

Do economic differences or institutions explain variance in the economic vote among countries?

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Abstract. Despite all the methodological problems in defining the proper variables and methods to estimate it, an association between economic perceptions and vote choice or vote outcomes in the expected direction seems to be a regular feature of voting behavior. Nonetheless, there is important instability among elections and countries that tends to be attributed to methodological flaws or to contextual differences. Three basic research questions are addressed in this paper: the weakness and instability in the effects of the economic retrospective vote (ERV) results from contextual differences among countries or from measurement errors and bias in the models used? Do differences in the general economic contexts of countries explain variation in the effects of the ERV? If so, is it variance in the economic vote among countries or are elections better explained by differences in general economic context or by differences in institutional arrangements? The data used in this paper come from 31 post electoral surveys taken in 29 countries, as part of Module 1 of the Comparative Study of Electoral Systems. Multilevel models were used since they are geared towards the statistical analysis of data that have a hierarchical or clustered structure. Relatively small effects of economic perceptions on vote choice are found, and no consistent explanations of variance among countries associated with economic or institutional contextual variables could be identified. These findings do not seem to be the consequence of serious measurement errors, but of insufficiently specified variables and models. The number of country-elections at hand and the variance in institutional arrangements are too small.

Introduction

“To support the Ins when things are going well; to support the Outs when things seem to go badly, this, in spite of all that has been said ... is the essence of popular government” (Lippmann 1925: 126). Given that in any situation the alternatives lead to various benefits (in some probabilistic fashion), but entail various costs, individual chooses to maximize the expected benefits and minimize the expected costs. Voters “typically have one comparatively hard bit of data: they know what life has been like during the incumbent’s administration. They need not know the precise economic foreign policies of the incumbent administration in order to see or feel the *results* of those policies” (Fiorina 1981:5).

Most likely, the perception of well being of the individual that makes popular government work is based on economics. Non surprisingly, economic retrospective vote (ERV) –also known as the economic function of vote– figures as one of the most visited questions in the vast area of vote choice research (See Norpoth 1991). The basic question is to what extent and how the real or perceived economic situation of voters sways vote choice, particularly between incumbent and non incumbent parties or candidates. From an aggregate level perspective, it implies that if economic conditions are good, incumbent parties will be ratified in government, and they will be kicked-out of office if the economy is bad. From an individual level perspective, it implies that it is more likely that any citizen will vote against the incumbent party if he or she thinks his or her economic situation have worsened and if he or she thinks that this economic drop can be attributed to the government’s handling of the economy.

ERV has been studied using aggregate electoral outcomes and national economic data, and individual level data obtained with surveys. In the first kind of studies, the electoral outcomes define the dependent variable in various forms: the relative changes in vote received by the incumbent party or coalition in time (Powell and Whitten, 1993); the percentage change in vote received by the dominant party of the coalition (Royed, Leyden

and Borrelli, 2000); the difference of relative votes received by a party in $t-1$ and t for one party (Paldam, 1991); the number of seats won for Congress or Parliament by all parties (Lewis-Beck and Mitchell, 1990). The most common independent variables have been employment, economic growth and inflation (Lewis-Beck and Paldam, 2000).

In the studies based on individual level data, vote choice of the respondent is the dependent variable. The independent dimension is the respondent's opinion about economic conditions, either their immediate, direct, personal economic situation (egotropic or pocketbook), or the general conditions of the economy (sociotropic or altruistic). Some have studied citizen's evaluations of specific economic performance such as government's actions against inflation or unemployment. In most cases, respondents compare the national or his or her personal economic situation to a previous one, given a time span, most commonly, last year's.

Country specific studies based on aggregate national level data document extreme unstable results among elections. Paldam (1991) studied 17 Western industrial countries over 40 years and finds a highly unstable vote function within specific countries, and among them. Powell and Whitten (1993) studied 19 countries analyzing a broader number of economic variables with no more encouraging results. The largest study on ERV based on individual level data (Duch and Stevenson, 2004) studies a total of 89 elections in almost all Western democracies of industrialized countries between 1980 and 2001. They conclude that ERV exists in developed democracies, but varies among countries. In sum, whenever more country specific elections are studied the signs of economic effects seem faint at best.

ERV then, seems a voting behavior theory well grounded on common sense and that stands on solid bases of traditional and Downsian models. Nonetheless, academic research has found that the association between macroeconomic conditions or individual economic perceptions and electoral outcomes or vote choice seems to be present in many elections. However, it is modest in magnitude, too weak to account for the aggregate level effects, unstable among elections and countries and, in some cases, inconsistent with findings of well documented aggregate-level effects. (Kramer 1983, Duch and Stevenson 2004).

Many reasons have been offered for this inconsistency between the empirical findings and a reasonable hypothesis. Most of them argue on the information and uncertainty related to individual and contextual features. For individuals to engage in optimizing behavior, that is, for voters to act maximizing the net benefit of his or her voting decision, one has to assume that he or she acts under complete certainty, perfect information and zero decision-making costs. This is seldom the case. Voters might be myopic in their economic judgments, either because they fall to the enticing offers of politicians that seem to solve immediate economic hardships postponing its costs, or because the “lenses” of their partisan identity leads them to non objectively based evaluations. Or voters might be blind when attributing responsibility on economic affairs, punishing or rewarding governments for acts over which they do not have real control, like international economic crises or natural disasters (Achen and Bartels 2002). Most likely, variations in the individual and the contextual factors that influence these assumptions explain the observed weakness and variation in the net effect of economic perceptions on vote choice. Features such as different levels of political sophistication among individuals, or clarity of responsibility about economic outcomes among political systems should explain variance in the influence of ERV on vote choice. Uncertainty about what individuals know about the government’s performance or expected behavior of candidates and parties must “discount” the expected influence of economics on vote.

The strongest arguments about the difficulties to document ERV are based on alleged methodological flaws. Despite the extreme care that the research based on data of national or group economic performance places in advancing individual level inferences, in the end it is always doomed to incur ecological inference fallacies. This is because the associations between economics and vote are the consequence of individuals optimizing in one way or another their vote choice. And, nonetheless, one can hardly ignore the possibility of contextual effects on the individual behavior. Two main methodological problems plague the individual level analysis. On the one hand, there is a seriously intermingled relation between the dependent variable (vote choice) and the independent variables (economic perceptions), and between the independent variables themselves. On the other hand, the

aggregation problem implicit in the fact that government's induced changes are a contextual "constant" acting over individual variant perceptions.

Kramer (1983) questioned the very reliability of the variables chosen to measure economic perceptions or the specification of the statistical models used to document the association between economics and vote choice. Individual level data can be analyzed at the individual level or using their aggregate mean values. Kramer, and more recently Erikson (2004), argue that the individual level analysis of survey data leads to spurious inferences about the ERV because both the dependent and the independent variables are endogenous. Governments have an influence on macro economic variables, and therefore can only produce variations in income at the national level. Changes in the national economic situation do not necessarily distribute equally among all. So, "lucky" voters who favor the incumbent party do not have any incentive to vote against it. On the other side, even among those affected by the national negative change in the economy, they would not necessarily vote against the incumbent if they are strong partisans. That is, "the individual-level cross-sectional estimate ... is hopelessly contaminated. It depends only tenuously on the true parameter value and in general is so badly and unpredictably biased as to be essentially unrelated to the underlying individual-level behavioral relationship we are trying to estimate" (Kramer 1983: 93). The correct signals are better captured by the mean values of the variables, therefore, it is the aggregate evidence that can yield valid inferences.

