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Appendix 1: Question Wording and Descriptive Statistics

Dependent variable

Presidential Vote: "If an election were held today, who would you vote for?" [1] if the respondent would vote for the governing party, [0] otherwise. In some years this question is coded as government party/opposition parties, in other years the specific party codes are given, and in other years Latinobarometer does not provide any codes for the question. In those years, we modeled presidential support as a function of demographic variables, ideology, and presidential approval (available after 2002) to identify the governing party given our knowledge of these cases. Undecided respondents are excluded from the analysis, while those who specifically state they intend to vote for none of the candidates/spoil their vote are considered as being opposed to the incumbent.

Economic variables

The Latinobarometer has used two different response options for the economic perceptions questions. From 1995-2000, the following options were used:

Sociotropic Retrospective: "Do you consider the current economic situation of the country to be better [2], about the same [1], or worse [0] than 12 months ago?"

Sociotropic Prospective: "And in the next 12 months do you think that, in general, the economic situation of your country will be better [2], about the same [1], or worse [0] compared to the way it is now?"

Egotropic Retrospective "Do you consider your economic situation and that of your family to be better [2], about the same [1], or worse [0] than 12 months ago?"

Egotropic Prospective "And in the next 12 months do you think that your economic situation and that of your family will be better [2], about the same [1], or worse [0] compared to the way it is now?"

Then starting in 2001 the response options were changed to allow for greater nuance. To ensure comparability with the earlier surveys, however, we recode "much better/worse" and "a little better/worse" into the same category as follows:

Sociotropic Retrospective: "Do you consider the current economic situation of the country to be much better [2], a little better [2], about the same [1], a little worse [0], or much worse [0] than 12 months ago?"

Sociotropic Prospective: "And in the next 12 months do you think that, in general, the economic situation of your country will be much better [2], a little better [2], about the same [1], a little worse [0], or much worse [0] compared to the way it is now?"

Egotropic Retrospective “Do you consider your economic situation and that of your family to be much better [2], a little better [2], about the same [1], a little worse [0], or much worse [0] than 12 months ago?”

Egotropic Prospective “And in the next 12 months do you think that your economic situation and that of your family will be much better [2], a little better [2], about the same [1], a little worse [0], or much worse [0] compared to the way it is now?”

Controls

Ideological Proximity: A measure based on two data points. The first is the respondents’ answer to the question “On a scale where 0 is left and 10 is right, where would you place yourself?” Then the incumbent executive’s ideological position is estimated using data from where members of parliament placed the executive on a left-right scale measured on the same metric in the Parliamentary Elites in Latin America surveys. Ideological proximity is generated such that individuals who are close to the incumbent have high scores; proximity=10-abs(respondent ideology-government ideology). Individuals who did not answer the ideology question are scored as 0’s and then identified by the no ideology dummy variable.

No Ideology: 1 if the person did not answer the ideology question, 0 otherwise.

Descriptive statistics

The descriptive statistics for these variables are as follows:

Variable	Mean	Std. Dev.	Min	Max
Sociotropic Retrospective	0.77	0.76	0	2
Sociotropic Prospective	0.99	0.79	0	2
Egotropic Retrospective	0.98	0.73	0	2
Egotropic Prospective	1.25	0.74	0	2
Trade	64.50	31.65	14.93	175.81
Volatility	3.29	1.76	0.62	8.76
ENPS	3.72	1.84	1.09	9.53
Ln(Months in Office)	3.13	1.04	0	4.84
Log(GDP_{pc}) recentered by subtracting 800 from GDP	3.28	0.55	0.43	4.02
No Ideology	0.22	0.41	0	1
Ideological Proximity	6.51	1.87	0	9.47

Distributions

The contextual variables all display some skew (as the figures below show), but there are few clear outliers. We have estimated the models with logistic specifications of some of the variables (trade, volatility, and effective number of parties) and the substantive conclusions do not change.

Figure A1: Distribution of Months in Office

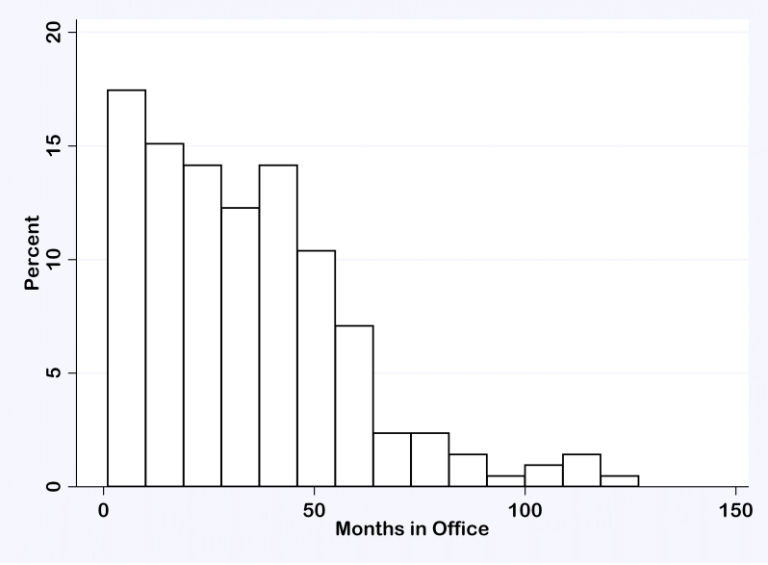
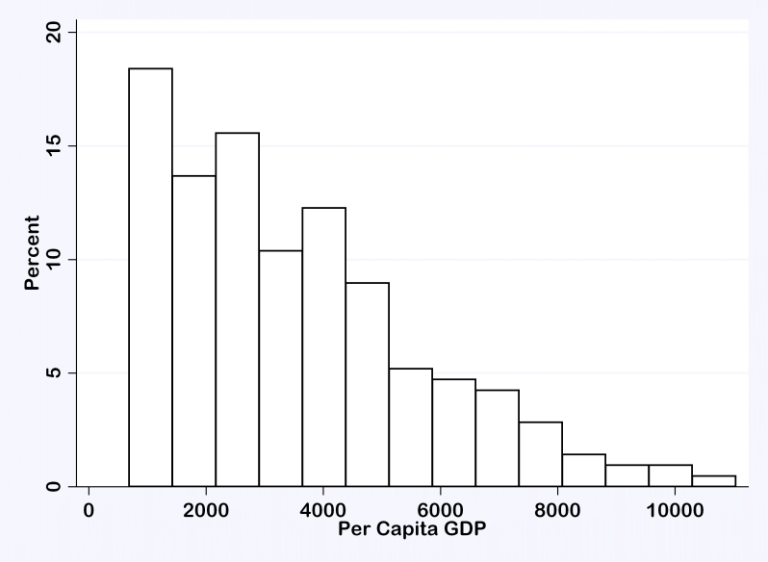


Figure A2: Distribution of Per Capita GDP



Because the empirical results focus on egotropic voting at the low end of the development scale, we provide an additional figures on countries below the median income.

