

## **The Global Economy, Competency and the Economic Vote**

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## Abstract

Our contribution to the explanation of contextual variation in the economic vote – described in more detail elsewhere (Duch and Stevenson 2007) – is to derive explanations for contextual instability in the economic vote from a fully articulated competency theory of the economic vote. This theory identifies political and economic contexts in which we would not expect rational voters to hold incumbents responsible for shocks to the macro-economy. Working within a selection model of economic voting we propose explanations for the cross-national and dynamic variations in the magnitude of the vote that has puzzled students of comparative voting behavior. This essay begins with an overview of our selection or competency theory of economic voting.

Our theory builds on rational expectations theory and suggests that the unexpected shocks to the economy are what inform the economic vote but in addition that voters are confronted with a signal extraction problem – to what extent are these shocks the result of incumbent competency as opposed to exogenous shocks to the economy. We assume that voters have information on the overall variance in shocks to the macro-economy and that they use this signal to weight the importance of economic shocks in their vote decision.

Two critical empirical implications of this theory are explored in this essay employing quite distinct data sources. One important assumption is that voters are able to discern significant variation in macro-economic outcomes in order to perform this signal extraction task. Hence one of our empirical goals is establishing whether voters in fact have the information necessary for this signal extraction task. Our theory results in a hypothesis suggesting that these variations in shocks to the macro-economy condition the economic vote. Testing this argument constitutes the second empirical focus of the essay. We organize the empirical test into two different sections, one employing micro-level data and the other macro or aggregate-level data. The empirical section begins by analyzing a six-nation survey conducted by the authors that was designed to assess whether voters are attentive to variance in economic outcomes and whether these in fact conditioned their economic vote. The second empirical section examines economic time series from 19 countries over the 1979-2001 period to determine whether it is plausible that fluctuations in these data provide signals regarding incumbent competency for the macro-economy. We then explore whether in fact variances in these macro-economic series explain contextual variations in the economic vote as our theory hypothesizes.

## Introduction

Is it rational for voters to ignore economic outcomes in making a vote decisions? That they clearly do as has been established by many students of both U.S. and comparative economic voting. Based on an extensive analysis of voter preference studies in the developed democracies, Duch and Stevenson (2007) have established that there is considerable variation from one country to the next and even from one election to the next. Some have argued that the evidence is so variable as to call in question the notion of an economic vote (Cheibub and Przeworski 1999). Others have been much more sanguine suggesting that this variability results from institutional or political contexts that vary in terms of the clarity with which voters can determine responsibility for economic policy making (Powell and Whitten 1993; Hibbs 2006). Neither of these perspectives suggests this variation in the economic vote results from rational calculations on the part of voters. In this essay we propose an explanation for this contextual instability in the economic vote that explicitly builds on a model of instrumentally rational voting decisions.

While we are certainly not alone in drawing attention to this cross-national instability in the economic vote, we believe we have a persuasive and relatively unique explanation for this variation. Our contribution – described in more detail elsewhere (Duch and Stevenson 2007) – is to derive explanations for this contextual instability from a fully articulated competency theory of the economic vote.<sup>1</sup> This theory identifies political and economic contexts in which we would not expect rational voters to hold incumbents responsible for shocks to the macro-economy. Working within a selection model of economic voting we propose explanations for the cross-national and dynamic variations in the magnitude of the vote that has puzzled students of comparative voting behavior. This essay begins with an overview of our selection or competency theory of economic voting.

Our theory builds on rational expectations theory and suggests that the unexpected shocks to the economy are what inform the economic vote but in addition that voters are confronted with a signal extraction problem – to what extent are these shocks the result of incumbent competency as opposed to exogenous shocks to the economy. We assume that voters have information on the overall variance in shocks to the macro-economy and that they use this signal to weight the importance of economic shocks in their vote decision.

Two critical empirical implications of this theory are explored in this essay employing quite distinct data sources. One important assumption is that voters are able to discern significant

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<sup>1</sup> We do not review the extensive literature on economic voting in this essay. For an excellent review see Lewis-Beck and Stegmaier (2000) and Lewis-Beck (1988).

variation in macro-economic outcomes in order to perform this signal extraction task. Hence one of our empirical goals is establishing whether voters in fact have the information necessary for this signal extraction task. Our theory results in a hypothesis suggesting that these variations in shocks to the macro-economy condition the economic vote. Testing this argument constitutes the second empirical focus of the essay. We organize the empirical test into two different sections, one employing micro-level data and the other macro or aggregate-level data. The empirical section begins by analyzing a six-nation survey conducted by the authors that was designed to assess whether voters are attentive to variance in economic outcomes and whether these in fact conditioned their economic vote. The second empirical section examines economic time series from 19 countries over the 1979-2001 period to determine whether it is plausible that fluctuations in these data provide signals regarding incumbent competency for the macro-economy. We then explore whether in fact variances in these macro-economic series explain contextual variations in the economic vote as our theory hypothesizes.

### **Competency Theory of the Economic Vote**

Competency, or selection, models of economic voting stipulate that the vote decision entails more than a simple reward-punishment response to economic outcomes. They suggest that instrumentally rational voters are motivated by the desire to select the most competent candidates – that is, voters use information about economic outcomes to assess the future competencies of competing candidates. An incumbent who is not perceived by the voter as having competency regarding economic outcomes should neither be rewarded for a good economy, nor punished for poor economic outcomes. Selection models were not unfamiliar to the early economic voting scholars. For example, voters in Downs' model are future oriented and compare the platforms of contending candidates, logic which more closely resembles a selection as opposed to a sanctioning model. Likewise, Kramer (1971) viewed voters as future-oriented but unwilling to spend the resources to assess future promises. While this early work clearly pointed the way toward a rational model of economic voting based on the selection of competent politicians, informal models left many questions unanswered, e.g., could it be rational for voters to use the previous economy to infer competence, if politicians had incentives to manipulate the economy for electoral gain? Answers to these kinds of questions have had to await the development of the rational expectations literature in economics; and it is this tradition that informs our selection model of the economic vote.

How do voters with rational expectations about economic outcomes use economic performance to make their vote choice? Since a voter's future utility will depend on choices she

makes today, she must forecast the likely economic future under different possible incumbents. Our assumption is that these expectations are formed rationally based on all the information available at the time of the election. Politicians in our model all care only about being in office and understand that voters will vote to maximize their expected utility.<sup>2</sup> The model, closely based on Alesina and Rosenthal (1995), assumes that an incumbent competes for control of the executive and that this executive can choose, for example, an inflation rate directly (their economic policy) that determines growth in the following expectations augmented Phillips curve:

$$(1.1) \quad y_{it} = \bar{y} + \pi_{it} - \pi_{it}^e + \eta_{it}$$

The economic shock consists of two parts as follows:

$$(1.2) \quad \eta_{it} = \varepsilon_{it} + \xi_t$$

One part,  $\varepsilon_{it}$ , is simply an increment to growth that depends on the identity of the incumbent but not on her economic policy (which is captured in  $\pi_{it}$ ). This increment to economic performance is meant to capture the economic impact of the incumbent administration's managerial competence. More specifically, this shock includes any unobserved economic impact of the behavior of the incumbent administration that is not constant over time or administration.<sup>3</sup> We refer to this impact as a "competency shock". The other part of the total shock to economic growth,  $\xi_t$ , though also unobserved and not constant over time, does not depend on the identity of the administration. We refer to it as an "exogenous" shock or sometimes as a "non-political" shock.

Voters cannot observe competence shocks or non-political shocks directly but can glean some information about incumbent competence from the fact that the observed economy is partially dependent on it. Of course, to be useful in forecasting the future economy, the level of competence inferred from observed economic performance must provide some guide to the

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<sup>2</sup> We could allow politicians to differ in their policy preferences, for example leftist politicians might prefer a non-zero inflation rate. As we will see, however, economic voting in the model does not in any way depend on the policy choices of politicians and so we ignore this complication.

<sup>3</sup> If voters observe the impact of this behavior it cannot be part of the shock but is part of the observed policy represented by  $\pi_{it}$ . Likewise, any unobserved impact of behavior on growth that is constant is subsumed in the natural rate of economic growth.

incumbent's future level of competence. Consequently, we assume that competence is persistent over time in the following way:<sup>4</sup>

$$(1.3) \quad \varepsilon_{it} = \mu_{it} + \mu_{it-1}$$

Thus, current competence is just a first-order moving average from a sequence of competency shocks. We assume that each of these competency shocks is drawn from an identical distribution, with mean zero and finite variance  $\sigma_{\mu}^2$ . Likewise, we assume that the non-political shocks,  $\xi_t$ , are drawn from identical distributions each with zero mean and finite variance  $\sigma_{\xi}^2$ . We assume voters know the expected values and variances of these distributions.

