

Sincere Voting in Different Electoral Systems

Hans-Dieter Klingemann and Bernhard Wessels

*Wissenschaftszentrum Berlin für Sozialforschung (WZB)
Reichpietschufer 50
10785 Berlin
Germany*

klings@medea.wz-berlin.de

wessels@medea.wz-berlin.de

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1. Introduction

This paper discusses the impact of electoral institutions on individual voting behavior. Is there a difference in the degree to which different electoral systems allow citizens to vote by their own preferences? Or, to put it in more technical terms, is there a relationship of the possibility for sincere voting and electoral rules? Sincere voting consists of more than just the absence of strategic voting. Sincere voting means to have a clear preference for a particular political party or candidate and to vote accordingly. Thus, the vote must be based on one's own preferences. Strategic voting, on the other hand, may well be based on other considerations such as helping to bring about a certain coalition government.

It is possible to base sincere voting on a wide range of preferences which may lead to a particular voting decision such as a traditional political identification, retrospective or prospective performance evaluations of political actors or their policy positions. Preferences of an individual citizen may cumulate and taken together support a particular vote choice. However, there is also the case of preferences which are contradictory. It may well be that a voter prefers a particular political party because of its policy positions but is dissatisfied with the performance of this party's politicians. Which of the possibly contradicting evaluations will determine the voting behavior in the end?

We argue that the possibility to express preferences in elections is in part contingent on institutional arrangements, in particular the electoral system and the party system. Our two general hypotheses read as follows:

- Citizens have a higher chance to vote sincere the less electoral systems and party systems restrict the opportunity to choose. This should also hold for the case of differing preferences.
- The different elements of individual vote functions, i.e. the impact of these elements on sincere voting should be shaped by the characteristics of the electoral system and the party system.

We proceed in three steps. First, we discuss the vote functions used to explain individual level sincere voting. Second, we propose hypotheses related to the impact of the electoral

system and the party system on sincere voting. We will also describe concepts and measurements of system characteristics. Third, we present results of the empirical analysis in two sections. In the first section we analyze the relation of the electoral system and party system and sincere voting. In the second section we turn to the relation of the electoral system and the party system and the vote function.

In terms of research design we do not just try to explain voting behavior as the dependent variable by institutional characteristics of the polity. Rather, we relate differences in strength of *individual level relationships* to differences of the macro context of an election. Thus, we aim at an explanation of *micro-micro variations* by macro variables. Stein Rokkan (1969, 1970, 1978), pioneer of micro-macro approaches to explain vote choice has named this particular research design the "true" micro-macro approach.

2. Sincere Voting: the General Vote Function

Voters relate their political preferences to the supply-side of politics. The supply-side is defined by what political parties and candidates have to offer. Sincere voting is defined as the possibility to truly express individual political preferences. Electoral research has demonstrated that individual political preferences are often rather complex. However, it has also singled out core predictors of voting behavior. Which of these core determinants of individual voting behavior are likely to be influenced by the nature of the electoral system? In our analysis we rely on a social-psychological model of voting behavior which was first proposed by a team of researchers at the University of Michigan. They have described classes of variables influencing vote formation in terms of a *funnel of causality* (Campbell et al., 1960, 1966; Miller/Shanks 1996). At the wide mouth of the funnel they locate socio-economic groupings which have developed long lasting alliances with political parties (Lipset/Rokkan, 1967 Pappi, 1976) which influence party affiliation of group members. As we move down the causal funnel party loyalties are linked more explicitly to political attitudes which are of a more short-term nature. Three political objects are dominant at the narrow end of the funnel if it comes to the explanation of voting behavior: *Parties*, *candidates*, and *policy issues*. It has been demonstrated across time and countries that generalized evaluations of parties, candidates, and issues matter for electoral decisions. And it is exactly the supply of parties, candidates, and policy issues electoral systems try to facilitate or constrain.

Building on the social-psychological model we distinguish three different types of sincere voting: (1) Sincere party voting. If a voter supports a political party in an election because he likes it, we assume sincere party voting. (2) Sincere candidate voting. The

reasoning is the same. If a voter supports a candidate because he likes the person, we assume sincere candidate voting. (3) Sincere policy voting. In this case it is assumed that a voter supports a political party because the party's policy positions match his own.

It has been argued theoretically and demonstrated empirically that most preference functions are derived by comparing alternatives. This is also true for voting behavior. Most voters compare between what is offered by the various political actors before they cast their ballot (Klingemann, 1986, 1995). The probability of voting for the best-liked party in a set of parties varies with the degree of attraction ego feels for the other parties in the set. Ego's decision-rule takes into account these *differentials* in the first place.

The construction of a general vote function for the analysis of the three types of sincere voting mentioned above is based in these considerations. The function consists of the following elements which are measured as described:

- *Party liking*. Party preference of respondents is measured by their evaluation of political parties using an eleven-point like-dislike scale (Pmax).
- *Candidate liking*. Candidate preference of respondents is measured by their evaluation of candidates using an eleven-point like-dislike scale (Cmax).
- *Left-right difference*. Policy preference of respondents is measured as the difference between a respondent's position on a left-right self-placement scale and the perceived left-right position of the various political parties. The smaller the difference, the greater the policy preference for a particular political party (Lrlow).
- *Party differential*. Party differential is measured as the difference in party-liking of the highest ranked party and the party ranked second highest (Pmax - Psec).
- *Candidate differential*. Candidate differential is measured as the difference in candidate-liking of the highest ranked candidate and the candidate ranked second highest (Cmax - Csec).
- *Left-right differential*. Left-right differential is measured as the difference between the left-right difference to the closest party and the party which comes second (Lrlow - Lrseclow).

Considering these elements the vote function is defined as follows:

$$\text{Individual vote decision} = a + b_1(\text{party liking}) + b_2(\text{candidate liking}) + b_3(\text{left-right difference}) + b_4(\text{party differential}) + b_5(\text{candidate differential}) + b_6(\text{left-right differential}).$$

“Individual vote decision” is specified in accordance with the concept of sincere voting. It is “sincere” (score 1) when the decision is in line with the voter's preference, it is “not

sincere” (score 0) when vote decision and voter’s preference is incongruent. As argued above we distinguish sincere voting with respect to party, candidate, and left-right policy position. Thus, the vote function will be applied to three different dependent variables. They are defined as follows:

- *Sincere party voting.* Sincere party voting is measured as voting for the party which has received the highest score on the party like-dislike scale. If two parties are tied, voting for one or the other is regarded sincere.
- *Sincere candidate voting.* Sincere candidate voting is measured as voting for the candidate who has received the highest score on the candidate like-dislike scale. If two candidates are tied, voting for one or the other is regarded sincere.
- *Sincere left-right voting.* Sincere left-right policy voting is measured by the smallest difference between the respondent's position on the left-right self-placement scale and the party which is perceived to be closest to his own position. If two parties are tied, voting for one or the other is regarded sincere.

Since all three variables are defined as dummy variables, the vote functions are estimated using logistic regression techniques. In this framework the model can be formally expressed as follows:

$$\pi^{SV} = \frac{e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRsec)))]}}{1 + e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRsec)))]}}$$

where SV = types of sincere voting.

Each different type of sincere voting (sincere party voting, sincere candidate voting, and sincere policy voting) indicates that voters vote by their respective preferences. These preferences may be different for different objects. However, for voters as well as for political representation it may be the best of all worlds to have an opportunity structure which would allow for an expression of all three types of preferences. We consider this possibility and define a fourth dependent variable, *overall sincere voting*, which is measured by the sum of the effects of the three different types of sincere voting.

We want to emphasize that the vote function we have selected is one which mainly builds on short term influencing voting behavior. There are others which – with good reasons – for example, stress social-structural determinants of the vote. Comparative research demonstrates, in addition, that vote functions are by no means robust and its explanatory power differs considerably between countries (Paldam, 1991). Similar differences can be demonstrated for supporters of different political parties (Wessels, 1998). However, two arguments can be made in favor of our decision to propose a single general vote function. *First*, we hypothesize that the vote function should co-vary

systematically with the countries' differences in electoral systems and party systems. Thus, the general vote function is meant to demonstrate that its predictive power is not the same in countries of differing electoral arrangements. *Second*, the different political objects the general vote function considers are all subjected to an evaluation by the voter. These variables are not selected to *explain* voting behavior of individuals in an optimal and detailed fashion. Rather, its basic purpose is to test the assumption that the individually based predictive power of the general vote function should differ across countries which represent different institutional settings.

