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# The VP-function revisited: a survey of the literature on vote and popularity functions after over 40 years

**Michael S. Lewis-Beck · Mary Stegmaier**

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**Abstract** Nannestad and Paldam (Public Choice 79:213–245, 1994) published herein an extremely influential review of the literature linking economics and elections, what they called the "VP functions." In that work, they offered a number of conclusions, in proposition form, about the state of the evidence in this field. We present the key ones (16 in all), and assess the extent to which they continue to hold, in light of the new evidence about what has come to be known as economic voting. As shall be shown, Nannestad and Paldam were prescient in their early establishment of many of the principal results explaining how the economy moves the vote choice.

**Keywords** Economic voting · Elections · Popularity · Vote functions · Government support

As Nannestad and Paldam (1994: 213) observe, the "VP-function explains the support for the government as a function of economic and political outcomes." This early review article, published in the pages of *Public Choice*, has had a major impact on the study of economics and elections. Indeed, according to *Google Scholar*, it has been cited over 450 times. The article at hand seeks to revisit this literature, offering an update of VP-function research and of the findings from that seminal review. When Nannestad and Paldam (hereafter N&P) wrote, they were forced to be selective, for they were looking at about 25 years of work, consisting of close to 200 titles. As we write, we are looking at perhaps 500 titles, making us, of necessity, still more selective (Lewis-Beck and Stegmaier 2007). To organize our review, then, we focus on the key conclusions, or propositions, offered up by Nannestad and Paldam (1994), especially as revealed in cross-national studies. Below, we begin with an introduction to the general points made by N&P. We go on to look at their more specific

M.S. Lewis-Beck
University of Iowa, Iowa City, USA
e-mail: Michael-Lewis-Beck@uiowa.edu

M. Stegmaier (✉)
University of Missouri, Columbia, USA
e-mail: StegmaierM@missouri.edu

findings, as they appear in light of micro, then macro, investigations. We conclude with a discussion of what from N&P still holds, and what does not.

## 1 Introduction

The guiding question asks how the economy links to government support, as measured by votes (in the "vote function") or by popularity (in the "popularity function"). To the extent that such a link exists, it has come to be called the "economic vote," where classically the voter rewards the government for good economic performance and punishes it for bad (Key 1966; Fiorina 1981; Lewis-Beck 1988). According to N&P, the following propositions are true:

1. *The economic vote almost always achieves statistical significance*.
2. *The economic vote almost always registers a strong effect*.

These propositions still hold, in established democracies and transitional ones, as demonstrated by numerous literature reviews and meta-analyses. Paldam himself has made these points for established democracies in two later V-P essays (Lewis-Beck and Paldam 2000; Paldam 2004). In an earlier review, Norpoth (1996a) provides an overview of the vote function findings and the various dimensions of the economic vote. Anderson (1995), writing at about the same time, shows that monthly popularity data from Western European nations, 1960–1990, respond to macroeconomic conditions. In an often-cited review article on the subject, Lewis-Beck and Stegmaier (2000) offer an extensive survey of economic determinants in presidential and legislative elections in the United States, France, Britain and Denmark, and in less-studied nations. Carrying out a later review, they focus exclusively on individual-level survey research on economic voting, emphasizing findings in the most-studied nations and cross-national studies (Lewis-Beck and Stegmaier 2007). In the same year, Duch (2007) contributes an essay exploring variations in the magnitude the economic vote across countries and over time.

Turning to economic voting in transitional democracies, Lewis-Beck and Stegmaier (2008) examine the emerging literature on economic voting in the democracies of Latin America, Russia and Eastern Europe, Asia, Africa and the Middle East. Research on these countries demonstrates that the economy affects voting decisions and election results, despite the newness of democratic elections. In a contemporary state-of-the-discipline piece, Hellwig (2010) goes on to analyze how the political system, age of the democracy, and democratic consolidation affect the strength of the economic vote across 77 democracies. He also demonstrates how politicians might use their constitutional powers, such as calling early elections, to evade punishment for economic conditions. Finally, in a current exercise, Stegmaier and Lewis-Beck (2013), go online to provide an updateable bibliography on economic voting investigations for nations around the world.

As the reader can appreciate, review articles themselves are numerous and growing. As a body, they continue to support the above general propositions suggesting the statistical and substantive significance of the economic vote in democracies everywhere. The following summary observation in a recent review still rings true: "In terms of 'issue voting' models, the expectation is that economics can be demonstrated generally to be the top issue for the electorate, both in terms of rank and structural effect" (Lewis-Beck and Stegmaier 2007: 532). Details supporting this judgment will be illustrated along the way, as we focus on the specific N&P conclusions that frame our discussion. Below, we examine those conclusions, as they pertain to micro-studies. Then, we turn to macro-studies, before offering final remarks.

