# A Comparative Analysis of Political Communication Systems and Voter Turnout

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*This article explores how political communication institutions affect cross-national differences in voter turnout in democratic elections. It demonstrates how the structure and means of conveying political messages—gauged by media systems, access to paid political television advertising, and campaign finance laws—explain variations in turnout across 74 countries. Relying on a "mobilization" perspective, I argue that institutional settings that reduce information costs for voters will increase turnout. The major empirical findings are twofold. First, campaign finance systems that allow more money (and electioneering communication) to enter election campaigns are associated with higher levels of voter turnout. Second, broadcasting systems and access to paid political television advertising explain cross-national variation in turnout, but their effects are more complex than initially expected. While public broadcasting clearly promotes higher levels of turnout, it also modifies the effect of paid advertising access on turnout.*

Voting is at the heart of democratic political systems. It is a way to choose political leaders and express public opinion, and it serves as a valuable opportunity for the public to learn about major political issues. Why people vote or do not vote has been one of the most important questions in the field of political science. Many comparative studies, for example, have explored the causes of cross-national differences in voter turnout (e.g., Blais and Dobrzynska 1998; Franklin 1996; Jackman 1987; Jackman and Miller 1995; Powell 1986). A large percentage of these studies show that political institutions and electoral systems explain much of the cross-national variation in voter turnout. This research is consistent with rational choice expectations, which posit that institutional environments affect an individual's probability of voting through changing the cost of voting as well as the perceived decisiveness of an individual's votes.

While institutional analyses are plentiful, there is little empirical work regarding how systems of political communication can affect variation in voter turnout across different nations. This scarcity is a glaring oversight. For citizens to be attentive, informed, and actively participate in the political process, they need an environment that provides them with adequate information. Systems that convey political information provide a context for the transmission of political messages between the government and the public. Moreover, citizens gather most of their political information during election campaigns, especially from mass media. The institutional structure surrounding the media and campaigns can determine the quantity and quality of political communication by setting rules that govern the modes of campaigns and access to campaign resources.

How different settings of political communication systems affect mass political behavior, however, has not been fully specified in previous studies. This study aims to fill the gap in comparative media studies by presenting a systematic empirical analysis that bridges institutionalist and behaviorist perspectives. Relying on what I call a "mobilization" perspective, this article argues that institutional settings that lower information costs for voters will increase turnout. The evidence for the argument is drawn from a large-$N$ statistical analysis of the effects of institutional settings of media systems, political television advertising, and campaign finance laws on voter turnout in 74 democratic nations.

In general, the empirical findings support the broader argument for institutional effects. First, campaign finance systems that allow more money and electioneering communications to enter election campaigns are associated

with higher levels of voter turnout. Second, broadcasting systems and access to paid television advertising explain cross-national variation in turnout; however, their effects are more complex than initially expected. While public broadcasting clearly promotes higher levels of turnout, it also modifies the effect of paid advertising access on turnout.

# Theory

Even though most scholars and policy makers agree that the media serve the "public interest," they disagree on how to structure media and communication policies conducive to good democratic governance (McQuail 1996). Perhaps the dominant normative perspective is the liberal theory of the free press (the "Libertarian" theory), which advocates freedom from government controls in the press because governmental intervention in a free exchange of ideas would distort information and hinder informed decisions by the electorate (Locke [1689] 1960; Milton [1644] 1957). In contrast, the public service model (the "social responsibility" theory) holds that the government should play an active role to foster better democratic citizenry (Peterson 1956).[1] More recent studies offer sharply different views on the effect of the contemporary media and campaigns on citizen political engagement. The so-called "media malaise" hypothesis argues that mass media, especially commercial media, generate political alienation, cynicism, and disillusionment (Jamieson and Waldman 2003; Newton 1999; Putnam 2000; Robinson 1976). The mobilization perspective, in contrast, attests that modern mass media play a positive role in promoting civic participation and engagement (Freedman, Franz, and Goldstein 2004; Norris 1996, 2000a).

The aforementioned research focuses broadly on the role of government in regulating political communication and assessment of the media's performance. Note the implicit assumption that political engagement and participation are imperative in this equation. Yet studies of engagement and participation—which typically focus on electoral turnout—often begin by asking why turnout is so low. The dominant theoretical response concentrates on the costs versus benefits of voting, positing that peo-

ple vote if and only if the benefit exceeds the cost (Downs 1957).[2]

Ironically, the rational choice perspective reinforces the belief of institutionalists that electoral laws and political institutions substantively condition turnout. Differences in cross-national turnout are based on the distinct costs and benefits of voting conditioned by different political institutions. Electoral systems and compulsory voting, in particular, are often presumed to be the two main institutional factors affecting the cost of voting (Franklin 1999; Jackman 1987; Lijphart 1997; Powell 1986).

But turnout studies are not the exclusive province of rational choice theorists and institutionalists. In fact, behaviorists have produced at least as much research on why people vote. For instance, the socioeconomic status (SES) model posits that education, income, and occupation are the most influential variables affecting voter turnout in the United States and other democracies (Leighley and Nagler 1992; Verba and Nie 1972; Verba, Schlozman, and Brady 1996; Wolfinger and Rosenstone 1980—in U.S. elections; Finkel 1987; Verba, Nie, and Kim 1978—in other democracies).

Behaviorists also emphasize the role of party and candidate outreach for turnout. The political mobilization explanation emphasizes political leaders' strategies as well as electoral contexts. This model can provide an answer to why people with similar SESs have different rates of participation. More specifically, political mobilization affects the cost of voting by providing necessary information as well as motivation and social incentives. Many empirical studies show that campaign activities have significant mobilizing effects (e.g., Cox and Munger 1989; Cox, Rosenbluth, and Thies 1998; Gerber and Green 2000; Gosnell 1927; Rosenstone and Hansen 1993; Shaw, de la Garza, and Lee 2000; Whiteley and Seyd 1994).

But what of political communication? Where are the institutional and behavioral analyses of the effects of media and campaign regulations? The rational choice perspective and some behavioral approaches offer a quantitative outlook on political information systems suggesting that information-rich environments promote political engagement and participation by lowering information costs for the electorate (Bimber 2001). Little systematic evidence has been offered on how different configurations of media systems and campaign regulations affect voter turnout, however.

Focusing on the informational role of the media during election campaigns, I assume that individuals are rational and respond to the incentive structures around them. If the costs of obtaining political information are

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[1]Habermas (1989) introduces the concept of *public sphere* to depict the ideal settings for political communication, where citizens communicate without governmental interference or commercial influence. In a similar vein, Entman argues that the workings of the economic market collide with the ideals of the marketplace of ideas and thus proposes "to create national news organizations run by the major parties and subsidized by the government" for the improvement of journalism in the United States (1989, 136).

[2]See Aldrich (1993) for more discussion on rational choice and turnout.

sufficiently low, they are likely to become informed. Similarly, if the benefits of being engaged are manifest, they are likely to follow political campaigns and, in the end, vote. I also assume that the state can influence this decision calculus significantly. I am agnostic, however, about whether state involvement, per se, helps or hurts turnout. What matters should be the nature of the government's regulations, not the mere fact of governmental interference; effects depend on whether specific government policies increase or decrease information costs and benefits for voters.

## An Institutional-Behaviorist Perspective on Political Communication

A systematic approach to the exploration of how different systems of political communication affect voter turnout requires an amalgamation of behaviorist and institutionalist approaches. However, specifying political communication systems is a difficult task. As Gunther and Mughan note, political communication systems are "subtly nuanced and [are] conditioned on a number of characteristics of individual countries" (2000, 402). Despite this observation, investigating the institutions governing political communication helps enable a truly systematic comparative study, as institutions are relatively objective, comparable, and manageable tools of measurement. I argue that the institutional settings of the media, political television advertising, and campaign finance are among the most important areas in which behaviorist and institutionalist perspectives can be usefully merged.