Figure A3: Distribution of Per Capita GDP, Cases Less than $3000

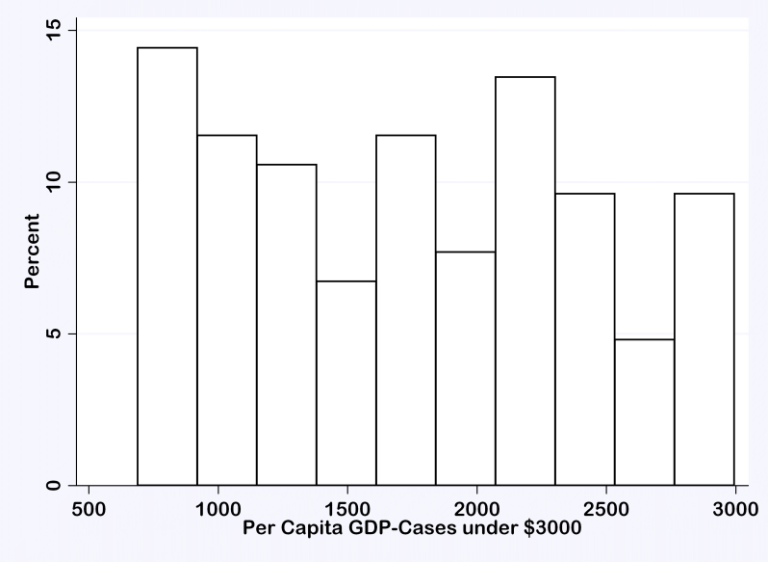


Figure A4: Distribution of the Effective Number of Parties

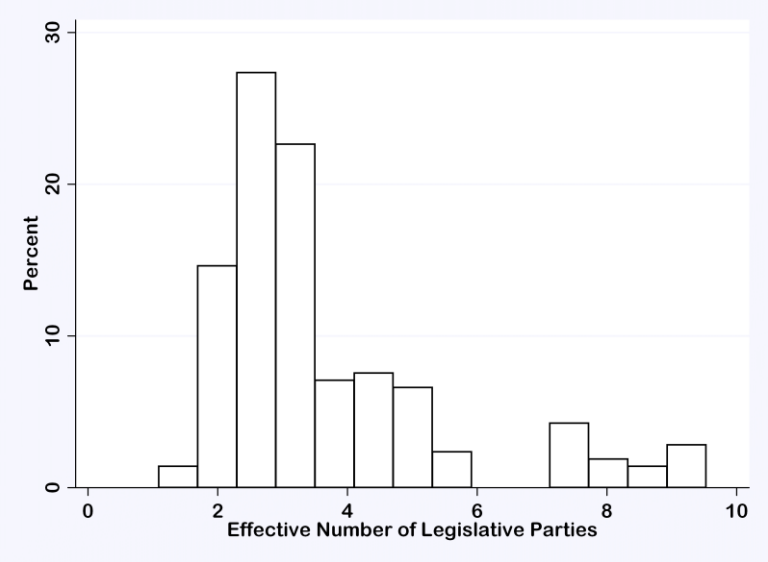


Figure A5: Distribution of Trade

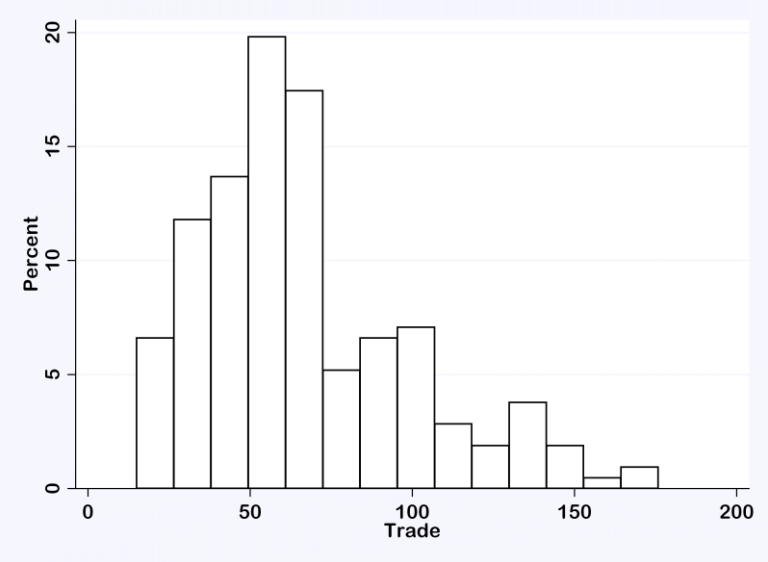
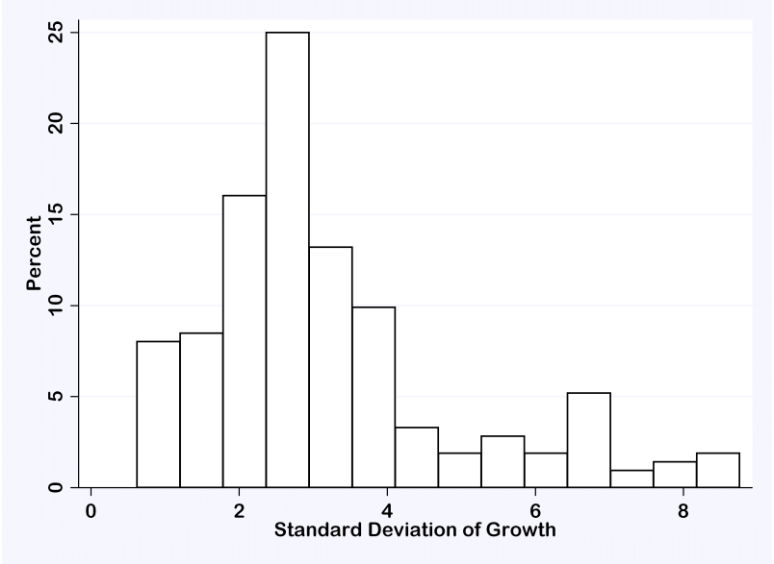


Figure A6: Distribution of Economic Volatility


Percent
0
5
10
15
20
25
0
2
4
6
8
Standard Deviation of Growth

Appendix 2: Two-Stage Estimation

Description of the methodology

Duch and Stevenson (2005, 2008) offer an alternative approach to the one-stage method used in our paper based on the logic of two-stage hierarchical models. This approach first estimates a properly-specific model of voter choice for each country-year (just as we try to do with random coefficients that vary by country-year). From these un-pooled models one can simulate the economy's effect for each country-year, and then model the variation in these effects across county-years. Such two-stage models are particularly appropriate when the goal of the analysis is to appropriately specify the individual-level predictors (as in this case) and if the variables' effects differ within the sample (Franzese 2005).

Thus the analysis below adapts their estimation strategy in the following ways. In the first stage, incumbent support is modeled as a function of the respondent's economic perceptions, ideology, and demographic characteristics using a binary logit.[1] The estimated coefficients are then used to simulate the predicted change in incumbent support if each respondent were to become one point more optimistic on the three-point economic perceptions scale used as the response choices (better, the same, or worse); individuals who are already very positive do not have their attitudes change.[2] This methodology thus looks at the effect of the economy given the distribution of other demographic characteristics within the sample. Estimations of the economy's effect are performed with Monte Carlo simulations in *Clarify* (King et al. 2000, Tomz et al. 2003).[3] For example, in the 2006 Mexico survey, the expected impact of making all voters 1 point more optimistic about the state of the national economy compared to the previous year was to increase support for the PAN by 2.6 percent. In contrast, a similar change in the 1995 survey in Argentina increases support for the PJ by 9.8 percent.

In doing these estimates, we added the following additional controls:

Catholic: From the open ended question "What is your religion?" [1] if Catholic and [0] otherwise.

[1] The specific question wordings are listed in Appendix 1. Unfortunately, party identification is not an available control in these surveys.

[2] One concern with this methodology is that countries with very high numbers of respondents in the most positive economic perceptions category might artificially suppress the economy's impact in these contexts. To test for this we ran a specification of the model where we controlled for the number of people who were in the most positive category for each economic perceptions question and the results do not change nor are any of those added variables significant at conventional levels. Thus it appears that the results are not being exclusively driven by the underlying preferences in the country.

[3] In doing so we deviate slightly from Duch and Stevenson's methodology in that they modeled the effect of voters becoming more pessimistic whereas we look at the effect of making the economy better because we believe it is more intuitive to have *larger* economic effects have a *positive* sign instead of the negative signs they use. Duch and Stevenson (2008, 108) argue that making voters more optimistic and making voters more pessimistic yields roughly the same estimates about the size of the economic vote across countries. We verify this claim by also generating separate estimates making each respondent more pessimistic and find the same basic pattern of results as those reported in the first column of Table 1.

No Religion: From the open ended question "What is your religion?" [1] if "None" or "Atheist" or "Agnostic" and [0] otherwise.

Age: in years

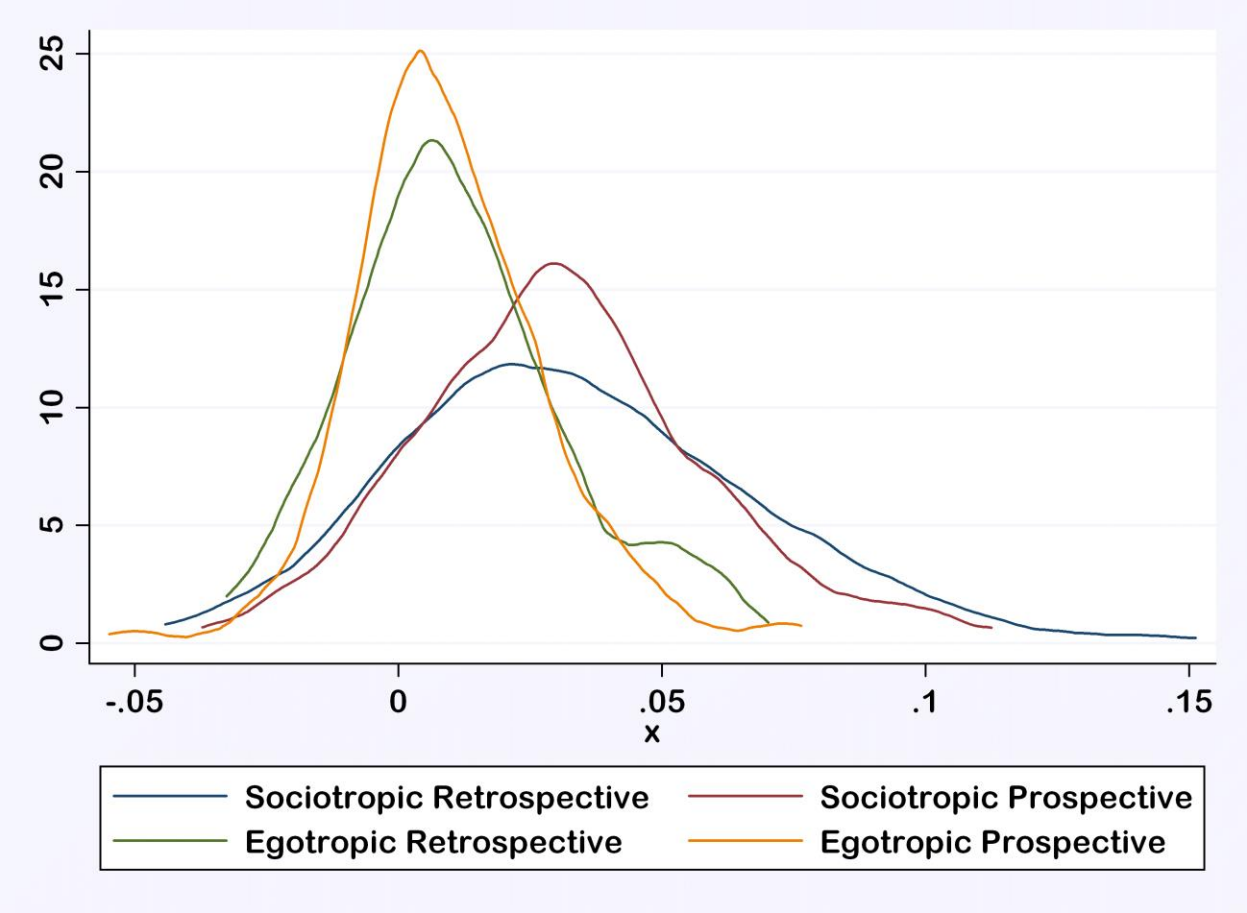
Education: Years of education of respondent, ranges from 0-17.