**Table 1** Typical economic evaluation survey measures*

| |
|---|
| Retrospective Sociotropic Question: Compared to 12 months ago, do you think that the national economy is now better, about the same, or worse? |
| Prospective Sociotropic Question: Over the next 12 months, do you think that the national economy will get better, stay the same, or get worse? |
| Retrospective Egotropic Question: Compared to 12 months ago, do you think that the financial situation of your household is now better, about the same, or worse? |
| Prospective Egotropic Question: Over the next 12 months, do you think that the financial situation of your household will get better, stay the same, or get worse? |

∗Note: These are stylized versions of typical economic evaluations. Readers can refer to the American National Election Study, Eurobarometer, or other election surveys for variations on the question wording

## 2 Micro-studies

Individual-level election survey investigations (micro-studies) are invaluable because they overcome the ecological fallacy to which the traditional national-level aggregate investigations (macro-studies) are subject. That is, observed relationships between the macroeconomy and national election outcomes might be spurious, a product of some third variable. Voters themselves, then, would not actually be taking into account economic conditions when casting their vote. The election survey work of Fiorina (1981) and Kiewiet (1983) marked the shifting emphasis to micro-economic voting studies in the United States (Lewis-Beck and Stegmaier 2009). Soon thereafter came the Lewis-Beck (1988) investigation of economic voting in Western European surveys, so marking the shift in that region. In these surveys, items generally divided themselves along two dimensions: target and time (Kinder and Kiewiet 1981). "Target" refers to whether the economic circumstances evaluated concerned the voter's personal situation (egotropic) or the economy of the nation (sociotropic). "Time" refers to whether the voter looks forward (prospective) or backward (retrospective) when evaluating economic performance (Downs 1957; Fiorina 1981). Standard survey wording for these items appears in Table 1. N&P offer two propositions in this regard:

3. *Sociotropic economic voting has a greater impact than egotropic voting*.
4. *Retrospective economic voting has a greater impact than prospective voting*.

In the most thorough single-nation study, Kiewiet (1983) demonstrates that in congressional and presidential elections in the United States egotropic effects are weak to nonexistent, compared to strong sociotropic effects of the retrospective type. (Alvarez and Nagler (1995), in a later study, reach the same conclusions.) Denmark has also received extensive study here. Nannestad and Paldam (1997) themselves find, exceptionally, that for the Danish case egotropic evaluations dominate sociotropic ones. They explain this comes from the presence of a strong welfare state, which Danes may perceive as responsible for their well-being. However, a recent study thoroughly re-examines the N&P data, and finds that egotropic effects are weak after all, while sociotropic ones are strong (Lewis-Beck et al. 2013). This more standard finding in fact supports the original finding of Borre (1997), in his examination of the 1987, 1990, and 1994 Danish general election surveys.

In a comparative study, Lewis-Beck (1988), looking at repeated surveys from France, Germany, Italy, Spain, and the United Kingdom, uncovers no pocketbook effects but clear retrospective and prospective sociotropic effects. In a later, pooled survey analysis of 13 European nations, Anderson (2000) also finds a strong influence from sociotropic retrospective evaluations, but no influence from egotropic ones. Executing the largest study thus far on

economic voting, Duch and Stevenson (2008) examine 165 surveys from 19 countries, and uncover strong sociotropic retrospective effects.

In a follow-up study, Nadeau et al. (2013), carry out a pooled survey investigation (ten European nations surveyed four times, 1988–2004), and again uncover strong sociotropic retrospective effects. Specifically, they estimate that, if voter perception of past economic performance changes from "worse" to "better," a vote in favor of the incumbent becomes 19 % to 35 % more likely, depending on the model specification selected. They conclude the following: "changes in the probability impact rendered by changes in perception of the economy are not small. Overall, there are serious economic effects on vote intention in these democracies, and they appear robust against multiple methodological and statistical challenges" (Nadeau et al. 2013).

The above investigations confine themselves to Europe, but other regions have been subjected to micro-studies as well. In a comparative examination of surveys from Hungary and Poland, Duch (2001) finds that through time their citizens have become more trusting of their democracies, and this has facilitated the link between the economy and the vote. In a contemporary survey investigation of sub-Saharan African democracies, Bratton et al. (2012) find that voters evaluate the economy and reward or punish the government accordingly. A current survey investigation of another low-income region, Latin America, looks at sociotropic retrospective voting in a pool of 12 countries across three election periods (Lewis-Beck and Ratto 2013). They uncover rather strong effects, e.g., a change in the national economic perception "from "worse" to "better" increases the estimated incumbent vote probability by .21, not a trivial effect" (Lewis-Beck and Ratto 2013).

With respect to propositions 3 and 4 above, then, they are in the main supported. Clearly, sociotropic evaluations overwhelm egotropic ones. The relatively strong impact of sociotropic retrospective evaluations seems equally clear, regardless of whether the democracy is new or old, low-income or high-income. What remains somewhat controversial is the impact of prospective economic voting. Within the literatures on the United States and the United Kingdom, studies keep popping up to show significant prospective effects (Lockerbie 1992; MacKuen et al. 1992; Price and Sanders 1995; though see Clarke and Stewart 1994 and Norpoth 1996b for important critiques). More recently, Nadeau and Lewis-Beck (2001) have shown that, in American presidential elections, the economic vote operates mostly in retrospective fashion when the incumbent runs, and mostly in prospective fashion when the incumbent does not. In contrast, Campbell et al. (2010), in their own investigation of presidential preferences, claim that no prospective voting exists.