The media system sets the environment for "earned" or "free media," where political messages are formed through media organizations. Given that most citizens gather their political information from the news media, the characteristics of media systems can affect many aspects of political communication, and thus the overall quality of political discourse. Ultimately, these systems influence the amount of political information provided to the public, as well as the substance and range of both campaign and noncampaign messages.

Campaign finance laws and regulations on televised political advertising, on the other hand, influence the so-called "paid media," where political elites directly control electioneering messages. Because campaign finance laws control the amount and sources of campaign advertising, they should have a tremendous impact on information exchanged during political campaigns. Legal regulations on paid television advertising also seem critical. In many

democracies, political television advertising has become a prominent element of electioneering communication, but its effects on voters are still controversial.

## Media Systems

In this study, I consider three aspects of media systems: (1) the broadcasting system, (2) development of the newspaper markets, and (3) a partisan press.[3] The first dimension of media systems, the broadcasting system, taps who owns major broadcasting companies in the country. In some nations (e.g., the United States, Turkey, and Peru), broadcasting markets are organized on free-market principles and thus are owned by private entities. By contrast, public broadcasting outlets get their funding from the public based on the idea that broadcasting is a public utility.[4]

The structure of broadcasting systems has drawn significant attention from many scholars and experts, especially since the 1980s when most West European countries introduced private channels to their predominantly public systems (e.g., de Bens and de Smaele 2001; Papathanassopoulos 2002). In fact, the development of private broadcasting systems has invited criticism, most of which centers on the structure of funding. Critics argue that the pressure for ratings downgrades the quality and diversity of programming and at the same time increases preferences for sensational coverage of political news (Blumler, Brynin, and Nossiter 1986; Entman 1989; Weymouth and Lamizet 1996). Public broadcasting channels, on the other hand, tend to provide more information about public affairs and elections with a greater degree of substance and diversity (Semetko et al. 1991). Previous studies actually find that public broadcasting promotes political engagement and knowledge (Curran et al. 2009; Dimock and Popkin 1997; Holtz-Bacha and Norris 2001; Moy and Pfau 2000; cf. Aarts and Semetko 2003; Norris 2000b). Considering that public broadcasting provides this additional level of information on current affairs and electoral coverage when compared to private broadcasting, I assume that it lowers information costs. Hence, public broadcasting is likely to be associated with higher voter turnout.

As for newspaper readership, many studies have noted that it promotes citizens' political knowledge and engagement (e.g., Feldman and Kawakami 1991; Gordon

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[3] The measures of media systems draw largely on Hallin and Mancini (2004) and Norris (2002).

[4] The funding sources for public broadcasting include television license fees, state subsidies, and voluntary donations.

and Segura 1997; Luskin 1990). Thus, a higher newspaper subscription rate is expected to be positively associated with turnout. A partisan press, on the other hand, looks at the relationships between news organizations and major political actors, including the government, political parties, and social groups. This approach corresponds with Hallin and Mancini's (2004) measure of "political parallelism," although their measure is more comprehensive. Some countries traditionally have developed highly partisan and politicized news media, while others have aimed for more objective journalism (e.g., the United States).[5] Hallin and Mancini note that a partisan press strengthens "the bonds between citizens and parties," thereby reinforcing ideological predispositions of the readers (2004, 158). Considering the more active mobilizing functions of a partisan press as well as individuals' tendency toward selective exposure, countries with a partisan press will likely have higher rates of voter turnout (Van Kempen 2006, 2007).

## Access to Paid Political TV Advertising

With respect to paid political advertising, existing studies tend to evaluate cognitive, affective, or behavioral impacts at the individual level. Societal-level effects remain an open question, but mainly negative consequences have been advanced (Holtz-Bacha 2003). Critics argue that political spots impede "thoughtful discussion of the issues and thus trivialize politics, which in turn could lead to political alienation" (Holtz-Bacha 2003, 105). The assumption is that citizens take political advertising no more seriously than they do any other television commercial, as political advertisements often resemble commercials for ordinary products.

Despite such negative evaluations, the effect of political advertising on voter participation is controversial. While a group of studies show a demobilizing impact of political commercials, especially of negative advertising (Ansolabehere, Iyengar, and Simon 1999; Ansolabehere et al. 1994), others find the opposite effect (Finkel and Geer 1998; Freedman, Franz, and Goldstein 2004; Goldstein and Freedman 2002).

Given the conflicting theories and evidence, it is difficult to predict how access to paid political advertising affects voter turnout on an international level. Yet it is

likely that political advertising constitutes a good source of campaign information for the electorate and is especially effective in activating voters. Thus, I expect that allowing paid television advertising during election campaigns will increase voter turnout.

In addition, the effect of access to paid television advertising is contingent upon a country's broadcasting system because the use of paid advertisements depends on the availability of private broadcasting outlets (Plasser and Plasser 2002). In many countries, paid political advertising is permitted only on private broadcasting channels, although there may be some level of governmental regulation. Therefore, the use of political advertising is highly limited in countries with strong public broadcasting channels (such as Austria, Germany, New Zealand, and South Korea), while many privately owned systems provide unlimited access to paid advertising (Austin and Tjernström 2003; Grant 2005).

Regarding the way in which the consequences of access to paid advertising varies by broadcasting system, some may expect a positive interaction effect between access to paid advertising and private broadcasting systems because private systems provide more outlets (and/or less regulation) for political parties and candidates to purchase television spots, thereby producing more campaign information for voters. In contrast, others may predict that the modifying effect of private broadcasting systems on access to paid television advertising will be negative, because the presence of television commercials in private broadcasting systems may make the mode of contacts between political parties and voters less personal. Higher levels of media commercialization are expected to increase a political party's use of mass media during elections, which may reduce resources that could be used for more traditional and labor-intensive modes of campaigning. Some studies suggest that media-centered campaigns fail to mobilize voters when compared to traditional person-to-person modes of campaigning (Rosenstone and Hansen 1993). Since both hypotheses seem feasible, it remains unclear how broadcasting systems might modify the effects of access to paid advertising on voter turnout.

## Campaign Finance Laws

To institute transparent and fair political financing systems, many governments limit the amount of money spent on the election process. Among the various measures of campaign finance regulations, two forms of campaign finance laws are particularly important in the context of this analysis—laws that cap campaign contributions and expenditures and the institutional

[5]Objective (or "Anglo-American" style) journalism does not mean that "it is literally 'value free' or without viewpoints. . . .[T]hese media position themselves as 'catchall' media cutting across the principal lines of division between the established political forces in society" (Hallin and Mancini 2004, 210).

characteristics of public funding systems. Campaign finance laws affect voter turnout via the intervening factors of campaign spending and electoral competitiveness, which eventually can affect the amount and quality of campaign messages and information costs for voters. While campaign spending limits decrease overall campaign spending (Gross, Goidel, and Shields 2002), public funding could, conversely, increase campaign spending and competition (Donnay and Ramsden 1995; cf. Primo, Milyo, and Groseclose 2006).[6]

Empirical studies of U.S. elections show that more campaign spending signifies higher levels of electioneering, thus activating voters (Cox and Munger 1989; Gilliam 1985; Patterson and Caldeira 1983). More recent studies have investigated the relationship between campaign finance laws and their effects more directly. For example, using aggregate-level data Primo and Milyo (2006) found that limits on campaign contributions and spending negatively affect rates of voter turnout in gubernatorial elections and that public funding for campaigns has a positive effect.[7] Similarly, Gross and Goidel (2003) show a positive correlation between public campaign finance and voter turnout in U.S. elections.[8]

Comparative studies have rarely specified how campaign finance laws affect cross-national turnout differences. Yet, based on studies in the United States, it appears that campaign finance systems that allow more money and greater competition among candidates promote higher voter turnout by reducing information costs. Therefore, I expect that campaign funding limits will decrease voter turnout, while public funding will result in higher turnout.