All voters in the model are identical and care about achieving the highest possible economic growth and lowest possible inflation in the next period. Specifically, we will write the utility of a typical voter in period  $t+1$  as a function of which party is elected, what policy that party pursues, and what the resulting level of economic growth will be. Given some governing party,  $i$ , that pursues a particular economic policy (a choice of  $\pi_{it+1}$ ), the voter's utility in period  $t+1$  is in part:<sup>5</sup>

$$(1.4) \quad u(\pi_{it+1}, y_{it+1}) = -\frac{1}{2}\pi_{it+1}^2 + by_{it+1}, \quad b > 0$$

where  $b$  indexes the voter's preference for growth relative to inflation. The particular functional form of utility for inflation and growth is quite flexible: as we will see, any choice that has the voter's utility increasing in growth will produce the same substantive implications for rational economic voting given the other assumptions in the model. The one provided above is a common formulation in the literature and so was chosen for its familiarity. Since utility is increasing in  $y$  and is maximized, for a given  $y$ , when inflation equals zero, this expression says that the voter prefers more growth and price stability and that she would be willing to trade price increases for growth at a rate governed by the size of  $b$ .

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<sup>4</sup> One can also discount the impact of past competence as long as it is at least partially persistent.

<sup>5</sup> It is possible to state the voter's preferences more generally to include the whole sequence of time discounted future periods, e.g.,  $U = E \left\{ \sum_{t=0}^{\infty} \delta_t u(\pi_{j,t}, y_{j,t}) \right\}; 0 < \delta < 1$ . However, the usual assumption restricts the discount factors to make this equivalent to a voter who looks into the future only so far as the next period of incumbency. For our purposes, then, the simpler formulation given in the text is adequate.

Since a voter's future utility will depend on choices she makes today, she must forecast the likely economic future under different possible incumbents. Our assumption is that these expectations are formed rationally based on all the information available at the time of the election. Politicians in the model all care only about being in office and understand that voters will vote to maximize their expected utility.<sup>6</sup>

Since voters form expectations about inflation and growth rationally they know that incumbent politicians will pick the level of inflation (and correspondingly growth) that will maximize the incumbent's expected utility. Voters know current inflation and are never surprised by the government's inflation policy. Consequently, politicians have nothing to gain from doing anything but choosing the voter's optimal inflation rate (zero). Thus, in this simple version of the model, all politicians, no matter how competent, will choose the same economic policy and differences in growth associated with different politicians can only result from differences in their types (which are exogenous to the model). Clearly, then, the decisions of the politicians play no real role in the model and so it is equivalent to a reduced form, decision-theoretic version of the usual formulation that has been used to explore political business cycles. Since our focus is on the decision of voters given the observed economy and not on the decisions of politicians about policy, this seems an appropriate simplification.

With this, the growth rate from Equation (1.1) is just the natural rate plus any shock. Further, voters can actually observe the total shock, since they can calculate it via Equation (1.1). However, they cannot use that equation to parse out how much of the observed shock is due to the incumbent's competence, since they do not observe the two shock terms separately, but only overall growth.

The voters in the model form their expectations about the competence of the incumbent rationally and because of the moving average structure of the error term in Equation (1.3), growth rates at time  $t$  that differ from  $\bar{y}$  will provide voters with information regarding the competence of an incumbent re-elected for period  $t + 1$ . This follows from taking expectations in Equation (1.3) (recall that the unconditional expectation of  $\mu_{it+1}$  is zero).

$$(1.5) \quad E[\varepsilon_{it+1}] = E[\mu_{it+1}] + E[\mu_{it} | y_{it}] = E[\mu_{it} | y_{it}]$$

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<sup>6</sup> We could allow politicians to differ in their policy preferences, for example leftist politicians might prefer a non-zero inflation rate. As we will see, however, economic voting in the model does not in any way depend on the policy choices of politicians and so we ignore this complication.

Voters form their expectations about the competence of an incumbent re-elected in period  $t+1$  by evaluating  $\mu_{it}$  or, more precisely, the noisy signal provided by  $y_{it}$ . A key assumption of Alesina and Rosenthal's (1995) model is that voters learn the value of competency with a one-period delay – that is, in period  $t$  they know  $\mu_{it-1}$  but not  $\mu_{it}$ . Hence voters base their forecast of the economic competence of the incumbent on both  $y_{it}$  and  $\mu_{it-1}$ . Specifically, in the current period voters know the competency of the incumbent in the last period, the natural rate of growth, the current realization of growth, and the current economic shock (which is composed of some unknown mix of the current competence of the incumbent and the non-political shock). Growth in the current period is thus:

$$(1.6) \quad \begin{aligned} y_{it} &= \bar{y} + \eta_{it} \\ &= \bar{y} + \mu_{it} + \mu_{it-1} + \xi_t \end{aligned}$$

Rearranging this gives:

$$(1.7) \quad \mu_{it} + \xi_t = y_{it} - \bar{y} - \mu_{it-1}$$

Where everything on the right hand side of this equality is observed and so the sum of the terms on the left is also observed, though not the individual components. Denote the sum on the left hand side as  $k_{it} = \mu_{it} + \xi_t$ . Since  $k_{it}$  is observed, the voter can compute her expectation about  $\mu_{it}$  given  $k_{it}$  (i.e., her expectation about the incumbent's current level of competence, given the observed level of growth and the incumbent's competence in the last period). To calculate this conditional expectation, we need to know the distribution of both  $k_{it}$  and  $\mu_{it}$ .  $k_{it}$  is the sum of two normally distributed random variables, both with zero means and variances  $\sigma_\mu^2$  and  $\sigma_\xi^2$ , respectively. The distribution of  $k_{it}$  is thus:

$$(1.8) \quad k_{it} = (\mu_{it} + \xi_t) \sim N(0, \sigma_\mu^2 + \sigma_\xi^2)$$

Given that both,  $k_{it}$  and  $\mu_{it}$  are distributed normally, their joint distribution is bivariate normal and the optimal forecast of  $\mu_{it}$  given  $k_{it}$  is just the conditional expectation, which is

computed from the appropriate conditional distribution of the bivariate normal. Using standard results, this conditional expectation is (Greene 2003):<sup>7</sup>

$$(1.9) \quad E[\mu_{it} | k_{it}] = E[\mu_{it}] + \frac{\sigma_{\mu,k}}{\sigma_k^2} (y_{it} - \bar{y} - \mu_{it-1}) - E[k_{it}] \\ = \left( \frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \sigma_{\xi}^2} \right) (y_{it} - \bar{y} - \mu_{it-1})$$

Since  $E[\mu_{it} | k_{it}] = E[\mu_{it} | y_{it}]$ , this expression is the rational voter's assessment of the current competence of the incumbent given the observed economy.<sup>8</sup> Further, from Equation(1.5), we have  $E[\mu_{it} | y_{it}] = E[\varepsilon_{it+1}]$ , so we now have what we need to explore the implications of the model for economic voting by comparing the voter's expected utility for voting for the incumbent in this model to her expected utility for any challenger.

The voter will vote for the party that she expects to deliver the most utility in the next period. So we can write her expected utility for voting for incumbent party  $i$  as equal to the expected utility the voter will accrue in the next period if party  $i$  is in office.

$$(1.10) \quad E[u_{t+1} | v_i] = E[u(\pi_{it+1}, y_{it+1})] \\ = \frac{1}{2} E[\pi_{it+1}^2] + bE[y_{it+1}] \\ = 0 + b(\bar{y} + E[\eta_{it+1}])_i \\ = 0 + b(\bar{y} + 0 + E[\varepsilon_{it+1}]) \\ = b \left( \bar{y} + \frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \sigma_{\xi}^2} (y_{it} - \bar{y} - \mu_{it-1}) \right) \\ = b\bar{y} + b \left( \frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \sigma_{\xi}^2} \right) (y_{it} - \bar{y} - \mu_{it-1})$$

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<sup>7</sup> In general,  $E[x | y] = \rho_{xy} \frac{y - E[y]}{\sigma_y} \sigma_x + E[x]$ , where  $\rho_{xy}$  is the correlation between  $x$  and  $y$ .

<sup>8</sup>  $E[\mu_{it} | y_{it}] = \frac{\sigma_{\mu,y}}{\sigma_{\mu}^2 + \sigma_{\xi}^2} (y_{it} - \bar{y} - \mu_{it-1})$  by applying the same signal extraction solution as above. Further, it is easy to show that  $\sigma_{\mu,y} = \sigma_{\mu,k}$ , so the claim in the text follows.