Comparative study seems needed on the prospective question, beyond these single-nation studies. However, such work is unlikely to be forthcoming, since most researchers seem to opt for the retrospective, rather than the prospective, specification. That in itself helps indicate that the retrospective evaluations dominate.[1]

The economic vote may be asymmetric. For example, the government may be punished more if the economy turns bad than if it remains good. A fair amount of work has been done on this asymmetric question. N&P arrive at the following conclusion:

5. *The economic vote is not asymmetric*

In his founding work on presidential popularity and public opinion in the United States, Mueller (1973) decided there was an asymmetry in the economy's impact, with a penalty

[1] One partial exception comes from the investigation of Van der Brug et al. (2007: 181), who find that under conditions wherein responsibility is unclear, the prospective effect might be stronger. We focus further on such conditionalities below.

for bad times but no reward for good times. This idea, that negativity makes more of an impression than positivity, has found some support in later public opinion studies. If voters tend to be averse to risk, then they will pay more attention to bad news (Lau 1985; Soroka 2006). To the extent that bad news, such as a flagging economy, makes the economic issue itself more salient, it may weigh more heavily on the vote (Bélanger and Meguid 2008; Fournier et al. 2003). When the economy goes bad, more people may know about it, because of discussion in the media (Singer 2011).

What do direct micro-studies on economic voting show regarding the asymmetry hypothesis? In analyzing the American National Election Studies, Kiewiet (1983: 49) found no evidence favoring it. Looking at a comparative sample of individual European voters, Lewis-Beck (1988: 79) also gave it no support: "There is no evidence whatsoever that their vote choices are motivated more by 'bad times' than by 'good times.'" But a latter survey investigation, by N&P (1997) themselves, on the Danish case, suggests that a grievance asymmetry exists, with "worse" economic evaluations appearing to produce a stronger effect on government support than "better" economic evaluations. However, an American investigation released at the same time goes against this grievance idea. Specifically, Haller and Norpoth (1997), in their examination of the influence of economic news on economic opinion find no effect, so undercutting the saliency argument. For now, we have to conclude that evidence on proposition 5 remains mixed.

Another issue with regard to sociotropic evaluation concerns its motivation—is it altruistic or egoistic? N&P offer the following conclusion here:

6. *Sociotropic economic voting is not necessarily self-interested.*

The economic vote should be based on self-interest, at least according to a traditional cost-benefit calculation. Voters select the party that will do more to further their own material interests, or so the argument goes. This logic easily works, if economic voters are egotropic, always voting their own pocketbooks. However, as we have seen, in study after study, pocketbook effects are weak to nonexistent. Instead, the motivation for the economic voter, real as it may be, is sociotropic, showing a concern for the material well-being of the collectivity. This concern for the collectivity has sometimes been interpreted as showing altruism on the part of the sociotropic voter. However as Kinder and Kiewiet (1981: 132), the fathers of the sociotropic concept, state: "Sociotropic voting may proceed out of altruistic concern for the well-being of all. . . .Alternatively, sociotropic voting may be totally self-interested."

In a full review of the economic voting literature at the time, Lewin (1991: 45) disallows the self-interest possibility, asserting that the "results point overwhelmingly against the self-interest hypothesis," claiming instead that the sociotropic voter has the public interest in mind. In a current paper, Kiewiet and Lewis-Beck (2011) attempt to demonstrate that the sociotropic economic voter may be acting out of self-interest, after all. They begin by recalling Kramer's (1983) distinction regarding the two factors that influence an individual's economic well-being: government policies and everything else (e.g., business cycles, illness and luck). Reasoning economic voters support the government if its policies benefit them, and oppose otherwise.

But, in practice, sorting out the "government part" of individuals' changed economic well-being is impossible. Kiewiet and Lewis-Beck therefore look at the next best thing, namely how the economy is performing as a whole. Voters effectively use national economic performance as a proxy for their personal economic circumstances. Further, they understand intuitively that when the country prospers they are more likely to prosper. In sum, for these reasons, the sociotropic voter may be self-interested. Also, of course, the sociotropic voter

may care only about the public interest, and thus simply favor the party that will better manage the economy. That is to say, the sociotropic voter may be motived purely by self-interest, or purely by the public interest. As Kiewiet and Lewis-Beck (2011: 312) conclude: "Data indicating that voters are sociotropic thus do not allow us to determine *why* they are sociotropic." Accepting this conclusion, we can say that proposition 6 of N&P stands supported.

A critical question concerns the operative mechanism of the economic vote, and how that mechanism may be modified. N&P offer the following conclusion:

7. *The economic vote is influenced by interactions with political agents, i.e., it is influenced by the clarity of government responsibility for the economy*.

For the economic vote to operate, the voter must attribute responsibility for economic management to the government. Without that link, economic voting should not occur. For example, if the voter believes the economy to be shaped by private business decisions, weather conditions, or mere chance, then it makes little sense to blame (or praise) the government for current conditions. However, even if the voter does hold the government responsible for the economy, the "part" of government held responsible might not be clear. In the above phrase of N&P, the economic vote is influenced by interactions with political agents, which might include the executive, the legislature, the bureaucracy, or the parties. If, say, there are many parties in the government coalition, responsibility for economic policy might be less clear, as compared to a government coalition with few parties.

Let us focus on how parties influence clarity of responsibility, since considerable research has been done here. Powell and Whitten (1993), in their well-known cross-national macro-analysis, construct an index for measuring the clarity of government responsibility, and discover its strong relationship to economic voting. In the first comparative micro-study on the subject, Lewis-Beck (1986) demonstrates that diffusion of government responsibility, as measured by number of parties in the ruling coalition, influences the size of the national economic voting coefficient (i.e., in descending order, the United Kingdom, Germany, France, Italy). Anderson (2000), in his investigation of 13 nations from Eurobarometer surveys, establishes that economic effects strengthen when alternative parties are fewer, and when there is a large and dominant ruling party.