Having defined sincere voting and its determinants as a micro-micro relationship we now turn to specify hypotheses on the relation of sincere voting and the electoral system and party system. This includes a discussion of the measurement of macro characteristics.

3. Hypotheses about the Impact of Party Systems and Electoral Systems on Choice Possibilities of Citizens

We have hypothesized that institutional context matters for an individual's possibility to vote sincerely. The electoral system and party system are of particular concern. The electoral system regulates access to the alternatives the party system offers. The party system represents the supply-side. It defines the options between which voters can choose. What then are the opportunity structures for the choice possibilities of citizens generated by different institutional settings when it comes to an election?

Electoral systems are usually described by three characteristics. First, the electoral system prescribes how citizens are able to cast votes and how these votes are counted. Second, the electoral system legally defines the districts in which voting actually takes place. Third, the electoral system specifies the rules of how votes are translated into seats (Cox, 1997:38). In this analysis we deal with self-reported party vote. We do not consider more complex opportunities to choose among political alternatives. Thus, the first characteristic need not be discussed in more detail. The two other characteristics, however, are important for our analysis and deserve more attention. Combined these two characteristics of an electoral system constitute what we call an electoral system's *translation dimension*. This dimension is operationally defined by the number of seats which are allocated in a particular district (district magnitude) on the one hand and by the degree to which the proportionality principle governs the translation of votes into seats on the other (degree of disproportionality).

Party systems can also be described effectively by just a limited number of characteristics. Most important of these characteristics are (1) the number of parties which

constitute the party system, (2) the degree of political polarization along ideological or programmatic dimensions, and (3) the degree of political fragmentation. In our analysis we concentrate on two characteristics. First, we consider the the effective number of parties. Second, we analyze the degree of differentiation of the policy supply-side of the party system (political polarization). The effective number of parties defines the alternatives between voters have a choice (if they do not want to waste their votes on a small party). Differentiation of the policy supply-side indicates the variety of policy options a voter can support. We have measured the policy supply side of parties by content analysis of the parties' election manifestos (Budge et al., 1987; Klingemann et al. 1994; Budge, Klingemann, Volkens et al. 2001). Positions of parties on the left-right dimension are measured by generalizing from positions on specific policies, such as promoting freedom or democracy, market- or state-economy, anti- or pro-welfare policies and foreign policies which either emphasize security by strong military defense or, alternatively, by security through peace and détente policies. The score representing policy differentiation (or polarization) was calculated by adding absolute distances on this left-right dimension between all possible pairs of parties and then standardize this measure to the number of parties in the party system. Combined we call these two characteristics (the effective number of parties and the degree of differentiation of policy supply), the *supply dimension* of a party system.

What is the impact of the electoral system and the party system on the sincere voting decisions of the individual citizen? Let us turn to the *translation dimension* first. Cox (1997:228 ff.) has demonstrated that district magnitude is the most important characteristic in this respect in PR or SNTV systems. District magnitude primarily determines the pattern of candidate location (i.e. supply-side structures; Cox 1997:228ff.) In multi-member districts district magnitude restricts the number of viable candidates to district magnitude + 1 (Cox, 1997: 99ff.). Thus, district magnitude is of crucial importance for sincere voting since it affects the supply side and, thus, in a *formal* sense, the choice possibilities. The larger the district magnitude, the more candidates are able to win a seat. The more candidates are able to win a seat the more candidates may run for election. The more supply the higher the chance for voters to find a suitable alternative. However, the number of candidates does not necessarily mean that the supply also increases in *substantive* terms. Whether a higher number of viable candidates really means a larger number of alternatives to choose from is another question. This question can only be decided by considering the substantive alternatives represented on the supply-side. Proportionality tends to increase political choice also and is statistically closely related to district magnitude.

With regard to the policy *supply dimension*, we argue that in party systems which are characterized by a differentiated policy supply it is easier for citizens to find a political

party with a policy profile they really like. Thus sincere policy voting should be facilitated in a party systems which offer at elections citizens more substantive policy choice.

The following hypothesis is derived from these considerations:

Hypothesis 1: The less restrictive the electoral system and the more alternatives (supply) are offered by the party system, the better the opportunity structure for voters to find an offer which meets their preferences and vice versa.

This hypothesis predicts a particular outcome of the vote function depending on the characteristics of the electoral and the party system as discussed above.

A second set of hypotheses predicts differences in the vote function between different systems. We expect the following:

Hypothesis 2: The impact of party and policy related effects should be stronger the more “open” an electoral system or party system. In contrast, candidate related criteria should be negatively related to openness of the electoral system.

In addition, it can be argued, that the relative effects of the three types of sincere voting differ systematically with the characteristics of the electoral system and the party system.

More specifically, our hypotheses read as follows:

Hypothesis 3a: The relative impact of party-liking for sincere party voting should be stronger the more open the electoral system and the party system;

Hypothesis 3b: The relative impact of candidate-liking for sincere candidate voting should be weaker the more open the electoral system and the party system;

Hypothesis 3c: The relative impact of policy position for sincere policy voting should be stronger the more open the electoral system and the party system.

The argument implies that sincere party and policy voting should be encouraged by a more open electoral system whereas sincere candidate voting would profit from a more closed electoral system.

To test these hypotheses we construct indicators which are designed to represent the *translation dimension* of the electoral systems and the *supply dimension* of the party systems. The various characteristics are presented in Table 1.

--- Table 1 about here ---

Altogether, 43 elections in 31 countries are – in various ways – included in the analysis. For countries with two tiers, both are included to indicate which characteristics we are going to use for the analysis relating the micro and macro level. For purposes of the our analysis we distinguish between East and West Germany, particularly with respect to

differences in the various party systems. A similar argument can be made with respect to Belgium. We will take this up in a next version of this paper.

Unfortunately, not all micro-variables are available for all countries and tiers as presented in Table 1 (see also appendix Table A1). For these reasons analyses exclude Belgium, Peru, USA, Thailand, and Chile.

As has been hypothesized and empirically demonstrated otherwise, electoral system and party system characteristics are related. This relationship is also confirmed when we relate the translation and the supply dimension. The general result holds: the less restrictive the electoral system the more differentiated the supply side of the party system.

--- Figure 1 about here ---

However, this is by no means a deterministic relationship. There are countries which are in a kind of “dis-equilibrium”. The supply-side is much weaker than expected in Hong Kong 1998, Mexico 1997 and 2000, Taiwan, and Belarus. It is strongly much more differentiated than expected in Canada, Israel, and Romania’s presidential election.

4. Sincere Voting and System Characteristics

4.1. Overall Sincere Voting

Hypothesis 1 states that the possibility to vote sincere (that is considering several modes of sincere voting) increases with the openness of the electoral system and the party system. The reason for this is as simple as it is straight forward: if a system provides for choice voters can more easily find a match for all their various preferences. In all likelihood this will also be reflected in the degree of subjective political representation. Voters which have an opportunity to express all relevant preferences would most certainly also feel represented in their various representative bodies.

Results support the hypothesis in general, although not very strongly. Scatterplots indicate that the relationship is more orderly with regard to the supply dimension than with regard to the translation dimension.

--- Figure 2 about here ---

4.2. The Impact of Party, Candidate, and Policy Evaluation on Types of Sincere Voting

Hypothesis 2 states that party and policy related evaluations should have a stronger impact on individual voting behavior in the more “open” electoral systems and party systems. In contrast, candidate criteria should be negatively related to the openness of the electoral system. Again, there is a very simple argument to support this hypothesis: Political parties dominate an open electoral system and party system. Candidates, on the other hand, dominate a more closed electoral system and party system.

Results support this hypothesis to a certain extent. First, in more open systems party and policy effects on sincere voting are stronger than in the more restrictive systems. This is true for all three types of sincere voting. However, only the correlations of sincere party voting and the two system dimensions are significant. For sincere left-right voting this is true only for the correlation with the supply dimension. As far as sincere candidate voting is concerned candidate evaluation correlation coefficients always show the correct sign but correlation coefficients are rather low except for sincere candidate voting and indicators of political supply.

--- Table 2 about here ---

--- Figure 3 about here ---

Some more detailed observations would be certainly be in order. However, we do not want to consider a more differentiated presentation today. Rather, we want to turn to the question of the question of the relative impact of elements in different institutional settings and decision situations.