The argument against the use of individual-level cross-sectional estimates because of the intense endogenous relations between variables is strong and founded. The idea that the correct signals are better captured by the mean values of the variables involved in the model instead of the individual level is not. All cross-sectional analysis is done with some form of OLS models which are based on central trend estimates. That is, on some form of mean values. In any case, the problem is that using aggregate mean values results in limited number of cases, short time-series for country-specific studies or limited number of truly comparable survey data for comparative research, and therefore, in weakness of the statistical methods used. So, many try to control the bias produced in individual level analysis introducing in their models the endogenous variables, mostly socio-demographic

indicators and Party Id. I will explore results both from aggregate means and individual-level data controlling for intervening variables.

Vote choice and economic perceptions are nested or clustered within the specific economic and institutional contexts of the polity where they are expressed. Most findings suggest that contextual effects influence individual behavior, and that most likely these contextual effects can explain variance among elections and polities in the association between economics and vote. Multilevel models are geared towards the statistical analysis of data that have a hierarchical or clustered structure¹. To handle this micro-macro relationship, I will use random-effects logistic multilevel models with random intercept and random retrospective economic evaluations, where individual is the first level and country-election the second. Hierarchical models explain variance in the individual-level data, like the traditional linear regression models, but they also explain variance among the estimated coefficients related to contextual variables. This technique reconciles the dilemma between the use of individual-level data and mean value aggregates, since the estimates within countries are based on individual-level data (which might produce bias estimates to some degree), but the country-level comparisons are based on aggregate estimates. This is the main point of interest of this paper.

Summing up, there seems to be a reasonable consensus in the literature that, despite all the methodological problems in defining the proper variables and methods to estimate it, an association between economic perceptions and vote choice or vote outcomes in the expected sense seems to be a regular feature of voting behavior. The strong instability observed among elections and countries tends to be attributed to contextual differences. Before Duch and Stevenson (2004), most of this research was based on national aggregate data (economic variables and electoral outcomes) instead of individual cross-sectional survey data, so that all inferences on individual level behavior are weak or definitely not sustainable. On the other hand, almost all comparative studies have been done on elections

¹ These models are also known as contextual models, hierarchical linear models, hierarchical regression, random coefficients models, mixed hierarchical linear models, or linear Bayesian models, depending on the statistical technique used. Cf. Bryck and Raudenbush 1992, Rasbach et. al 2002.

in Western developed democracies and industrialized economies; therefore few comparisons on regime type or general economic conditions can be done since, with the exception of the USA, the polities studied have different forms of parliamentary systems, and all of them similar economic conditions. All are richer and in general more stable economies, so no comparisons between richer and stable economies and poorer and unstable economies can be done.

Three basic research questions are addressed in this paper: Is the weakness and instability on the effects of the ERV factual or methodological, that is, resulting from measurement errors and bias in the models used or it is a real feature of voting behavior? Does contextual variation in the general economic differences among systems explain variation in the ERV? If so, is it variance in the economic vote among countries or elections better explained by differences in general economic context or by differences in institutional arrangements?

In this paper I use a large data set that has at least some variability in the political and economical contextual dimensions, and more pertinent statistical methods are explored to study the micro-macro relationship.

The micro-macro relationship.

The entire ERV model rests in the assumed rationality of individuals when evaluating retrospectively the effects of the government's actions on their well-being and what they can expect of the competing candidates and parties. Fiorina (1981 pp. 65-83) clearly developed the model of this rationale.

Assume there are two parties I and C. I is the incumbent and C the challenger. The voter's decision rule is: voter chooses I instead of C if his or her evaluation of the incumbent is equal or better than the expected performance of the challenger. The evaluation has two clearly defined dimensions, retro and prospective, and also entails an implicit retrospective evaluation of the opportunity cost of having chosen I over C, and the expected opportunity

cost of voting for C. Many factors weigh the utility function that each individual estimates with regard to the incumbent's performance and the likely opportunity cost of this known event over the unknown likely performance of the opposition. The relative weight each individual gives to the retrospective over the prospective evaluations varies among individuals, probably depending on their attitudes towards risk.

Party Id poses a big challenge to this and many models of vote choice and government evaluation in general. The traditional view of Party Id developed in the *American Voter* (Campbell, Converse, Miller and Stokes 1960) saw party Id as a long-term affiliation explained by psychological group theory, and oblivious to government's performance and candidates' offers. Revisionists' studies, mostly Fiorina (1981) convincingly showed that "party ID responds to the recent performance of the party via a citizen's formation of retrospective judgments" (Fiorina 1981: 97), reflecting political experiences of citizen's related to specific events. This solved the original deterministic view of Party Id, but raised the most important methodological problem in its analysis: Party Id is both cause and consequence in most political choices. That is, there is no independence between Party Id (or vote choice), and the citizen's evaluation of the economy. Erikson expresses the most radical position on the matter: "cross-sectional variation in perceptions of the economy is little more than measurement error plus partisan bias" (Erikson 2004: 37). If this is the case, all statistical models would be miss specified. This is not the case, since Fiorina's studies (1981) "Given our political conception of Party Id, the most summary statement is the following: economic MREs (mediated economic evaluations) reflect the economic conditions experienced and/or perceived by the citizen, interpreted by some of their personal history of experiences and evaluations" (Fiorina 1981: 120). So, it seems justified to model together vote choice, economic perceptions and Party Id.

ERV assumes that the individual economic perceptions are a necessary condition of vote choice, but they are not independent of the contextual, macro or system level influences (See Figure 1). Only comparative research can measure variance in the ERV induced by macroeconomic or institutional context, because variance in these macro level characteristics can be seen only comparing among nations and systems.

System level features vary among nations and these contextual characteristics necessarily affects the way voter's consider retrospective over prospective evaluations. For instance, economic stability reduces risk, and multi party systems enhance choices. Other intervening factors are the different value individuals assign to the government's responsibility on their well being or in the level of certainty they have about their retrospective evaluation and the likely performance of the challenger. The individual's relative attribution of responsibility depends on individual-level variables such as personal political competence or efficacy, but also has to do with macro features, such as the "clarity of responsibility" of the system, and the structure of the media system, in particular, how it primes economic events. A dictatorship can produce absolute clarity of responsibility because the tyrant does everything, but a controlled media system limits both the actual knowledge of relevant events, and above all, the attribution of responsibility. In any case, the model considers prospective perceptions, but it is essentially retrospective because past performance is taken as a shortcut for the prospective evaluation, and Party Id is a judgment based on past (short and long term) performance.

The micro-macro relationship is essential for the understanding of rational individual vote choice. First, because the understanding of these relations reconciles the seemingly unexplainable fact that inattentive and ill-informed voters poorly suited for wise democratic decisions seem to behave as rational collective actors "The key to the micro-macro discrepancy is that aggregation accentuates the orderly. One can have an electorate in which large numbers of citizens act as if at random and other large numbers have unchanging loyalties that commit them to the same side for a lifetime – and yet still observe in the aggregate response an orderly response to real political events. When we aggregate over time, those who act as if at random cancel out. Those who act always the same produce no variance. The aggregate 'signal' arises almost wholly from those who are orderly in their behavior. The important misconception is that the normal typical individual attributes dominate the aggregate. They do not. When individuals are disorderly or constant over time, then their attributes contribute trivially to the movement of the whole" (Erikson, McKuen and Stimson 2002: 6). Second, context is relevant because "... the types (of)

institutional environments in which they (social actors) interact constrain the set of mental models upon which collective action can be based” (Denzau and North 2000).