Possessions: A count of the following objects owned by the household: Color television, Refrigerator/Icebox/ freezer, Own home, Computer, Washing machine, Telephone, Car, A second home or holiday home, Drinking water, Hot water, Sewage system.

Duch and Stevenson's study of advanced democracies only looks at sociotropic retrospective evaluations. Since the jury is still out on the nature of economic voting in Latin America, however, it is crucial to compare the impact of different temporal orientations and referents. hus the analysis focuses on four separate economic perception measures in each country-year: the state of the national economy compared to 12 months previous (sociotropic retrospective), the expected state of the national economy in 12 months (sociotropic prospective), the state of the respondent's personal finances compared to 12 months prior (egotropic retrospective), and the expected state of the respondent's personal finances in the next year (egotropic prospective). These variables are inter-correlated. But with the exception of egotropic and sociotropic retrospective perceptions, which are correlated *(r* = 0.48), these correlations are not extremely high ($r < 0.40$). Given the size of the samples for each country year (the average country-year model had 826 respondents), there are sufficient degrees of freedom to estimate their independent effects. Thus for each country-year we generate four estimates of "the economic vote", one per each combination of sociotropic/egotropic and retrospective/prospective orientations.[4]

Figure A7: Kernel Density Plots of Estimated Economic Voting Effects by Orientation

[4] As a robustness check, we have also estimated the models entering each economic perception indicator separately for each country-year, running 4 models for each sample, and analyzed the resulting economic voting coefficients. Not surprisingly, the estimated economic voting coefficients are larger across the board when only one variable is entered in the equation because that one variable captures part of the effect of the other economic perception measures that are not being controlled for. It is because of this omitted variable bias that we prefer the estimates presented in Table 1 where all 4 variables are included in the model simultaneously. However, the basic results in Table 1 also emerge in this alternative specification.



The estimated economic vote effects are graphed in Figure 1. In a few cases the effect of making respondents more positive about the economy decreases the likelihood of support the incumbent government, but in most cases it increases it. However, the data show a marked divergence between the estimated effects of improving egotropic evaluations compared to the effects of improving sociotropic evaluations.[5] The average *sociotropic* retrospective economic voting effect is 0.034 while the average sociotropic prospective evaluation is 0.031, meaning that a one-point increase in optimism about the national economy should increase support for the incumbent by about 3 percentage points. Yet the respective changes in retrospective and prospective *egotropic* evaluations are 0.009 and 0.011. There is very little evidence that the average prospective and retrospective evaluations differ much across these country-years.

These estimated economic vote effects form the dependent variable in the subsequent stage of the analysis. Specifically, the four estimates of the economy's impact (subscripted *v* (question *version*) where *v* can be sociotropic retrospective, sociotropic prospective, egotropic retrospective and egotropic prospective) of the economy's effect for each year *i* in country *j* are modeled using variables at three levels of analysis (question, country-year, and country). In the first stage, we compare whether the observed differences between perception types is significant across the sample using two dummy variables. "Egotropic$_{vij}$" is a dummy variable that takes the

[5] One advantage of dealing with predicted marginal effects is that they can be compared across indicators (since they are measured on the same scale) and across samples unlike the coefficients estimated by non-linear models.

value of 1 if the economic effect *vij* is from an indicator with an egotropic reference point and 0 otherwise. If egotropic evaluations have smaller effects than sociotropic evaluations on average, then this variable π_1 will have a negative sign. "Prospective$_{vij}$" is a dummy variable equal to 1 if the economic effect *vij* is from an indicator with a prospective reference point and 0 otherwise. If its coefficient, π_2, is negative, then prospective economic considerations have a smaller impact on the voting decision than retrospective evaluations.[6]

$$(1)\quad \text{Economic Vote}_{vij}=\pi_{0ij} + \pi_{1ij}*\text{Egotropic}_{vij} + \pi_{2ij}*\text{Prospective}_{vij} + e_{vij}$$

The analysis in equation 1 allows for a direct test of how the various economic perception measures affect incumbent support. Yet the extant economic voting literature expects the overall effect of the economy to vary across contexts. Thus we estimate two additional equations modeling variance in the overall effect of the economy. $\mathbf{X_{jk}}$ is a vector of economic and political variables believed to affect the magnitude of the economy's effect across country-years.

The economic factors considered here include the level of economic volatility (the standard deviation in per capita GDP growth rates in the 10 years before the election, taken from the World Bank's WDI dataset) and the volume of external trade (as a percentage of GDP, taken from the WDI). Both are theorized to dampen economic voting overall. Two political variables seek to capture the complexity of the policymaking process. The first is the effective number of parties in the legislature. Per Powell and Whitten (1993) and especially Anderson (2000), we expect that attribution of responsibility to be more diffused in fragmented party systems. A second variable indicates whether the president's party has a legislative majority, also theorized to enhance economic voting. Because these variables are all expected to capture similar political dynamics, they are entered sequentially in different iterations of the model (see Appendices 1-2).[7] To facilitate interpretation, all non-dummy variable predictors not interacted with the economic perception measures (see below) are mean centered so that the intercept γ_{00} captures the average sociotropic retrospective evaluation (the baseline category) when all variables are at their mean. Equation 3 estimates a country-specific error to allow for residual differences that do not vary over time.[8]

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[6] To account for the possibility that the difference between retrospective and prospective perceptions may differ between sociotropic and egotropic considerations (and vice versa), we include in one specification an interaction term that takes the value of 1 if the estimate is associated with the egotropic prospective question. We did not find a significant difference in any of the models we estimated and so we exclude it from most of the model specifications presented here.

[7] In an alternative specification we looked at two other variables some have suggested would effect economic voting in the region. Johnson and Ryu (2011) argue that economic performance is more salient if the incumbent is a "policy switcher", i.e. someone who ran on one set of policies and then enacted policies in the opposite direction once in office. We find no evidence that the economy's effect is greater for those incumbents they code as policy switchers, although that may reflect the declining prevalence of policy switching in our sample. Rudolph (2003b) argues that governors with greater formal powers are more likely to be held accountable for the economy; we find no evidence that presidents with greater formal powers are more closely tied to economic outcomes. These results are available in Appendix 4.

[8] None of the contextual variables that the extant literature on economic voting suggests affect the economy's electoral impact is constant over time within countries so we do not include any specific country predictors. However, some of these variables do not change very quickly and so the country specific errors control for this temporal stickiness. The results do not change if we model the economy's impact as a two stage multi-level model excluding equation 3.

(2) $\pi_{0ij}=\beta_{00j} + \beta_{01j}\mathbf{*X}_{ij} + r_{0ij}$

(3) $\beta_{00j} =\gamma_{00} + u_j$

A final set of equations tests whether observed differences in egotropic/sociotropic and prospective/retrospective voting are in fact context specific. Two interactions are of particular interest. The first (equation 4) models egotropic perceptions as a function of economic development to see if pocketbook behavior is more common in poor countries than in rich ones (substituting equation 4 into equation 1 yields an interaction term between egotropic and the level of development). The second (equation 5) models prospective evaluations as function of the (logged) number of months the incumbent has been in office to gauge whether prospective considerations receive more weight early in an incumbent's term while retrospective ones gain in importance over time as voters have a better sense of the incumbent's managerial abilities. These variables are entered first alone and then together as a robustness check.