4.2. The Relative Impact of Party, Candidate, and Policy Preferences on Types of Sincere Voting

Hypothesis 3 states that the relative impact of elements of the vote functions depends on the relative strength of characteristics of the electoral system and the party system. More specifically, the more open the electoral system and the more choice offered by the party system the higher the probability of sincere voting overall and on all three counts.

This question relates to both the impact of electoral institutions on party or candidate vote and the general “partysization” of the electoral system. We measure partysization by relating party and candidate effects. The stronger the party effect relative to candidate the candidate effect the more partysized the electoral system. And, in reverse, the stronger the candidate effect relative to the party effect the more personalized the electoral system. A reasoning similar to what has been said for partysization holds for the relation of the policy effect to the party and candidate effects.

Turning to the the first question, we can make good use of four elections which are governed by mixed electoral systems. This allows for a direct test of the impact of the mode of voting holding all other system characteristics constant. Our hypothesis would predict that the relative impact of candidate liking in the vote functions should be stronger for the candidate vote than than for the list vote and vice versa. Since we have split Germany into East Germany and West Germany, we can test this assumption for five elections and the three types of sincere voting we have distinguished. Results show that the hypothesis is supported although the support is not very strong. It is confirmed in just nine of the fifteen test cases.

---- Table 3 about here ---

The second question is related to the relative impact of the ratio of party effects to candidate effects. Here we expect a higher impact of partysization in open electoral systems and party systems. The analysis shows the expected results: The more open the systems the stronger the party effect on sincere party voting. As far as sincere candidate voting is concerned the impact of the ratio of candidate to party effects is stronger the more restrictive the electoral system. The same applies to the ratio of candidate to policy effects. These results speak in favor of our hypothesis. This is also true with respect to the effect of the ratio of the left-right policy distance and candidate evaluation. However, our hypothesis is not supported in case of the impact of the ratio of the party effect to left-right effect on sincere party voting and in case of the impact of the ratio of left-right policy effect to party effect as far as sincere left-right voting is concerned. This result points to the close interrelationship of the party and the policy dimensions.

--- Table 4 about here ---

--- Figure 4 about here ---

The final proposition was concerned with the relation of the sum of party-, candidate- and left-right policy-effects and the type of the electoral system and party system. Given our earlier findings that sincere voting is facilitated by the degree of openness of these systems it could be expected that also the cumulated measure would point in the same direction. Correlations coefficients demonstrate that this is indeed the case for sincere party and left-right voting. For sincere candidate voting, however, the effects cannot be interpreted as easily.

--- Table 5 about here ---

--- Figure 5 about here ---

5. Summary of Results

We have discussed the problem whether or not *sincere voting* as an individual level phenomenon is supported or restricted by structural characteristics of different electoral systems and party systems. *Sincere voting* has been defined on the individual level in terms of three vote functions.

We have tried to answer three questions. First, does the overall amount of sincere voting increase with the degree of openness of the electoral system and the party system? Second, is the party effect as measured by the vote function is positively and the candidate effect negatively related to the degree of openness of the electoral system and the party system? Third, as far as the impact of the various ratios of the party-, candidate, and left-right policy-effects are concerned, can we, again, observe an influence of the degree of the openness of the electoral system and the party system which goes in the expected direction: a positive relation in case of the party factor for sincere party voting and a negative effect in case of the candidate factor.

Most empirical findings support our hypotheses: The less restrictive an electoral system and the more differentiated the political supply, the greater the opportunity for the voter to vote in line with his preferences and the higher the impact of these preferences on his voting decision. However, the relationships observed are not very strong. The lesson to learn from these results seems to be obvious anyway: Don't restrict political supply by electoral engineering, if you want to maximize representation not only in terms of who represents but also with regard to the expression of preferences in vote decisions.

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Table 1: Macro characteristics of electoral and party systems in 43 elections in 31 countries

Country / Study	Log. Of weighted district magn.	Disprop. (Rae)	Transformation	Eff. no. of parties (votes)	Left-Right Polarization (Party Manifestos)	Supply	Transformation + Supply
Aus	0,00	6,60	2	2,80	13,23	21	23
Bel	0,88	1,15	61	10,19	28,57	60	122
Can	0,00	3,19	28	4,09	74,28	68	96
Cze	1,40	3,19	56	5,21	40,90	59	116
Den	1,18	0,18	75	4,73	75,83	72	147
Ger	1,03	1,68	60	3,30	67,20	61	122
HoK 98	1,37	1,98	65	2,40		27	92
HoK 00	1,40		59				
Hun L	1,09	3,64	47	4,42	36,86	53	100
Hun C	1,09	3,64	47	4,42	36,86	53	100
Isr	2,08	0,49	91	7,58	107,14	93	183
Jap L	0,90	4,03	40	4,28	26,93	45	85
Jap C	0,90	4,03	40	4,28	26,93	45	85
Kor	0,93	3,49	45	2,82		35	80
Lit	1,55	1,84	70	5,61		70	140
Mex 97	2,41	3,05	78	3,28	26,74	33	111
Mex 00	2,41		100		26,74	29	129
Net	2,18	0,51	93	5,14	49,91	59	151
NZe L	1,41	1,76	68	4,38	97,57	78	145
NZe C	1,41	1,76	68	4,38	97,57	78	145
Nor	0,94	1,23	62	5,07	77,64	72	134
Per	0,68	0,68	61	4,06		54	115
Pol	1,22	5,27	37	4,50	13,36	30	67
Rom	0,89	2,71	50	4,14	27,75	40	90
Rus	2,05	2,55	75	5,90	46,36	64	138
Slov	1,03	2,43	55	6,06	32,93	55	110

Table continues next page

Abbrev.

L = list vote

C = candid. vote

Pr = pres. vote

96, 97, 98, 00 = years

Transformation:

Log (weighted district magn.) and disproportionality (Rae) standardized to scales from 0 to 100. Standardized scales subtracted. If one scale has missing values, standardized score of the available have been taken.

Supply:

Effective number of parties (votest) and left-right polarization of party system (calculated from party manifestos) standardized to scales from 0 to 100. Scales added and divided by 2. If one scale has missing values, standardized score of the available have been taken.

Table 2: Correlations between effects (exp B^a) on types of sincere voting and macro characteristics

exp B of:	Correlations						
	Log WDMag	Disprop Rae	Translation dimension	No. of effective parties, votes	Left-Right Supply	Supply Dimension	Translation + Supply
PVote							
- Pmax	0,2621*	-0,1370	0,3241**	0,5188***	-0,1157	0,3361**	0,3818**
- Cmax	-0,1500	-0,0689	-0,1142	-0,2685*	-0,0688	-0,1090	-0,1243
- LRlow	0,1534	-0,4231**	0,2689*	0,2360	0,3723**	0,3702**	0,3564**
CVote							
- Pmax	0,2515*	-0,0834	0,3010**	0,5742***	-0,1037	0,3822***	0,3747**
- Cmax	-0,0087	-0,1026	-0,0360	-0,0586	-0,2344	-0,2573*	-0,1415
- LRlow	0,0689	-0,2776	0,1298	0,1863	0,2221	0,2041	0,1873
LR-Vote							
- Pmax	0,2841*	-0,2685	0,3495**	0,5167***	-0,0993	0,3224**	0,3837**
- Cmax	-0,1693	-0,1834	-0,1528	-0,1618	-0,1166	-0,0823	-0,1463
- LRlow	0,1103	-0,2935*	0,1999	0,2274	0,3704**	0,3745**	0,3059**

* p >= .10

** p >= .05

*** p >= .01

a If $\exp B > 1 = \exp B$; if $\exp B < 1 = 1 / \exp B$.

$$\pi SV = \frac{e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRseclow))]} }{1 + e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRseclow))]}}$$

where SV = types of sincere voting.