Later investigations have continued to uncover similar results. Looking at eight European nations, in surveys over 16 years, Nadeau et al. (2002) show that the greater the clarity of responsibility, the greater the economic vote. Examining surveys from 15 European countries, Van der Brug et al. (2007) find that economic voting increases when policy responsibility clarifies itself, and when the largest party is the primary target. Duch and Stevenson (2008), in their investigation of election surveys from 19 countries, also discover that the magnitude of economic voting varies depending on the concentration of responsibility.

Besides the domestic political context, the international political context can influence the clarity of responsibility. In nations with open economies that are especially dependent on foreign trade, citizens might find it difficult to decide whom to hold responsible for economic ups and downs. Is it the national government? Foreign governments? International businesses? In a pioneering study using survey data from multiple nations, Hellwig (2001) finds that the more economic interdependence the country experiences, the weaker will be the economic vote. Examining surveys from 15 European countries, Fernández-Albertos (2006) discovers that greater economic openness reduces the impact of employment expectations on the vote. These studies, as well as others, have established that "globalization," as it has come to be called, can blur the lines of economic authority, thus reducing the magnitude of a country's national economic voting coefficient.

Thus, the conclusion of Proposition 7, about the role played by clarity of responsibility, receives very strong support.

We see that voters evaluate the economy, and that these evaluations have consequences for government support. The implication is that voters know something about the real economy, and act accordingly. But, how much do voters actually know about the economy? N&P offer the following proposition:

8. *Voters do not have much knowledge about the economy.*

In their review essay, Lewis-Beck and Stegmaier (2007: 531) ask, "What information on the economy do voters have?" Their response, "We know little" about this question, seems less true now. There are scattered, single nation surveys that have been published (Blendon et al. 1997; Conover et al. 1986; Holbrook and Garand 1996; Nannestad and Paldam 2000; Sanders 2000). Early on, for the US case, Conover et al. (1986) reported that, with respect to macroeconomic indicators, voters tend to make the least error when they estimate the unemployment rate. In a recent study, Lewis-Beck and Nadeau (2009) show that in the United States the great majority of voters can estimate the unemployment rate rather accurately.

One reason voters had little knowledge of the real economy, in the view of N&P, was because of partisan bias. That is, their political preferences clouded their vision of the economy, so when their own party was in office they thought the economy was good, but when their party was out of office they thought it was bad. On this endogeneity—of partisan bias and economic perception—a considerable amount of work has been done with individual level survey data. There are at least three such studies that are comparative, and we look at those. Wlezien et al. (1997), in a cross-national analysis, find the magnitude of the economic vote reduced, after taking into account the endogeneity of economic perceptions. Lewis-Beck et al. (2008), in an extended two-stage instrumental variables investigation of the vote in panel surveys from Canada, the United Kingdom, and the United States, find the economic vote to be even stronger than supposed, once economic perceptions are properly exogenized. In a subsequent study, Nadeau et al. (2013) again use an instrumental variables approach to tease out the economic vote in ten European nations. They conclude that, once the proper statistical corrections are applied, "economic perceptions appear strongly shaped by the objective economy" (Nadeau et al. 2013). Voter perceptions do, after all, reflect the real economy. In sum, they have stored a good deal of knowledge about the economy, even if they may not be able to retrieve it readily when asked in a survey item. They have a working knowledge of it, and they employ this in their economic vote. Therefore, we would have to say that, at least with respect to the partisan bias question, N&P's conclusion in proposition 8 does not stand.

Voters do know, at bottom, much more about the economy than N&P supposed. Further evidence here comes from examining the effects of news media on economic knowledge. Studies of the American case suggest that following economic news does not add (or detract) from the economic knowledge voters already possess. Hetherington (1996) explores media exposure and retrospective sociotropic evaluations in the 1992 presidential election. He tests his models on the 1984 and 1988 elections and does not find a media impact. His findings are consistent with Haller and Norpoth (1997), who look at how the media affects public perceptions about the economy in the 1980s in the United States. Their regression models show that the economic perceptions of both the "news" and "no news" groups are related to objective economic measures. Further, "even without benefit of economic news, people are able to draw an economic picture that mirrors that real thing" (Haller and Norpoth 1997: 567).

In perhaps the sole relevant comparative micro-study, Duch and Stevenson (2010: 122) conclude that "individual perceptions about the volatility of the macroeconomy 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 more inclined to exercise an economic vote." And, this conclusion is arrived at without the complications of instrumental variables or other exogenizing techniques. It seems, after all, the voters do see the basic contours of the economies in which they live.

## 3 Macro-studies

We began with micro-studies, in order to avoid the ecological fallacy, while at the same time arriving at the basic mechanics of the economic vote. This we have done, establishing that the economic vote largely takes the retrospective and sociotropic form. Such a result allows us to aggregate up, from individual voters to aggregate national election outcomes, with random error only. This assertion follows from the first macro-proposition from N&P, as follows:

9. *The macro-findings on economics and elections reflect the micro-processes of economic voting*.