FIGURE 1 AROUND HERE.

The macro level features can have an effect on individual perceptions (I in Figure 1), for instance, strategic calculus in voting is very different under a simple plurality system, than in PR. System features can affect the relation between individual features and vote choice (II in Figure 1). For instance, the uncertainty about the likely performance of contenders expressed in the history of the party system, which itself is strongly associated with electoral rules, affects vote choice. Macro characteristics of the system can modify the way economic conditions influence vote choice (III in Figure 1). For instance, differences in the size of the economy or in the number of electoral choices can produce a very different response to changes in economic conditions.

A central purpose of this paper is to explore a model that captures the individual level influences and the system level contextual effects. In the first part, individual level effects will be analyzed, and in the second part economic and system features.

Data and testable hypothesis

The data used in this paper come from 31 post electoral surveys taken in 29 countries, as part of Module 1 of the Comparative Study of Electoral Systems². The Comparative Study of Electoral Systems (CSES) is a collaborative program of cross-national research among election studies by 2004 conducted in over fifty states. The CSES is composed of three tightly linked parts: First, a common module of public opinion survey questions is included in each participant country's post-election study. These "micro" level data include vote

² Module one was applied in 39 country-elections. Eight of them, corresponding to five countries, could not be included in this study, because not all the variables used were reported. In Belgium two studies were reported, Belgium Flanders and Belgium Wallon 1999. Party Id was reported only in one of them, and it was impossible to construct the proper weight for each study. In Perú 2000 and 2001 economic perceptions were not included. In Thailand 2001, vote choice was not asked. In Belarus 2001, like-dislike of parties was not

choice, candidate and party evaluations, current and retrospective economic evaluations, evaluation of the electoral system itself, in addition to standardized socio-demographic measures. Second, district level data are reported for each respondent, including electoral returns, turnout, and the number of candidates. Finally, system or "macro" level data report aggregate electoral returns, electoral rules and formulas, and regime characteristics. Only truly national samples are accepted and under most rigorous sampling, collection and reporting methods. This ensures comparability among national samples³. In Annex 1 the characteristics of each national sample is described. This design allows researchers to conduct cross-level, as well as cross-national analyses, addressing the effects of electoral institutions on citizens' attitudes and behavior, the presence and nature of social and political cleavages, and the evaluation of democratic institutions or national economic characteristics across different political regimes.

Individual variables.

The dependent variable is vote choice for the incumbent candidate or coalition. One if respondent voted for the incumbent, zero otherwise.

Economic perceptions. Which dimension of the economy is relevant to the voter when choosing among parties or candidates, their immediate, direct economic situation (egotropic or pocketbook), or the general conditions of the economy (sociotropic or altruistic)? The CSES data set does not give us any choice, only sociotropic evaluation of economic conditions is asked in two ways, the evaluation of the economy at the time of the interview (*What do you think about the state of the economy these days in [country]?*), and compared to the situation 12 months before (*Would you say that over the past twelve months, the state of the economy on [country] has gotten better, stayed about the same or gotten worse?*).

asked. Hong Kong 1998 and 2000 were excluded because of the difficulties in defining the macro institutional variables.

³ Even though all samples are comparable in terms of their representativity, at least two factors should be considered. First, a likely interviewing method effect. Not all countries used the same field method to collect the data, basically face to face and telephone interviewing. Second, the selection method of respondents. In the first case, many country specific studies point to negligible effects, and in the second case, differences in the actual standard errors of the means should be considered. Non fully random selection of respondents in the unit of interviewing results in somewhat larger standard errors.

Two variables were defined using these questions, BETTER and WORSE. The variable BETTER is coded 1 if the respondent thinks that the state of the economy these days is very good or good. If the respondent answers in the middle, that is, if he or she thinks that the state of the economy these days is neither good nor bad, the second question is used, and the variable BETTER is coded 1 if he or she thinks that over the past twelve months the state of the economy has gotten better. BETTER is coded zero otherwise. The variable WORSE is coded 1 if the respondent thinks that the state of the economy these days is bad or very bad. If he or she thinks that the state of the economy these days is neither good nor bad, again the second question is used and the variable is coded 1 if he or she thinks that over the past twelve months the state of the economy has gotten worse. WORSE is coded zero otherwise.

With very few exceptions, most agree that voters assess and respond to economic conditions in altruistic or sociotropic manner, that is, thinking in what is good for the country as a whole, rather than motivated by their immediate pocketbook interest (Kinder and Kiewiet 1979, Lewis-Beck and Paldam, 2000). Kramer (1983) demonstrated that this distinction is not well founded. To the extent that people might vote according to their personal pocketbook, they should consider only government induced changes to their economic fortunes. Since, in general, only a small portion of personal income can be attributable to government actions, people's reports of net change in personal fortune present a distortion of the small impact of government on their lives. Because survey reports of net income change are poor measures of government-induced change, the effect of government-induced change should be underestimated by surveys. The individual level cross-sectional analysis of ERV yields poor estimates whereas aggregate estimates of the individual data are reasonably successful in estimating the net effect of economic circumstances on vote choice. But once the individual level estimates either of ego or sociotropic perceptions are aggregated and their mean values used, "there is simply no way of determining ... whether the observable relationships between economic variables and voting were ultimately generated by sociotropic or self-interest behavior or by some combination of the two" (Kramer 1983:106).

Party Id. The CSES micro-level data offer a measure of Party Id⁴, with a level of intensity. The variable was coded 1 for all respondents who reported identity with the incumbent with any level of intensity, and zero for all respondents who identified with any other party. In the case of coalitions, the Party Id of the incumbent corresponds to whatever identity is reported if it corresponds to any of the parties participating in the coalition.

Finally, an alternative measure of closeness or sympathy with the participating parties was explored using the questions about like/dislike of parties. The variable is measured in a scale of 0 to 10.

Socio demographics. Gender, age, education, income, employment status are tested as control variables. The comparability between socio-economic variables demands the most careful coding and definitions. To avoid differences of definition, education and income are coded in deciles. Employment status is coded one for fully employed, zero otherwise

Models and results

1. Individual level variance.

The most important task in defining the statistical models to assess ERV effects is to find the specification that uses large representative samples of individual behavior and at the same time fully accounts for context or macro level variation.

A simple cross-tabs analysis shows that some relation between economic perceptions and vote choice for the incumbent exists in the group of countries studied, but mostly as a punishment reaction to bad perceived economic conditions: 64% of those who think the economic conditions worsened in the last 12 months choose a non-incumbent party, coalition or candidate. Those who think the economic conditions improved divided their preferences between incumbent, 52%, and non incumbents, 48%. Nonetheless, the cross-

⁴ There are some differences among countries in the concept used to measure Party Id. The English wording suggested by the Planning Committee was, Do you usually think of yourself as *close* to any particular

tab produces a significant chi-square because the actual number of voters with positive economic perceptions that prefer the incumbent is substantially larger than the expected for the association test.

If all individuals are properly weighted (see Annex 2) and put together as one unit of analysis (29,065 cases of respondents who expressed a positive or negative opinion about economic conditions), a simple logistic regression model of the relation between economic perceptions and vote choice, “discounting” socio demographic characteristics should be sufficient to estimate ERV effects. One expects to find the probability of a voter choosing the incumbent depending on his perception of the economy, independently of the group to which he or she belongs or where she or he lives. Such a model produces significant estimators and with the expected sign, $\beta_{\text{worse}} = -0.2077$; $\beta_{\text{better}} = 0.4869$. So, in the “world” (at least the world observed by CSES in Module 1), individuals seem to react to economic conditions when deciding over the faith of incumbents, more intensely as a rewarding decision than a punishment for bad performance.