Table 3: Difference in effects of party and candidate evaluation in two-tier systems

Standardized exp B						
Country / Tier	Type of Sincere Voting	Pmax	Cmax	Lrlow	Pmax/Cmax	if C: P/C smaller?
Hun L	Sinc Pvote	1,26	1,08	1,15	1,17	
Hun C	Sinc Pvote	1,22	1,13	1,14	1,08	yes
Hun L	Sinc Cvote	1,25	1,11	1,13	1,13	
Hun C	Sinc Cvote	1,23	1,13	1,13	1,09	yes
Hun L	Sinc LRVote	1,25	1,03	1,32	1,21	
Hun C	Sinc LRVote	1,29	1,02	1,27	1,26	no
Nze L	Sinc Pvote	1,21	1,06	1,15	1,14	
Nze C	Sinc Pvote	1,13	1,04	1,03	1,09	yes
Nze L	Sinc Cvote	1,04	1,13	1,08	0,92	
Nze C	Sinc Cvote	1,07	1,09	1,03	0,98	no
Nze L	Sinc LRVote	1,08	1,01	1,17	1,07	
Nze C	Sinc LRVote	1,07	1,05	1,10	1,02	yes
Jap L	Sinc Pvote	1,37	1,03	1,06	1,33	
Jap C	Sinc Pvote	1,31	1,03	1,00	1,27	yes
Jap L	Sinc Cvote	1,19	1,16	1,02	1,03	
Jap C	Sinc Cvote	1,14	1,14	1,06	1,00	yes
Jap L	Sinc LRVote	1,14	1,01	1,10	1,13	
Jap C	Sinc LRVote	1,12	1,01	1,10	1,11	yes
Wge L	Sinc Pvote	1,05	1,13	1,27	0,93	
Weg C	Sinc Pvote	1,01	1,18	1,14	0,86	yes
Wge L	Sinc Cvote	1,11	1,13	1,15	0,98	
Weg C	Sinc Cvote	1,11	1,14	1,04	0,97	yes
Wge L	Sinc LRVote	1,06	1,05	1,15	1,01	
Weg C	Sinc LRVote	1,10	1,05	1,15	1,05	no
Ege L	Sinc Pvote	1,15	1,12	1,18	1,03	
Ege C	Sinc Pvote	1,19	1,12	1,19	1,06	no
Ege L	Sinc Cvote	1,18	1,17	1,12	1,01	
Ege C	Sinc Cvote	1,20	1,17	1,09	1,03	no
Ege L	Sinc LRVote	1,11	1,11	1,11	1,00	
Ege C	Sinc LRVote	1,10	1,10	1,12	1,00	no

Table 4: Ratio of effects (exp B) for types of sincere voting

	Sincere Party Vote		Sincere Candidate Vote		Sincere LR-Vote	
	exp B	exp B	exp B	exp B	exp B	exp B
	Pmax/Cmax	Pmax/Lrlow	Cmax/Pmax	Cmax/Lrlow	Lrlow/Pmax	Lrlow/Cmax
Aus	0,92	0,91	1,09	0,95	1,01	0,98
Bel						
Can	1,06	1,07	1,00	1,08	1,06	1,06
Cze	1,38	1,15	0,91	0,87	1,07	1,15
Den	1,47	0,79	0,94	0,70	1,23	1,57
Ger						
HoK 98	1,09	1,09	1,00	1,00	1,01	1,07
HoK 00	1,00	1,06	1,03	1,18	0,95	0,92
Hun L	1,16	1,09	0,89	0,99	1,05	1,27
Hun C	1,07	1,07	0,92	1,00	0,98	1,24
Isr	1,08	0,85	1,01	0,86	1,12	1,23
Jap L	1,33	1,29	0,97	1,13	0,97	1,09
Jap C	1,28	1,31	1,00	1,08	0,99	1,09
Kor	1,12	1,11	0,99	1,02	0,91	1,02
Lit			1,00	0,86	0,81	0,93
Mex 97	0,89	1,01	1,07	1,09	1,01	0,97
Mex 00	1,24	1,26	1,35	1,32	0,90	0,97
Net	1,00	0,92	1,16	1,04	0,90	0,93
NZe L	1,14	1,05	1,08	1,05	1,09	1,16
NZe C	1,08	1,09	1,02	1,06	1,02	1,05
Nor	1,43	1,25	0,86	0,98	0,97	1,18
Per						
Pol	1,18	1,21	1,00	1,07	0,81	0,92
Rom	1,06	1,04	1,05	0,98	0,99	0,92
Rus	1,39	1,34	0,90	1,11	0,86	1,00
Slov	1,19	1,23	0,95	1,09	0,91	1,03
Spa 96	1,24	1,14	0,80	0,91	0,86	1,03
Spa 00	0,74	1,04	1,31	1,33	0,95	0,80
Swe	1,37	1,24	0,90	1,09	0,81	0,99
Swi	1,29	1,10	1,01	1,03	0,76	1,00
Tai	1,05	1,13	1,09	1,05		
USA						
Ukr	1,28	1,19	0,93	1,19	0,87	1,11
GB	1,18	1,26	1,06	1,14	0,90	0,97
Tha						
WGer L	0,93	0,83	1,02	0,98	1,09	1,09
EGer L	1,02	0,97	0,99	1,05	1,00	1,00
WGer C	0,86	0,88	1,02	1,10	1,05	1,09
EGer C	1,06	1,00	0,98	1,07	1,02	1,02
BRu	1,17	1,01	1,24	1,09	1,04	1,12
Chi						
Isr Pr	0,94	0,91	1,11	1,07	0,98	0,95
Lit Pr	1,02	1,23	1,17	1,22	1,01	0,87
Mex Pr	1,19	1,21	1,35	1,30	0,92	1,00
Per Pr	0,99	0,91	1,00	0,92	0,93	0,86
Rom Pr	0,99	1,09	1,03	0,96	1,04	0,95
Rus Pr	0,89	1,01	1,16	1,17	0,97	1,03
Tai Pr	0,91	0,96	1,02	1,00	1,01	1,07
USA Pr						
MEAN	1,11	1,08	1,03	1,05	0,97	1,04
Corr with						
Translation dim	0,31**	0,04	-0,22	-0,18	-0,08	0,25
Supply dimensi	0,30*	-0,05	-0,46***	-0,32*	0,16	0,38**
Transl.+ Supply	0,35**	0,01	-0,36**	-0,22	0,02	0,34**

If exp B > 1 = exp B; if exp B < 1 = 1 / exp B.

Table 5: Correlations between sum of effects (exp B^a) on types of sincere voting and macro characteristics

Sum of exp B of party, candidate, and left-right:	Correlations						
	Log WDMag	Disprop Rae	Translation dimension	No. of effective parties, votes	Left-Right Supply	Supply Dimension	Translation + Supply
Sincere party voting	0,2027	-0,3911**	0,3280**	0,3683**	0,1736	0,4075***	0,4195***
Sincere candidate voting	0,1521	-0,2529	0,1977	0,3388**	-0,0031	0,1695	0,2131
Sincere left-right votin	0,1542	-0,3604**	0,2461	0,3427**	0,1633	0,3611**	0,3294**

* p >= .10

** p >= .05

*** p >= .01

a If exp B > 1 = exp B; if exp B < 1 = 1 / exp B.

$$\pi SV = \frac{e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRseclow)))]}}{1 + e^{[(a + b1 (Pmax) + b2 (Cmax) + b3 (LRlow) + b4 (Pmax - Psec) + b5 (Cmax - Csec) + b6 (abs (LRlow - LRseclow)))]}}$$

where SV = types of sincere voting.