(4) $\pi_{1ij}=\beta_{10j} + \beta_{11j}\mathbf{*}\log(GDP)_{ij} + r_{1ij}$

(5) $\pi_{2ij}=\beta_{20j} + \beta_{21j}\mathbf{*}\ln(\text{Months in office})_{ij} + r_{2ij}$

This series of equations is estimated simultaneously as a 3-stage hierarchical model using Stata's *xtmixed* command.

Analysis

Table 1 contains 4 basic specifications of the model. Column 1 estimates the effect of the economy on average within the sample; columns 2-4 add the interaction effects implied by equations 4 and 5. The following discussion focuses on (1) how the political and economic context shapes overall levels of economic voting and then the broad differences between (2) egotropic and sociotropic orientations, (3) prospective and retrospective evaluations. Then in Table 2 we use different measures of political control as a robustness check.

The main difference from the findings obtained from the single-stage estimations is that trade significantly reduces economic voting only in the single stage estimates. Yet in both estimations, sociotropic evaluations generally trump egotropic ones except in poor countries, prospective and retrospective evaluations have roughly the same impact on average, prospective considerations dominate early while retrospective ones grow in importance over time, economic volatility increases economic voting, and shared policymaking responsibility reduces it. *Thus the results presented above are robust to specification choices.*

Appendix Table 1: Two-Stage Hierarchical Model of the Economy's Effect on Presidential Vote, Controlling for Legislative Fragmentation

	[1]	[2]	[3]	[4]
Egotropic	-0.022***	0.008	-0.022***	0.008
	(0.002)	(0.010)	(0.002)	(0.010)

Prospective	-0.002	-0.002	0.018***	0.018***
	(0.002)	(0.002)	(0.006)	(0.006)
Ln(Months in Office)	-0.001	-0.001	0.002*	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Months*Prospective			-0.006***	-0.006***
			(0.002)	(0.002)
Trade	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Growth Volatility	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Effective Number of Legislative Parties	-0.018**	-0.018**	-0.018**	-0.018**
	(0.008)	(0.008)	(0.008)	(0.008)
Log(GDP Per Capita)	-0.001	0.003	-0.001	0.003
	(0.002)	(0.003)	(0.002)	(0.003)
GDP*Egotropic		-0.009**		-0.009**
		(0.003)		(0.003)
Constant	0.037***	0.022**	0.031***	0.016**
	(0.008)	(0.009)	(0.009)	(0.010)
Random-Effects Parameters				
Economic Vote Estimate	0.024	0.024	0.024	0.024
Country-Year	0.008	0.008	0.008	0.008
Country	0.004	0.004	0.004	0.004
χ^2	161.0***	171.8***	178.7***	190.0***
Hierarchical OLS Regression, Standard Errors in Parentheses. N Economic Voting Estimates=848, N Country-Years=212, N Countries=18 * p<0.10, ** p<0.05, *** p<0.01				

Appendix Table 2: Two-Stage Hierarchical Model of the Economy's Effect on Presidential Vote, Controlling for Government Having a Majority in the Legislature

	[1]	[2]	[3]	[4]
Egotropic	-0.022***	0.000	-0.022***	0.000
	(0.002)	(0.010)	(0.002)	(0.009)
Prospective	-0.002	-0.002	0.017***	0.017***
	(0.002)	(0.002)	(0.005)	(0.005)
Ln(Months in Office)	-0.001	-0.001	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Months*Prospective			-0.006***	-0.006***
			(0.002)	(0.002)
Trade	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)

Growth Volatility	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Legislative Majority	0.006**	0.006**	0.006**	0.006**
	(0.002)	(0.002)	(0.002)	(0.002)
Log(GDP Per Capita)	-0.002	0.001	-0.002	0.001
	(0.002)	(0.003)	(0.002)	(0.003)
GDP*Egotropic		-0.007**		-0.007**
		(0.003)		(0.003)
Constant	0.038***	0.027**	0.031***	0.020**
	(0.008)	(0.009)	(0.009)	(0.010)
Random-Effects Parameters				
Economic Vote Estimate	0.024	0.024	0.024	0.024
Country-Year	0.009	0.009	0.009	0.009
Country	0.004	0.004	0.004	0.004
χ^2	194.8***	201.4***	212.7***	219.6***
Hierarchical OLS Regression, Standard Errors in Parentheses. N Economic Voting Estimates=848, N Country-Years=212, N Countries=18 * p<0.10, ** p<0.05, *** p<0.01				

Appendix 3: Test of Equality Constraints across Coefficients

The model tested in the paper considers the impact of 5 contextual variables on the linkage between the 4 economic perception measures and government support. This yields 20 potential interaction terms if we estimate all combinations. However, while we have theoretical reasons to expect some contextual variables will affect one set of perception measures different than they affect others (e.g. time in office increases retrospective voting and decreases prospective), other for other variables we have no a priori theoretical reasons to expect the contextual effect to vary- e.g. a lack of political control should reduce all forms of economic voting. Thus in the models presented in the paper, we have imposed a series of equality constraints across coefficients to correspond to our theoretical priors:

1. The effect of trade is the same for all 4 economic perception measures
2. The effect of economic volatility is the same for all 4 economic perception measures
3. The effect of legislative fragmentation is the same for all 4 economic perception measures

4a. The effect of time in office is the same for both prospective evaluations
4b. The effect of time is the same for both retrospective evaluations
5a. The effect of development is the same for both egotropic evaluations
5b. The effect of development is the same for both sociotropic evaluations

Imposing these constraints also allows us to avoid asking too much of the data. The cross-level interaction terms are estimated based on 212 country-year cases and so estimating 20 interaction terms is likely to generate inefficient estimates due to multicolinearity.

In this section, we test whether these constraints generated by our theory can be justified by the data. Specifically, we consider whether the coefficients generated by the unconstrained model are in fact equal. We estimated a model with random slopes for all the demographic/ideological controls and the full set of 20 economics/context interaction terms. In the unconstrained model, each contextual variable is interacted 4 times, which yields 6 unique pairs of coefficients about whose equality (or lack thereof) we have a hypothesis about. For each pair of coefficients (e.g. comparing the coefficients β_1*sociotropic retrospective*trade + $\beta_2$sociotropic retrospective* trade) we perform a Wald test of equality across coefficients. If the proposed constraint for the contextual variable is justifiable, then a test of equality between two coefficients β_1 and β_2 should not reject the null hypothesis that β_1-β_2=0. Specifically, the Wald test statistic $(|\beta_1-\beta_2|/\sqrt{(var(\beta_1) + var(\beta_2)-2*cov(\beta_1,\beta_2)))^2}$ is distributed on an $F_{1, 209}$ distribution. To reject the null hypothesis of equality between coefficients at the 95% confidence level, the test statistic should be greater than 3.884. An alternative strategy would be to do a single Wald test of equality across all sets of coefficients, but we prefer this approach because it allows us to evaluate whether most of the coefficients are the same in cases where not all of them are.

In testing these constraints, we can also retest two of the interactive hypotheses laid out in the paper. This allows us to evaluate whether the results are being generated by the specific constraints we imposed.

4c. The effect of time will be different on retrospective and prospective evaluations

5c. The effect of development will be different on sociotropic and egotropic evaluations

1. Trade

We first examine whether the effect of trade is the same on all economic variables. Specifically, we expect the following pattern of coefficients for the 6 pairwise comparisons among the trade*{economic perception} coefficients.

Are The Coefficients Equal?

	Trade*Ego Retro	Trade*Socio Pros	Trade*Socio Retro
Trade*Ego Pros	True	True	True
Trade*Ego Retro			True
Trade*Socio Pros	True		True

The results of the analysis are in the table below. For each comparison, we present the absolute value of the difference between the two coefficients, the standard error of that difference, the test statistic, and whether or not the test statistic is smaller than the critical F.

		Trade*Ego Retro	Trade*Socio Pros	Trade*Socio Retro
Trade*Ego Pros	Difference	0.0008	0.0004	0.0001
	Error	0.0007	0.0007	0.0007
	Wald test	1.3048	0.3507	0.0300
	F<3.884	TRUE	TRUE	TRUE
Trade*Ego Retro	Difference			0.0009
	Error			0.0007
	Wald test			1.5915
	F<3.884			TRUE
Trade*Socio Pros	Difference	0.0004		0.0006
	Error	0.0007		0.0007
	Wald test	0.2571		0.5818
	F<3.884	TRUE		TRUE

All 6 Wald statistics are smaller than the critical F. That means that for all 6 comparisons we cannot reject the null hypothesis that the coefficient is the same (i.e. that the difference between them is 0). Thus for the case of trade, a constraint of equality across coefficients is clearly justifiable.

2. Economic volatility

The expected pattern for economic volatility is similar to the one expected for trade:

Are Coefficients Equal?