These models do not fully take into consideration the problems associated with the endogenous relation between Party Id, vote choice and economic perceptions, or the inference problems implicit in estimating effects of the constant macroeconomic variables and the variant individual perceptions. To control for these, Kramer and Erikson recommend the use of mean values. We can simply take the mean value of the positive and negative economic perceptions and see if there is covariance with vote choice for the incumbent or, if sufficient data are available, apply a simple OLS logistic regression with vote choice as a dependent variable, and mean values of the economic perceptions as independent. If the estimators are significant and they have the expected sign, we can conclude that ERV exists, regardless of variation among countries. We can also expect that the endogeneity problems of Party Id, and the implicit ecological inferences that result from using individual-level accounts of economic perceptions are avoided because we use aggregate mean values. A simple OLS regression with the percentage vote for the

political party? Some local experts suggested sympathy as an alternative concept more appropriate for their country.

incumbent as dependent variable, and the mean value of the economic perceptions as independent variables reveals a coefficient of -0.24 when voters think the economic situation worsened, of almost zero when voters think the economic situation is the same, and 0.17 for those who see improvement. These coefficients show a significant variance among countries, but one must keep in mind that they are estimated with only 31 points.

To take into account the likely endogenous relationship between partisanship, economic perceptions and vote choice, Party Id was introduced in the model. Like/dislike of parties was also explored to consider those who could have some animosity or sympathy for the parties not expressed in the Party Id question. They could not be used in the same model because they showed very high correlations in all countries, and separately they yield very similar coefficients. So, only Party Id was used. Party Id is introduced to assess its relative importance and “discount” its effects on vote choice. With Party Id in the model, only the coefficient corresponding to perceptions of better economic conditions is significant and with the right sign: $\beta_{\text{better}} = 0.5121$. Nonetheless, Party Id effects are by far more important than economic perceptions. They are significant with values of -1.4765 for those who do not identify with the incumbents and of 2.2005 for incumbent’s sympathizers, coefficients several times larger than those of the economic variables. That is to say, identity with the incumbent is by far a more important factor of choice, relative to the evaluation voters do of economic conditions.

This is probably the most solid and consistent conclusion one can advance about economic perceptions and vote choice. If we accept that Party Id is formed through long and short term evaluations --as Fiorina showed and I share--, this finding does not necessarily mean that Party Id is some kind of “irrational” attitude, but that previous and current experiences of the incumbent’s performance are subsumed in the party identity of the voter.

These models do not account for variation between countries; that is variation in context. The logistic regression model of the relation between economic perceptions and vote choice for the incumbent was run separately for each country. The results are shown in Table 1. In seven country-elections voters punished or rewarded the incumbent according to their

economic perception. In four, they only rewarded the incumbent, in five they only punished it, and in the remaining 16 no significant coefficients were obtained⁵. That is, ERV prevails only in some of the CSES Module 1 country-elections, and it is not a consistent feature of voting behavior, not a law like behavior. But we still have to identify contextual effects to see if the macro level influences explain this variance.

TABLE 1 AROUND HERE

In the next section I will test multilevel models. They find the specified parameters of the micro-level as a function of context, or they show that the micro-macro relation can be expressed in terms of the contextual characteristics of the macro-level. When the individual data are clustered and they are analyzed in a simple model, the estimated coefficients would assume a non variant constant for the entire data set, ignoring the likely variance implicit in the constant. See Figure 2. A fixed-effects model with interactions for context would improve the specification quality of the model. This model controls for context differences but the contextual variables can only be introduced through interactions with individual level variables, and the interaction effects would be very difficult to interpret. And, in the end, we cannot assess how much each variable contributes to the change in the effect of ERV among countries.

FIGURE 2 AROUND HERE

A random-effects logistic multilevel model with random intercept and random ERV, where individual is the first level and country-election the second would allow to estimate the coefficients of the individual level relationship, and decompose the variance of the dependent variable within the variance of context, and the variance among contexts. The form of the model is:

⁵ Models explain a good deal of variance, most probably because Party Id is included. R-squared have a minimum of 0.15 and a maximum of 0.82.

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_{1i} + \beta_{2i}(\text{ec. worse})_{ij} + \beta_{3i}(\text{ec. better})_{ij} + \beta_4(\text{context})_i + \beta_5(\text{controls})_{ij}$$

$$\beta_{1i} = \beta_1 + u_{1i}, \beta_{2i} = \beta_2 + u_{2i}, \beta_{3i} = \beta_3 + u_{3i}$$

$$u_{1i} \approx N(0, \sigma_{u1}^2), u_{2i} \approx N(0, \sigma_{u2}^2), u_{3i} \approx N(0, \sigma_{u3}^2)$$

We control for unobserved differences in context with an intercept that is random at the country level ($\beta_{1i} = \beta_1 + u_{1i}$). No dummy variables are needed, and we can measure the effect of contextual variables without interaction effects. The model can measure the contribution of individual and contextual variables to the variation in the dependent variable (σ_{u2}^2 and σ_{u3}^2), where each u_i is a random component of the estimated coefficient with a normal distribution. If the variance in u_i is not zero, the coefficient is different between countries.

In Table 2 the results of five models are shown⁶. Models vary depending on the socio demographics included. No specific data about the country is introduced, except its identifier. We can assume that all country specificities are subsumed in this simple variable. In the first column, the simplest model, with no individual level control variables is shown. In the last, the most robust model with only significant variables is presented.

Of all socio demographic variables only employment status remained significant. This makes sense. Among those variables considered employment and inflation are probably the only outcomes that can be related to government's performance. In other words, this is the only variable in which the invariant general variable (government's economic performance) might be related to individual variance.

TABLE 2 AROUND HERE

⁶ The goodness of fitness tests for these models are similar to those used for the regular one level models, basically association between expected values and residuals. The software used, MlwiN, estimates fitness tests for continuous dependent variables, but not for binomial variables, so I could not present them in the Tables of results, except for the standard errors for each estimated coefficient.

Some conclusions can be advanced:

- ERV seems to be a general feature of voting behavior, but far from being any law-like characteristic. The probability of an individual choosing the incumbent party if his or her perception of the economy at the moment of the election compared to what it was 12 months before is better is statistically significant and has the expected sign, regardless of where she or he lives. The contrary reaction is also significant with the expected sign. In the simplest model, the probability of choosing the incumbent if the citizen thinks that the economy is better is 0.52, and the probability of choosing the incumbent if his or her perception is that the economy is worse is 0.26. The mean change in the probability of choosing the incumbent if the perception of the economy changes from worse to better is 0.25. This is an overestimated effect. It includes all those who would vote for the incumbent regardless of their perception of the economic performance of the incumbent, but because they identify with him or her.
- In the final model, where only the significant socio-economic variable (employment status) and Party Id are considered: the mean change in the probability is of 0.09. This is an underestimated effect, because it includes voters that responded to economic conditions, but could have expressed his or her retrospective evaluation changing their previous allegiance to the incumbent. Their retrospective vote is expressed in the Party Id.
- Party Id has the most significant effect on vote choice, but ERV remains significant in its presence. The probability of a voter choosing the incumbent if his or her perceptions of the economy change from worse to better, “discounting” the effect of his or her Party Id is 0.09. As expected, the largest ERV occurs among those who do not identify with the incumbent.