Lacking any information about the challenger's level of competency, the voter's expected utility for voting for any challenger,  $k$ , is just:

$$\begin{aligned}
 E[u_{t+1} | v_k] &= E[u(\pi_{kt+1}, y_{kt+1})] \\
 &= \frac{1}{2} E[\pi_{kt+1}^2] + bE[y_{kt+1}] \\
 (1.11) \quad &= 0 + b(\bar{y} + E[\eta_{kt+1}]) \\
 &= b(\bar{y} + E[\xi_{t+1}] + E[\varepsilon_{kt+1}]) \\
 &= b\bar{y}
 \end{aligned}$$

Thus, the voter is more likely to vote for the incumbent when the expected utility in Equation (1.10) is larger than that in Equation (1.11). The difference is:

$$\begin{aligned}
 E[u_{t+1} | v_i] - E[u_{t+1} | v_k] &= b\bar{y} + b \left( \frac{\sigma_\mu^2}{\sigma_\mu^2 + \sigma_\xi^2} \right) (y_{it} - \bar{y} - \mu_{it-1})_i - b\bar{y} \\
 (1.12) \quad &= b \left( \frac{\sigma_\mu^2}{\sigma_\mu^2 + \sigma_\xi^2} \right) (y_{it} - \bar{y} - \mu_{it-1})
 \end{aligned}$$

This result makes it clear when voters can and cannot extract information from fluctuations in the previous economy in order to assess the current competence of an incumbent and cast an economic vote. The term  $y_{it} - \bar{y} - \mu_{it-1}$  is simply observed economic performance less the parts of economic growth whose sources are known to the voter. The term captures what the incumbent has “done for the voter lately” (i.e., how the current period differs from the natural level of growth, discounted by the impact of the incumbent's known level of competence in the previous period). We can interpret the coefficient on this term, i.e.  $\frac{\sigma_\mu^2}{\sigma_\mu^2 + \sigma_\xi^2}$ , as the “competency

signal” that controls how much information about the competence of incumbents voters can extract from observed movements in the economy. This competency signal will always be positive and will approach one as the variance in the random (non-political) shocks to the economy,  $\sigma_\xi^2$ , goes to zero. In that case, the voter knows that growth above or below the natural rate is completely due to competency shocks – consequently, deviations from the natural rate of

growth will perfectly identify competent and incompetent administrations. More generally, if  $\sigma_{\mu}^2$ , the variation in the competence term  $\mu_{it}$ , is large relative to variation in the non-political component of growth,  $\sigma_{\xi}^2$ , then changes in the economy will provide a strong signal about the competency of the incumbent and the voter will weight the retrospective economy more heavily in her utility function. Alternatively, growth that is above or below the natural rate is a poor signal of the incumbent's competence if observed growth is more likely to result from non-political shocks than from competency shocks – i.e. if  $\sigma_{\xi}^2$  is high relative to  $\sigma_{\mu}^2$ .

This suggests that periods in which the magnitude of the economic vote is negligible – such as the UK in 1997 or Canada in 1993 (Duch and Stevenson 2007) – are particular contexts or periods in which voters rationally determined that the incumbent's competency signal was extremely weak.<sup>9</sup> Recall from the theory that the magnitude of this competency signal is determined by variances in shocks to the economy (exogenous and competence shocks) during the period that precedes an election. Voters are expected to use this information to generate estimates of  $\sigma_{\xi}^2$  and  $\sigma_{\mu}^2$ . In determining whether to give any weight to economic evaluations in their vote decision in 1997, our expectation is that British voters concluded that variation in competency shocks to the macro-economy over the period preceding the election were quite small relative to variation in exogenous shocks. We have described elsewhere (Duch and Stevenson 2007) how characteristics of the political and economic context provide voters with information that facilitates this signal extraction task. In this essay we focus explicitly on the economic context and more particularly on demonstrating how economic outcomes – seen from a competency perspective – can help us explain contextual variation in the economic vote. We make three empirical points in this essay: the economy behaves in such a fashion as to generate the kinds of competency signals our theory predicts; voters have information about the economy that allows them to engage in the hypothesized signal extraction; and finally the magnitude of the economic vote responds to these economic competency signals as hypothesized.

### **Evidence from a Six-Nation Survey**

Our competency theory assumes that voters have information on the overall variance in shocks to the macro-economy,  $\sigma_{\mu}^2 + \sigma_{\xi}^2$ , and have strategies for distinguishing between

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<sup>9</sup> The comparatively low levels of economic voting in 1997 in Britain and 1993 in Canada are described in Duch and Stevenson (2007) but confirmed by others such as Blais et al (2004).

$\sigma_{\mu}^2$  and  $\sigma_{\xi}^2$ . How the actual economy performs is, of course, an important piece of information aiding the voter in this signal extraction task. We begin by examining whether voters really have well-formed beliefs about these quantities and, if so, whether these beliefs reflect actual movements in economic aggregates? Do voters have sensible beliefs about the variance in competence shocks to the economy? Or even about the total variation in shocks to the economy? Given the often-touted ignorance of voters when it comes to political and economic matters, some skepticism is surely warranted. Still, little direct evidence on these questions is available in the existing literature and so we explore a variety of original evidence that we have collected that will help us answer them. This evidence includes archival material on the economic news that was reported in the media in six of our countries during the time period of our study and a survey that we conducted that quizzes voters on their knowledge of economic variation and its sources.

### **The Availability of Information about Variance in the Macro-Economy**

Do the voters get much information about the variance in economic outcomes? There is extensive evidence that the media plays an integral role in shaping economic evaluations, which of course are critical to the economic voting model (De Boef and Kellstedt 2004; Duch and Stevenson 2004; Erikson, Mackuen and Stimson 2002). We believe an important portion of the information regarding the economy that is transmitted by the media helps voters assess overall variance in shocks to the macro-economy. Media reports of economic performance include extensive references to how the economy has changed. Our analysis of 2,700 front-page newspaper stories reporting on economic outcomes from six countries suggests that about half of these stories include some reference to how the economy changed, either in the current period or over the recent past.<sup>10</sup> Moreover, what typically captures the attention of media outlets are unexpected changes in macro-economic outcomes. Again, a careful analysis of our sample of media reports suggests that these stories tend to focus on the unexpected. Hence, to the extent that the media primes voters to think about the economy at all, it seems to emphasize changes or fluctuations in macro-economic outcomes.

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<sup>10</sup> This project samples newspaper front pages the day of and the day after the release of national economic statistics by the relevant country's statistical agency (from 1980-2001). All headlines and stories that mention the economy were coded for content, including the extent to which the information was presented in changes or levels or was compared to previous experiences.

## **Voter Attention to Information about Variance in the Macro-Economy**

Is there any reason to believe that the average voter in developed democracies pays any attention to information regarding variance in economic outcomes?<sup>11</sup> Some have argued that in fact fluctuations in economic outcomes attract an equal, if not higher, amount of attention from the voter. Quinn and Woolley (2001) argue that voters pay considerable attention to volatility in addition to rates of change in the macro-economy, although the conclusions they draw regarding its implication for the economic vote are quite different than ours.

Overall, however, there has been relatively little effort to investigate empirically whether the media message about variance in the economy registers with the typical voter. As a result, in the spring of 2005, we conducted a six-nation survey that explored voters' beliefs about the variation in their national economies and its sources.<sup>12</sup> One of the questions in this survey asked respondents the following question:

Over the last four years would you say that the economy in [COUNTRY] has experienced very stable growth, somewhat stable growth, somewhat unstable growth, or very unstable growth?

The first thing we want to know about the responses to this question is whether they show any systematic variation or whether they are just random. One way that we can get at this is to examine whether there is a significant degree of agreement among respondents in their answers. Random answers would show no such clustering but should be distributed relatively uniformly. Further, we would expect, if voters have well-formed beliefs about variation in the economy, that the proportion of "I don't know" responses would be similar to their proportion in other surveys that collect other kinds of economic information (e.g., economic retrospections).