As N&P (1994: 224) deduce logically, "Under the sociotropic hypothesis the macro VP-function is an average of people's perceptions of the average, i.e., the macroeconomy … It is hard to imagine that the perceptions of the same macroeconomic development can be more different than the actual experiences. Hence, we should get (much) stronger VP-functions under the sociotropic than under the egotropic hypothesis." They go on to note, however, that this formal micro-macro link breaks down if the assumptions change, e.g., if the retrospective assumption is dropped.

Fortunately, there is a contemporary demonstration that this micro-macro link exists empirically, as well as formally (Lewis-Beck et al. 2013). Using a pool of eight Danish national election studies (1987–2011), analyzed in various ways, including instrumental variables, the authors conclude that the "election survey data of Denmark, at least when pooled, reveal a strong sociotropic economic voting effect that is stable, even exogenous. When an average shift in these micro-economic evaluations is aggregated to the national level, it shows substantial change in the national electoral outcome, change that parallels the observed effects from an average shift in macro-economic indicators such as GDP growth" (Lewis-Beck et al. 2013).

This reconciliation of the micro-macro results, at least as demonstrated in the Danish case (Lewis-Beck et al. 2013), appears to solve the long-standing Kramer (1983) problem, which held that the error inherent in cross-sectional survey data prevents it from answering the relevant questions about economic voting. (Specifically, Kramer contended these problems arise due to the lack of variation in national economic conditions at the one point in time when the survey is conducted.)

In addition, and more to the point for our purposes, this Lewis-Beck et al. (2013) study avoids the *micrological fallacy*, which infers macro-patterns of economic-electoral fluctuation solely from individual economic voting behavior (Dassonneville and Lewis-Beck 2012). That is, we now know that these macro-patterns generally emerge from the micro-patterns recorded in the last section. In the section at hand, we devote ourselves to investigating the extent to which the macro-study conclusions offered by N&P are supported by

current evidence. The first of these concerns the issue of model fit, and is addressed in the following proposition:

10. *The macro-models of economic voting have high R-squareds.*

This N&P proposition still seems to hold, at least for single-nation studies. The single-nation studies invariably analyze aggregate time series data, which generally tend to produce tighter fits than data assembled in other forms. As an illustration, consider the French case. Lafay (1985, 1991), a pioneer in developing French popularity functions, offers models with an $R$-squared = 0.77 in an early study, and an $R$-squared = 0.93 in a later study. With respect to French vote functions, the adjusted $R$-squareds from three different models, respectively, can be reported: 0.65, 0.92, 0.71 (Lewis-Beck 1995, 1997; Jérôme et al. 1999).[2] Turning to the British case, Sanders (2000) carried out an extensive examination of popularity functions (1974–1997), reporting model $R$-squareds from 0.87 to 0.93, depending on which economic variables were included. A current popularity function investigation of the United States (1960–2011, quarterly) gives an $R$-squared = 0.83 (Fauvelle-Aymar and Stegmaier 2013). With respect to the US presidential vote function itself, the Bread and Peace model of Hibbs (2012: 636), yields an adjusted $R$-squared = 0.85.

These fit statistics, while selective, do not appear atypical for single-nation macro-models. However, we are more concerned about multi-nation macro-models, of which there are fewer (Bellucci and Lewis-Beck 2011; Bengtsson 2004; Benton 2005; Carlsen 2000; Chappell and Veiga 2000; Fidrmuc 2000; Pacek 1994; Pacek and Radcliff 1995; Paldam 1991; Powell and Whitten 1993; Remmer 1991; Roberts 2008; Tucker 2001; Whitten and Palmer 1999; Wilkin et al. 1997). These studies look at different regions of the world, focusing mostly on advanced western nations. The investigation by Whitten and Palmer (1999), a cross-national, European analysis of economic voting in the context of clarity of responsibility, yields model adjusted $R$-squareds from 0.83 to 0.93. Bellucci and Lewis-Beck (2011), examining an aggregate time series pool of popularity functions (France, Germany, Italy, the United Kingdom, the United States and Spain), find an adjusted $R$-squared = 0.81 for their preferred specification.

The fit statistics in these aggregated, cross-national models do not always reach such elevated heights, however. For example, Roberts (2008), in his contemporary study of economic voting in Central and Eastern European nations (ten countries, 34 elections) reports that his best model yields an adjusted $R$-squared = 0.48. Benton (2005), in an update of Remmer (1991), investigates how macroeconomic change impacts incumbent support in the Latin American region (39 elections, 13 countries). The $R$-squareds for her models of change in the incumbent party's support range between 0.67 and 0.70 (see Models 1 and 4).

Lesser model fits are not confined to comparative macro-studies of low-income democracies, but sometimes result from the availability of comparable data across nations, how the variables are measured, and what political controls are included. Paldam (1991) himself, in an examination of Western industrial nations (17 countries, 197 elections), aims to explain change in government vote support as a function of institutional and economic variables. After extensive testing, his models manage $R$-squareds in the meager range of 0.00 to 0.09. Wilkin et al. (1997), looking at economic voting in a world-wide sample of 38 nations, find their best performing model, with just two independent variables, inflation and GDP growth, yields a lowly $R$-squared = 0.13. In stark contrast, Dassonneville and Lewis-Beck (2012), examining macroeconomic effects on government coalition vote in a large European sample

[2] It is worth noting that the Standard Error of Estimate, in some ways a better measure of comparative model fit, follows the same rank-order as these adjusted $R$-squareds.