- The effect of ERV on vote choice varies among countries, and this variance is strongly influenced by differences in the importance of Party Id between countries. The country variance change from 0.39 to 0.69 once Party Id is introduced.

All the models tested so far, do not consider those factors that ponder the relation between economic perceptions and vote choice, basically the attribution of responsibility for the economic change, and the certainty the individual has over his or her economic perceptions and the likely performance of the participant parties in the election. It seems wise to go back to the complete model pictured by Fiorina. That is, to specify a model with interaction of measures of certainty, attitudes towards risk, attribution of responsibility of the situation of the country, and of the benefit attributed to the government's performance. A first exploration of this specification follows.

Information and certainty

We have assumed a model in which voters choose the incumbent instead of any other challenger if their evaluation of the incumbent is equal or better than the expected performance of the challenger. Some factors ponder the evaluation individuals do of the incumbent's performance and the challenger's offers: the relative weigh each individual gives to the retrospective over the prospective evaluations, certainty on what they know, and above all on what they expect, and how much they attribute responsibility of their personal situation to government's actions.

Direct measures of certainty or political knowledge, attribution of responsibility, or attitudes towards risk are not available in the CSES Module 1. We have to rely on proxies. As attribution of responsibility I used the political efficacy questions, and as a proxy of certainty I used the political information index. Political efficacy was estimated with the typical Michigan school questions and it did not produce any significant coefficients, a result that deserves special consideration⁷. The Political Information Index was estimated

⁷ Do Political parties care what ordinary people think? Are Political parties necessary to make our political system work? Do Members of congress/Parliament know what ordinary people think? Does it make a difference who is in power? Who people vote for will make a difference?

with the answer of the respondent to three political information items (low information: one correct, high information: two or three correct).

The model could be tested only in 10 country-elections because the political information index was not reliable in all studies⁸. They were Great Britain, Hungary, Mexico 1997, Norway, New Zealand, Poland, USA, Canada, Switzerland and Germany.

Logistic regressions were adjusted for every population (k) to estimate the interactive effects of the individual political efficacy as a proxy of the individual's attribution of responsibility and the level of political information of the individual as a proxy of his or her certainty about his or her knowledge of the economic situation and the performance of the competing parties. The model is:

$$\log\left(\frac{P_k(\text{Incumbent})}{1 - P_k(\text{Incumbent})}\right) = \alpha_k + \beta_{1k}(PII_k) * (Ec. Ev_k) + \beta_{2k}(P Id_k).$$

The political information index did produce significant coefficients but with no consistent pattern. Political knowledge (and probably awareness) seems to be a significant discount factor that weighs the relation between economic perceptions and vote choice when looking at the whole data set could be used (the CSES world limited to 10 country-elections). Good r-squares were obtained, and all the coefficients estimated were larger than in the models without it. Nonetheless, interactions are very difficult to interpret in any OLS model, even more in a logistic model. To test the consistency of these results I run the model for each PII level separately. The effect of the interaction of PII and economic evaluations on choosing the incumbent did not show any consistent pattern. Variance in the effect of the ERV is similar at all levels of political information. I think this results from problems in the definition of the variable; that is, it results from the different ways the index is estimated in each country-election study. These models can be tested only after some standardization in the definition of the Index is done, something difficult to do with the available data.

⁸ I tested the consistency of the resulting PII with other questions where one can expect some correlation, basically candidates recall and correct identification of the ideological orientation of the political parties.

Summing up, any model of the relation between economic perceptions and vote choice might improve if better estimates of the discount factors are considered, but it is not likely that the enormous variance among country-elections would diminish. So, the basic research questions of this paper remain unsolved. Can this variance between countries be explained by context in such a way that the “rationality” assumptions that are behind the entire model of economic retrospective vote holds? That is to say, instead of ERV being a universal feature of voting behavior it is a voting reaction better explained by contextual specific relative features?

2. Country specific contextual variance.

Economic context

The specific economic situation of the country should be associated with ERV. Changes in economic growth, unemployment, inflation and so on, should affect differently voters with an average income above \$20,000 US Dollars, than in poor countries with a per capita income below \$4,000 US Dollars. Furthermore, it is not the same a negative change in GDP growth of one or two points, than a dramatic change of two digits figures, or small inflation or unemployment levels versus hyperinflation and dramatic increases in unemployment.

Several works tend to agree that the general economic conditions that are more often associated with ERV are employment, growth and inflation (Lewis-Beck and Paldam, 2000). Royed, Leyden and Borrelli 2000 review the methodology and findings of the seminal work of Powell and Whitten (1993) and suggest that growth should not be used as contextual explanatory variable, since in all the cases analyzed this variable yields no significant effects, as opposed to inflation and unemployment.

I used GDP per capita of 2000 US Dlls, change in GDP, unemployment rate and inflation rate. I tested for last year's changes and incumbent's average⁹. The group of countries under study is very diverse in its economic characteristics, and in the recent circumstances around their economic performance. Twelve countries have an income per capita between \$652 US Dlls, and \$9,608. Eight have a per capita income between \$12,000 US Dlls, and \$17,000, and the remaining twelve have an income per capita between 21 and 37 thousand US Dlls. The average economic growth during the term of the incumbent varies between -10 to 6.3 per cent in the group of countries, with an average growth of 2.4%. In 18 countries, the average inflation rate during the incumbent's period was bellow 5%, in seven the average varies between 6 and 26 per cent, in three it varies between 56 and 73 per cent, and in the remaining four hyperinflations pervaded (111 to 524 per cent). Economic circumstances are also very diverse. A group of consolidated industrial economies coexists with several emerging markets, both in Eastern Europe and other areas of market oriented economies. Some of these emerging economies have experienced recent economic successes, and others have been stagnant or even have passed through dramatic economic shocks.

None of these contextual economic variables showed a significant relation with ERV using the entire data base. Once we control for individual level characteristics, neither inflation, nor economic conditions, unemployment nor GDP per capita (average, a year before the election, and during the election) show a significant effect. They neither explain variation in ERV effects among countries. These are counterintuitive findings that deserver further consideration.

First and foremost, we have to keep in mind that these results are obtained from OLS models run for only 32 cases at the second level. That is, we are in the very limits of any assumption of normality. We really do not know with enough certainty if the observed results capture a real feature or are a product of methodological limitations. So, I tried a different approach: estimate the correlations between the "size" of the punishment reaction

⁹ FMI, *Estadísticas Financieras Nacionales*, Julio 1999 and IMF. *World Economic Outlook, Growth and Institutions*. April 2003. (<http://www.imf.org/external/pubs/ft/weo/2003/01/index.htm>)

and the changes in the macro variables. The size of the punishment reaction is estimated as the average change in probability of voting for the incumbent in each country-election if the individual changes his economic perception from better to worse. The most common practice presenting results from logistic models is to display only the estimated coefficient. This expresses the strength of the individual relation, but not the extent of this individual effect in the country-election. There can be a strong relation between negative economic evaluations and vote choice, but only few voters have a negative economic perception or vice versa. So, the “size” of punishment in the country-study is the product of the estimated change in probability of choosing the incumbent if the economic perception changes from better to worse (transformed from an exponential function) multiplied by the proportion of voters that think the economy is worse today than a year before.

Only inflation seems to be a significant contextual variable that explains variance in the ERV among countries. Inflation data show significant correlations with the size of punishment, 0.4 with the average inflation rate in the term of the incumbent and 0.3 with the average inflation rate the year before the election.