Table A1: Nagelkerke's R² for models of sincere voting

No	Country	Cou/Year/Tier	Variable	Types of sincere voting		
				Party	Candidate	Left-Right
1	Australia	Aus	Candidate vote	0,069	0,059	0,090
2		Bel				
3	Canada	Can	Candidate vote	0,074	0,104	0,056
4	Czech Republic	Cze	List vote	0,174	0,191	0,138
5	Denmark	Den	List vote	0,241	0,231	0,191
6		Ger				
7	Hong Kong '98	HoK 98	List vote	0,038	0,077	0,162
8	Hon Kong '00	HoK 00	List vote	0,163	0,149	0,127
9	Hungary	Hun L	List vote	0,104	0,123	0,111
10	Hungary	Hun C	Candidate vote	0,109	0,119	0,107
11	Israel	Isr	List vote	0,100	0,109	0,086
12	Japan	Jap L	List vote	0,135	0,135	0,083
13	Japan	Jap C	Candidate vote	0,082	0,126	0,067
14	Korea	Kor	List vote	0,024	0,047	0,091
15	Lithuania	Lit	List vote	0,227	0,068	0,156
16	Mexico '97	Mex 97	Candidate vote	0,048	0,046	0,082
17	Mexico '00	Mex 00	Candidate vote	0,101	0,219	0,064
18	Netherlands	Net	List vote	0,064	0,088	0,055
19	New Zealand	NZe L	List vote	0,049	0,065	0,047
20	New Zealand	NZe C	Candidate vote	0,019	0,043	0,054
21	Norway	Nor	List vote	0,096	0,122	0,095
22		Per				
23	Poland	Pol	List vote	0,126	0,133	0,095
24	Romania	Rom	List vote	0,050	0,259	0,109
25	Russia	Rus	List vote	0,151	0,131	0,100
26	Slovenia	Slov	List vote	0,122	0,129	0,067
27	Spain '96	Spa 96	List vote	0,075	0,094	0,106
28	Spain '00	Spa 00	List vote	0,246	0,232	0,224
29	Sweden	Swe	List vote	0,157	0,116	0,116
30	Switzerland	Swi	List vote	0,122	0,077	0,134
31	Taiwan	Tai	Candidate vote	0,073	0,098	0,029
32		USA				
33	Ukraine	Ukr	List vote	0,267	0,381	0,262
34	Great Britain"	GB	Candidate vote	0,115	0,126	0,082
35		Tha				
36	West Germany	WGer L	List vote	0,049	0,074	0,128
37	East Germany	EGer L	List vote	0,069	0,105	0,074
38	West Germany	WGer C	Candidate vote	0,042	0,068	0,150
39	East Germany	EGer C	Candidate vote	0,097	0,097	0,059
40	Belarus	BRu	President vote	0,097	0,239	0,144
41		Chi				
42	Israel	Isr Pr	President vote	0,045	0,104	0,064
43	Lithuania	Lit Pr	President vote	0,107	0,098	0,111
44	Mexico '00	Mex Pr	President vote	0,083	0,224	0,052
45	Peru	Per Pr	President vote	0,020	0,016	0,036
46	Romania	Rom Pr	President vote	0,075	0,174	0,153
47	Russia	Rus Pr	President vote	0,077	0,074	0,062
48	Taiwan	Tai Pr	President vote	0,215	0,247	0,254
49		USA Pr				
Total Mean				0,105	0,129	0,107
Mean Party				0,103	0,121	0,097
Mean Cand				0,119	0,134	0,124
Mean Pres				0,090	0,147	0,110

Figure 1: Translation and supply in 43 elections

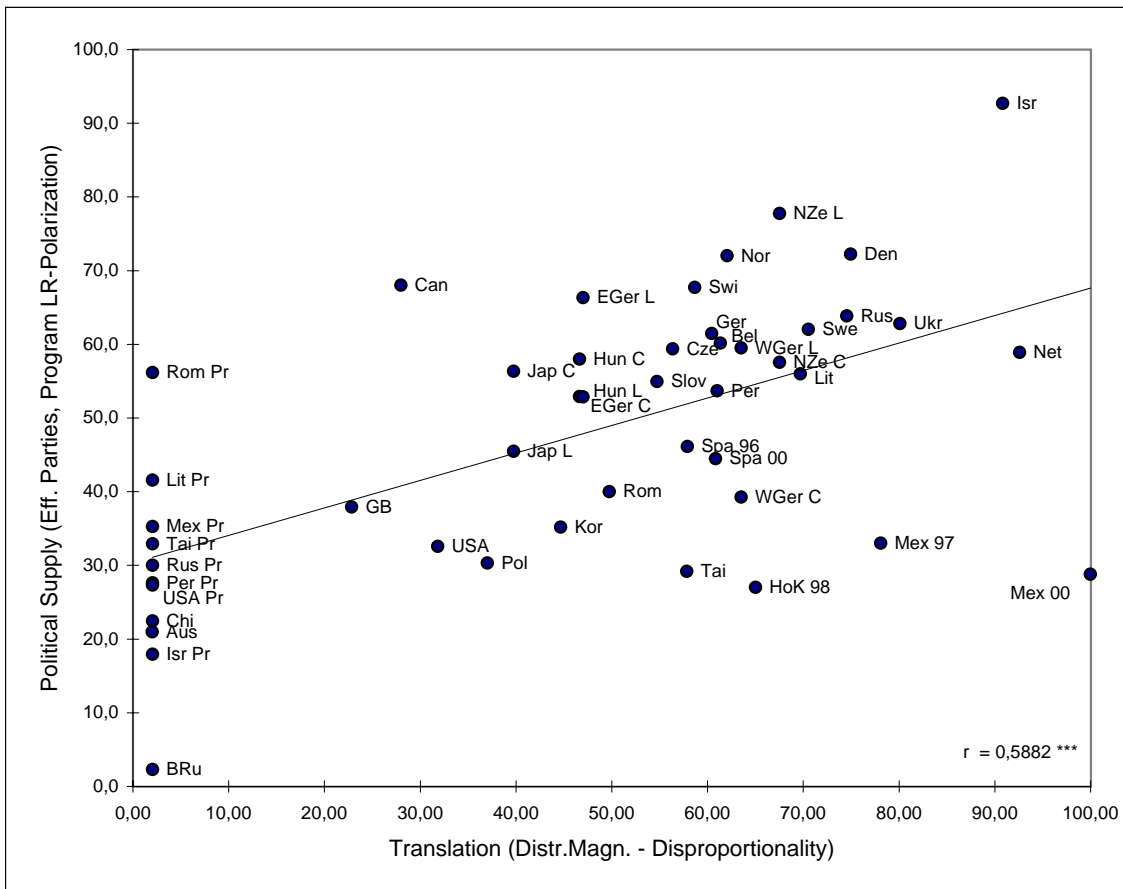


Figure 2: Translation, supply and consistency of types of sincere voting

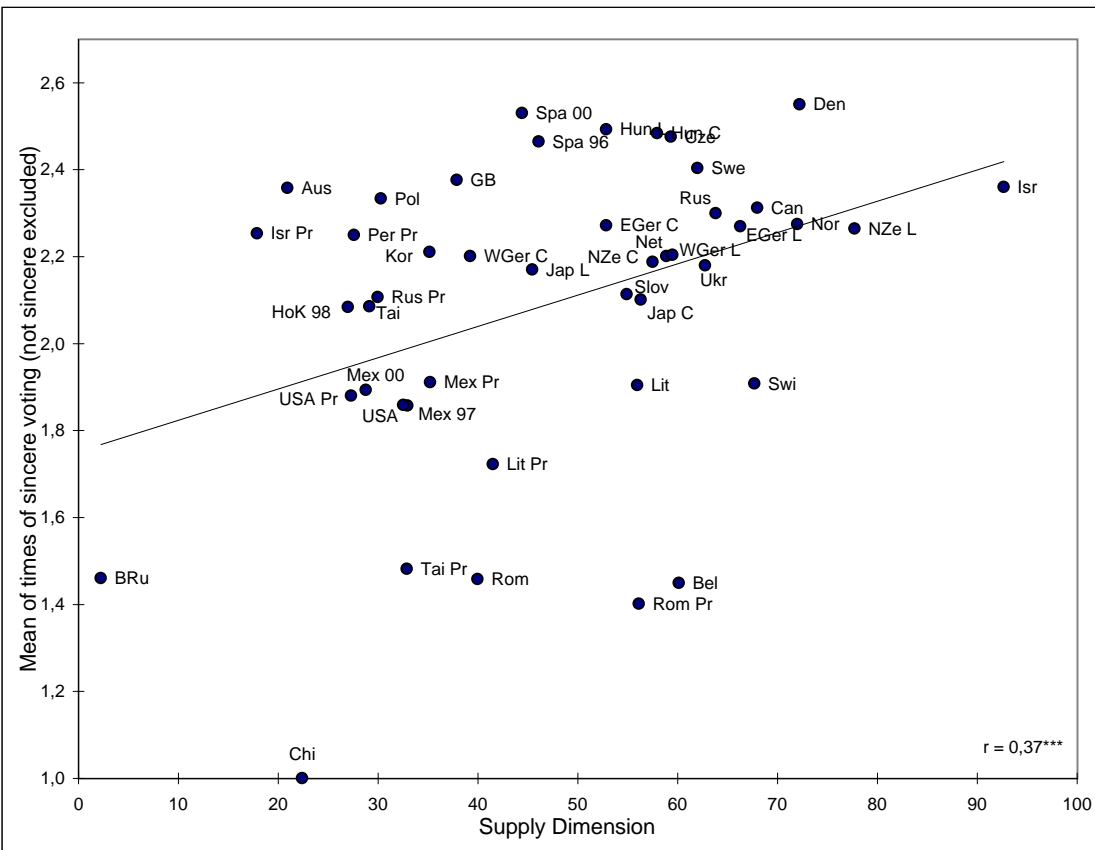
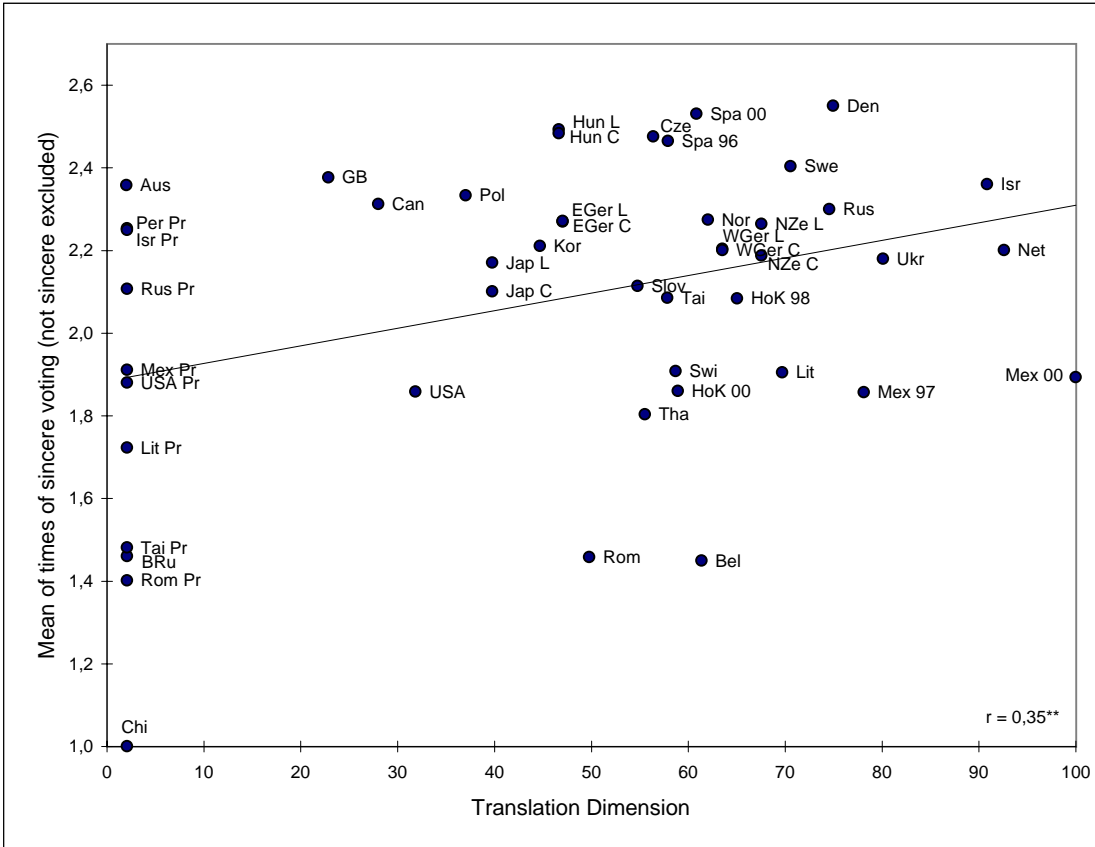


