic and Macro- and Micro-institutional Factors

Independent Variables	Dependent Variable: Turnout by Population of Voting Age	
	Regression Coefficient	**(Error)**
Eastern Europe	4.16	(4.71)
Population (log)	-3.12**	(1.56)
GDP per capita (log)	8.93**	(3.52)
Compulsory voting with penalties	5.59	(3.43)
PR and mixed compensatory	7.84***	(2.74)
Compulsory registration	4.37	(3.16)
Registration on polling day	-9.18**	(3.82)
Government initiative	-1.24	(3.06)
Holiday	-0.97	(3.39)
Easy to vote	8.10	(5.45)
Mali	-23.51*	(12.03)
Constant	51.27***	(16.73)

Number of cases   89
Adjusted R^2 0.40
*   significant at 0.10 (two-tailed test)
**   significant at 0.05 (two-tailed test)
***   significant at 0.01 (two-tailed test)

Conclusion

Our study allows us to confirm that a certain number of institutional variables help increase or decrease voter turnout. It is clear that turnout can be substantially increased if voting is made compulsory, provided that the legislation prescribes definite penalties. Similarly, a proportional voting system is considered fairer by most citizens and generally tends to induce more electors to exercise their right to vote.

We showed that measures of a more administrative nature also help to increase voter turnout. Turnout is clearly higher in countries that facilitate voting by allowing voting by mail, in advance or by proxy. This could be an avenue to explore: Would it be possible to make things even easier for Canadian electors who want to vote?

Bibliography

Blais, André and Agnieszka Dobrzynska. 1998. "Turnout in Electoral Democracies." *European Journal of Political Research* 33: 239–261.

Brians, Craig Leonard and Bernard Grofman. 2001. "Election Day Registration's Effect on U.S. Voter Turnout." *Social Science Quarterly* 82: 170–183.

Franklin, Mark N. 1996. "Electoral Participation." In *Comparing Democracies: Elections and Voting in Global Perspective*. Lawrence LeDuc, Richard G. Niemi and Pippa Norris (eds.) Thousand Oaks: Sage.

Jackman, Robert. 1987. "Political Institutions and Voter Turnout in the Industrial Democracies." *American Political Science Review* 81: 405–423.

Knack, Steven. 1995. "Does 'Voter Motor' Work? Evidence from State Level." *Journal of Politics* 57: 796–811.

Lipset, Seymour M. 1981. *Political Man: The Social Bases of Politics.* Baltimore: The Johns Hopkins University Press.

Massicotte, Louis, André Blais and Antoine Yoshinaka. Forthcoming. *Establishing the Rules of the Game: Election Laws in Democracies*. Toronto: University of Toronto Press.

McDonald, Michael P. and Samuel L. Popkin. 2001. "The Myth of the Vanishing Voter." *American Political Science Review* 95: 963–974.

Moon, Bruce E. 1991. *The Political Economy of Basic Human Needs*. Ithaca, New York: Cornell University Press.

Oliver, J. Eric. 2000. "City Size and Civic Involvement in Metropolitan America." *American Political Science Review* 94: 361–373.

Powell, G. Bingham. 1982. *Contemporary Democracies: Participation, Stability, and Violence*. Cambridge: Harvard University Press.

Powell, G. Bingham. 1986. "American Voter Turnout in Comparative Perspective." *American Political Science Review* 80: 17–45.

Verba, Sidney and Norman H. Nie. 1972. *Participation in America: Political Democracy and Social Equality*. New York: Harper and Row.

Verba, Sidney, Kay Lehman Schlozman and Henry Brady. 1995. *Voice and Equality: Civic Voluntarism in American Politics.* Cambridge, Massachusetts Harvard University Press.

Wolfinger, Raymond E. and Steven J. Rosenstone. 1980. *Who Votes?* New Haven: Yale University Press.