This is a finding consistent with previous research and with the theoretical approach assumed. Inflation is probably one of the few economic outcomes attributable to government’s actions (the invariant macro condition), and that directly affects all individuals to different degrees producing variant individual responses. Unemployment is another economic malaise related to public policies, although more loosely. So, the lack of correlation between unemployment and punishment seems a puzzling result that deserves closer examination.

Two major lines of research dominate the study of how partisanship affects ERV. On the one hand, the hypothesis that bad economic performance results in an ERV against the incumbent, regardless of the political orientation of all contenders, the so called responsibility hypothesis. On the other, those who consider that ideology and issue orientation of parties are important intervening factors. Leftist parties are expected to lose power when unemployment rises, and rightist parties when inflation grows because those

are the issues more closely linked to their expected performance. Carlsen (2000) finds that rightist governments' survival and popularity depends in the long run on unemployment. With regard to the effect of inflation on the survival of leftist parties, the association is not consistent. Leftist parties have been harmed by unemployment in Great Britain and Australia, but not in the USA and Canada. Palmer and Whitten (2000) also find this mediating effect of Party Id and ideology on ERV, but contrary to Carlsen's findings. In the Macro level data of the CSES the local experts who conducted the study identified the ideological orientation of all or at least the principal parties that participated in the election in a 1 to 10 scale. This information was compared with other sources¹⁰, and incumbent parties were coded according to their reported political orientation (0 to 3, left, 4 to 7, center and 8 to 10, right). Countries were grouped in two categories, high and low, according to the average rate of inflation and unemployment during the term of the incumbent. Models of vote for the incumbent as a function of economic perceptions (worse and better) and average inflation and unemployment rates during the term of the incumbent as second level variables were run for each type of party and level of inflation or unemployment separately. There are differences in the way parties are punished or rewarded according to their ideological orientation, but inflation or unemployment do not make a difference between left or right oriented incumbents. Both are punished similarly when inflation and unemployment rises.

Institutional variables.

The definition of the institutional features of those polities under study is central to one of the main research questions of this paper, do institutions explain variance in ERV among countries? They should: "...political institutions are the surprising source of elements of reason ... (they) affect what people do by structuring their choices and beliefs" (Lupia, McCubbins and Popkin 2000).

¹⁰ Basically the DPI of the World Bank. In most cases, both CSES local expert and DPI reported similar orientations. In the conflicting cases, other sources like the CIA fact book were used and the most common classification was used.

The most fruitful production with regard to the institutional influence on the ERV centers on the idea of Powell and Whitten (1993) that the institutional framework affects the economic response to vote choice making it easier or more difficult to the voter the attribution of responsibility of the macroeconomic outcomes. They construct an index of what they call the “clarity of responsibility” of political systems based on partisan discipline, degree of openness or inclusiveness in the legislative committees, bicameralism, unity of government, and coalition governments.

Powell and Whitten (1993) and Anderson (2000) find stronger ERV effects in countries with more “clarity of responsibility,” defined mostly by executive-legislative balance such as opposition committee chair, weakness of party cohesion, bicameral opposition, and minority government. Royed, Leyden and Borrelli (2000) confirm these findings, but they conclude that the differences in the effects of the ERV reported by Powell and Whitten are not statistically significant. They develop a very simple indicator: number of parties in government. This is a clear and simple signal to voters with low levels of sophistication, and can vary in the same country between elections. Their findings run contrary to those of Powell and Whitten: ERV seems stronger under coalition governments, than under one party rule.

Anderson (2000) tests previous research and includes a third intervening factor: the number of alternatives available to the voter. He finds the same results as Powell and Whitten with regard to the clarity of responsibility. In the case of the number of parties’ hypothesis, he concludes in the expected sense: ERV is stronger as fewer parties participate in government.

Duch and Stevenson (2004) also attribute the instability in ERV among countries to contextual differences in the institutional arrangements. They find that the distribution of ERV across parties varies because of the “degree of contention” (cabinet formation possibility) of participant parties. That is, not all parties can influence policies, therefore “perennial” parties must be immune to ERV. Then, differences between countries in the nature of their party systems explain variance in the ERV among them.

This research is on parliamentary systems. The definition of the institutional variables are insufficient to account for presidential governments, and they seem to ignore specific economic responsibilities, that might be obscure to the public, but have an impact in the range of economic outcomes they can produce, specifically, budgetary authority and Central Bank faculties and autonomy. An executive that for institutional or de facto reasons cannot have any real saying on the distribution of fiscal resources can have a very small influence on economic outcomes. An extremely powerful and autonomous Central Bank can limit the fiscal liberty of any government. It was very difficult to find reliable data on budgetary authority of the governments studied. So, in the first index used, I included some measure of Central Bank authority. See Annex 2 for a detailed description of the construction of the Index.

Models run with this Index as a contextual variable did not produce any significant result.

Assuming that voters do not have any way to understand or detect economic authority of the government, a second simpler model was constructed, and in order to design an index that incorporates presidential and parliamentary systems, I use the common differentiation between adversarial and consensual democracies. Adversarial democracies are those where electoral rules “force” clear majorities. The aim of majoritarian electoral systems is to create a “natural” or a “manufactured” majority, that is to produce an effective one party government with a working parliamentary majority while simultaneously penalizing minor parties that have a spatially disperse support. Consensual democracies are those where the number of actors is directly defined by the vote, that is PR systems. The larger the number of political actors, the more likely it is that the median voter social function will be achieved, whereas the larger the number of political actors the more difficult it would be for the voter to assign responsibility (Colomer 2003). The values of the index are:

- 1 Parliamentary-majority
- 2 Strong presidential
- 3 Weak Presidential

4 Parliamentary-proportional representation.

Contrary to the simple clarity of responsibility hypothesis, assuming that the ultimate goal of a system is the satisfaction of the median voter utility functions, I expect that the variation of the influence in the ERV effects of this institutional feature would increase as the system moves towards more political actors.

These contextual variables did not produce any significant result. That is, none of these institutional contexts seem to explain variance in the ERV among countries. Variance in the ERV effect remains equal after introducing them into the model. That is, institutional context does not seem to explain the variation in ERV among countries either

Discussion

We have found that ERV exists but, if Party Id is considered, it seems that it has a negligible effect on vote choice for the incumbent. Party Id at the individual level explains much of the variation among countries. We also know that the institutional context, as it was defined, does not seem to explain variance in the ERV effect among countries.

A most relevant question to answer is if the negligible size of the ERV and its instability is factual or methodological? That is, if these findings are the result of faulty measurement or badly specified models.

Measurement errors: All surveys document variation in economic perceptions among respondents. Individual perceptions of the economy represent variation in survey responses regarding perceptions of a constant that might affect in different ways similar individuals, or socioeconomic strata. When these variations correlate with respondent's reported vote choice, it is very likely that vote preferences influence economic perceptions. If response variation is random error in the independent variable, the imputed economic effect is actually underestimated; it includes individuals with bad economic personal situation underreported by incumbent's partisans. If response variation is induced by partisan choice -the intended dependent variable- the imputed economic effect is biased upward, many

partisans of the incumbent party negatively affected by economic policies who nonetheless vote for it. Erikson concludes that “the evidence suggest that apart from this endogenously induced partisan bias, almost all of the cross-sectional variation in survey evaluation of the economy is random noise rather than actual beliefs about economic conditions” (Erikson 2004, 1). If this is true, mean values of the economic perceptions must be independent of any significant nation-level economic variable. They are not. The correlations between the mean value of the economic perceptions and real economic variables show a consistent and expected pattern. Good economic conditions are associated with larger portions of the population having positive economic perceptions and vice versa. But in any case, as Kramer (1983) suggested, aggregate mean values of individual evaluations reflect the economic signals that predicts the aggregate vote. His study is based on four American elections, where Party Id is almost constant. Party Id varies considerably among countries. In some places almost 80% of voters have Party Id to some degree, and in others no more than 30% do. Given these considerations, is it sustainable that survey evaluation of the economy is random noise rather than actual beliefs about economic conditions? I think no, albeit all the endogenous relations described, economic evaluations have some variance independent of partisanship. So, the problems of specification are more related to model specification, than to variable definitions.