(29 countries, 281 elections), accounting for a range of political factors, including previous vote share, caretaker government, effective number of parties, and number of parties in government, find much higher fit levels. The following are fit estimates for their main model: OLS = 0.71; fixed effects = 0.65; random effects (GLS) = 0.70. What may we conclude, then, about proposition 10? Two things: 1. Macro-models for a single nation tend to yield high fit statistics. 2. Macro-models from multi-nation studies may or may not yield high fit statistics, depending on how economic measures are constructed and the extent to which political controls are included.

What macroeconomic variables count for shaping national election outcomes? N&P wrestle with this question, and make the following conclusion, in proposition 11.

11. *Unemployment and Inflation, but sometimes Growth, are the most important predictors*.

Thus, N&P feature unemployment and inflation, in line with the founding popularity function paper for the United Kingdom, that of Goodhart and Bhansali (1970), which stresses the role of those two variables (not to mention a nod to the Phillips curve, an argument prevalent then). In a study conducted at about the same time on US congressional elections, Kramer (1971) found that inflation, but even more importantly income, affected seat shares for the party of the president. Nevertheless, it has become difficult to find papers that point to inflation as an important determinant. An exception, perhaps understandable, is Remmer's (1991) study of Latin America, a region that has been plagued with inflation waves. (Although Singer's (2013) investigation shows that this "inflation effect" in Latin America has now dissipated). Less understandable is the recent study by Chappell and Veiga (2000: 196), who carry out a pooled analysis of 13 Western European nations (136 elections), and report that their "strongest finding is that voters punish increases in inflation."

The unemployment variable, however, remains a lively contender. Fair (1978) identifies the change in the unemployment rate and GNP growth as having meaningful effects on US presidential vote shares. In their path-breaking work, Powell and Whitten (1993), examining 19 industrialized nations (and about 100 elections, 1969–1988), find that the key macroeconomic variables accounting for the government vote are unemployment and growth. It has become increasingly clear that the electoral impact of unemployment change stands decisive, according to the various pooled studies from Central and Eastern Europe (Fidrmuc 2000; Pacek 1994; Roberts 2008; Tucker 2001).

With respect to the growth variable, it, too, has appeared as a prime driver, in multinational studies from different parts of the world: Latin America (Benton 2005); low-income nations (Pacek and Radcliff 1995); Europe (Dassonneville and Lewis-Beck 2012)); a worldwide sample (Wilkin et al. 1997). What, precisely, is the impact of economic growth? Benton (2005: 430) suggests that a 1.0 percentage point decline in GDP will produce a 1.7 percentage point loss in the incumbent party vote. Wilkin et al. (1997: 307), arrive at a similar estimate, claiming that "for every percentage point of GDP growth in the election year, [the major incumbent] party stands to gain 1.4 percent of the vote."

With respect to proposition 11, then, we would revise it slightly, arguing that now the "big two" (N&P's phrase) are unemployment and growth. What does this imply about the relative importance of macroeconomic change for electoral outcomes? This leads to the next N&P propositions, as follows:

12. *The e-part (economics) is stronger than the p-part* (*politics*).
13. *The political variables are weakly measured*.

We consider these two propositions together, since the extent to which political variables are weakly measured could explain the relatively greater importance of the economic part.

As is known, separating out the relative importance of, say, two independent variables, is not easy. N&P sometimes imply that the e-part has more strength because it explains more variance. However, statistically it is not possible to separate variance into uniquely explained portions, unless the two variables are orthogonal, which they virtually never are. As a heuristic, however, it is helpful initially to consider the class of vote functions from the aggregate time series models used in the field of election forecasting.[3] These models are almost invariably of a simple structure, single equations with as few as two independent variables, commonly one macro-economic and one macro-political variable. Take the elections most often forecast, those of the US presidency. The bivariate correlations of economic growth and presidential approval, respectively, with incumbent vote share have been reported at 0.69 and 0.84 (Lewis-Beck and Rice 1992: Chap. 2). These magnitudes suggest that, in fact, the p-part has greater strength. However, as the literature on presidential approval has shown, approval is shaped at least partly by economic growth (and, it cannot be ruled out that growth maybe influenced by, although undoubtedly less so, approval). In that case, reciprocal causation exists, and the simple correlation comparison of effects breaks down. Thus, while it is suggestive, it is by no means definitive, and illustrates the problem of ultimately evaluating the comparative effects of the p- and e-parts.

That the e-part can be captured partly by the p-part has been demonstrated in recent election forecasting models, where the small sample size necessitates parsimony. Nadeau et al. (2009, 2010) create two-step forecasting models for the United Kingdom and France. The first step predicts the election result based on a lagged approval measure, without including any economic measures. This approval measure serves as a proxy for the economic and political factors that shape it, which is the second step in a system of equations. Thus economic and political conditions shape popularity, which in turn can be used to forecast the election results accurately.