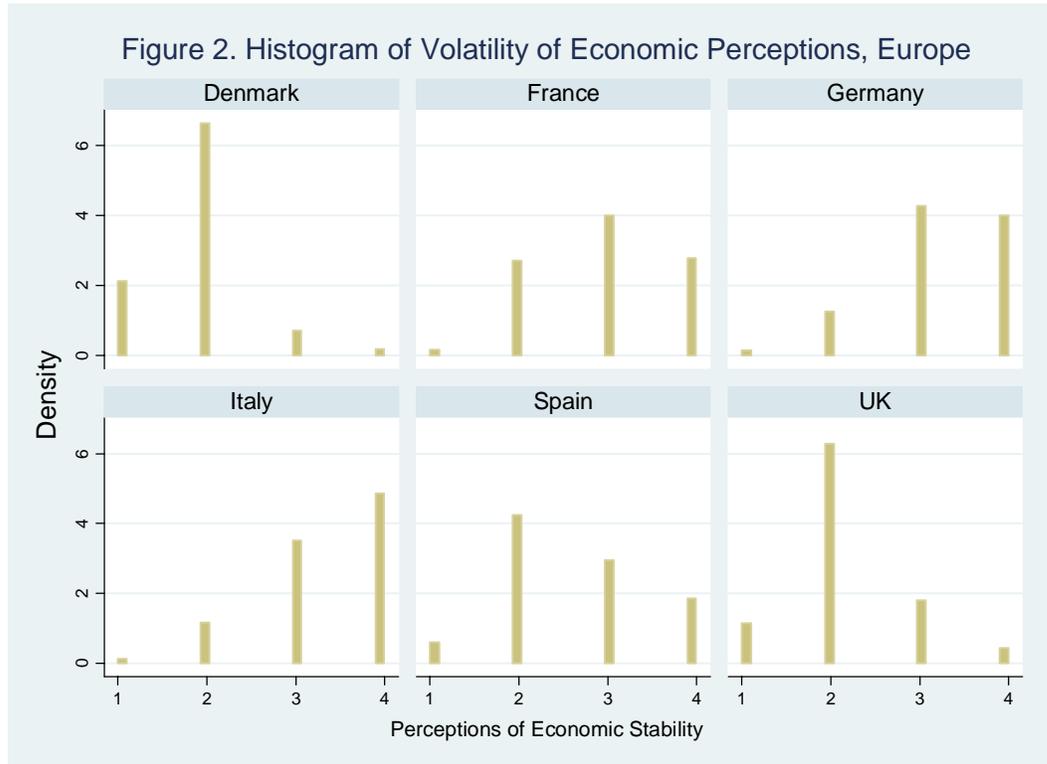
Results from each of the six countries clearly suggest that the question is meaningful. Figure 2 indicates that in each of the countries we see a clear modal response and relatively small variances around the modal response. In Denmark, for example, over half the respondents choose the "somewhat stable growth" response. In no case is the modal response less than 40 percent of the sample. Furthermore, the number of "don't know" responses compare favorably with levels in other surveys soliciting more standard types of economic beliefs. The highest level of "don't know" responses was 8.7 percent of the Danish sample and the lowest was 1.1 percent of the

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<sup>11</sup> Our focus on the developed democracies excludes, for the most part, countries that have experienced dramatic variances in macro-economic outcomes and where there is no question that citizens have been concerned with variance in addition to growth.

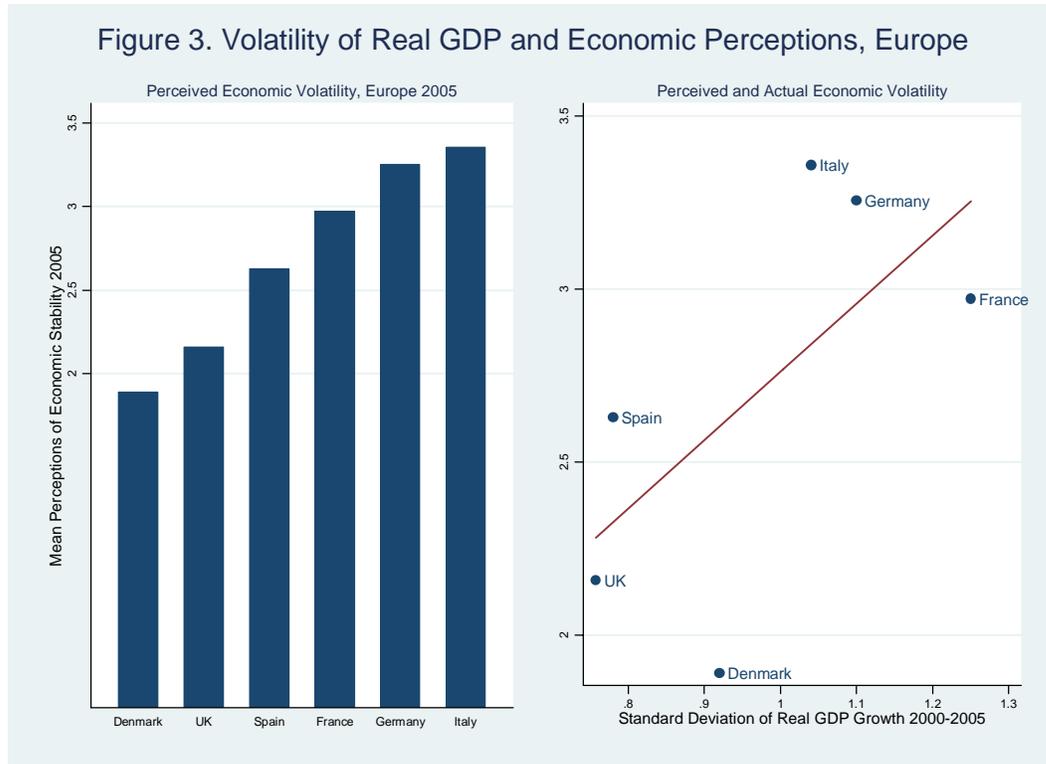
<sup>12</sup> The survey was pre-tested in the United States in the early spring. The actual survey was conducted in Great Britain, Spain, Denmark, France, Italy and Germany. The items were included on an Omnibus telephone survey administered in each country and supervised by IFOP, France.

France sample. These compare quite favorably, for example, to the range of “don’t know” responses to the standard question concerning retrospective evaluations of the national economy: the highest level, again, was 7.5 percent of the Danish sample and the lowest level was 1 percent of the French sample.



We are also interested in whether there is significant cross-national variation in the average perceptions of economic volatility – again, in the competency theory of economic voting this variation is part of the weight that conditions the magnitude of the economic vote. The left hand graph in Figure 3 shows that average citizen perceptions of the stability of economic outcomes in their country vary quite significantly across European nations. Danish and British respondents clearly perceive their national economies as turning in very stable growth over the previous four years. By contrast the Germans and Italian report very high levels of instability in growth outcomes. In short, we are quite confident that these individual-level data lend support to the idea that contextual variation in the economic vote could come, in part, from differences in the competency signal (or at least voters’ beliefs about this signal).

Figure 3. Volatility of Real GDP and Economic Perceptions, Europe



The most critical question we ask about these data is whether cross-national variation in perceptions of economic stability is grounded in real variation in the economies of the different countries. We expect citizens in contexts with highly variable economic outcomes to perceive economic outcomes to be highly unstable. The right hand graph in Figure 3 confirms this expectation: Citizens in contexts where the economic outcomes were highly unstable over the 2000-2005 period (measured by the standard deviation of annual growth in real GDP for the period) have perceptions of economic instability that are much higher than citizens in contexts with more stable economic outcomes. Our evidence, though based only on six countries, is unique in its focus on economic variation and confirms that voters have well-formed beliefs about variation in their national economies and that these beliefs are grounded in economic reality.

### The Sources of Variation in Macro-Economic Outcomes

In the competency theory, we assume that besides knowing the overall variance in macro-economic shocks they also know the relative contributions of  $\sigma_{\mu}^2$  and  $\sigma_{\xi}^2$  to that total. While models in the political economy literature often make this assumption (for example, Cukierman and Meltzer 1989; Rogoff and Sibert 1988), there has been little effort to explore empirically

whether citizens have perceptions consistent with this characterization. This section addresses the empirical support for this contention.