Are the models properly specified? Not necessarily. First, it is necessary to include more country-elections in the study. Even though the multilevel models take full advantage of the vast number of individual data to adjust the models to analyze the second level, in the end, they depend on aggregate measures, such as correlation matrices. The number of cases is very much in the lower level of the acceptable limit for random models.

Finally, are the definitions used the best suited to explore the contextual effects?

The economic variables can hardly be improved. If anything, a general Index of Leading Economic Indicators might be a better measure of general economic conditions (See Rogers 1994, Wlezien and Erikson 1996 and 2004). The problem is that it is not easy to construct such an indicator for all the countries in the study.

The institutional variables can be more sophisticated. The idea is to try to reflect in the contextual institutional variables those indicators relevant in the original model of retrospective vote, such as certainty, attitudes towards risk, attribution of responsibility of the situation of the country, and so on, but none of these are easy to construct with the available system level definitions. More work has to be done in this direction.

Finally, it would be necessary to explore Party Id and economic context. What is behind the variation in Party Id among countries? Are party loyalties associated with institutional context? Is there a way to disentangle the effects of economic context and individual economic well being from Party Id?

These are the kind of questions that must be addressed before a definite conclusion on the way economic and institutional contexts explain the observed variance in the ERV. But in any case, it seems safe to conclude that ERV is far from being a law like behavior, and more a voter's response are more dependent on contextual differences.

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Figure 1: Context and individual behavior. Micro-macro interaction.

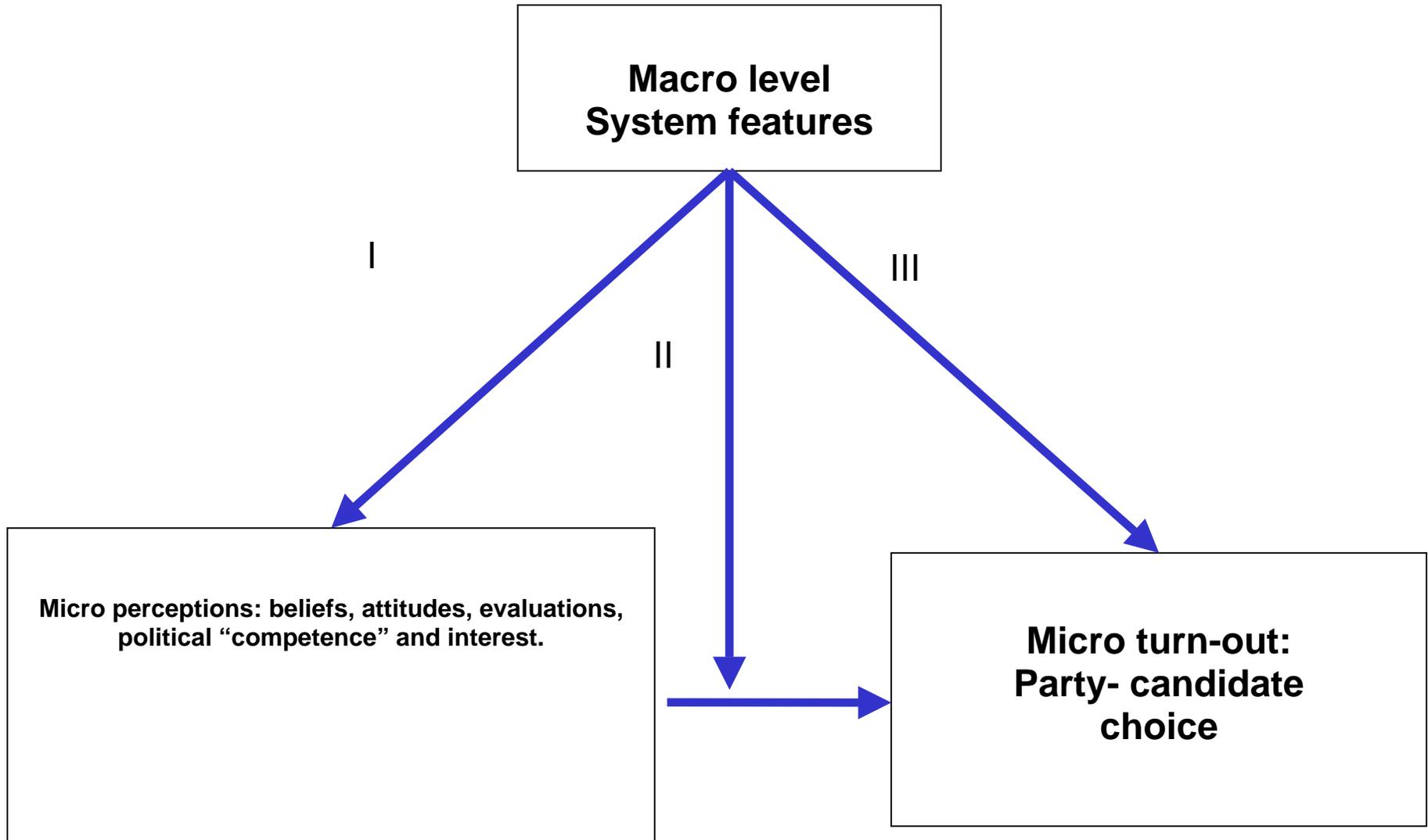


Table 1. ERV by country-election

ONLY PUNISHMENT	R²	WORSE	Sig	BETTER	Sig
Australia 1996	0,72	-0,94	0,000	0,22	ns
Spain 1996	0,42	-0,45	0,018	-0,17	ns
Romania 1996	0,38	-0,91	0,000	0,44	ns
Russia 2000	0,15	-1,00	0,000	0,04	ns
Germany 1998	0,49	-0,59	0,003	0,26	ns

REWARD ONLY

Denmark 1998	0,79	-0,25	ns	0,63	0,034
Israel 1996	0,50	0,51	ns	1,45	0,000
Poland 1997	0,64	-0,17	ns	0,86	0,000
United States 1996	0,58	0,05	ns	0,61	0,003

REWARD AND PUNISH

Belarus 2001	0,44	-1,76	0,000	2,08	0,000
Czech Republic 1996	0,82	-1,22	0,001	0,96	0,002
Spain 2000	0,79	-1,18	0,046	1,07	0,000
Geat Britain 1997	0,73	-0,87	0,002	0,91	0,000
Hungary 1998	0,81	-0,85	0,005	0,76	0,012
New Zealand 1996	0,48	-0,71	0,000	0,78	0,000
Chile 1999	0,19	-0,51	0,001	1,19	0,000