## Data and Research Design

Throughout this article, the unit of analysis is individual countries. To ensure that campaign communication is meaningful, nations qualified for this study based on

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[6]My pilot analysis shows that campaign finance regulations are actually linked to the size of campaign expenditures. For example, the average campaign expenditure per capita of countries with direct public financing is $4.35 and for those without is $1.80 in current U.S. dollars. The average expenditure of countries that have campaign contribution and/or spending limits is $2.67 and for their counterpart is $4.63. As an indirect form of public financing, free television time does not make a difference in actual campaign expenditure.

[7]In their individual-level data, however, the authors do not find similar effects.

[8]Note, however, that public financing for U.S. presidential and gubernatorial elections is unique in that it is voluntary and conditional on the acceptance of legal spending caps.

two criteria. First, they need to be electoral democracies that guarantee free competition among different political parties. In this regard, countries were selected that had been categorized as "free" and "partly free" by Freedom House from 1995 to 2002, excluding nations with populations of less than one million.[9] Second, a minimum level of media penetration was required. Each country should have developed a certain level of broadcasting infrastructure and a substantial number of television viewers to be able to estimate the effects of its political communication system. Fifteen countries could not meet the second criterion because their number of television viewers was too small (i.e., the number of television sets per 1,000 households was less than 50).[10] As a result, 74 countries were included in the final analysis.

A remaining issue is whether these countries are comparable, particularly because public broadcasting in nonliberal and liberal democracies might differ. In less democratic societies, state ownership of the media often signifies state control of the media. However, public broadcasting channels in advanced democracies, while independent from state control, provide programs that aim to satisfy the diverse needs of the society. Thus, this study also presents a subsample analyses of countries that meet higher standards when rated in terms of democracy and broadcasting market development (i.e., Polity IV score no less than 8 and television sets no less than 200).

The dependent variable is the average turnout rates in legislative elections between 1995 and 2004. My turnout measure is the percentage of the voting-age population who cast a vote (Jackman 1987; Powell 1996).[11] The average turnout rate is 66%, and the standard deviation

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[9]Among nations categorized as "partly free" by Freedom House, seven countries (Kuwait, Bangladesh, Singapore, Gabon, Tonga, Jordan, and Morocco) were excluded from the sampling frame because their elections are not free.

[10]These countries are Benin, Botswana, Burkina Faso, Central African Republic, Ethiopia, Lesotho, Madagascar, Mali, Mozambique, Namibia, Nepal, Papua New Guinea, Senegal, Tanzania, and Uganda. Even though many are African nations, they are not excluded for that reason. Three African countries that meet the selection criteria are present in the sample: Ghana, South Africa, and Zambia.

[11]Some previous studies measure turnout by the percentage of the registered population who cast a ballot (e.g., Blais and Dobrzynska 1998; Crewe 1981; Franklin 1996). The voting-age population measure runs the risk of underestimating actual turnout rates because the number of the voting-age population might include noneligible voters such as noncitizens. In contrast, the other tends to overestimate turnout, particularly of the undeveloped countries or the countries with a strict registration requirement (e.g., the United States). In my sample, the risk of overestimating turnout by using the registered voters as a denominator seems significantly higher than the alternative, because it includes many undeveloped countries. Thus, I select turnout based on the voting-age population (see footnote 21).

is 14. These numbers indicate that there is a great deal of variation in voter turnout in the sample. Although there are different types of political participation, the interest in this analysis is voter participation in national elections. For many citizens, voting in elections is the most common (or the only) form of political participation. Moreover, voter turnout data are relatively reliable and accessible for cross-national comparison purposes.

## Measuring Political Communication System Variables

Three political communication variables represent a country's media system characteristics. In examining broadcasting systems, I employ two different measures. The first involves categorical dummy variables (public/state, mixed, and private systems), and the other uses public broadcasting audience share, which measures total audience share of public television channels out of the aggregate market share of the five largest television stations in a given country. I compiled this measure using data from Djankov et al. (2003) and Eurodata/Mediametrie (2003).[12] Public broadcasting audience shares range from 0% to 100% with a mean of 44% and a standard deviation of 32. The development of mass press or newspaper penetration is measured by daily newspaper subscribers per 1,000 people. Politicization of the press is measured by a dichotomous variable: 1 represents a high level of partisan press, and 0 is used for others. Two criteria were used to determine if a partisan press is present in the country: (1) media content and (2) organizational affiliation. If major daily newspapers in the countries either exhibit distinct partisan orientations in news reporting or are affiliated with (or owned by) the government, political parties, or major social groups, they were coded as constituting a partisan press. I concentrate on the press system because political parallelism is generally more manifest in and variant across press systems than broadcasting systems (Patterson and Donsbach 1996; Van Kempen 2007). I constructed this variable by analyzing diverse literature on the world's press.[13]

Access to paid television advertising is measured by a dummy variable: 1 for countries that allow paid political television advertising and 0 for countries that ban television advertising. In the analysis, 74% of countries allow parties and/or candidates to purchase paid television advertising during election campaigns. In the interaction effect models, I also include the interaction terms between the broadcasting system variables and access to paid TV advertising. These interaction terms serve to illustrate how a country's broadcasting system modifies the effect of access to paid television advertising on voter turnout.

Finally, three dichotomous variables measure the characteristics of campaign finance laws across countries: (1) campaign contribution and spending limits, 1 for countries with legal regulations on the overall amount of either campaign contributions or expenditures or both, and 0 for others, (2) public direct funding, 1 for countries that provide public direct funding for electioneering purposes and 0 for others, and (3) free television access for parties and/or candidates, 1 for countries offering free TV time and 0 for others.

Forty-five percent of countries in the sample have campaign contribution and/or spending limits of some sort. Furthermore, a large majority of countries provide public funding to political parties and/or candidates for electioneering purposes. About 70% of countries offered public direct funding, and about 80% provided free television access to political parties and/or candidates.[14]

## Method

To estimate the effects of political communication systems on voter turnout, ordinary least squares regression is used with robust standard errors. Because the regression models employ aggregate-level data—whereas true behavioral models for voter participation need to be individualistic—they might exhibit heteroskedasticity. In theory, the country-level model will be heteroskedastic with an error variance inversely proportional to the country's population; diagnostic tests, however, did not detect a significant heteroskedasticity problem.[15] Even though heteroskedasticity is not a significant problem in the data,

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[12]I followed the coding schemes of Djankov et al. (2003) in compiling public broadcasting audience share. When I compared regression results of the models using Djankov and colleagues' (2003) audience share data with those using mine (correlations = 0.86), two measures produced the same substantive findings about the effect of broadcasting systems (and their interaction effect with access to paid advertising).

[13]Van Kempen (2007) measures media-party parallelism (both press-party and broadcasting-party parallelisms) using survey respondents' partisanship and media usage. Her media-party parallelism scores indicate cross-national variations among the West

European countries. Because of lack of suitable survey data, this analysis takes Hallin and Mancini's (2004) qualitative approach to measuring this variable. For a full list of descriptions of each country's press system, please contact the author.

[14]Appendix 2 presents summary statistics and sources used to code all the variables included in the analysis.