Figure 3: Translation, supply and effect of party rating on sincere party voting

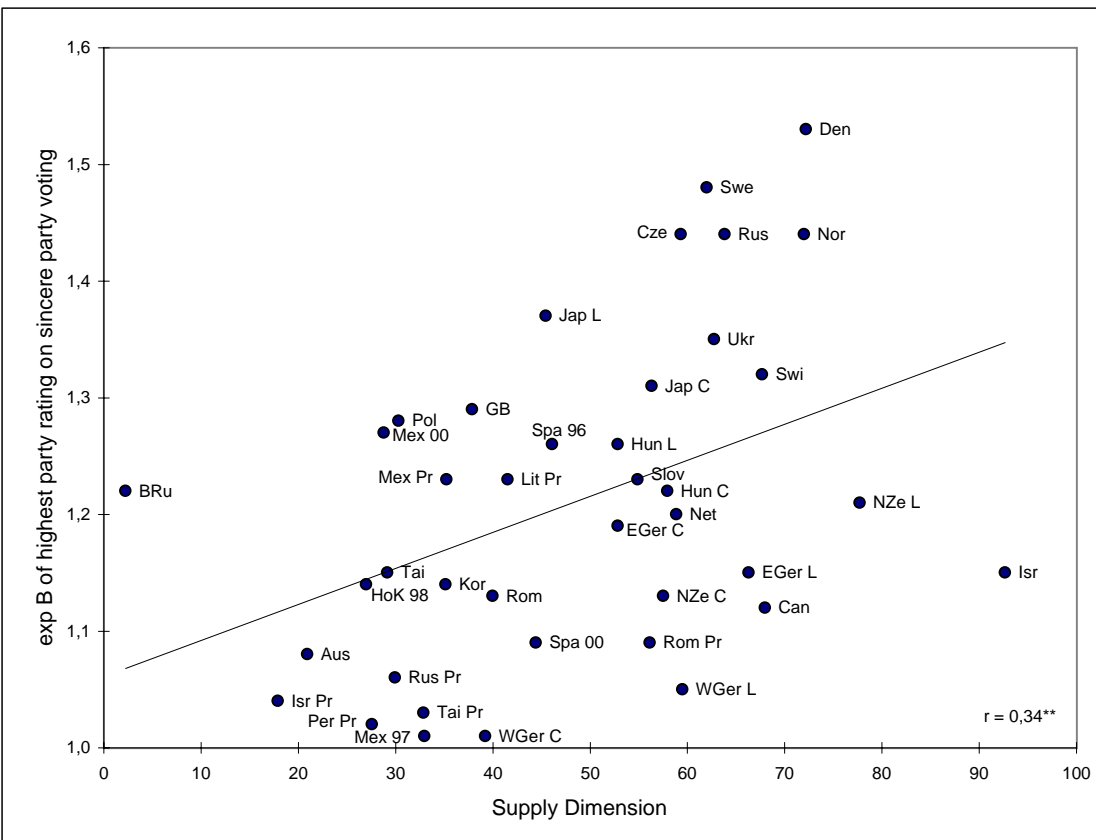
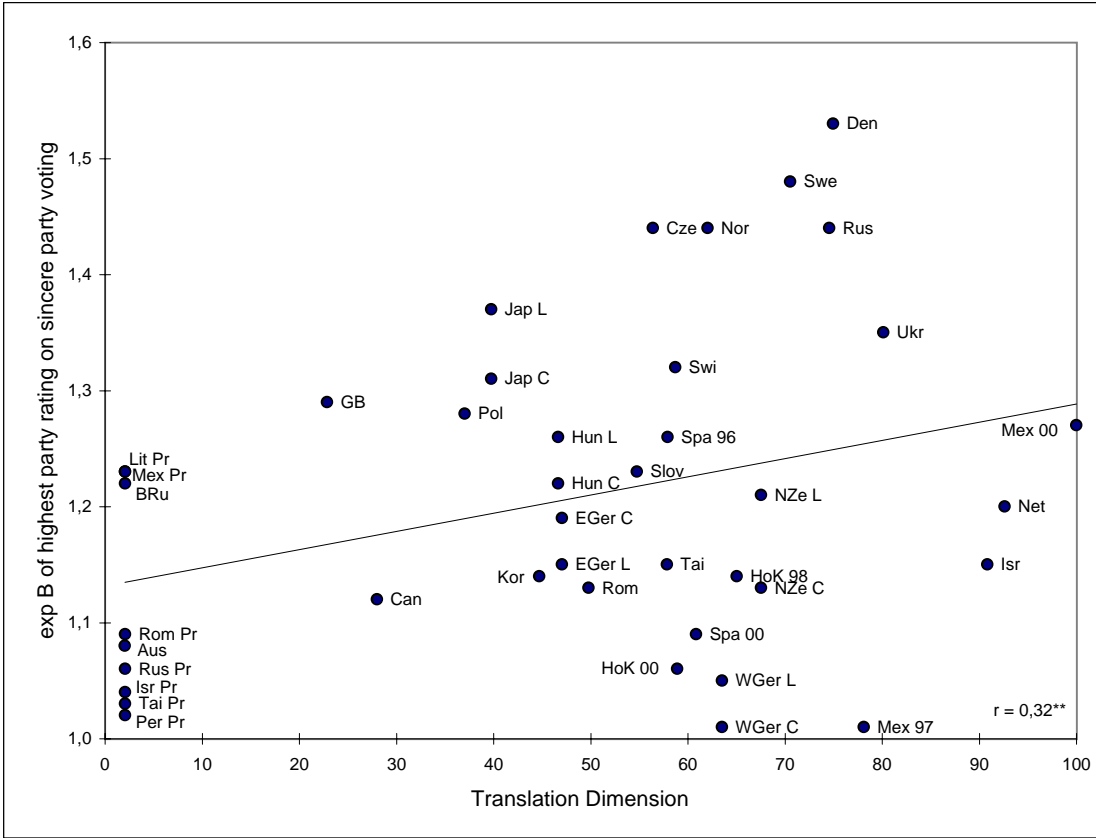