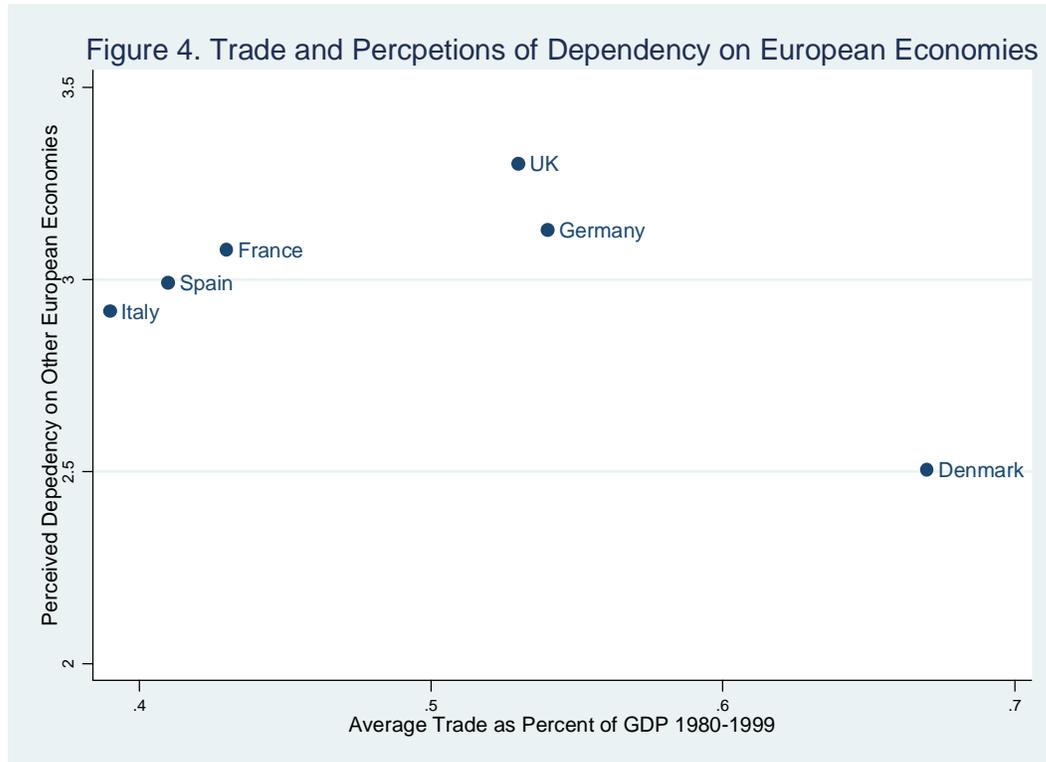
If voters have a sense of the total variation in economic shocks (i.e.,  $\sigma_{\mu}^2$  and  $\sigma_{\xi}^2$ ), then they can distinguish between the relative contributions of the different components of this total variation if they have well-formed beliefs about either one. So, for example, if they have a good sense of how important exogenous shocks are in their national economy (at a particular time) and they have a sense of how much the economy varies in general, they should have a sense of how much “room” there is for the competence of the elected government to impact the economy.

To gauge whether citizens have beliefs about the extent the economy is subject to exogenous shocks, we asked respondents in our six countries the following question:

To what extent is growth in the economy in [COUNTRY] dependent on growth in the other European economies? Would you say extremely dependent, very dependent, moderately dependent, a little dependent or not at all dependent?

As in the previous question, there was substantial agreement among respondents in each country regarding the extent of global influences on the domestic economy. In each case, more than 45 percent of respondents chose the modal category and no more than 11 percent indicated they could not answer. While we have no direct information to show it, this pattern of beliefs likely suggests that voters are getting consistent information from the media about their countries’ position in the global economy.

Further, there is some evidence here that these opinions reflect actual global influences on the domestic economy. Figure 4 plots average responses to this question for each country against our measure of trade exposure. Note that three countries with relatively low levels of trade exposure – Italy, France and Spain – have average responses in the middle category (“moderately dependent”). The UK and Germany have slightly higher trade exposure but have average responses that are closer to the “a little dependent” response. Denmark, which is the one country in our sample with a very high trade exposure, also is the only country with an average response at the “very dependent” category.



We can further explore whether citizens distinguish exogenous from competence shocks to the macro-economy with a somewhat larger sample of countries from the PEW Global Attitudes Project. PEW asked the following series of questions:

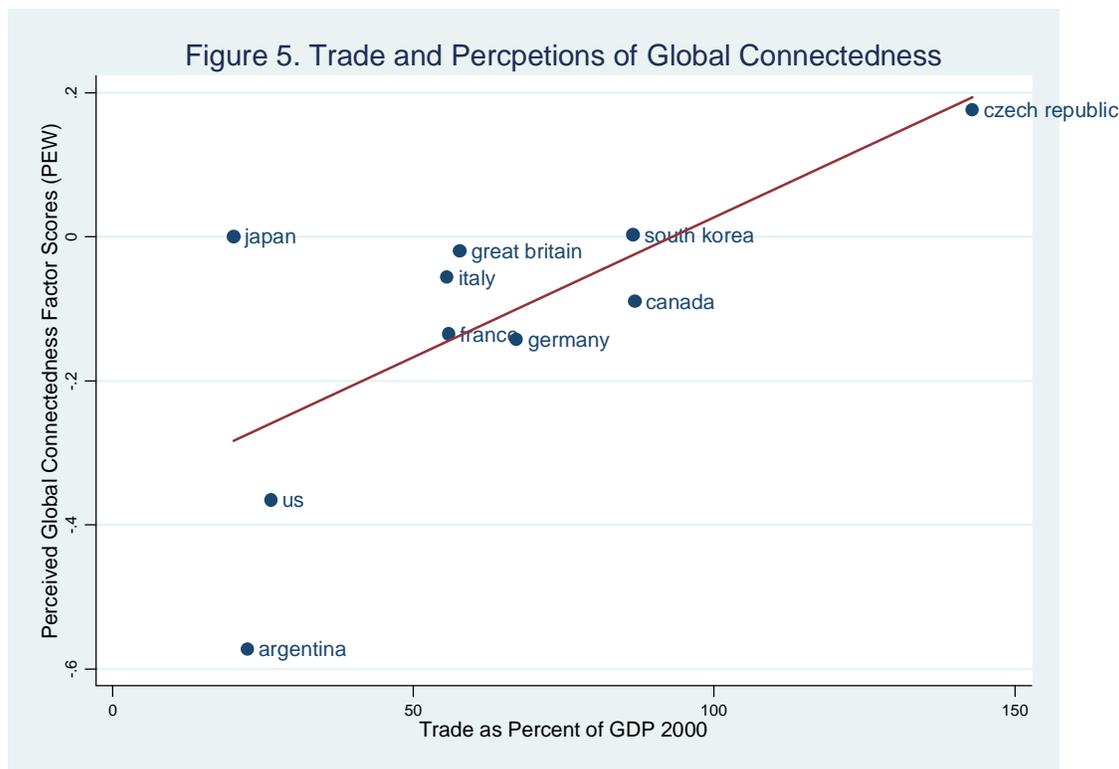
Do you think change in [INSERT EACH ITEM BELOW] is the result of global connectedness?

- the availability of good-paying jobs
- the working conditions for ordinary workers
- the availability of modern medicines and treatments
- the availability of food in stores
- the gap between rich and poor people

Respondents provided yes or no answers to each question. While not directly related to the macro-economy, as a whole they provide an indication of the extent to which different national populations perceive the global economy as affecting general economic outcomes. We factor analyzed these items and created a single factor score measuring the extent to which citizens

perceived their overall economy to be “globally connected.” Not surprisingly, all of the items loaded quite highly on a single factor with high values indicating global connectedness.<sup>13</sup>

Again, our argument suggests that populations with particularly heavy exposure to global economic influences should register high levels of “global connectedness.” We test this hypothesis in Figure 5 which plots each country’s global connectedness score against the country’s trade exposure (total trade – exports and imports – as a percentage of total GDP). The evidence is quite convincing. Countries with high levels of trade exposure tend to be those in which their population registers a high level of sensibility to the extent to which the domestic economy is subject to global economic influences.



One assumption of the competency theory of contextual variation in the economic vote is that voters know about the variance in exogenous shocks (relative to the variance in competency shocks) to the macro-economy. The evidence presented here suggests quite clearly that voters are attentive to information regarding the extent to which the domestic economy is subject to

<sup>13</sup> Only developed countries from this sample were included in the analysis – countries with GDP per capita in the year 2000 of more than \$5000 1995 USD.

exogenous shocks from the global economy.<sup>14</sup> Most importantly, cross-national variations in assessments of the magnitude of these exogenous shocks correlate strongly with actual measures of trade dependency.

### **Differences in Domestic and International Economic Fluctuations**

Another way voters may develop a sense of the relative importance of exogenous versus competency shocks in national economic outcomes is to benchmark fluctuations in domestic macro-economic outcomes against those in the overall global economy. An interesting example here are the recent findings of Ebeid and Rodden (2006): they establish that voters in U.S. state elections condition their economic vote by making comparisons between state and national economic outcomes. Our theory suggests that as fluctuations in the domestic economy deviate significantly from those in the broader global economy, voters may attribute shocks to the macro-economy to competence rather than exogenous factors.<sup>15</sup> The reasoning here is that if fluctuations in the domestic economic closely track fluctuations in the global economy voters are less likely to attribute fluctuations in macro-economic shocks to incumbent government policy makers. On the other hand, if the fluctuations in the domestic economy differ significantly from the global economy voters are more likely to attribute shocks to the macro-economy to incumbent policy makers. We can use our six-nation European survey to illustrate what we mean here and test whether, in fact, these deviations in perceptions result in higher levels of economic voting.