Appendices

Appendix A Alphabetical List of the 61 Countries Covered by the Study

Argentina	Madagascar
Australia	Malawi
Bahamas	Mali
Bangladesh	Malta
Barbados	Mongolia
Belgium	Namibia
Belize	Netherlands
Benin	New Zealand
Bolivia	Panama
Brazil	Papua New Guinea
Bulgaria	Philippines
Canada	Poland
Cape Verde	Portugal
Chile	Romania
Costa Rica	Sao Tome
Cyprus	Slovakia
Czech Republic	Slovenia
Denmark	South Africa
Ecuador	Spain
Estonia	St. Lucia
France	St. Vincent and the Grenadines
Germany	Sweden
Guyana	Taiwan
Hungary	Trinidad and Tobago
India	United Kingdom
Ireland	Uruguay
Israel	Vanuatu
Italy	Venezuela
Jamaica	
Japan	
Latvia	
Lithuania	
Luxembourg	

Appendix B Institutional Variables

Country	Compulsory voting with penalties	Compulsory voting without penalties	PR and mixed compensatory	Compulsory registration	Polling day registration	Initiative/ State	Leave of absence	Advance poll	Mail-in voting	Proxy voting	Easy access to voting
Africa											
Benin			x	x	x		x			x	0.33
Cape Verde		x	x	x		x	x		x		0.33
Madagascar						x	x				0
Malawi				x							0
Mali					x	x	x			x	0.33
Namibia			x					x			0.33
Sao Tome		x	x	x	N/A	N/A	x	x	x		0.66
South Africa			x					N/A	N/A	N/A	N/A
North America											
Bahamas								x			0.33
Barbados											0
Belize						x				x	0.33
Canada						x	x	x	x		0.66
Costa Rica		x	x	x		x	x				0
Jamaica							x	x			0.33
Panama		x		x		x	x				0
St. Lucia			x					x			0.33
St. Vincent and the Grenadines											0
Trinidad and Tobago						x		x			0.33
South America											
Argentina	x		x			x	x				0
Bolivia	x		x	x			x				0
Brazil	x		x	x			x				0
Chile	x						x				0
Ecuador	x					x	x				0
Guyana			x	x		x		x		x	0.66
Uruguay	x		x	x	x		x				0
Venezuela		x	x	x		x	x				0

Appendix B Institutional Variables (continued)

Country	Compulsory voting with penalties	Compulsory voting without penalties	PR and mixed compensatory	Compulsory registration	Polling day registration	Initiative/ State	Leave of absence	Advance poll	Mail-in voting	Proxy voting	Easy access to voting
Asia											
Bangladesh						x			x		0.33
Cyprus	x		x	x		x	x				0
India						x	x		x		0.33
Israel			x		N/A	x	x	x			0.33
Japan					N/A	x	x	x	x		0.66
Mongolia						N/A	x				0
Philippines	x			x			x				0
Taiwan				N/A	N/A	N/A	x	N/A	N/A	N/A	N/A
Europe											
Belgium	x		x			x	x			x	0.33
Bulgaria			x			x	x				0
Czech Republic			x		N/A	N/A					0
Denmark			x			x		x			0.33
Estonia			x		N/A	N/A	x	x	x		0.66
France				x			x			x	0.33
Germany			x			x	x		x		0.33
Hungary			x		x	x	x				0
Ireland			x			x		x	x		0.66
Italy		x	x		N/A	N/A	x				0
Latvia			x		N/A	N/A	x		x		0.33
Lithuania					x	x	x	x	x		0.66
Luxembourg	x		x		N/A	x	x		x		0.33
Malta			x			x	x	x			0.33
Netherlands			x			x			x	x	0.66
Poland			x		x	x	x				0
Portugal		x	x	x			x	x			0.33
Romania			x	x		x	x				0

Appendix B Institutional Variables (continued)

Country	Compulsory voting with penalties	Compulsory voting without penalties	PR and mixed compensatory	Compulsory registration	Polling day registration	Initiative/ State	Leave of absence	Advance poll	Mail-in voting	Proxy voting	Easy access to voting
Slovakia			X		x	x					0
Slovenia			X	N/A	N/A	N/A	x	x	x		0.66
Spain			X	x		x	x		x		0.33
Sweden			X			x	x	x	x	x	1
United Kingdom						x			x	x	0.66
Oceania											
Australia	x			x			x	x	x		0.66
New Zealand			X	x	x		x	x	x		0.66
Papua New Guinea				x					x		0.33
Vanuatu						N/A	x			x	0.33