	Volatility*Ego Retro	Volatility*Socio Pros	Volatility*Socio Retro
Volatility*Ego Pros	True	True	True
Volatility*Ego Retro			True
Volatility*Socio Pros	True		True

The results for volatility conform to expectations for 5 of the 6 pairs. The difference between how volatility effects sociotropic prospective perceptions and egotropic retrospective evaluations is sufficiently large, however, that one can reject the null hypothesis of equality.

		Volatility*Ego Retro	Volatility*Socio Pros	Volatility*Socio Retro
Volatility*Ego Pros	Difference	0.0077	0.0231	0.0007
	Error	0.0135	0.0147	0.0140
	Wald test	0.3252	2.4758	0.0023
	F<3.884	TRUE	TRUE	TRUE
Volatility*Ego Retro	Difference			0.0070
	Error			0.0140
	Wald test			0.2529
	F<3.884			TRUE
Volatility*Socio Pros	Difference	0.0329		0.0006
	Error	0.0140		0.0142
	Wald test	5.5101		0.0015
	F<3.884	FALSE		TRUE

However, for both sociotropic prospective and egotropic retrospective, the coefficient of volatility* {economy} is in the expected positive direction and significant at the $p<0.10$ or better. The substantive impact of volatility is different for the two variables, but it is larger for sociotropic prospective than for egotropic retrospective considerations. Moreover, neither of these variables is an outlier inasmuch that its effect is different from the effect of all the other variables; for example one cannot reject the null that volatility*sociotropic prospective is different from either volatility*sociotropic retrospective or volatility*egotropic prospective. The same is true for volatility's effect on egotropic retrospective evaluations. And if we estimate a model where the other contextual variables are constrained to have the same effect, the difference between these two coefficients is no longer significant at conventional levels. Thus while the evidence for the equality constraint is not as straightforward for volatility as it is for trade, more of the coefficients are equal than are unequal.

In the analysis in the paper, we apply the equality constraint because we think the evidence for it is better than the evidence against it. If, however, one constrains the effect of volatility to be the same for three of the four economic perception indices and then lets its effect on either

sociotropic prospective or egotropic retrospective vary, there is no significant difference between the coefficients and both are negatively signed and significantly different from 0 at the 0.10 level or better.

3. Legislative fragmentation

The expected pattern for legislative fragmentation is similar to the one expected for trade and volatility:

Are Coefficients Equal?

	ENPS*Ego Retro	ENPS*Socio Pros	ENPS*Socio Retro
ENPS*Ego Pros	True	True	True
ENPS*Ego Retro			True
ENPS*Socio Pros	True		True

Again, the expected lack of differences occurs in 5 of the 6 pairs of coefficients. The exception is the pair of sociotropic retrospective and egotropic retrospective, with legislative fragmentation having a large negative effect on the latter while having an insignificant effect on the former. Again, no variable is an outlier and the number of coefficients that are equal largely outweighs the number that are nor. If one runs the models with all the other constraints imposed while this variable is allowed to be free, the largest gap is between socio retro and ego retro but this gap is no longer significant at conventional levels.

		ENPS*Ego Retro	ENPS*Socio Pros	ENPS*Socio Retro
ENPS*Ego Pros	Difference	0.0182	0.0004	0.0093
	Error	0.0121	0.0133	0.0128
	Wald test	2.2413	0.0010	0.5254
	F<3.884	TRUE	TRUE	TRUE
ENPS*Ego Retro	Difference			0.0275
	Error			0.0125
	Wald test			4.8147
	F<3.884			FALSE
ENPS*Socio Pros	Difference	0.0177		0.0097
	Error	0.0126		0.0128
	Wald test	1.9711		0.5805
	F<3.884	TRUE		TRUE

In the analysis in the paper, we apply the equality constraint because we think the evidence for it is better than the evidence against it. If, however, one constrains the effect of legislative fragmentation to be the same for three of the four economic perception indices and then lets its effect on either sociotropic retrospective or egotropic retrospective vary, there is no significant difference between the coefficients and both are negatively signed. The coefficient for

sociotropic retrospective is never, however, significant at the 0.10 level (although the combined coefficient is significantly different from 0 even when it is included). We acknowledge this deviation from theoretical expectations in footnote 16.

4. Time in Office

The expected pattern for time in office is different from the first three we have examined. We expect that there should be a difference between the prospective and retrospective indicators in how they evolve over time. We have no similar theory about how time affects egotropic and sociotropic evaluations within a single temporal orientation. Thus we might ideally expect the following pattern:

Are the Coefficients Equal?

	TIME*Ego Retro	TIME*Socio Pros	TIME*Socio Retro
TIME*Ego Pros	False	True	False
TIME*Ego Retro			True
TIME*Socio Pros	False		False

In considering the hypotheses, we see that there is some support for them but it again is not perfect. First, time in office has an extremely large negative effect on sociotropic prospective evaluations. The effect of time on egotropic prospective evaluations has the expected negative sign and is marginally significant ($p<0.10$)- the evidence for the hypothesis that prospective voting diminishes with time is not a function of the constraint. Yet the effect of time on the sociotropic measure is so large that a significant gap between the two remains. The difference between egotropic and sociotropic evaluations may in part reflect the difference in their overall size; there is more sociotropic voting for time to suppress. Given that the effects are in the same direction and relatively consistent, it did not seem unreasonable for us assume they have the same basic underlying structure. The egotropic retrospective measure does not significantly differ from its sociotropic counterpart.

The other comparison that does not have the expected outcome is between the two egotropic evaluations. We show these in the table below. While they have opposite signs, they are both closer to 0 than their sociotropic counterparts, are and given the standard errors one cannot reject the hypothesis that they have the same slope. Again, we acknowledge this deviation from the expected results in footnote 17 in the manuscript.

		TIME*Ego Retro	TIME*Socio Pros	TIME*Socio Retro
Time*Ego Pros	Difference	0.0282	0.0454	0.0582
	Error	0.0195	0.0214	0.0205
	Wald test	2.0869	4.5065	8.0231
	F<3.884	TRUE (p=0.15) but in opposite directions as expected	FALSE but in the same direction	FALSE
Time*Ego Retro	Difference			0.0300
	Error			0.0207
	Wald test			2.1081
	F<3.884			TRUE
Time*Socio Pros	Difference	0.0454		0.1036
	Error	0.0205		0.0207
	Wald test	4.8987		24.9850
	F<3.884	FALSE		FALSE

5. The Effect of Wealth

The expected pattern for development is also different from the first three. We expect that there should be a difference between the egotropic and sociotropic indicators in how they evolve with development. We have no similar theory about how development affects prospective and retrospective evaluations. Thus we might ideally expect the following pattern:

Are the Coefficients Equal?

	GDP*Ego Retro	GDP*Socio Pros	GDP*Socio Retro
GDP*Ego Pros	True	False	False
GDP*Ego Retro			False
GDP*Socio Pros	False		True

The expected pattern is observed for 5 of the 6 pairs. The one exception is very close to the expected threshold for rejecting the null hypothesis of equality as well. Thus the effect of development on economic perceptions fits both the pattern of constraints within perception types and our hypothesized differences between them.

		GDP*Ego Retro	GDP*Socio Pros	GDP*Socio Retro
GDP* Ego Pros	Difference	0.0016	0.0838	0.0767
	Error	0.0368	0.0400	0.0387
	Wald test	0.0019	4.3950	3.9260
	F<3.884	TRUE	FALSE	FALSE
GDP*Ego Retro	Difference			0.0751
	Error			0.0398
	Wald test			3.5623
	F<3.884			TRUE But with little confidence (p = 0.056)
GDP*Socio Pros	Difference	0.0822		0.0071
	Error	0.0391		0.0398
	Wald test	4.4221		0.0317
	F<3.884	FALSE		TRUE

Appendix 4: Full Table with Controls and Random Effects

We attempt to conserve space in the tables by not presenting the full set of results for the control variables or their variance effects. The full results are presented below. The individual-level controls represent their effects on average across the sample, and as such do not have any real meaning in themselves. The random effect variance components confirm that the effect of demographic variables varies significantly across country-years.