[15]The Cook-Weisberg test for heteroskedasticity, using fitted values of voter turnout, produced a chi-square of 0.13, which was not significant (p = 0.72).

the regression models were estimated with robust standard errors. For a small sample analysis, robust regression produces estimators that are not unduly affected by small departures from model assumptions, such as heteroskedasticity or outliers (Western 1995).[16]

## The Baseline Model

As seen in Table 1, Model 1 demonstrates the base model of voter turnout. It includes a set of socioeconomic and political institution variables that previous comparative turnout studies have found important. To control for socioeconomic development, the model includes a Human Development Index (HDI). The HDI is a composite index combining an educational component (adult literacy rates and gross enrollment ratios for schooling), a wealth component (gross domestic product per capita), and life expectancy (UNDP 2000).[17] As voter turnout also depends on how political institutions and electoral systems are structured, the base model includes political-institutional factors: (1) compulsory voting, (2) structure of parliament (unicameralism), (3) nature of representative allocation (district magnitude), and (4) degrees of democracy. Lastly, the model includes a variable representing each country's degree of government involvement in the economy, measured by the percentage of socially owned enterprises (SOEs) operating in the nation. SOEs control for government engagement in the overall economy, without which the estimates of the effects of broadcasting system and public finance laws could be inaccurate indicators of the state's general role in the economy (Djankov et al. 2003).

Regression results for the base model are consistent with the theories and empirical findings of existing comparative turnout studies. The measure of socioeconomic development (HDI) is associated with higher levels of citizen participation. Recall that the socioeconomic status model of political participation and the social mobilization theory predict that socioeconomic development

[16]In the time frame of this study, only two incidents of change in the key independent variables were noticed. Italy banned paid television advertising after the 1996 general election. Austria abandoned free access to television time to political parties in 2002. For these two countries, the model excluded elections that occurred after regulatory changes (see Appendix 1). Mostly static independent variables led me to employ OLS regression rather than pooled time-series analysis.

[17]A composite index to measure a country's socioeconomic development has an advantage because different indices like GDP per capita, literacy rates, and educational attainment usually have substantially high correlations. By using a composite index, the model avoids the large collinearity between independent variables and allows more degrees of freedom.

fosters voter turnout. Countries with compulsory voting have higher turnout rates than those without it (by 14.7%). Average district magnitudes also have a significant impact, as larger districts yield higher voter participation. This result is consistent with existing findings by scholars such as Powell (1986), Jackman (1987), and Franklin (1996). The positive and significant impact of the Polity variable suggests that higher degrees of democracy indicate more decisive election outcomes, thus increasing voters' incentive to go to the polls (Blais and Dobrzynska 1998). Unicameralism and socially owned enterprises, however, do not produce statistically meaningful results, even though the estimated effects followed the expectations of this study. Overall, the base model explains 30% of the variance in cross-national differences in voter turnout.[18]

## The Additive Effect Models

Models 2, 3, and 4 (see Table 1) report regression results for different specifications of political communication system models of voter turnout. Model 2 uses categorical variables for measuring broadcasting systems, while Model 3 uses public broadcasting audience shares. Model 4 is a subgroup analysis of Model 3 that includes only countries with (1) Polity IV scores equal to or higher than 8 and (2) estimated television set totals higher than 200. Overall, the political communication system models of voter turnout explain a large proportion of variance in voter turnout in legislative elections in the late 1990s and early 2000s. For example, with Model 2, the level of variance explained is 47%. Put another way, by including the political communication system variables, the model gains an additional 57% in the level of variance explained in comparison with the base model.

In general, the empirical findings in this study support the mobilization hypothesis about the effects of campaign finance variables. Free television access is associated with substantially higher turnout rates, with an average effect ranging from 9 to 15 percentage points. Public direct funding also has a positive effect. It has an especially large and statistically significant impact among advanced

[18]The base model is parsimonious, but comprehensive enough to include most of the variables that previous comparative turnout studies have found significant. The model specification tests show no significant omitted variables. Furthermore, the $R$-squared of the base model is comparable with that of existing studies, considering that this study (1) includes a larger number of heterogeneous countries than many existing studies have included (e.g., Jackman and Miller 1995, $N = 22$; Powell 1986, $N = 17$) and (2) does not contain country/region dummy variables. If the base model includes only advanced democracies and country dummy variables for the United States and Switzerland, the $R$-squared is increased to 0.80.

TABLE 1    Political Communication System Model of Voter Turnout: Additive Models

| Dependent Variable: Turnout | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Degree of democracy | 1.51* | 2.34*** | 1.92** | 3.10 |
| | (0.84) | (0.80) | (0.77) | (2.54) |
| Compulsory voting | 14.70*** | 21.88*** | 20.19*** | 20.20*** |
| | (3.24) | (4.22) | (3.46) | (3.36) |
| District magnitude | 0.07*** | 0.04 | 0.06** | 0.10** |
| | (0.02) | (0.03) | (0.03) | (0.03) |
| Unicameralism | 3.48 | 4.81* | 5.37** | 4.83 |
| | (2.81) | (2.76) | (2.63) | (3.43) |
| HDI | 0.29* | 0.20 | 0.25 | −0.04 |
| | (0.17) | (0.20) | (0.18) | (0.33) |
| Socially owned enterprises (%) | 0.18 | 0.21 | 0.16 | 0.01 |
| | (0.13) | (0.13) | (0.12) | (0.18) |
| Free TV time | | 9.06* | 14.77*** | 12.51* |
| | | (4.61) | (4.36) | (7.11) |
| Campaign funding limits | | −5.26** | −3.47 | −2.95 |
| | | (2.59) | (2.49) | (2.78) |
| Public direct funding | | 2.31 | 2.44 | 12.55*** |
| | | (3.27) | (2.91) | (2.77) |
| Number of newspaper subscribers | | −0.01 | −0.00 | −0.00 |
| | | (0.01) | (0.01) | (0.01) |
| Partisan press | | 2.01 | 0.51 | 0.45 |
| | | (2.87) | (2.87) | (3.23) |
| Access to paid TV advertising | | 2.61 | 1.22 | 0.59 |
| | | (3.16) | (2.86) | (3.09) |
| Mixed broadcasting system | | −2.82 | | |
| | | (4.28) | | |
| Private broadcasting system | | −13.12** | | |
| | | (5.07) | | |
| Public audience share | | | 0.15*** | 0.21*** |
| | | | (0.05) | (0.07) |
| Constant | 19.42 | 14.70 | −1.60 | 7.40 |
| | (12.66) | (15.57) | (16.98) | (28.97) |
| $R^2$ | 0.30 | 0.47 | 0.57 | 0.67 |
| Adjusted $R^2$ | 0.24 | 0.35 | 0.46 | 0.49 |
| Number of observations | 74 | 74 | 66 | 37 |

Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

democracies (Model 4). Legal regulations on campaign contributions and expenditures have a negative effect on voter turnout, although the coefficient is only significant in Model 2. Because free access to television time taps campaign information more directly than the other campaign finance variables, the estimation seems to predict its effect more clearly.

Newspaper subscription fails to explain differences in voter turnout. It seems that a large correlation between newspaper subscriptions and the measure of socioeconomic development (HDI) causes its parameters to have an unexpected (though insignificant) sign. Similarly, HDI does not have a significant impact on turnout, once newspaper subscription is included in the models.[19]

A partisan press also has an insignificant effect on turnout in all three models. In comparing this result with the significant findings of Van Kempen (2007), two things need to be noted. While Van Kempen (2007) focuses on

[19]In a pilot study, a variable estimating the effect of Internet penetration on turnout found the same problem. The Pearson correlation between newspaper subscription and HDI is 0.61 and that for Internet penetration and HDI is 0.71.

West European countries, the sample in this study includes many less democratic nations. The effect of a partisan press might influence those countries differently. In advanced democracies, a partisan press indicates stronger party systems and pluralistic press systems. For less democratic countries, a partisan press probably indicates the opposite. Another reason might be the crudeness of this model's measure of partisan press. While the scale of Van Kempen (2007) distinguishes the highest level of media-party parallelism in Greece from the lowest in Germany, the dummy variable in this analysis cannot capture such differences.