N/A: not available

Appendix C Countries, Elections and Turnout

Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote	Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote
Africa					
Benin 1995	75.8	73.7	Namibia 1999	62.8	N/A
Benin 1991	51.7	46.5	Namibia 1994	76.0	63.8
Cape Verde 2001	54.1	N/A	Sao Tome 1998	64.7	N/A
Cape Verde 1995	76.5	79.5	Sao Tome 1994	52.1	49.5
Cape Verde 1991	75.3	71.8	Sao Tome 1991	76.7	69.6
Madagascar 1998	60.1	40.6	South Africa 1999	89.3	N/A
Madagascar 1993	60.0	51.4	South Africa 1994	N/A	85.5
Malawi 1994	80.0	67.7			
Mali 1992	21.1	21.9			
North America					
Bahamas 1997	90.0	66.7	Jamaica 1997	65.4	48.8
Bahamas 1992	91.9	68.5	Jamaica 1993	66.7	44.1
Barbados 1999	63.1	N/A	Panama 1999	75.9	N/A
Barbados 1994	60.3	66.0	Panama 1994	73.7	70.1
Barbados 1991	63.7	67.4	St. Lucia 1997	66.0	N/A
Belize 1998	90.1	N/A	St. Lucia 1992	62.8	76.8
Belize 1993	74.6	68.8	St. Vincent and the Grenadines 2001	68.7	N/A
Canada 2000	61.2	N/A	St. Vincent and the Grenadines 1998	67.4	75.9
Canada 1997	67.8	56.2	St. Vincent and the Grenadines 1994	65.6	73.2
Canada 1993	69.6	63.9	Trinidad and Tobago 2000	63.1	N/A
Costa Rica 1998	70.3	73.7	Trinidad and Tobago 1995	63.3	67.3
Costa Rica 1994	81.2	84.2	Trinidad and Tobago 1991	65.8	70.4
Costa Rica 1990	82.5	85.1			

Appendix C Countries, Elections and Turnout (continued)

Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote	Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote
South America					
Argentina 1999	78.6	N/A	Ecuador 1998	47.3	48.5
Argentina 1995	81.0	79.8	Ecuador 1996	67.9	67.8
Argentina 1993	79.7	78.1	Ecuador 1994	65.5	66.3
Argentina 1991	89.7	89.4	Ecuador 1990	69.4	64.7
Bolivia 1997	70.0	62.3	Guyana 2001	89.1	N/A
Bolivia 1993	72.2	50.0	Guyana 1997	88.4	80.2
Brazil 1994	82.2	76.8	Uruguay 1999	91.7	N/A
Brazil 1990	84.6	76.6	Uruguay 1994	91.4	96.1
Chile 1997	87.3	N/A	Venezuela 1998	52.6	52.6
Chile 1993	91.0	81.9			
Asia					
Bangladesh 1996	75.6	64.6	Japan 2000	60.6	N/A
Bangladesh 1991	55.4	61.5	Japan 1996	59.0	59.8
Cyprus 2001	90.5	N/A	Japan 1995	44.5	44.9
Cyprus 1996	90.1	75.9	Mongolia 2000	82.4	N/A
Cyprus 1991	94.3	78.6	Mongolia 1996	88.4	73.6
India 1999	59.7	N/A	Philippines 1998	78.7	N/A
India 1998	62.0	N/A	Philippines 1995	70.7	68.4
India 1996	57.9	61.1	Taiwan 1998	68.1	N/A
Israel 1999	78.7	N/A	Taiwan 1996	76.2	75.1
Israel 1996	79.3	84.7			
Israel 1992	77.4	81.7			

Appendix C Countries, Elections and Turnout (continued)

Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote	Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote
Oceania					
Australia 1998	95.2	N/A	Papua New Guinea 1997	65.7	98.8
Australia 1996	95.9	82.5	Papua New Guinea 1992	81.2	79.2
Australia 1993	95.6	83.4	Vanuatu 1998	61.8	N/A
Australia 1990	95.5	82.1	Vanuatu 1995	72.4	78.6
New Zealand 1999	83.1	N/A	Vanuatu 1991	71.3	70.7
New Zealand 1996	88.3	83.0			
Europe					
Belgium 1999	90.6	N/A	Lithuania 1992	75.2	70.2
Belgium 1995	91.1	83.2	Luxembourg 1999	86.5	N/A
Belgium 1991	92.7	85.1	Luxembourg 1994	88.3	60.5
Bulgaria 1997	58.9	66.9	Malta 1998	95.4	N/A
Bulgaria 1994	75.2	81.0	Malta 1996	97.2	98.0
Bulgaria 1991	83.9	84.5	Malta 1992	96.0	95.3
Czech Republic 1998	74.0	76.7	Netherlands 1998	73.2	N/A
Czech Republic 1996	76.3	77.6	Netherlands 1994	78.7	75.2
Denmark 1998	85.9	83.1	Poland 1997	47.9	48.8
Denmark 1994	84.3	81.7	Poland 1993	52.1	52.0
Denmark 1990	82.8	80.4	Poland 1991	43.2	44.4
Estonia 1999	57.4	N/A	Portugal 1999	61.0	N/A
Estonia 1995	68.9	48.8	Portugal 1995	66.3	79.1
France 1997	68.0	59.9	Portugal 1991	68.2	77.7
France 1993	68.9	61.29	Romania 2000	65.3	N/A
Germany 1998	83.0	N/A	Romania 1996	76.0	78.2
Germany 1994	79.0	72.4	Slovakia 1998	84.2	N/A
Germany 1990	77.8	73.1	Slovakia 1994	75.4	75.9