A further difficulty with an economics versus politics comparison, of course, comes from the inevitable collinearity present in multiple regression equations based on observational data. For example, when the two variables of economic growth and presidential approval (noted above for the US case), are included in an ordinary least squares regression equation, the $R$-squared $= 0.81$. This magnitude itself suggests the two variables are intercorrelated, as in fact they are, at $r = 0.48$ (Lewis-Beck and Rice 1992: 34). Hence, there always exists a portion of shared variance that cannot properly be assigned to either the e-part or the p-part. Further, no study we know of has applied a step-wise approach to answer the question, e.g., remove from the model the e-part, and note the decrease in variance explained; return the e-part and remove the p-part, and note again the decrease in variance explained; compare the two decreases, with the larger one indicating the more important part. Of course, the difficulty here is that stepwise regression violates the classical assumption of correct model specification in the first place.

Another approach to sorting out relative importance involves comparing the magnitude of the structural coefficients, one for economics and one for politics. This implies the same number of e and p variables, which seldom occurs in extant models. Further, such comparison of coefficients requires the variables to have the same measurement scale or for the standardized coefficients to be reported.

Still, at the macro-level, there is yet another possibility, which occurs when the single-equation model has the political dependent variable (of vote) lagged and included on the

[3] For current reviews of the election forecasting literature on the United States and other countries, see Lewis-Beck and Tien (2011), Lewis-Beck and Stegmaier (2014), and the annotated bibliography of Stegmaier and Norpoth (2013).

right-hand side of the equation as part of the specification, perhaps as a control for omitted variables. The coefficient of this independent political variable ($V_{t-1}$), can be compared to the coefficient of the independent macroeconomic variable ($E_{t-1}$), if the two have the same measurement. In the current investigation by Dassonneville and Lewis-Beck (2012), such a comparison is possible, since they have the dependent variable (incumbent coalition parliamentary vote share in percent) included also as a lagged independent variable (measured as the incumbent coalitions' vote share in the previous parliamentary election), next to a lagged macroeconomic variable (GDP growth in percent for the year before the election). One sees that for their preferred model (random effects GLS) the GDP coefficient = 0.68, the lagged incumbent coefficient = 0.73. Thus, these p- and e-parts appear about equal in terms of their impact, when either changes by one percentage point.[4] Further, we can say that both are strongly, rather than weakly, measured. Moreover, we can argue that both variables are global in character, each encompassing many components of their respective processes. Finally, we note that this comparative macro-study is the largest economic voting study of this type. Even allowing for possible bias in the coefficient estimate of the p-part (because it is a lagged dependent variable), the e-part would *not* likely appear stronger, as N&P conclude. More nearly, they appear close to equal.

Because most of the macro-models are dynamic, it becomes possible to judge the effective time horizon of the economic voter. N&P offer the following proposition in that regard:

14. *The voters are myopic, with a typical memory of one year.*

At the macro-level, assuming annual aggregate time series data, this proposition implies a lag structure of $t - 1$. However, at least in single-nation studies, the models, as estimated, have employed varying lags. These differences had been of some concern in the literature, because the inconsistencies generally do not seem to have a logical basis. Nevertheless, the search for the preferred "lagged effects pattern, has been largely abandoned," accordingly to Lewis-Beck and Stegmaier (2000: 186). This conclusion appears to hold today. Convention has taken the place of the search, and virtually all macro-studies assume a short lag, generally of one year. This convention has practical value, allowing more standardization in comparison of effects (much like the convention of statistical significance at 0.05 allows such comparison). The myopia assumption, as it were, does continue to prevail in the literature, as N&P assert; but it wants hard testing in order discover if it is indeed preferred.

With respect to the political contribution to the VP function, N&P have argued that governments, by their (mis)deeds, tend to experience an erosion of support over time. They offer the following proposition:

15. *Incumbents incur a cost of ruling.*

The idea is that governments pay a cost for being in office. Over time, they strike bargains and create enemies, and their supporters become disillusioned and withdraw. The general elections of the United Kingdom offer a good example. The government vote share can be expressed as a function of government approval, economic performance, and time in office (Lewis-Beck et al. 2004). The time in office variable, $T$, measures how many terms the party has served; its coefficient estimate is −3.1, indicating that the government can expect to lose about three percentage points when it runs for re-election.

[4] But, as we noted earlier with regard to the use of approval as an independent variable, here vote ($t - 1$) is influenced by the economic conditions leading up to that earlier election, underscoring the complexity involved in identifying the strength of the p- and e-parts.

What of the available comparative data? Paldam (1991: 19), employing a sample of 197 elections from advanced industrial democracies, estimates the "cost of ruling" as a loss of 1.6 percentage points in government vote share, from the previous election. What is a contemporary estimate? Dassonneville and Lewis-Beck (2012) have carried out the most current and largest comparative VP study at the macro-level, on 284 elections from 29 European countries. They find that at time t incumbent vote share (for all the parties in the coalition) = 49.61, while at time $t - 1 = 44.04$, suggesting an average loss from one election to the next of 5.57 percentage points. When this variable of incumbent vote share at $t - 1$ makes itself part of the multivariate specification of incumbent vote share at $t$, they show that it achieves a coefficient = 0.68, which suggests that for every 10 percentage points of support the government garnered in the last election, it can expect to lose about 3 percentage points in the current election. Clearly, then, N&P's proposition that it costs incumbents to rule still holds; if anything, it is stronger than ever.