Figure 4: Translation, supply and the ratio of the effects of party and candidate rating on sincere party voting

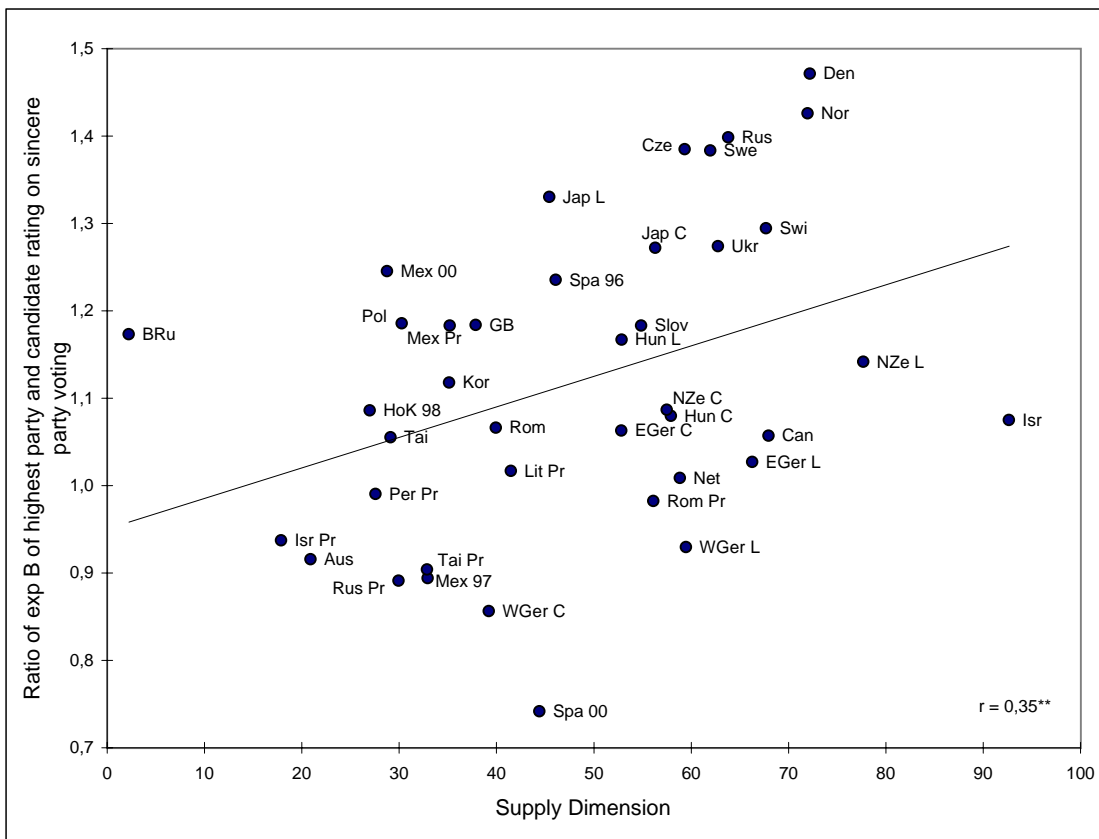
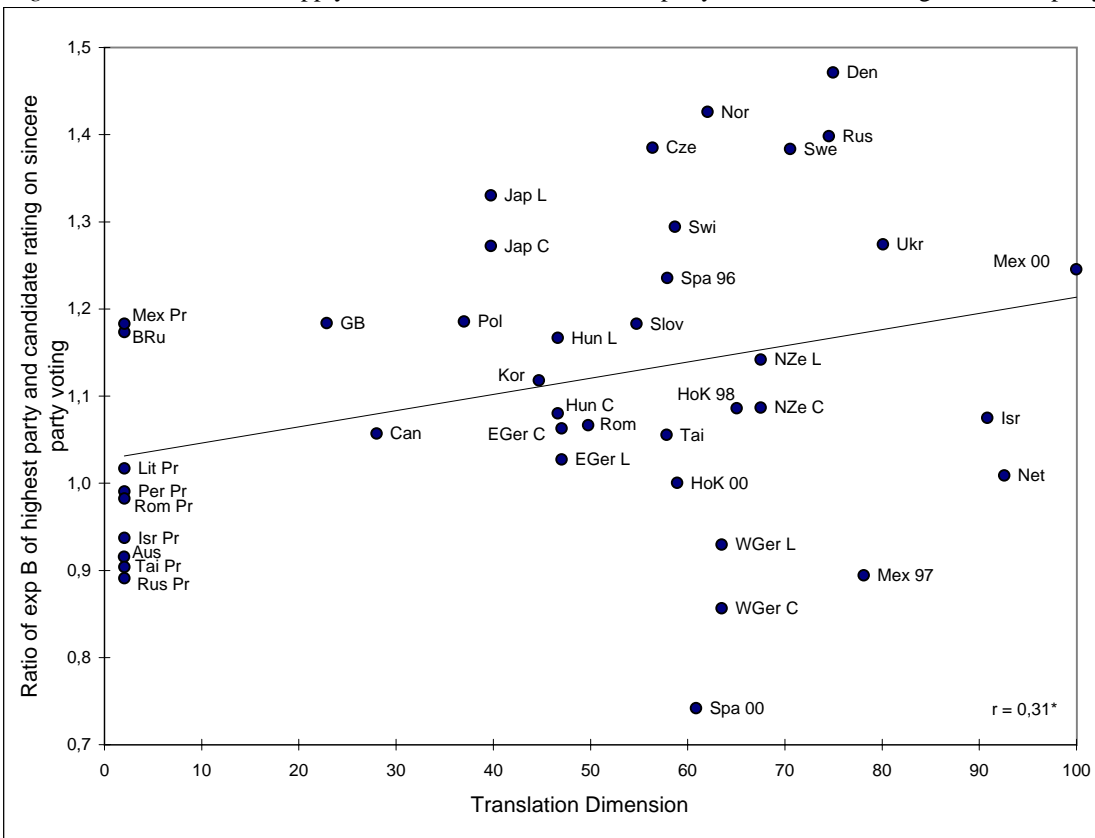


Figure 5: Translation, supply and sum of effects of party and candidate rating and left-right distance on sincere party voting