	Coefficient	(SE)	Coefficient	(SE)	Coefficient	(SE)
Sociotropic Retrospective	0.279	(0.018)	0.305	(0.039)	0.155	(0.092)
Sociotropic Prospective	0.304	(0.018)	0.331	(0.039)	0.344	(0.093)
Egotropic Retrospective	0.071	(0.012)	0.098	(0.037)	0.169	(0.065)
Egotropic Prospective	0.103	(0.014)	0.130	(0.038)	0.363	(0.067)
Trade*[Economic Perceptions]			-0.001	(0.000)	-0.001	(0.000)
Volatility*[Economic Perceptions]			0.015	(0.005)	0.018	(0.005)
ENPS*[Economic Perceptions]			-0.010	(0.005)	-0.009	(0.005)
Ln(Months in Office)*[Prospective]					-0.034	(0.011)
Ln(Months in Office)*[Retrospective]					0.018	(0.009)
$Log(GDP_{pc})$*[Egotropic]					-0.041	(0.015)
$Log(GDP_{pc})$*[Sociotropic]					0.027	(0.025)
Trade	0.006	(0.003)	0.008	(0.003)	0.008	(0.003)
Volatility	0.016	(0.045)	-0.029	(0.047)	-0.037	(0.047)
ENPS	-0.090	(0.046)	-0.063	(0.048)	-0.066	(0.048)
Ln(Months in Office)	0.048	(0.055)	0.049	(0.055)	0.052	(0.059)
$Log(GDP_{pc})$	0.035	(0.156)	0.033	(0.156)	0.065	(0.161)
No ideo	-0.525	(0.044)	-0.525	(0.044)	-0.524	(0.044)
proximity	0.152	(0.018)	0.152	(0.018)	0.152	(0.018)
constant	-3.285	(0.618)	-3.348	(0.626)	-3.434	(0.641)
Variance Components						
(Level 1)	0.974		0.974		0.974	
(Level 2)	3.763		3.723		3.718	
(Level 3)	0.192		0.192		0.191	
Sociotropic Retrospective	0.014		0.015		0.014	
Sociotropic Prospective	0.008		0.006		0.005	
Egotropic Retrospective	0.047		0.044		0.042	
Egotropic Prospective	0.046		0.043		0.041	

No ideology	0.292		0.292		0.293	
proximity	0.062		0.062		0.062	

Appendix 5: Model Specification with Majority Control of the Legislature By the Executive Used as the Measure of Political Control

Instead of controlling for legislative fragmentation, we control whether the incumbent has majority control in the legislature (a dummy variable taking the value of 1) or not. As legislative control increases, attributions of responsibility should become increasingly clear for the executive. The significant positive interaction term between majority control and economic perceptions confirms that is the case in this sample.

	[3]	(SE)
Sociotropic Retrospective	0.078	(0.091)
Sociotropic Prospective	0.284**	(0.092)
Egotropic Retrospective	0.085	(0.080)
Egotropic Prospective	0.350***	(0.088)
Trade*[Economic Perceptions]	-0.001	(0.000)
Volatility*[Economic Perceptions]	0.023***	(0.004)
Majority Legislative Share*[Economic Perceptions]	0.030*	(0.015)
Ln(Months in Office)*[Prospective]	-0.040***	(0.011)
Ln(Months in Office)*[Retrospective]	0.018°	(0.009)
$Log(GDP_{pc})$*[Egotropic]	-0.054*	(0.024)
$Log(GDP_{pc})$*[Sociotropic]	0.023	(0.025)
Trade	0.006°	(0.003)
Volatility	-0.125*	(0.049)
Majority Legislative Share	0.525***	(0.135)
Ln(Months in Office)	-0.002	(0.048)
$Log(GDP_{pc})$	-0.138	(0.175)
Demographic Controls Included but Omitted for Space ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001		

Appendix 6: Graphing the Marginal Effects of Economic Perceptions across Different Contexts: The Effect of Trade, Volatility, and Electoral Fragmentation

Our primary interest in this study is in the effect of time in office and development on the relative weight of prospective/retrospective and sociotropic/egotropic evaluations respectively. However, we control for three other aspects of the context that should affect the magnitude of the economic vote: trade, economic volatility, and the effective number of parties. The significant interaction terms in the table show that these three variables have the expected effect. Here we graph the predicted increase in government support if economic perceptions increase from their minimum to their maximum, with that effect varying by the context (with all other variables set at their mean). The confidence intervals are the confidence intervals of the prediction, which take into account the overall level of uncertainty about government support in the model (which is relatively large), calculated using the delta method.

Figure A8: Effect of the Economy, Conditional on Trade

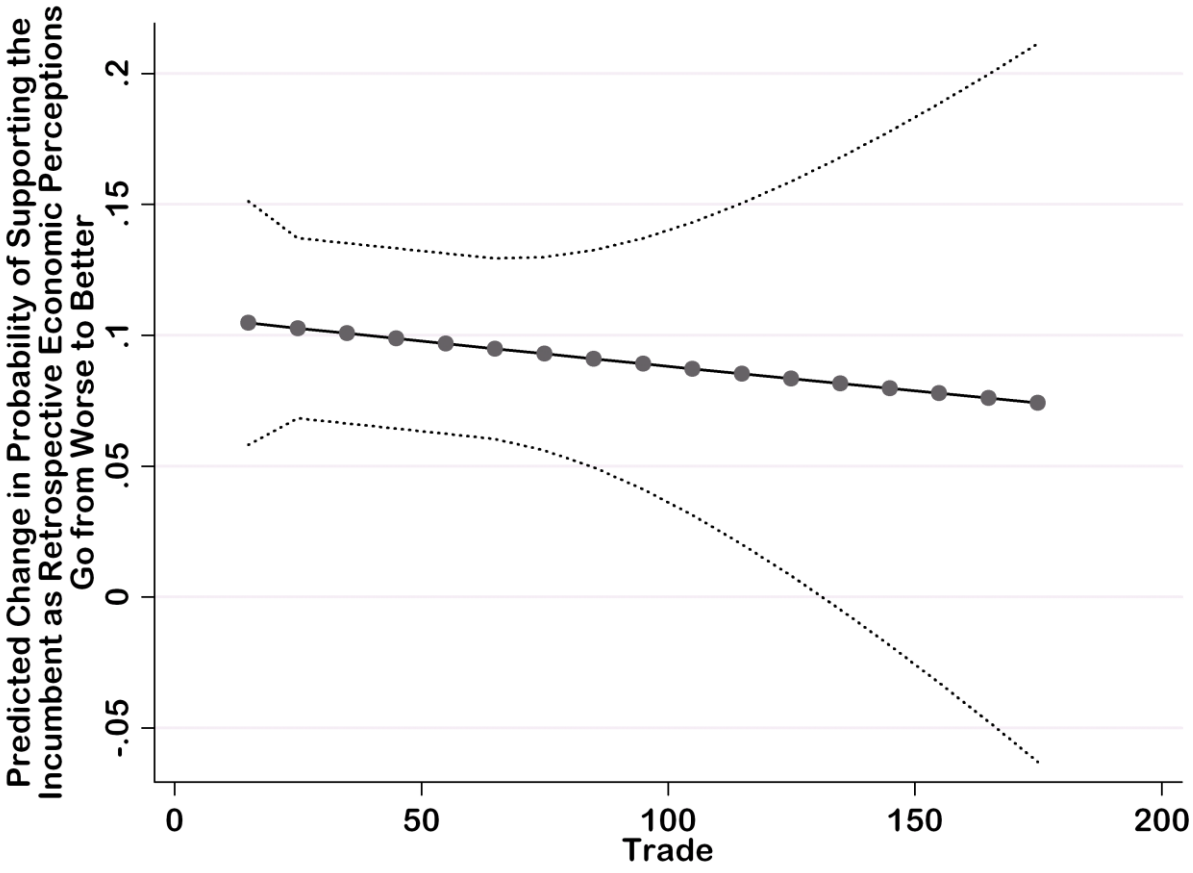
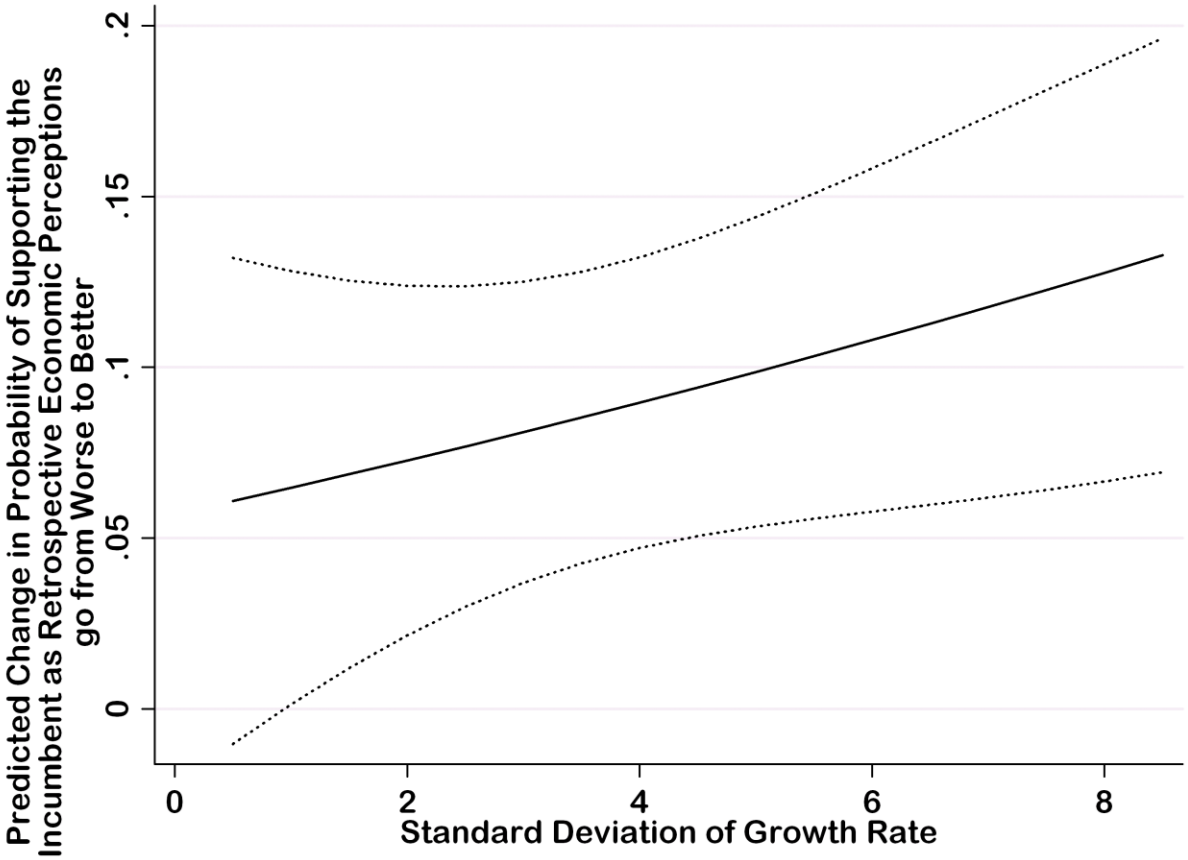
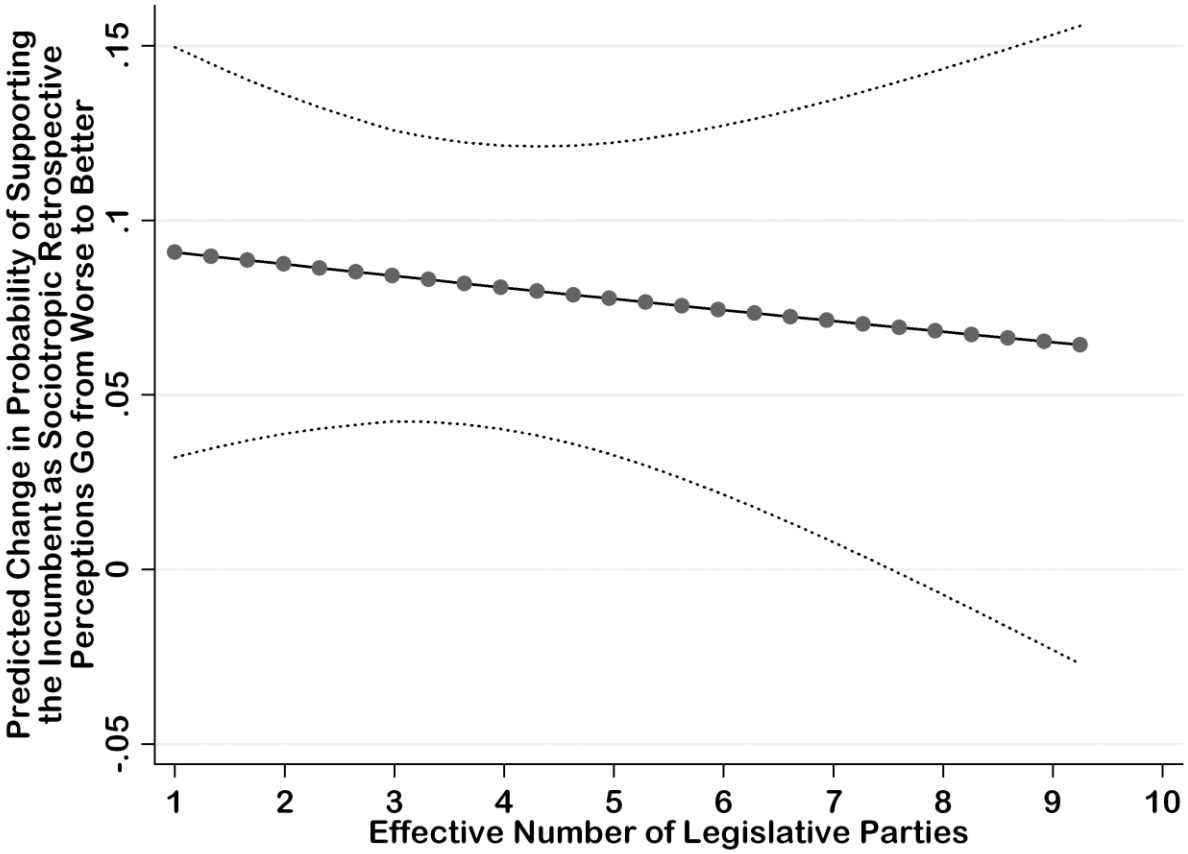