In the case of broadcasting systems, regression results indicate a highly positive effect of public broadcasting systems on voter turnout. State/public systems have the highest turnout level, and private systems have the lowest. In Model 2, the average turnout rate of private systems is significantly lower than that of state/public and mixed systems—by 13% (p = 0.01) and 11% (p = 0.02), respectively. However, voter turnout differences between state/public and mixed systems are not significant (p = 0.5). When measuring broadcasting system by public audience share, these findings are replicated. A 1% increase in public audience share accompanies a 0.15% increase in voter turnout. An even stronger effect is found among advanced democracies. Model 4 shows that the marginal effect of public audience share is 0.2%. The turnout difference between pure private and pure public systems is 15% for the whole sample and 20% for advanced democracies, holding other factors constant. The positive effect of public broadcasting is clear and consistent across the different models in Table 1.

Access to paid television advertising also shows a positive relationship with turnout. The regression coefficients, however, fall short of being statistically significant. The additive effect models assume that the influence of access to television advertising should be the same across different levels of other independent variables. As discussed earlier, the model predicts that this effect depends on a country's type of broadcasting system. In the following section, I will discuss the results of the interaction models.

## The Interaction Effect Models

Table 2 reports regression results of the interaction models that include multiplicative terms between access to paid advertising and broadcasting systems. Comparisons of regression results between the corresponding additive and interaction equations indicate that most of the coefficient estimates in Table 2 retain the direction and sig-

nificance levels reported in Table 1. The only notable difference is that the effects of campaign funding limits and free television time are consistently more significant in the interaction models.

While the additive models do not find paid advertising to have a significant impact, the interaction models suggest that this effect depends on broadcasting systems. In Model 5, the coefficient on the constitutive term for television advertising access ($\beta = 14.34$) indicates that access to paid advertising has a significant impact in public/state broadcasting systems (p = 0.09). Allowing paid television advertising does not significantly affect voter turnout in either private (*marginal effect* = −7.7, p = 0.11) or mixed systems (*marginal effect* = 1.46, p = 0.68), however. The estimated results of Model 5 are inconclusive with respect to whether interaction effects add much; in fact, the *F*-test shows that adding the interactive terms does not significantly improve the fit of the model.

By comparison, the *F*-tests for Models 6 and 7 indicate the interaction models are significantly better than their corresponding additive models in explaining voter turnout.[20] By using categorical dummy variables that measure broadcasting systems, Model 5 permits more observations; yet audience share data are sure to measure a country's broadcasting system more precisely. More to the point, the estimates of Models 6 and 7 display a clearer pattern of positive interaction effects between access to paid advertising and public broadcasting. According to Models 6 and 7, when the public broadcasting audience share is equal to zero, the marginal effect of paid advertising access is −12.27 for the whole sample and −18.29 for advanced democracies. Table 2, of course, provides limited information about the size and significance of marginal effects at varying levels of public broadcasting audience share. Thus, I calculated access to paid advertising's marginal effect and standard errors on voter turnout at different levels of public broadcasting audience share.[21]

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[20]Model 5: *F*-value = 1.59, p = 0.2; Model 6: *F*-value = 5.73, p = 0.02; Model 7: *F*-value = 5.11, p = 0.03.

[21]Because the turnout models include different independent variables of political and communication institutions, multicollinearity might be present in the data. In the additive models, multicollinearity tests do not indicate any serious problems. Generally, the binary correlations are small between the independent variables and the tolerance tests (1/variance inflation factor) do not suggest any serious problems. The condition index of the global instability of regression coefficients show some signs of a moderate level of instability between polity, HDI, and newspaper readership. Their correlations, however, are far from being perfectly collinear (about $\rho$ = 0.60). Furthermore, because multicollinearity affects only related variables, the estimates of political communication variables will not be affected. As expected, the multiplicative terms and the constitutive terms have large correlations in the interaction models. Model 5 has a high level of collinearity between the constitutive and interaction terms involving private systems (1/variance

**TABLE 2 Political Communication System Model of Voter Turnout: Interaction Models**

| Dependent Variable: Turnout | Model 5 | Model 6 | Model 7 |
|---|---|---|---|
| Degree of democracy | 2.91*** | 2.49*** | 4.27* |
| | (0.85) | (0.78) | (2.11) |
| Compulsory voting | 20.13*** | 18.99*** | 18.48*** |
| | (4.25) | (3.43) | (3.46) |
| District magnitude | 0.03 | 0.05* | 0.08** |
| | (0.03) | (0.03) | (0.03) |
| Unicameralism | 4.39* | 4.31* | 5.08 |
| | (2.59) | (2.60) | (3.45) |
| HDI | 0.17 | 0.21 | 0.57 |
| | (0.23) | (0.19) | (0.33) |
| Socially owned enterprises (%) | 0.20 | 0.16 | 0.05 |
| | (0.13) | (0.12) | (0.18) |
| Free TV time | 9.54** | 14.47*** | 11.43** |
| | (4.38) | (3.82) | (4.91) |
| Campaign funding limits | −6.41** | −5.06** | −6.70* |
| | (2.63) | (2.43) | (3.59) |
| Public direct funding | 1.67 | 1.04 | 9.74** |
| | (3.29) | (2.86) | (3.47) |
| Number of newspaper subscribers | −0.01 | −0.00 | −0.00 |
| | (0.01) | (0.01) | (0.01) |
| Partisan press | 2.89 | 1.21 | 1.68 |
| | (2.93) | (2.87) | (3.15) |
| Access to paid TV advertising | 14.38* | −12.27** | −18.29** |
| | (7.78) | (5.50) | (7.58) |
| Mixed broadcasting system | 4.80 | | |
| | (7.60) | | |
| Private broadcasting system | 3.48 | | |
| | (7.69) | | |
| Access to TV advertising × Mixed broadcasting system | −12.92 | | |
| | (8.58) | | |
| Access to TV advertising × Private broadcasting system | −22.13** | | |
| | (8.72) | | |
| Public audience share | | −0.08 | −0.11 |
| | | (0.98) | (0.16) |
| Access to TV advertising × Public audience share | | 0.28*** | 0.39** |
| | | (0.11) | (0.18) |
| Constant | 6.22 | 10.97 | 8.15 |
| | (17.51) | (16.43) | (24.51) |
| $R^2$ | 0.50 | 0.62 | 0.73 |
| Adjusted $R^2$ | 0.35 | 0.51 | 0.56 |
| Number of observations | 74 | 66 | 37 |

Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

inflation factor = 0.07), while Models 6 and 7 show a lesser degree of multicollinearity (1/variance inflation factor = 0.11). In the presence of multicollinearity, some suggest eliminating the constitutive terms from interaction models. However, recent studies show that omitting the constitutive terms can result in estimation errors that are more problematic than multicollinearity, and that multicollinearity in interaction models should be handled differently than in additive models. For a detailed discussion about multicollinearity in interaction models, see Brambor, Clark, and Golder (2006).
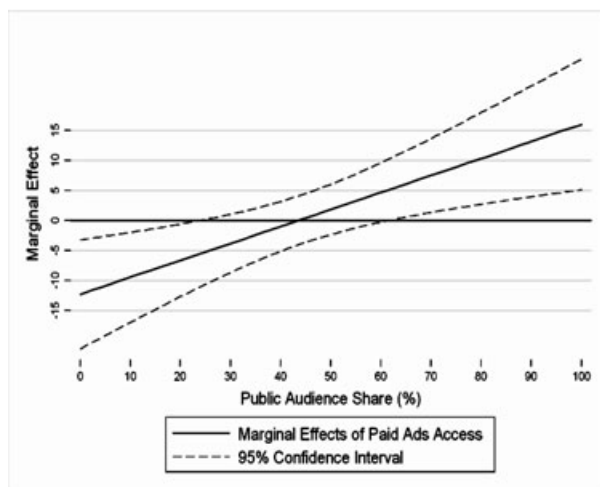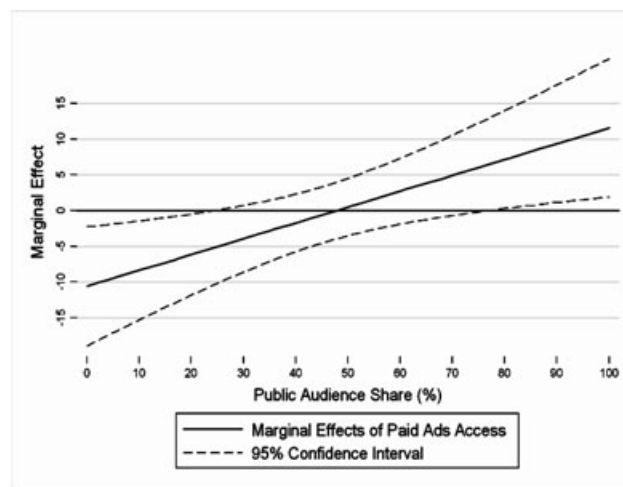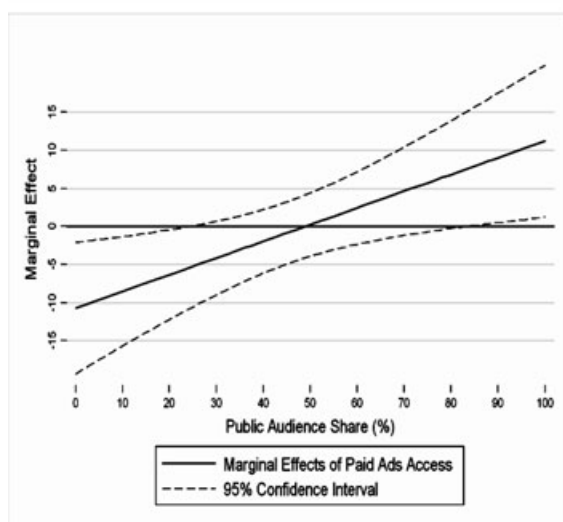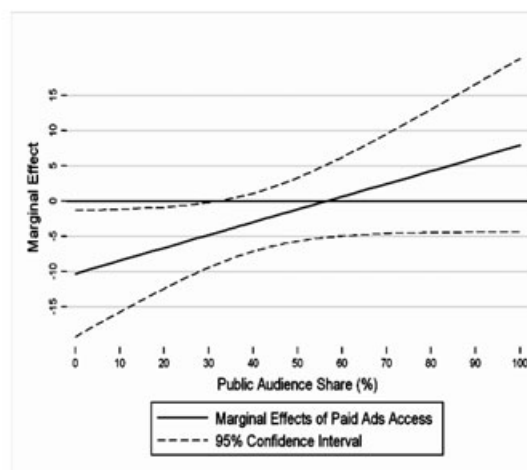
**FIGURE 1    Marginal Effect of Access to Paid Ads as Public Broadcasting Audience Share Changes**

## (1) Whole Sample (Model 6)



## (2) Advanced Democracies (Model 7)



## (3) Whole Sample (excluding Switzerland)



## (4) Advanced Democracies (excluding Switzerland)



Figure 1 displays the marginal effect of paid advertising access as levels of public broadcasting audience share change. The solid sloping line denotes the marginal effect and dashed lines indicate a 95% confidence interval based on the estimates of the Model 6 and Model 7 estimates, respectively.[22] When both the upper and lower bounds of the confidence interval are located above or below the zero line, the marginal effect is statistically significant. The significant effect is found at the highest levels of public broadcasting audience (60% and higher)

and at the lowest levels of public broadcasting audience (less than 25%). In public broadcasting systems, countries that permit paid television advertising for electioneering have higher rates of voter turnout than those that ban paid advertising. The opposite relationship holds forth in private broadcasting systems. The subsample analysis of advanced democracies also confirms the existence of such interaction effects. Access to paid advertising has a negative marginal effect in private-dominant broadcasting systems and a positive effect in public-dominant broadcasting systems. In mixed broadcasting systems, access to paid advertising does not create significant differences in voter turnout.

[22]Graphs in Figure 1 were created with the software Stata$^{TM}$ using computer code written by Brambor, Clark, and Golder (see http://homepages.nyu.edu/~mrg217/interaction.html#code).

Of the 23 countries that have public audience shares of less than 25%, a majority are Latin American. To test if such nations were a confounding factor, models were run that included a regional dummy variable for Latin America. Results of these models indicate that the dummy variable for Latin America neither changes the regression results nor produces a statistically significant effect on voter turnout. Thus, the negative interaction between access to paid advertising and private broadcasting systems is not due to the uniqueness of Latin American countries. One might also suspect that the interaction effect is largely driven by either pure private systems or pure public systems. In testing this possibility, I estimated the interaction model, excluding cases where the public broadcasting audience share is either 0 or 100. These estimates produce the same interaction effect, with the interaction term being statistically significant at the $p = 0.06$ level (results not shown in Table 2).

The interaction models have demonstrated that the effect of access to paid advertising on voter turnout depends on the structure of the broadcasting market. In public systems, the allowance of paid advertising on television is associated with higher voter turnout. Political advertising in public broadcasting systems may have an even greater tendency to activate voters due to its rareness and stylistic distinction when compared to regularly recurring programs on public television. In other words, voters are less desensitized to political commercials–which can be quite striking—than to programs or commercials they see on a regular basis. On the other hand, the negative marginal effect of access to paid advertising in highly private systems suggests that the commercialization of political communication—and thus media-centered campaigns—are related to lower voter turnout. This finding parallels the observation of Rosenstone and Hansen (1993) that citizens are less likely to vote when the main approach to promoting a candidate or party is based on mass media rather than person-to-person mobilization.

Because of the symmetric nature of multiplicative interaction models, the effect of broadcasting systems is also modified by access to paid advertising (Brambor, Clark, and Golder 2006). In Model 5, the coefficients for private systems and mixed systems represent their marginal effects when paid television ads are banned. Neither coefficient is significant. In other words, among countries without access to paid advertising, broadcasting systems do not produce significant differences in voter turnout. For those that allow political advertising, the marginal effect for private systems is $-18.7$ with $p = 0.03$, and that for mixed broadcasting systems is $-8.12$ with $p = 0.21$. Once again, significant differences in voter turnout are found between state/public and private systems only

when paid advertising is available. Models 6 and 7 show similar results. When paid advertising is allowed, public broadcasting audience share has a positive marginal effect of 0.2 ($-0.08 + 0.28$) for the whole sample, and 0.28 ($-0.11 + 0.39$) for advanced democracies. Given that about 75% of the countries in the sample allow paid advertising, a significant effect of public broadcasting is found in a large majority of electoral democracies.[23]

## Robustness Check

Regression estimates can be distorted by a single observation (or small group of observations), especially for small-sample analyses like the one in this study. Various outlier and leverage tests applied to the data (e.g., DFFIT, Cook's Distance, Leverage, and DFBETA) indicate that Switzerland is an influential outlier. In particular, Switzerland's large DFBETA values for access to television advertising and broadcasting systems seemed potentially problematic. When Switzerland is excluded from the estimation, however, results do not change for estimates in Tables 1 and 2. In fact, the only difference is with the Model 7 estimates, where the interaction term loses significance at the highest level of public audience share (see graphs (3) and (4) in Figure 1). Because of Model 7's small number of observations, it is more sensitive to an influential outlier than Models 5 and 6. In general, however, the regression estimates are robust enough that outliers do not change the key substantive findings.