NO ERV

Canada 1997	0,47	-0,05	ns	0,31	ns
Iceland 1999	0,70	-0,15	ns	0,46	ns
Japan 1996	0,45	-0,07	ns	-0,09	ns
Korea 2000	0,39	0,09	ns	-0,43	ns
Mexico 1997	0,55	-0,28	ns	0,12	ns
Mexico 2000	0,52	0,37	ns	0,43	ns
Netherlands 1998	0,62	-0,42	ns	0,44	ns
Norway 1997	0,72	-1,23	ns	-0,76	ns
Portugal 2002	0,68	-0,31	ns	-0,29	ns
Russia 1999	0,73	0,57	ns	0,16	ns
Slovenia 1996	0,25	-0,23	ns	0,32	ns
Sweden 1998	0,76	-0,19	ns	-0,06	ns
Taiwan 1996	0,33	-0,43	ns	0,12	ns
Ukraine 1998	0,60	-0,07	ns	-0,83	ns
Lithuania 1997	0,40	-0,37	ns	-0,05	ns
Switzerland 1999	0,65	-0,19	ns	-0,26	ns

**Figure 2. Fixed effects-
Random effects**

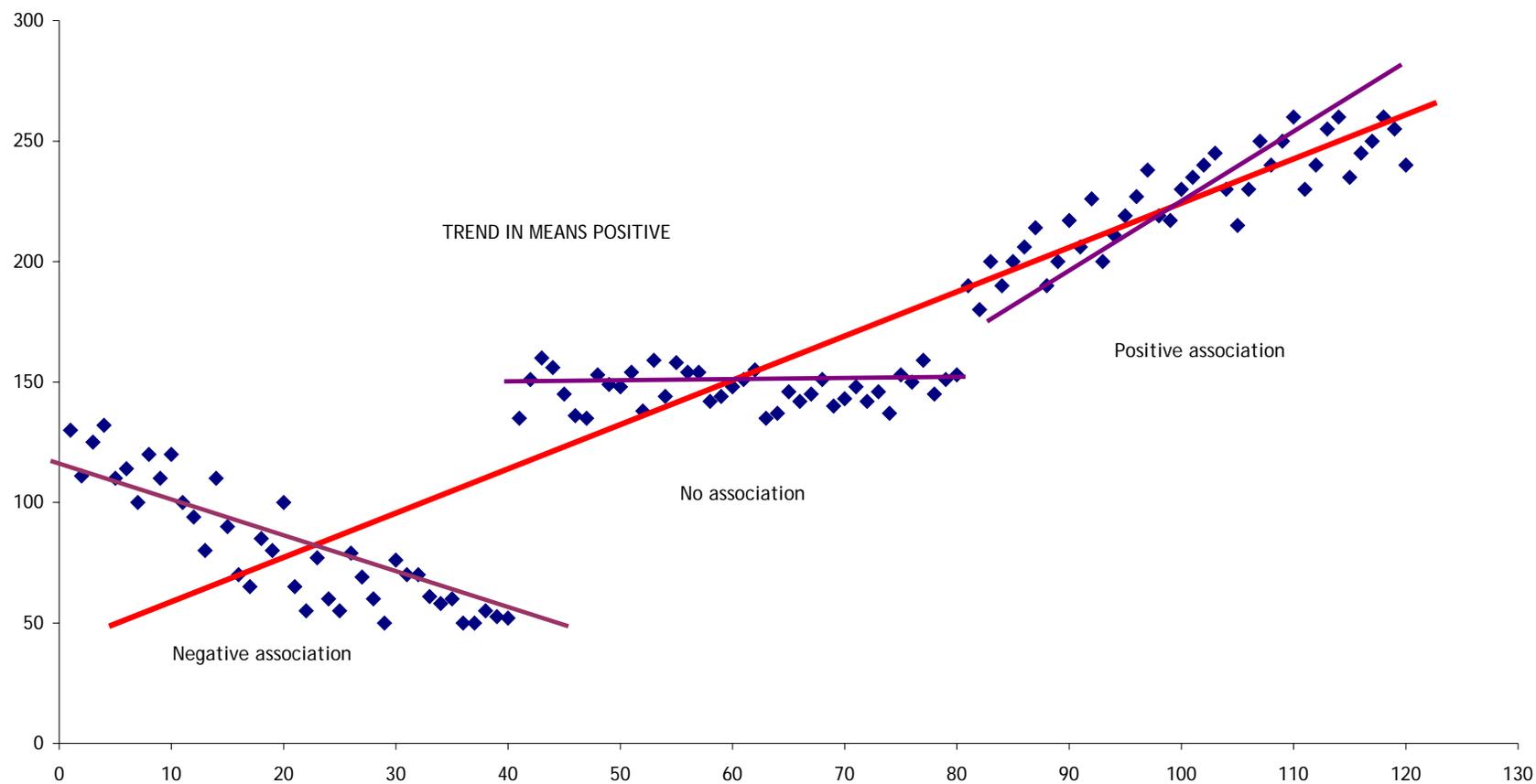


Table 2. ERV for the Incumbent. Multilevel random effects model with control variables^[1].

Variables		Model 1	Model 2	Model 3	Model 4
Economy in the last 12 months	Same (reference category)				
	Worse	-0.54 (0.10)	-0.56 (0.10)	-0.28 (0.10)	-0.28 (0.10)
	Better	0.55 (0.10)	0.58 (0.10)	0.42 (0.09)	0.42 (0.09)
Gender	Female		-0.12 (0.03)	-0.05 ns	
Age	24 or less reference category				
	25 - 60		0.22 (0.05)	0.20 (0.07)	
	more than 60		0.29 (0.05)	0.22 (0.07)	
Education	Elementary (reference category)				
	Secondary uncompleted		-0.40 (0.07)	-0.27 (0.09)	
	Preparatory uncompleted		-0.68 (0.07)	-0.27 (0.10)	
Employment	Formal employment		0.09 (0.03)	0.11 (0.04)	0.09 (0.04)
Income	Quintil 1 (reference category)				
	Quintil 2		-0.095 (0.04)		
	Quintil 3		-0.07 ns		
	Quintil 4		-0.04 ns		
	Quintil 5		-0.05 ns		
Party Id	Id with Inc or without Id				
	ID with no Inc			-2.83 (0.04)	-2.84 (0.04)

Like-dislike	With Incumbent (Escale from 0: strongly dislike to 10: strongly like)			0.39 (0.01)	0.39 (0.01)
Intercept		-0.48 (0.12)	-0.20 (0.14)	-1.62 (0.20)	-1.71 (0.16)
Change in the probability of choosing the Incumbent by changing the ec. Perception from WORSE to BETTER		0.25	0.26	0.09	0.09

Table 3. (Cont.) Variance in the parameters of the model

Intercept σ_{u1}^2	0.39 (0.11)	0.39 (0.11)	0.69 (0.19)	0.69 (0.19)
Economy Worst σ_{u2}^2	0.24 (0.08)	0.24 (0.08)	0.19 (0.07)	0.20 (0.08)
Economy Better σ_{u3}^2	0.27 (0.08)	0.27 (0.08)	0.13 (0.06)	0.13 (0.06)

^[1] The model is : $\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \beta_{1i} + \beta_{2i}(WORST)_{ij} + \beta_{3i}(BETTER)_{ij} + \sum \beta_k(CONTROL)_k$

$$\beta_{1i} = \beta_1 + u_{1i}, \beta_{2i} = \beta_2 + u_{2i}, \beta_{3i} = \beta_3 + u_{3i}$$

$$u_{1i} \approx N(0, \sigma_{u1}^2), u_{2i} \approx N(0, \sigma_{u2}^2), u_{3i} \approx N(0, \sigma_{u3}^2)$$