We begin by using our six-nation survey results to explore how perceptions regarding fluctuations in the domestic economy deviate from those regarding the overall global economy – here we focus on Europe and treat the overall European economy as the global referent. Our six-nation study asked respondents to assess the stability of both their national economies and the overall European economy.<sup>16</sup> Table 1 presents a cross-tabulation of responses to these two questions. The entries are the numbers of respondents falling in each cell. Respondents falling along the diagonal had identical responses for both their domestic economy and the European

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<sup>14</sup> We realize, of course, that not all exogenous shocks to the economy arise from non-domestic sources. Indeed, the theory only distinguishes between governmental and non-governmental shocks, where the non-governmental category includes shocks arising from the behavior of any economic actor who voters do not include in the government whose competency they wish to evaluate.

<sup>15</sup> Again, this assumes that a significant portion of the exogenous shocks to an economy come from the global economy.

<sup>16</sup> The Europe economy question was worded as follows: “Over the last four years would you say that the European economies have experienced very stable growth, somewhat stable growth, somewhat unstable growth, or very unstable growth?”

economy. Off-diagonal respondents represent those who perceived domestic fluctuations as deviating from those of the overall European economy. Approximately 50 percent fall on the diagonal with the other 50 percent falling on the off-diagonal cells.

**Table 1. Perceptions of Stability of National and European Economies.**

National Economy	European Economy				Total
	Very Stable	Somewhat Stable	Somewhat Unstable	Very Unstable	
Very Stable	86	143	116	27	372
Somewhat Stable	105	1114	596	90	1905
Somewhat Unstable	35	543	836	131	1545
Very Unstable	27	286	446	484	1243
Total	253	2086	1994	732	5065

One of the strategies that voters may employ for distinguishing competency shocks from exogenous shocks to the macro-economy is examining whether the fluctuations in the domestic economy differ significantly from those in the overall global economy – or in this case, the overall European economy. To the extent that domestic fluctuations are distinct from broader global fluctuations, voters may attribute domestic macro-economic shocks to political initiatives, i.e., competency, and have a higher propensity to cast an economic vote. This implies that those respondents falling in the off-diagonal cells of Table 1 are more likely to engage in economic voting.

We can evaluate this argument empirically by again employing the six-nation survey data. Respondents were asked to report their likely vote choice if an election were held in the coming days.<sup>17</sup> Responses to this question were used to create a dichotomous incumbent vote variable (respondents indicating a preference for any of the parties in the governing coalition were coded as 1 with the remaining respondents coded as 0). The first column of Table 2 reports the probit estimates for this simple economic vote equation (country dummies are included in the regression). As we would expect, retrospective national economic evaluations are strongly correlated with incumbent vote intention.

To test the notion that the off-diagonal respondents – those who perceive domestic economic fluctuations as diverging from those in the overall European economy – we created a dummy variable (*deviation*) that has a value of 1 for all those respondents falling in the off-diagonal cells. This variable, interacted with the economic evaluation variable, indicates whether

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<sup>17</sup> The British questioning wording is as follows: “If a general election were held next Sunday which political party would you vote for?”

the off-diagonal respondents have in fact higher levels of economic voting as we hypothesized. The second column of Table 2 reports these results. In fact, as we hypothesized respondents who perceive distinct differences in the fluctuations of their national economies are more likely to exercise an economic vote.

**Table 2. Perceived Variation in National and International Economic Variations and the Economic Vote.**

	<i>Probit Coefficient (Standard Error)</i>	<i>Probit Coefficient (Standard Error)</i>
<i>Retrospective National Economic Evaluations</i>	.33 (.02)	.29 (.03)
<i>Retrospective * Deviation</i>		.08 (.04)
<i>Deviation (Off Diagonal in Table 7.1=1)</i>		-.33 (.12)
<i>Constant</i>	-1.59 (.07)	-1.39 (.10)
Number of Observations	5,834	5,021
Log Likelihood	-3123	-2700
Note: Country dummies included in both equations.		

The competency model of rational retrospective economic voting makes two assumptions regarding voter knowledge about the economy. First, the theory assumes that voters know the total variance in shocks to the macro-economy. Our content analysis of media reports of economic outcomes suggests that the typical voter has access to considerable information regarding fluctuations in macro-economic outcomes. Our six-nation survey results suggest that individual perceptions about the volatility of the macro-economy are reasonably well informed: Cross-national perceptions of macro-economic variability correlate quite highly with the magnitudes of actual variations in real GDP.

Second, the theory assumes that voters are able to distinguish variations in competency shocks from variations in exogenous shocks to the macro-economy. If we assume that a large part of the exogenous shocks in the economy originate in global fluctuations and that a large part of domestic shocks are attributable to the competence of politicians, the results of the both our six-nation study and the PEW GAP suggest that voters do have the information to make such distinctions. Specifically, voters appear to understand the extent to which their economies are subject to shocks from the international economy.

Finally, our individual level analysis of differences in beliefs (and economic voting) among voters adds further support to the plausibility of our contextual hypotheses, which is of

course based on an individual level relationship: Voters who perceive that the variation in the national economy differs from variation in the global economy seem to use the economy more in their vote choice. This is certainly consistent with the idea that these voters attribute a larger share of the variance in the economy to the actions of domestic politicians rather than to exogenous shocks and so glean a relatively stronger signal about the competence of the incumbent government from perceived fluctuations in the economy.

These individual-level findings suggest that voters are attentive to the signals that would allow them to estimate the competency term we described earlier. In order to perform the competency signal extraction described by our theory, voters need to be exposed to macro-economic fluctuations that are in fact informative. The next section makes the case that fluctuations in the macro-economy provide the average voter with signals regarding incumbent competence and that our measure of the Chief Executive vote is correlated with these fluctuations in a fashion consistent with our theory.

### Macro-level Findings from 163 Election Studies

Recall that the quality of the competence signal in our theory is a function of the variance

in political competence to the total variance in economic shocks  $\left( \frac{\sigma_{\mu_j}^2}{\sigma_{\mu_j}^2 + \sigma_{\varepsilon_j}^2} \right)$ . Our argument

suggests that with high variance in macro-economic shocks ( $\sigma_{\mu_j}$ ) relative to total variation in the macro-economic shocks, a country,  $j$ , should also experience high levels of economic voting. We can try to measure this by estimating a simple random effects analysis of variance model of variations in cross-national macro-economic outcomes. For each of three macro-economic indicators, the rate of unemployment, inflation and change in real GDP (recall these are measured monthly), we estimate the following random effects model where  $t$  references month and  $j$  references country/year (so the group-level variable here is for a particular country during a particular year):

$$\begin{aligned}
 Y_{jt} &= \beta_o + \mu_j + \varepsilon_{j,t} \\
 \beta_o &= \text{grand mean of all country/year} \\
 \mu_j &= \text{random effect for each country/year } j \\
 \varepsilon_{jt} &= \text{is the random effect at the monthly level of observation}
 \end{aligned}
 \tag{1.16}$$

Table 3 summarizes the results of this model.<sup>18</sup> The country/year random effects estimate from this model ( $\mu_j$ ) provides an annual estimate of the extent to which each country's macro-economic performance deviated from the overall average performance for all countries over the sample period ( $\beta_o$ ). The intercept term in these models corresponds to the overall average macro-economic outcome for the period in our sample: an overall average inflation rate of approximately 5 percent, unemployment averaging 8.75 percent and real GDP growth of 2.5 percent.

**Table 3. Random Effects Analysis of Variance Models for Macro-economic Outcomes (Fully Specified Country-level Models)**