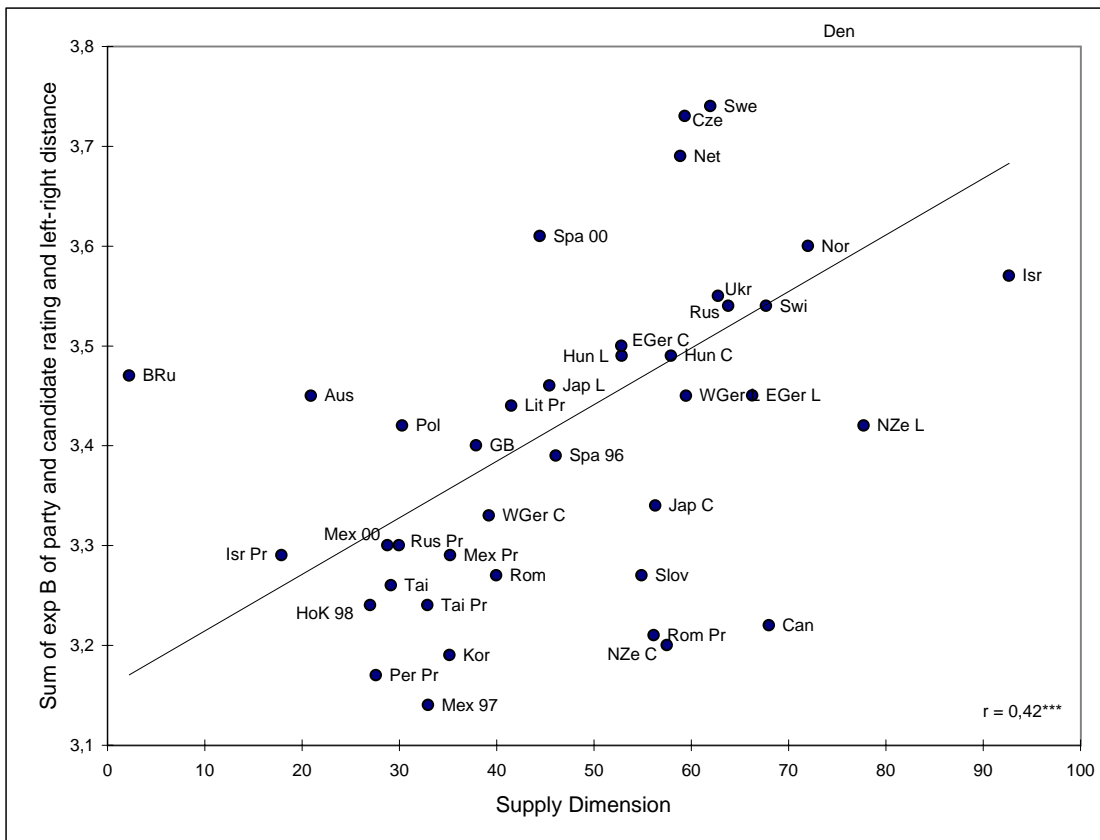
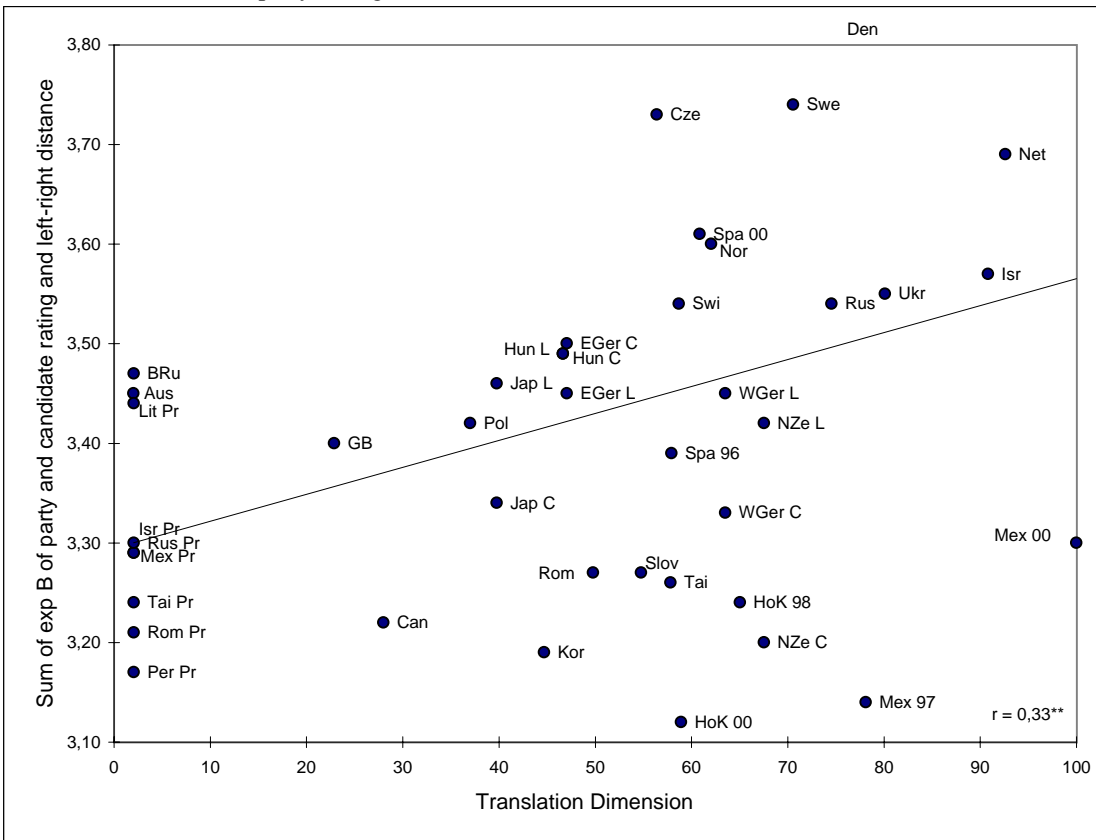


Table 1: Macro characteristics of electoral and party systems in 43 elections in 31 countries

Country / Study	Log. Of weighted district magn.	Disprop. (Rae)	Transformation	Eff. no. of parties (votes)	Left-Right Polarization (Party Manifestos)	Supply	Transformation + Supply
Aus	0,00	6,60	2	2,80	13,23	21	23
Bel	0,88	1,15	61	10,19	28,57	60	122
Can	0,00	3,19	28	4,09	74,28	68	96
Cze	1,40	3,19	56	5,21	40,90	59	116
Den	1,18	0,18	75	4,73	75,83	72	147
Ger	1,03	1,68	60	3,30	67,20	61	122
HoK 98	1,37	1,98	65	2,40		27	92
HoK 00	1,40		59				
Hun L	1,09	3,64	47	4,42	36,86	53	100
Hun C	1,09	3,64	47	4,42	36,86	53	100
Isr	2,08	0,49	91	7,58	107,14	93	183
Jap L	0,90	4,03	40	4,28	26,93	45	85
Jap C	0,90	4,03	40	4,28	26,93	45	85
Kor	0,93	3,49	45	2,82		35	80
Lit	1,55	1,84	70	5,61		70	140
Mex 97	2,41	3,05	78	3,28	26,74	33	111
Mex 00	2,41		100		26,74	29	129
Net	2,18	0,51	93	5,14	49,91	59	151
NZe L	1,41	1,76	68	4,38	97,57	78	145
NZe C	1,41	1,76	68	4,38	97,57	78	145
Nor	0,94	1,23	62	5,07	77,64	72	134
Per	0,68	0,68	61	4,06		54	115
Pol	1,22	5,27	37	4,50	13,36	30	67
Rom	0,89	2,71	50	4,14	27,75	40	90
Rus	2,05	2,55	75	5,90	46,36	64	138
Slov	1,03	2,43	55	6,06	32,93	55	110

Table continues next page

Abbrev.

L = list vote

C = candid. vote

Pr = pres. vote

96, 97, 98, 00 = years

Transformation:

Log (weighted district magn.) and disproportionality (Rae) standardized to scales from 0 to 100. Standardized scales subtracted. If one scale has missing values, standardized score of the available have been taken.

Supply:

Effective number of parties (votest) and left-right polarization of party system (calculated from party manifestos) standardized to scales from 0 to 100. Scales added and divided by 2. If one scale has missing values, standardized score of the available have been taken.

Table continues

Country / Study	Log. Of weighted district magn.	Disprop. (Rae)	Transformation	Eff. no. of parties (votes)	Left-Right Polarization (Party Manifestos)	Supply	Transformation + Supply
Spa 96	0,83	1,47	58	3,26	43,20	46	104
Spa 00	0,83	1,09	61	2,79	41,47	44	105
Swe	1,14	0,65	71	4,54	53,56	62	133
Swi	0,96	1,72	59	5,83	50,56	68	126
Tai	0,97	1,87	58	2,50		29	87
USA	0,00	2,69	32	2,14	27,39	33	64
Ukr	2,05	1,82	80	8,87	37,18	63	143
GB	0,00	3,87	23	3,22	22,53	38	61
Tha	1,32		56				
WGer L	1,11	1,49	64	3,05	67,20	59	123
EGer L	0,78	2,78	47	4,00	67,20	66	113
WGer C	1,11	1,49	64	3,05	67,20	59	123
EGer C	0,78	2,78	47	4,00	67,20	66	113
BRu	0,00		2	1,47		02	4
Chi	0,00		2	2,19		22	24
Isr Pr	0,00		2	2,00		18	20
Lit Pr	0,00		2	3,19		42	44
Mex Pr	0,00		2	2,82		35	37
Per Pr	0,00		2	2,42		28	30
Rom Pr	0,00		2	4,27		56	58
Rus Pr	0,00		2	2,54		30	32
Tai Pr	0,00		2	2,69		33	35
USA Pr	0,00		2	2,41		27	29

Abbrev.

L = list vote

C = candid. vote

Pr = pres. vote

96, 97, 98, 00 = years

Transformation:

Log (weighted district magn.) and disproportionality (Rae) standardized to scales from 0 to 100. Standardized scales subtracted. If one scale has missing values, standardized score of the available have been taken.

Supply:

Effective number of parties (votest) and left-right polarization of party system (calculated from party manifestos) standardized to scales from 0 to 100. Scales added and divided by 2. If one scale has missing values, standardized score of the available have been taken.