## Conclusion

The empirical findings presented in this study demonstrate that the structure and means of conveying political messages affect voter turnout in democratic nations around the world. Various specifications of the models used to measure the effects of political communication systems on voter turnout produced generally consistent results. First, campaign finance systems that allow more money and electoral communication in election campaigns are associated with higher levels of voter participation. Second, while public broadcasting is correlated

[23] When the registered population is used to measure voter turnout, the overall results do not change. However, there are a few differences to note. Cross-national differences in degrees of democracy and socioeconomic development lose their explanatory power. The interactive effect of access to television ads and broadcasting systems is not significant in the analysis using the whole sample. When only advanced countries are examined, estimates do not change. This finding is due to the fact that the registration population measure of voter turnout tends to overestimate turnout of undeveloped countries, thus reducing cross-national turnout variances.

with higher levels of voter turnout, it also modifies the effect of access to paid television advertising on voter turnout.

Still unanswered is the question of what kinds of communication systems are most conducive to a democratic citizenry. Does government intervention in the media and in campaigns promote electoral participation? The empirical results suggest that what matters most is the nature of government regulations, not governmental interference per se. This finding illuminates debates over campaign finance reform. While various values are pursued in that process such as election fairness, equality, and anticorruption, citizen participation stands high. My empirical findings clearly evidence that legally established ceilings on campaign contributions and expenditures depress turnout. Conversely, public financing measures,

especially in the form of free television air time to parties and candidates, promote voter participation. In this regard, theoretical and policy discussions on campaign finance reform need to differentiate the modes of governmental regulations.

This study may also shed some light on ongoing controversies between the media malaise theory and the mobilization perspective. It offers indirect, but strong, evidence of media and campaign mobilization effects. Political communication systems that permit more electioneering communication and thus lower information costs promote voter participation. Yet, the negative effect of private broadcasting systems indicates that the free-market approach to media regulations does not create an ideal setting for the "marketplace of ideas" in fostering an engaged and participatory citizenry.

## Appendix 1

### Table A1    Turnout and Political Communication Systems in 74 Countries

| | Turnout | Election Year | Broadcasting System | Public Audience Share | Paid TV Ads | Funding Limits | Public Direct Funding | Free TV Access | Partisan Press |
|---|---|---|---|---|---|---|---|---|---|
| Albania | 81.25 | 1996, 1997 | Mixed | n/a | Yes | No | Yes | Yes | High |
| Argentina | 79.1 | 1995, 1998, 1999 | Private | 4 | Yes | Yes | Yes | Yes | Low |
| Armenia | 48.05 | 1995, 1999 | Mixed | 53 | No | Yes | No | Yes | High |
| Australia | 82.4 | 1996, 1998, 2001 | Private | 17 | Yes | No | Yes | Yes[2] | Low |
| Austria | 75.6 | 1995, 1999 | Mixed | 78 | Yes | No | Yes | Yes[3] | High |
| Belgium | 85.13 | 1995, 1999, 2003 | Mixed | 41 | No | Yes | Yes | Yes | High |
| Bolivia | 64.8 | 1997, 2002 | Private | n/a | Yes | No | Yes | Yes | High |
| Brazil | 81.65 | 1998, 2002 | Private | 11 | No | Yes | Yes | Yes | High |
| Bulgaria | 69.5 | 1997, 2001 | State/public | 75 | Yes | Yes | Yes | No | High |
| Canada | 55.85 | 1997, 2000 | Mixed | 34 | Yes | Yes | Yes | Yes | Low |
| Chile | 72.8 | 1997, 2001 | Mixed | 59 | No | No | No | Yes | High |
| Colombia | 39.25 | 1998, 2002 | Mixed | 27 | Yes | Yes | Yes | Yes | High |
| Costa Rica | 72.75 | 1998, 2002 | Private | 0 | Yes | No | Yes | Yes | Low |
| Croatia | 73.3 | 1995, 2000, 2003 | State/public | 87 | Yes | No | Yes | Yes | Low |
| Cyprus (Greek) | 76.75 | 1996, 2001 | Private | 23 | Yes | No | No | No | High |
| Czech Republic | 71.23 | 1996, 1998, 2002 | Mixed | 34 | Yes | No | Yes | Yes | Low |
| Denmark | 83.55 | 1998, 2001 | State/public | 80 | No[1] | No | Yes | Yes | High |
| Dominican Republic | 53.85 | 1996, 1998 | Private | 6.2 | Yes | No | Yes | Yes | Low |
| Ecuador | 59.93 | 1996, 1998, 2002 | Private | 0 | Yes | Yes | Yes | No | High |
| El Salvador | 33.15 | 2000, 2003 | Private | n/a | Yes | No | Yes | Yes | Low |
| Estonia | 47.4 | 1995, 1999 | Mixed | 29 | Yes | No | Yes | Yes | Low |
| Finland | 68.77 | 1995, 1999, 2003 | Mixed | 48 | Yes | No | Yes | No | Low |
| France | 66.5 | 1997, 2002 | Mixed | 43 | No | Yes | Yes | Yes | High |
| Georgia | 56.45 | 1995, 1999 | Mixed | 66 | Yes | Yes | Yes | Yes | Low |
| Germany | 73.9 | 1998, 2002 | Mixed | 61 | Yes | No | Yes | Yes | Low |
| Ghana | 66.3 | 1996, 2000 | Mixed | 33 | No | No | No | Yes | High |
| Greece | 86.45 | 1996, 2000 | Private | 8 | Yes | No | Yes | Yes | High |
| Guatemala | 36.16 | 1995, 1999, 2003 | Private | 0 | Yes | No | Yes | Yes | High |