Figure A9: Effect of the Economy, Conditional on Economic Volatility



A10: Effect of the Economy, Conditional on Legislative Fragmentation


Predicted Change in Probability of Supporting the Incumbent as Sociotropic Retrospective Perceptions Go from Worse to Better
-.05
0
.05
.1
.15
1
2
3
4
5
6
7
8
9
10
Effective Number of Legislative Parties

Appendix 7, Alternative Specifications of Time

In the text we operationalize time in office as the log of the number of months that the executive has been in office. Here we show the results regarding the relative mix of prospective and retrospective evaluations over the length of the incumbent's term are not contingent upon the use of the logged function (column 1), the choice to measure term in months instead of years (column 2), or dynamics by presidents who have been in office for extremely long periods of time (columns 3-4).

	The Number of Months the President Has Been in Office (Not Logged)	Ln(The Number of Complete Years the President Has Been in Office)	Ln(months), Excluding Executives Who Have Been in Power More than 8 Years	Ln(months), Excluding Executives Who Have Been in Power More than 6 Years
Sociotropic Retrospective	0.112	0.153	0.088	0.094
	(0.079)	(0.090)	(0.092)	(0.093)
Sociotropic Prospective	0.170*	0.271**	0.293**	0.314**
	(0.080)	(0.091)	(0.094)	(0.095)
Egotropic Retrospective	0.135**	0.192**	0.148*	0.145*
	(0.045)	(0.061)	(0.064)	(0.066)
Egotropic Prospective	0.202***	0.316***	0.362***	0.377***
	(0.046)	(0.061)	(0.067)	(0.069)
Trade	0.004	0.005	0.006	0.006
	(0.003)	(0.003)	(0.004)	(0.004)
Economy*Trade	-0.000	-0.001*	-0.001*	-0.001*
	(0.001)	(0.000)	(0.000)	(0.000)
Volatility	-0.080°	-0.100*	-0.080	-0.112*
	(0.047)	(0.050)	(0.051)	(0.056)
Economy*Volatility	0.014***	0.021***	0.023***	0.021***
	(0.004)	(0.005)	(0.005)	(0.005)
Effective Number of Legislative Parties	-0.009	-0.043	-0.024	-0.033
	(0.048)	(0.050)	(0.052)	(0.054)
Economy*Electoral Fragmentation	-0.009*	-0.009*	-0.009*	-0.008
	(0.003)	(0.005)	(0.005)	(0.005)
[Time]	0.003	0.095	-0.010	-0.015
	(0.002)	(0.099)	(0.062)	(0.064)
Prospective*[Time]	-0.001*	-0.061***	-0.038***	-0.042***
	(0.000)	(0.018)	(0.011)	(0.012)
Retrospective*[Time]	0.001°	0.029°	0.020*	0.022*
	(0.000)	(0.015)	(0.009)	(0.010)
log(GDP)	-0.043	-0.044	-0.062	-0.100
	(0.167)	(0.172)	(0.177)	(0.180)
GDP*Sociotropic	0.019	0.029	0.038	0.034
	(0.023)	(0.025)	(0.025)	(0.025)

GDP*Egotropic	-0.030** (0.011)	-0.043** (0.015)	-0.041** (0.015)	-0.042** (0.015)
Demographic Controls Included but Omitted for Space ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001				

Appendix 8: Controlling for Policy Switching and Executive Power

In this study, we focus on the elements of the political context that we find most convincing as potential modifiers of the economy's effect. However, we control here for two other variables that have received attention in the literature. Johnson and Ryu (2011) argue that the economy has a larger effect on electoral support for those executives who policy switched (campaigned on one set of economic promises but then acted in a different way when elected, as discussed by Stokes 2001). Rudolph (2003) argues that voters are more likely to attribute responsibility to executives with large formal powers and general control over the policy process. Thus in the two specifications of the model we control for whether (1) Johnson and Ryu code an executive as being a policy switcher (a dummy variable) and (2) the level of political control in the executive, using Henisz's (2000) measure of political control (we include the measure of legislative fragmentation in the same model to strip that element of divided control out of his calculations). Neither variable has a significant effect on the economy's electoral impact nor does their inclusion change the general results presented above except making trade insignificant in one case.