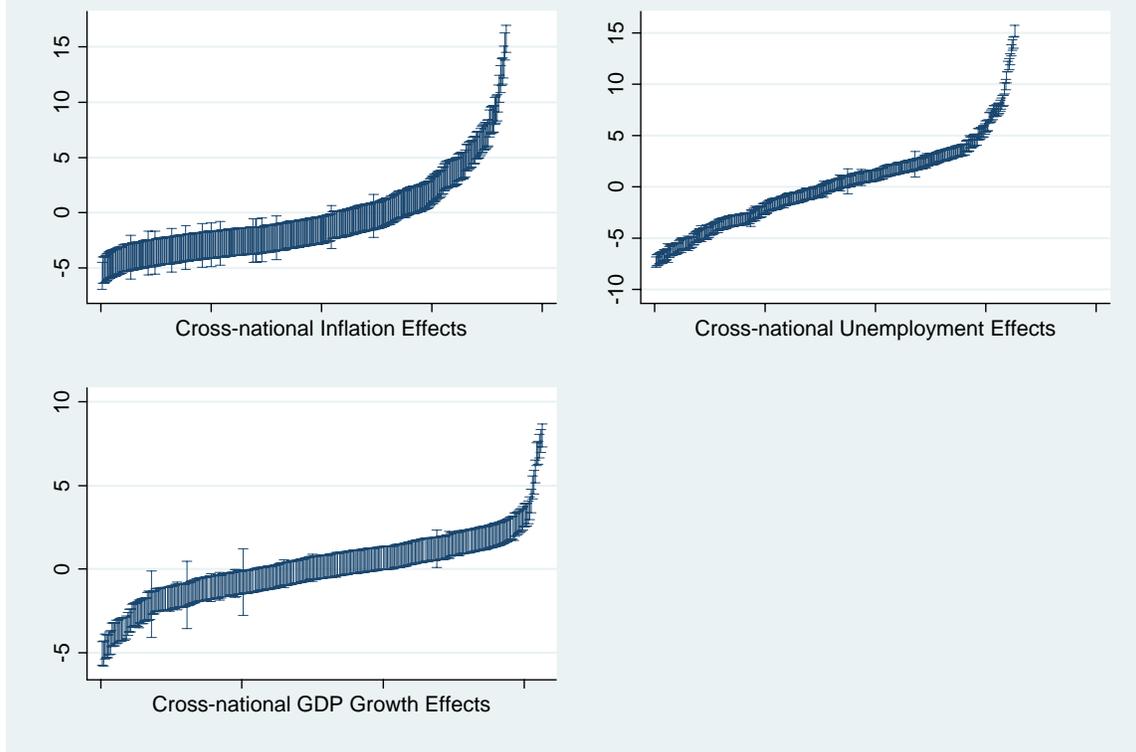
	<i>Inflation</i>	<i>Unemployment</i>	<i>Real GDP</i> $\Delta$
<i>Constant</i>	5.10** (.232)	8.67** (.21)	2.53** (0.01)
$\sigma_{uo}^2$	21.66	16.78	3.81
$\sigma_e^2$	3.82	.34	1.34
Number of Observations	4590	4460	4483
-2 X Loglikelihood	20860	10321	15412

Numbers in parentheses are standard errors. \* indicates .05 level of significance or better; \*\* indicates .01 level of significance or better.

$\hat{\mu}_j$  is an estimate of how much economic performance in each country/year deviates from the overall mean of our sample. Our assumption is that average variations in this estimate inform us about variation in the competence of incumbents in each country. Figure 6 graphs the ordered magnitudes of these estimates along with their standard errors. These estimates across cases vary significantly – note that in the case of all three indicators the majority of cases have residual terms that deviate significantly from zero. But these estimates of  $\mu_j$  are not the estimates of  $\sigma_{u_j}^2$  we seek. Instead we need to evaluate the variance of these estimates over each country to get an estimate of  $\sigma_{u_j}^2$ .

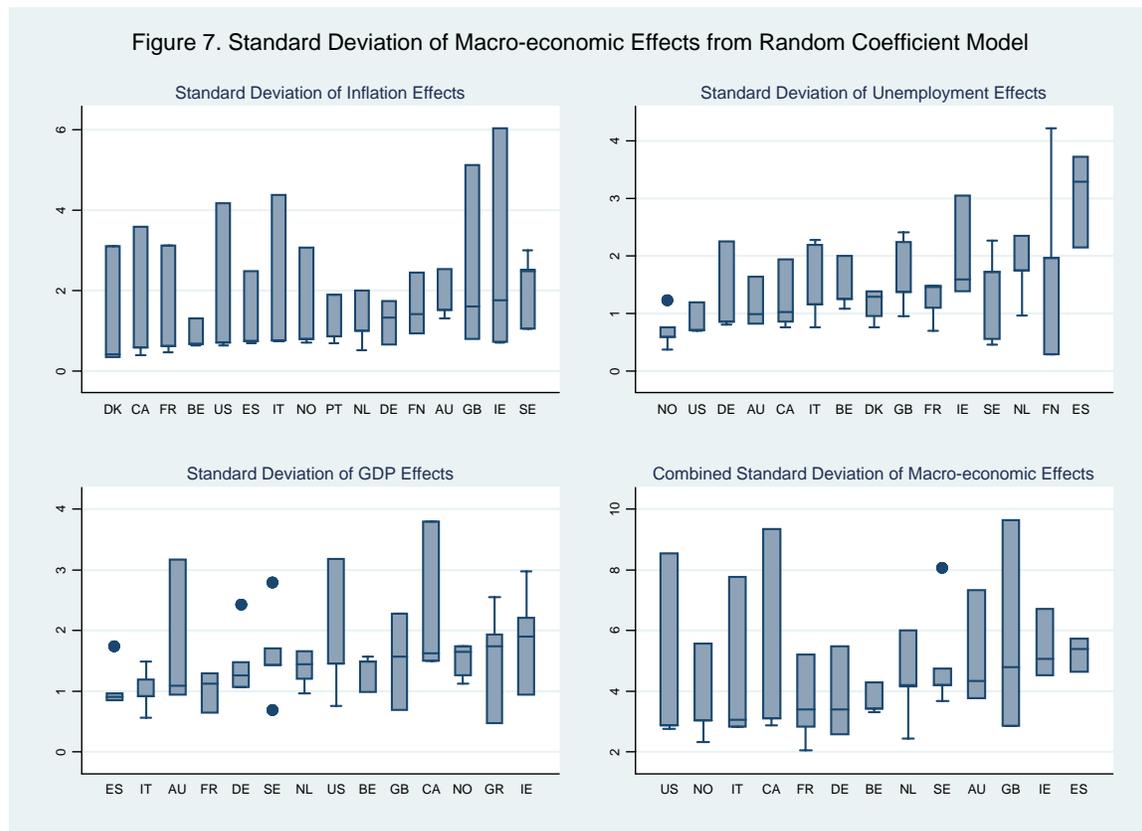
<sup>18</sup> The estimates were obtained using iterative generalized least squares (Goldstein 1995).

Figure 6. Macro-economic Effects from Random Coefficient Model



Accordingly, for each of the four periods identified earlier (1979-85; 1986-1990; 1991-1995; 1996-2002) we generate the standard deviations of each country's estimates of  $\mu_j$  from Equation (1.16) (pictured in Figure 6). A country that has a constant deviation from the overall mean ( $\mu_j$  is the same for each country/year) – regardless of the magnitude – would have a small standard deviation. In contrast, a country that sometimes differed from the global mean and sometimes did not ( $\mu_j$  varied by year) will have a high standard deviation. In the first case (a small standard deviation) voters cannot think that the policies of the incumbent matters much because national outcomes relative to the outcomes associated with global trends always remain the same. We believe this constitutes one signal regarding the size of the variance in economic shocks attributable to the incumbent government ( $\sigma_\mu^2$ ) relative to the overall variance in economic shocks to the economy. Figures 7 presents box plots of these standard deviations for the countries in our sample. In the fourth panel of the figure we present a box plot of a composite score that is simply the sum of the standard deviations for our three macro-economic indicators. At least for the 20 year period included in our sample, inflation fluctuations seem to be the most

prominent of the three macro-economic indicators and hence are likely to be the most influential competence signal. Note that the median value across countries spans about 2 units. Also note that countries vary significantly in terms of how much inflation varies: Belgium, Portugal, the Netherlands, Germany and Australia score on the low end of the standard deviation measure while Great Britain, Ireland, the U.S. and Italy score particularly high.



We hypothesize that the magnitudes of these variances summarized in Figure 7 – our measure of the magnitude of the incumbent’s competence signal – are correlated with the strength of economic voting in our sample of democracies. In order to test this hypothesis we use the *Chief Executive* economic vote measure developed by Duch and Stevenson (2007) based on a total of 163 election studies in 19 countries for the period 1979-2001. In brief, the procedure builds measures of economic voting in each of the 163 cases by first estimating a separate probit statistical model of vote choice for the Chief Executive party for each election survey. The estimated parameters from these models are then used to produce measures of the general economic vote for each Chief Executive party in each election study, which are defined as the change in support for each party if the distribution of retrospective sociotropic economic

perceptions decrease by one unit on a 1 to 3 economic evaluations scale. Changes in predicted values calculated from the statistical model are a rather direct measure of this concept and so, for each of the 163 cases, the procedure produces a measure of the extent of economic voting for the Chief Executive party. A detailed discussion of the estimation strategies and individual country results is available in Duch and Stevenson (2007) and at [www.raymondduch.com/economicvoting](http://www.raymondduch.com/economicvoting).

Table 4 presents the results of the bivariate regressions of *Chief Executive* economic vote on each of these measures of cross-national macro-economic variation. The result for the summary measure and the inflation measure confirms our hypothesis: the strength of the *Chief Executive* economic vote is clearly positively correlated with cross-national variations in macro-economic outcomes. High levels of cross-national macro-economic variation result in higher levels of economic voting. The *Chief Executive* vote has, at the very best, a weak relationship with respect to cross-national variations in unemployment and essentially is uncorrelated with real GDP growth. As we suspected from the box plots in Figure 7, variations in inflation outcomes tend to be more pronounced than is the case with the other indicators and they also seem to provide voters with the highest quality signal of incumbent competence.