**TABLE A1    Continued**

| | Turnout | Election Year | Broadcasting System | Public Audience Share | Paid TV Ads | Funding Limits | Public Direct Funding | Free TV Access | Partisan Press |
|---|---|---|---|---|---|---|---|---|---|
| Honduras | 68 | 1997, 2001 | Private | n/a | Yes | No | Yes | No | High |
| Hungary | 62 | 1998, 2002 | Private | 20 | Yes | Yes | Yes | Yes | High |
| India | 64.57 | 1996, 1998, 1999 | State/public | 88 | No | Yes | No | Yes | High |
| Ireland | 64.35 | 1997, 2002 | Mixed | 68 | No | No | No[4] | Yes | Low |
| Israel | 84.4 | 1996, 1999, 2001 | Mixed | 36 | No | Yes | Yes | Yes | High |
| Italy | 89 | 1994, 1996 | Mixed | 61 | Yes | Yes | Yes | Yes | High |
| Jamaica | 47.05 | 1997, 2002 | Private | 0 | Yes | No | No | No | Low |
| Japan | 59.6 | 1996, 2000, 2003 | Mixed | 39 | Yes | Yes | Yes | Yes | High |
| Korea | 60.53 | 1996, 2000, 2004 | State/public | 77 | Yes | Yes | Yes | Yes | High |
| Latvia | 51.5 | 1998, 2002 | Private | 17 | Yes | No | No | Yes | Low |
| Lithuania | 50.2 | 1996, 2000 | Private | 23 | Yes | Yes | Yes | Yes | Low |
| Macedonia | 48 | 1994, 1998 | Mixed | n/a | Yes | Yes | Yes | Yes | High |
| Malaysia | 56.5 | 1995, 1999 | Mixed | 47 | Yes | No | No | Yes | High |
| Mauritius | 78.35 | 1995, 2000 | State/public | 100 | Yes | Yes | No | Yes | Low |
| Mexico | 51.3 | 1997, 2000 | Private | 0 | Yes | Yes | Yes | Yes | Low |
| Moldova | 60.4 | 1998, 2001 | Mixed | 44 | Yes | Yes | No | Yes | High |
| Mongolia | 72.3 | 1996, 2000 | State/public | n/a | No | No | Yes | Yes | High |
| Netherlands | 74.4 | 1998, 2002, 2003 | Mixed | 57 | Yes | No | No[4] | Yes | High |
| New Zealand | 77.2 | 1996, 1999, 2002 | Mixed | 71 | Yes | Yes | Yes | Yes | High |
| Nicaragua | 78.1 | 1996, 2001 | Mixed | n/a | Yes | No | Yes | No | High |
| Norway | 76 | 1997, 2001 | Mixed | 47 | No | No | Yes | Yes | High |
| Panama | 76.1 | 1999, 2004 | Mixed | 0 | Yes | No | Yes | Yes | Low |
| Paraguay | 53.38 | 1998, 2003 | Mixed | 0 | Yes | No | Yes | Yes | High |
| Peru | 71.63 | 1995, 2000, 2001 | Private | 0 | Yes | No | No | Yes | Low |
| Philippines | 66.63 | 1995, 1998, 2001 | Private | 17 | Yes | Yes | No | Yes | High |
| Poland | 48.2 | 1997, 2001 | Mixed | 57 | Yes | Yes | Yes | Yes | High |
| Portugal | 67.86 | 1995, 1999, 2002 | Mixed | 38 | No | Yes | Yes | Yes | Low |
| Romania | 70.2 | 1996, 2000 | Mixed | 37 | Yes | Yes | Yes | Yes | Low |
| Russia | 61.35 | 1995, 1998 | State/public | 96 | Yes | Yes | Yes | Yes | Low |
| Slovakia | 74.5 | 1998, 2002 | Mixed | 35 | Yes | Yes | Yes | Yes | High |
| Slovenia | 74 | 1996, 2000 | Mixed | 55 | Yes | Yes | Yes | Yes | High |
| South Africa | 60.95 | 1999, 2004 | State/public | 100 | No | No | Yes | Yes | High |
| Spain | 77.2 | 1996, 2000 | Mixed | 43 | Yes | Yes[5] | Yes | Yes | High |
| Sri Lanka | 82.2 | 2000, 2004 | State/public | 81 | Yes | No | Yes | Yes | High |
| Sweden | 77.7 | 1998, 2002 | Mixed | 51 | No[1] | No | Yes | Yes | High |
| Switzerland | 35.93 | 1995, 1999, 2003 | State/public | 89 | No | No | No | No | High |
| Taiwan | 72.68 | 1996, 1998 | Mixed | 60 | Yes | Yes | Yes | Yes | Low |
| Thailand | 69 | 1995, 1996, 2001 | Mixed | 60 | Yes | Yes | Yes | Yes | Low |
| Trinidad & Tobago | 68.65 | 1995, 2000 | Mixed | n/a | Yes | No | No | No | Low |
| Turkey | 79.5 | 1995, 1999, 2002 | Private | 0 | No | No | Yes | Yes | Low |
| Ukraine | 66.66 | 1998, 2002 | Private | 14 | Yes | Yes | No | Yes | High |
| United Kingdom | 64.07 | 1997, 2001 | Mixed | 60 | No | Yes | No | Yes | High |
| United States | 41.15 | 1998, 2002 | Private | 0 | Yes | No | No | No | Low |
| Uruguay | 94 | 1999, 2004 | Private | 3 | Yes | No | Yes | Yes | High |
| Venezuela | 44.6 | 1998, 2000 | Private | 3 | Yes | No | No | No | High |
| Zambia | 36 | 1996, 2001 | State/public | 100 | Yes | No | No | No | High |

1. Only on local channels (Austin and Tjernström 2003); 2. Public broadcasting channels provide free time to parties based on internal policies; 3. In effect, between 1967 and 2001 (Grant 2005); 4. Only for general party administration or educational purposes, not for campaign activities (Grant 2005); 5. Spending limits imposed on media time purchase (Plasser and Plasser 2002).

## Appendix 2

### TABLE A2    Variable Descriptions and Data Sources

| Variables | Description | Mean | S.D. |
|---|---|---|---|
| Voter turnout[a] | Average voter turnout rates in national legislative elections between 1995 and 2004 [Sources: International Institute for Democracy and Electoral Assistance, etc.] | 65.8 | 14.1 |
| Level of democracy | Polity IV scores in 1999 | 8.15 | 2.25 |
| Compulsory voting | Dummy = 1 for countries with enforced mandatory voting | 0.16 | 0.37 |
| Unicameralism | Dummy = 1 if country has unicameral system | 0.53 | 0.51 |
| Average district magnitude[b] | The total number of seats allocated in the lowest tier divided by the total number of districts in that tier in 2000 | 13.4 | 31.1 |
| Socioeconomic development | The Human Development Index (HDI) in 2000 [Source: UNDP Human Development Report 2000] | 81.6 | 10.8 |
| Socially owned enterprises | Market share of state-owned enterprises (%) [Source: Djankov, McLiesh, Nenova, and Shleifer 2003] | 29.8 | 12.3 |
| State/public broadcasting system[c] | Dummy = 1 if country has state monopoly or dominantly public system | 0.16 | 0.37 |
| Private system[c] | Dummy = 1 if country has private broadcasting system | 0.32 | 0.47 |
| Mixed system[c] | Dummy = 1 if country is not state/public nor private systems | 0.51 | 0.50 |
| Partisan press[d] | Dummy = 1 if the press is partisan in the content and organizational affiliation | 0.62 | 0.49 |
| Public broadcasting audience share | Total audience share of public broadcasting channels out of aggregate audience share of the five largest television stations (Only television channels providing news content included) [Sources: Djankov et al. 2003; Eurodata/Mediametrie 2003] | 44 | 32 |
| Newspaper subscription | Number of daily newspaper subscribers per 1,000 people in population [Source: World Development Indicator 2000] | 151.7 | 131 |
| Campaign funding limits[e] | Dummy = 1 if country institutes legal campaign contribution and/or spending limit | 0.45 | 0.45 |
| Public direct funding[f] | Dummy = 1 if country provides direct public funding for electioneering purposes | 0.69 | 0.46 |
| Free TV access[g] | Dummy = 1 if country offers free TV time access | 0.80 | 0.37 |
| Access to paid TV ads[h] | Dummy = 1 if country provides access to paid television advertising to political parties and/or candidates during election campaigns | 0.74 | 0.44 |

[a]For the United States, only off-year election turnout rates are included (i.e., 1998 and 2002) to avoid crossover effects from the concurring presidential campaigns. [b]Source: Golder (2005), retrieved from http://homepages.nyu.edu/~mrg217/elections.html. Paraguay from Chang and Golden (2007). [c]Data are from Plasser and Plasser (2002), Semetko (1996), Djankov et al. (2003), Eurodata/Mediametrie (2003), etc. [d]Coded by author from data available from various sources: Hallin and Mancini (2004), World Press Encyclopedia: A Survey of Press Systems Worldwide (2003), Freedom of the Press 2002, CIA World Factbook 2002, Harcourt (2005), etc. [e]Grant (2005) for Hungary, India, Japan, South Korea, Turkey, Portugal, and Slovakia. Plasser and Plasser (2002) for Greece. and Pinto-Duschinsky (2002) for all other countries. [f]Grant (2005) for the Netherlands. Plasser and Plasser (2002) for Georgia. Austin and Tjernström (2003) for Cyprus. Pinto-Duschinsky (2002) for all other countries. [g]Grant (2005) for Australia, Austria, Ireland. Election observation mission report 2003 for Estonia. Austin and Tjernström (2003) for Croatia, Jordan, Malaysia, Moldova, Portugal, Slovenia, Sri Lanka. Pinto-Duschinsky (2002) for all other countries. [h]Portugal and Denmark from Grant (2005), Plasser and Plasser (2002) for all countries except for Croatia, Cyprus, Estonia, Malaysia, Moldova, Slovenia, Sri Lanka, and Zambia. Data for these eight countries are from country-specific literature. Data from multiple sources are cross-validated.

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