	[1]	(SE)	[2]	(SE)
Sociotropic Retrospective	0.116	(0.094)	0.149	(0.097)
Sociotropic Prospective	0.323***	(0.095)	0.357***	(0.099)
Egotropic Retrospective	0.157*	(0.065)	0.190**	(0.069)
Egotropic Prospective	0.370***	(0.068)	0.402***	(0.072)
Trade	0.007*	(0.003)	0.005	(0.003)
Economy*Trade	-0.001°	(0.000)	-0.001*	(0.000)
Volatility	-0.065	(0.049)	-0.096°	(0.050)
Economy*Volatility	0.022***	(0.005)	0.021***	(0.005)
Effective Number of Legislative Parties	-0.020	(0.050)	-0.046	(0.050)
Economy*Electoral Fragmentation	-0.008°	(0.005)	-0.008°	(0.005)
ln(months in office)	0.016	(0.059)	0.017	(0.060)
Prospective*[Time]	-0.039***	(0.011)	-0.039***	(0.011)
Retrospective*[Time]	0.018*	(0.009)	0.019*	(0.009)
log(GDP)	-0.042	(0.167)	-0.045	(0.172)
GDP*Sociotropic	0.030	(0.025)	0.029	(0.025)
GDP*Egotropic	-0.043**	(0.015)	-0.043**	(0.015)
Policy Switcher	-0.614*	(0.246)		
Economy*Policy Switcher	-0.024	(0.032)		
Executive Authority			0.437	(0.437)
Economy*Executive Authority			-0.049	(0.042)
Demographic Controls Included but Omitted for Space ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001				

Appendix 9: Controlling for Election Years

In pooling data from surveys conducted at different points in the electoral calendar, we must be sure that dynamics are not different in election years compared to non-election years. Duch and Stevenson (2008) argue that there is no difference in their analysis of Western Europe and North American data; we also find no difference in levels of economic voting between election years and non-election years after controlling for the time an executive has been in office.

	[1]	(SE)
Sociotropic Retrospective	0.122	(0.093)
Sociotropic Prospective	0.329***	(0.095)
Egotropic Retrospective	0.163*	(0.065)
Egotropic Prospective	0.375***	(0.067)
Trade	0.005	(0.003)
Economy*Trade	-0.001*	(0.000)
Volatility	-0.093°	(0.050)
Economy*Volatility	0.021***	(0.005)
Effective Number of Legislative Parties	-0.045	(0.050)
Economy*Electoral Fragmentation	-0.009*	(0.005)
ln(months in office)	0.018	(0.060)
Prospective*[Time]	-0.039***	(0.011)
Retrospective*[Time]	0.018*	(0.009)
log(GDP)	-0.044	(0.172)
GDP*Sociotropic	0.030	(0.025)
GDP*Egotropic	-0.043**	(0.015)
Election Year	-0.039	(0.146)
Economy*Election Year	0.005	(0.018)
Demographic Controls Included but Omitted for Space ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001		

Appendix 10: Controlling for Age of Democracy

Cohen (2004) argues that prospective voting is contingent upon the age of democracy. To test this argument, we control for the length of the current democratic regime in each country, using the "durability" variable from the Polity dataset. The variable has the sign Cohen predicts, but these effects are not significantly larger than 0 at even the 0.10 level. More importantly, the other results in the analysis do not substantively change.

Sociotropic Retrospective	0.131	(0.093)
Sociotropic Prospective	0.318***	(0.095)
Egotropic Retrospective	0.173*	(0.065)
Egotropic Prospective	0.364***	(0.067)
Trade	0.005	(0.004)
Economy*Trade	-0.001*	(0.000)
Volatility	-0.094°	(0.050)
Economy*Volatility	0.021***	(0.005)
Effective Number of Legislative Parties	-0.041	(0.051)
Economy*Electoral Fragmentation	-0.009*	(0.005)
ln(months in office)	0.017	(0.060)
Prospective*[Time]	-0.040***	(0.011)
Retrospective*[Time]	0.019*	(0.009)
log(GDP)	-0.014	(0.177)
GDP*Sociotropic	0.029	(0.026)
GDP*Egotropic	-0.044**	(0.015)
Age of Democracy	-0.005	(0.006)
Age of Democracy*Prospective	0.001	(0.001)
Age of Democracy*Retrospective	-0.001	(0.001)
Demographic Controls Included but Omitted for Space ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001		

Appendix 11: Model With Demographic Controls

To ensure that the results generated in the table are not being affected by exclusion of control variables, we estimate a version of the model without these variables. Because their effect should vary across country-years, these variables are estimated with random slopes. If we control for ideological and demographic variables that affect respondent's willingness to support the incumbent, the economic voting results all become weaker as residual covariance between unobserved conditions, economic perceptions, and government support are controlled for. However, the basic dynamics in how the economy's effect varies across contexts do not change even in this enhanced model.

Fixed Effect	[1]	(SE)	[2]	(SE)	[3]	(SE)
Sociotropic Retrospective	0.276***	(0.019)	0.276***	(0.040)	0.120	(0.093)
Sociotropic Prospective	0.303***	(0.020)	0.304***	(0.040)	0.327***	(0.095)
Egotropic Retrospective	0.082***	(0.013)	0.083*	(0.037)	0.162*	(0.064)
Egotropic Prospective	0.117***	(0.015)	0.118**	(0.038)	0.376***	(0.067)
Trade*[Economic Perceptions]			-0.001°	(0.000)	-0.001*	(0.000)
Volatility*[Economic Perceptions]			0.019***	(0.005)	0.021***	(0.005)
ENPS*[Economic Perceptions]			-0.009*	(0.005)	-0.009*	(0.005)
Ln(Months in Office)*[Prospective]					-0.039***	(0.011)
Ln(Months in Office)*[Retrospective]					0.019*	(0.009)
Log(GDP_{pc})*[Egotropic]					-0.043**	(0.015)
Log(GDP_{pc})*[Sociotropic]					0.030	(0.025)
Trade	0.004	(0.003)	0.005	(0.004)	0.005	(0.004)
Volatility	-0.035	(0.047)	-0.095°	(0.050)	-0.103*	(0.049)
ENPS	-0.050	(0.048)	-0.023	(0.051)	-0.023	(0.051)
Ln(Months in Office)	0.005	(0.055)	0.004	(0.055)	0.020	(0.059)
Log(GDP_{pc})	-0.135	(0.169)	-0.133	(0.169)	-0.087	(0.174)
Female	0.017	(0.016)	0.017	(0.016)	0.018	(0.016)
Education	-0.014***	(0.003)	-0.014***	(0.003)	-0.014***	(0.003)
Age	0.003***	(0.001)	0.003***	(0.001)	0.003***	(0.001)
Catholic	0.085***	(0.022)	0.084***	(0.022)	0.084***	(0.022)
No Religion	-0.152***	(0.039)	-0.150***	(0.039)	-0.150***	(0.039)
Household Possessions	-0.022**	(0.007)	-0.022**	(0.007)	-0.022**	(0.007)
No Ideology	-0.572***	(0.045)	-0.572***	(0.045)	-0.571***	(0.045)
Ideological Proximity	0.154***	(0.019)	0.154***	(0.019)	0.154***	(0.019)
Intercept	-2.464**	(0.674)	-2.461**	(0.682)	-2.654**	(0.697)
Variance Components						
Level 1	0.960***		0.960***		0.961***	
Level 2	4.844***		4.876***		4.858***	
Level 3	0.243***		0.241***		0.242***	
Sociotropic Retrospective	0.048***		0.046***		0.043***	
Sociotropic Prospective	0.050***		0.046***		0.043***	

Egotropic Retrospective	0.007**	0.005*	0.004*
Egotropic Prospective	0.014***	0.013***	0.012***
Female	0.012***	0.012***	0.012***
Education	0.001***	0.001***	0.001***
Age	0.000***	0.000***	0.000***
Catholic	0.023***	0.023***	0.023**
No Religion	0.037°	0.039°	0.039°
Household Possessions	0.006***	0.007***	0.007***
No Ideology	0.281***	0.281***	0.281***
Ideological Proximity	0.063***	0.063***	0.063***
N Individuals	135562		
N Country-Years	212		
N Countries	18		

Appendix 12: Model Estimated with the Log of Trade

Sociotropic Retrospective	0.291*	(0.128)
Sociotropic Prospective	0.499***	(0.130)
Egotropic Retrospective	0.330**	(0.110)
Egotropic Prospective	0.543***	(0.111)
log(Trade)	0.576	(0.519)
Economy*Trade	-0.102*	(0.041)
Volatility	-0.090°	(0.050)
Economy*Volatility	0.020***	(0.005)
Effective Number of Legislative Parties	-0.038	(0.051)
Economy*Electoral Fragmentation	-0.011*	(0.005)
ln(months in office)	0.017	(0.060)
Prospective*[Time]	-0.040***	(0.011)
Retrospective*[Time]	0.018*	(0.009)
log(GDP)	-0.033	(0.175)
GDP*Sociotropic	0.026	(0.025)
GDP*Egotropic	-0.045*	(0.015)
° p<0.10, * p<0.05, ** p<0.01, *** p<0.001 Variance Components Omitted to Conserve Space		