**Table 4. Variations in *Chief Executive* Economic Vote and Cross-National Variations in Macro-economic Outcomes (Two-Stage Models)**

	<i>Composite</i>	<i>Inflation</i>	<i>Unemployment</i>	<i>Real GDP</i> $\Delta$
<i>Cross-national variation measure</i>	.01** (.003)	.02** (.004)	0.009 (.008)	0.01 (0.01)
<i>Constant</i>	.003 (.01)	0.03** (0.01)	0.04** (0.01)	0.05** (0.01)
Number of Observations	106	136	120	125
Adjusted R-Squared	.11	0.15	.00	0.00

First numbers in cells are coefficients from weighted OLS regression (weights are the squared inverse of the standard error of the estimate of economic voting for each case). Numbers in parentheses are t-ratios. \* indicates .05 level of significance or better; \*\* indicates .01 level of significance or better.

This is an important result because it provides the micro-foundation for our argument that cross-national variations in the magnitude of the economic vote result from factors facilitating (or hindering) the ability of voters to extract signals regarding incumbent competence. Accordingly, we assess the robustness of the finding by estimating similar interactive and multi-level model. In order to explore this, we combined individual level data from our 163 electoral surveys to estimate a single logistic model of the individual level vote for or against the Chief Executive party. This vote was modeled as a function of economic perceptions and a much reduced set of

control variables that were available in most of our surveys. However, even with this reduced set of controls, the requirement that we have a set of common control variables eliminated 17 studies, so that 146 studies remain in the pooled data set. The individual level model we estimate is sparse: it includes the de-meaned left-right self-placement of the voter (coded so higher numbers indicate a more right leaning voter) and its interaction with a dummy variable indicating whether the prime minister's party is a leftist party.<sup>19</sup> We expect then that the coefficient on left-right self-placement will be positive and its interaction with the ideology of the prime minister to be negative. The variable measuring retrospective perceptions of the national economy has been broken into three dummy variables: *worse*, which equals one if the voter thought the economy had gotten worse in the last year; *better*, which equals one if she thought the economy had gotten better; and *same*, which equals one if she thought the economy had stayed the same. Two of these, *better* and *worse*, were included in the individual level model. Clearly we expect these two dummy variables to have opposite signs with *worse* being negative and *better* being positive. The pooled model is thus limited to one main control variable – the ideology of the voter relative to that of the prime minister. This sparseness in specification is almost always the cost one must pay for pooling data from disparate surveys.<sup>20</sup>

Two interaction terms are included in the model to test whether there is a positive correlation between the economic voting and the national macro-economic variance measures: *Economy Better X Variation Measure*; and *Economy Worse X Variation Measure*. Results consistent with our competency theory would be: a negative coefficient on the *Economy Worse X Variation Measure* variable (a bad economy depresses the probabilities of voting for the incumbent more in contexts with a higher quality competency signal); a positive coefficient on the *Economy Better X Variation Measure* interaction term (a good economy raises the probabilities of voting for the incumbent more in contexts with a higher quality competency signal). The *Variation Measure* is appropriate to each equation – for example, in the inflation equation the *Variation Measure* is based on the variations in the inflation series. The first four columns of Table 5 present the results for the interactive model. These results confirm the two-stage model results from Table 4: greater variation in macro-economic outcomes is associated with higher levels of economic voting. The interaction terms for the composite and inflation standard deviations are statistically significant while the standard deviation interaction terms for

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<sup>19</sup> In order to include as many studies as possible, we had to combine some left-right self-placement questions that gave the responded different response options. This was done by normalizing the various scales and then using the normalized scales.

<sup>20</sup> For a detailed comparison of the two-stage estimation strategy and the conventional multi-level interaction method using these data, see Duch and Stevenson (2005).

the other two indicators are at best weakly significant. The last column of Table 5 presents the results for a random coefficients model with the composite indicator interaction term. The intercept and the two economic evaluations variables in the model are estimated with random coefficients – the variances of the random effects for each of these three coefficients are reported at the bottom of the table. Again, the results are consistent with both the two-stage and pooled interactive models.

**Table 5. Variations in Chief Executive Economic Vote and Cross-National Variations in Macro-economic Outcomes (Interactive and Multi-level Models)**

	<i>Composite</i>	<i>Inflation</i>	<i>Unemployment</i>	<i>Real GDP</i> $\Delta$	<i>Composite</i> <i>Random</i>
Left-Right Self Placement	.40** (.01)	.39** (.01)	.39** (.01)	.40** (.01)	.43** (.01)
Left-Right Self Placement X Leftist PM	-.78** (.01)	-.66** (.01)	-.77** (.01)	-.75** (.01)	-.76** (.01)
Voter Perceives Economy got Better	.25** (.05)	.38** (.03)	.46** (.04)	.37** (.04)	.15* (.07)
Voter Perceives Economy got Worse	-.35** (.05)	-.51** (.03)	-.46** (.04)	-.57** (.04)	-.38** (.07)
Cross-national variation measure	.10** (.01)	.09** (.01)	0.09* (.01)	0.06** (.02)	.03** (.01)
Economy Better X Variation measure	.04** (.01)	.05** (.01)	-.02 (.02)	.06* (.03)	.04** (.01)
Economy Worse X Variation measure	-.05** (.01)	-.05** (.01)	-.06** (.02)	-.01 (.03)	-.03** (.01)
Constant	-1.24** (.04)	-.94** (.01)	-.97** (.03)	-.94** (.01)	-1.06** (.09)
$\sigma^2_{u \text{ constant}}$					.39
$\sigma^2_{u \text{ better}}$					.06
$\sigma^2_{u \text{ worse}}$					.08
Number of Observations	103,445	131,998	117,580	120,888	103,445
Pseudo R-squared	.13	.10	.12	.12	

In the case of the US, the dependent variable is vote for the party of the president. Congressional election studies are excluded. Numbers in parentheses are standard errors. \* indicates .05 level of significance or better; \*\* indicates .01 level of significance or better.

Our contention is that context matters for the economic vote because contextual settings differ in terms of our competence weight term,  $\left(\frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \sigma_{\xi}^2}\right)$ . We argue that greater variations in national economic outcomes with respect to overall global economic average outcomes provides a strong signal to voters that the incumbent government is responsible for fluctuations in shocks to the national economy. Accordingly, the magnitude of this national variation with respect to global averages should be correlated with the magnitude of the economic vote. Our empirical analysis suggests that in fact this is the case with respect to overall fluctuations in our macro-economic indicators.

### Conclusion

Without a doubt economic voting is a very important phenomenon in mature democracies. At the same time though the magnitude of the economic vote varies quite dramatically and there clearly are contexts and periods in which there is essentially no economic voting or a very weak economic vote. We summarize a competency theory of rational economic voting that identifies the circumstances in which we would expect high levels of economic voting and those in which we would expect low levels. If variation in what we are calling the competent or political component of economic performance signals is large relative to variation in the non-political component of these signals, then changes in the economy will provide a strong signal about the competency of the incumbent and the voter will weight the retrospective economy more heavily in her utility function. Alternatively, perceived economic outcomes that are above or below the natural rate are a poor signal of the incumbent's competence if observed outcomes are more likely to result from non-political shocks than from competency shocks. In this essay we focus on demonstrating empirically how economic contexts provide voters with information that allows them to assess the competency of incumbents for shocks to the macro-economy (unexpected growth in the economy, for example).

First, we have assembled a body of individual-level data that suggests that individual voters are informed about the economy in a fashion consistent with the competency argument and they use this information to inform their economic vote as our theory predicts: the media report information about fluctuations in macro-economic outcomes; individual perceptions about the volatility of the macro-economy are reasonably well informed; voters appear to understand the extent to which their economies are subject to shocks from the international economy; and voters who perceive that the variation in the national economy differs from variation in the global economy seem to use the economy more in their vote choice.

Secondly, we demonstrate that fluctuations in the domestic and global economies provide the average voter with information necessary to distinguish exogenous from political shocks to the macro-economy and hence to establish the competence of the incumbent policy maker. We also show that these fluctuations are correlated with fluctuations in the magnitude of the economic vote in a fashion consistent with our theory.

The puzzle that motivated this essay and the larger project (Duch and Stevenson 2007) is the fact that in some contexts and periods there is no economic voting. In our opinion selection theories gives us the most traction for identify circumstances in which voters should minimize the importance of economic evaluations in their vote decision. In this essay we have summarized our competency theory of economic voting; demonstrated that individual voters have the information necessary to determine competency; and provided empirical evidence of the predicted relationship between our measures of the competency signal and economic voting. We believe this is a strong endorsement of a selection theory of the economic vote.

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