Appendix C Countries, Elections and Turnout (continued)

Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote	Country/Election	Turnout based on the number of people registered on the lists of electors	Turnout based on the population old enough to vote
Hungary 1998	56.7	59.9	Slovenia 2000	70.4	N/A
Hungary 1994	68.9	69.4	Slovenia 1996	73.3	75.5
Hungary 1990	75.5	75.9	Slovenia 1992	85.9	85.5
Ireland 1997	66.1	66.7	Spain 2000	68.7	N/A
Ireland 1992	68.5	73.7	Spain 1996	78.1	80.6
Italy 2001	81.2	N/A	Spain 1993	77.0	77.4
Italy 1996	82.9	87.4	Sweden 1998	81.4	N/A
Italy 1994	86.1	90.8	Sweden 1994	88.1	83.6
Latvia 1998	71.9	N/A	Sweden 1991	86.7	82.8
Latvia 1995	71.9	50.6	United Kingdom 2001	59.4	N/A
Lithuania 2000	58.6	N/A	United Kingdom 1997	71.5	69.4
Lithuania 1996	52.9	50.0	United Kingdom 1992	77.8	75.4

N/A: not available

Appendix D Understanding Regression Analyses

Tables 1A and 3B show the results of multi-varied regression analyses of factors that affect the voter turnout measured as a function of the number of registered electors or of the voting age population. Multi-varied regression analysis is used to identify the specific and independent effect of a given factor once the other factors included in the analysis have been taken into account. Regression analysis is used to determine, for example, whether, all other things being equal, that is, an equivalent level of socio-economic development, population and geographic location, countries with a high population density have a higher turnout than countries with a low population density.

In the tables, an asterisk is used to indicate whether a given variable has a statistically significant effect on turnout. The absence of an asterisk indicates that it cannot be concluded that the factor independently affects voter turnout. For example, the results presented in tables 1A and 1B indicate that population density does not appear to have a specific impact on turnout. The presence of an asterisk signifies that there is a 90 percent chance that the variable has an effect, in other words, that there is only one chance in 10 that the observed relation is random. Two asterisks means that the probability that there is "really" an effect is 95 percent, and three asterisks means that the probability is 99 percent.

Thus, one or more asterisks allow us to conclude that a factor affects turnout. The regression coefficient indicates the extent of that influence. It is useful in this regard to distinguish among certain types of variables. First, the geographic variables. For the purposes of the analysis, we used Western Europe as a reference point.

The data in Table 1A indicate that, all other things being equal, that is, once the country's level of development and size have been accounted for, the participation rate is typically 8 percentage points lower in North America and Eastern Europe than in Western Europe. Then there are the dichotomous variables, used in particular to measure institutional factors. The "compulsory voting with penalties" variable, for example, has a value of 1 in countries with compulsory voting with penalties and a value of 0 in countries without it.

Table 2A indicates that, all other things being equal, turnout is 12.6 percentage points higher in countries with compulsory voting with penalties than in countries without it. The reader should note that the institutional variable "ease of voting" is handled differently. On the numerical scale, a country has a maximum score of 1 if it is possible to vote in advance, by mail or by proxy, of 0.66 if two of the three options are available, of 0.33 if one is, and 0 if none are.

The results in Table 3A indicate that, all other things being equal, the turnout in a country with a score of 1 is 11 percentage points higher than that of a country with a score of 0. There are, finally, numerical variables such as the size of the population and the per capita GDP. The coefficients associated with these variables cannot be easily interpreted, since the relation is logarithmic, which means that most of the difference is at the "bottom" of the scale and that, for example, the turnout is particularly low in the poorest countries while the gap between moderately rich and rich countries is minimal.