Last, but by no means least, is the N&P proposition about the variability of coefficients in the VP function. They draw the following conclusion:

16. *VP functions manifest a lack of stability.*

In later work, Paldam asks "is the instability of the VP-function apparent or inherent?", going on to conclude that "Most of the observed instability is apparent, and can be taken account of by proper specification of institutional conditions" (Lewis-Beck and Paldam 2000: 119–120). We have already discussed how the number of government coalition parties can influence clarity of responsibility and, ultimately, the strength of the economic vote. There are, of course, other political or institutional contexts to consider. One concerns the arrangement of executive power. To the extent that executive authority centralizes itself in a single powerful ruler, the responsibility for managing the economy becomes less ambiguous.

As an example, consider the two-nation study by Lewis-Beck and Nadeau (2004), comparing the economic coefficient for the popularity of the French and the American presidents, under changing executive arrangements. In particular, what happens when the system moves from unified government to cohabitation[5] (the French case) or to divided government (the American case)? They demonstrate that in France the presidential economic coefficient registers 4.5 when there is no cohabitation, but only 1.6 under cohabitation (when the prime minister's economic coefficient rises from 2.7 to 5.1). For America, in contrast, divided government does not significantly alter the economic coefficient for the presidential popularity function (Lewis-Beck and Nadeau 2004: 143). In sum, these institutional features may (or may not) affect the economic vote; knowing of their existence and taking them into account in the specification of the popularity function enables us to exchange the apparent instability for stable structural explanation.

Another contextual factor is whether a country is governed by a single party or a coalition. If there are coalitions, should the coalition parties collectively benefit from economic growth, or do voters target specific parties within the coalition? Anderson (1995) compares the economy's impact on government approval in the Netherlands, Denmark, and Germany, all countries with coalition governments. He concludes that for the coalitions as a whole, the economy has a weak impact, but that voters instead assess the coalition partners separately based on their issue priorities. In a more recent study based on survey data from six German Bundestag elections, Debus et al. (2013) test the impact of positive economic assessments on votes for (1) the incumbent coalition parties collectively, (2) the party of the Chancellor,

[5]Cohabitation is when the French President and Prime Minister hail from different political parties.

and (3) the party that controls the ministries of economics and finance. For the coalition parties collectively, the economic vote exists in just three of the six elections. The economic vote for the party controlling the key economic ministries is also unstable. However, the consistent finding is that the Chancellor's party reaps rewards in all six Federal elections when voters evaluate the economy positively.

VP functions may also appear to generate unstable coefficients due to the fact that almost all popularity studies have been for single nations, using different measures, lags, time periods and model specifications. Much of the noise from these differences can be eliminated with consistent measurement, time period and specification, over a large sample. Bellucci and Lewis-Beck (2011) take such steps in a recent paper, looking at a single popularity function estimated with the same measures on a large pooled time series from France, Germany, Italy, Spain, the United Kingdom, and the United States. They show that economic effects are strong across the sample, and not influenced significantly by country context (once institutional features are controlled by a lagged dependent variable on the right-hand side). In other words, with proper sampling, measurement and modeling, considerable stability in the popularity function is observed.

Given the foregoing, we have to conclude that the original N&P proposition, arguing for lack of stability of the VP function, would be better rephrased to read as follows: VP functions tend to be rather stable, once relevant institutional features are incorporated into the specification. The observed instability, in other words, is more apparent than real.

## 4 Summary and conclusions

We commemorate the publication twenty years ago of the pivotal VP-function review by Nannestad and Paldam (1994). To structure our current review, at the same time providing continuity with the N&P paper, we assess the conclusions they arrived at there. These conclusions, or propositions, number 16 and apply generally both to micro- or macro-studies. As a summary, we list them all in Table 2, along with an assessment of whether or not they are now supported, according to our overall assessment of the economic voting literature to date. The first two propositions receive unambiguous support. These are perhaps the most important propositions, for they establish the presence and strength of the economic vote in democracies around the world.

What of the micro-studies? Clearly, the dominant form of economic voting is sociotropic, a form which may be altruistic or self-interested and conditioned by the clarity of government responsibility for economic policy, as N&P found (propositions 3, 6 and 7). However, contrary to N&P, the sociotropic economic vote might also be prospective or even asymmetric (evaluation of propositions 4 and 5). And, finally, with respect to the micro-level, N&P were wrong about voters not having much knowledge of the economy (evaluation of proposition 8). Voters do seem, in fact, to know a good deal about the state of the economy.

What about the macro-studies? At this level, N&P were the first to establish two important propositions that continue to hold. For one, the observed links between macroeconomics and national election outcomes are buttressed by, indeed reflect, the micro-processes by which individual economic voters arrive at their decisions. Thus, these two levels of analysis operate in tandem, rather than in opposition (proposition 9). For another, incumbents in democracies have to pay a cost for ruling, in terms of votes lost when they run for re-election (proposition 15). However, other macro-findings reported by N&P appear mixed now. They seem to have been overly optimistic about the possibility of achieving high goodness-of-fit statistics for the models studied (evaluation of proposition 10). As well, they seem to

**Table 2** Nannestad and Paldam (1994) conclusions on VP-functions, with an assessment of their current standing*

| |
|---|
| **General:** |
| 1. The economic vote almost always achieves statistical significance (+) |
| 2. The economic vote almost always registers a strong effect (+) |
| **Micro-Studies:** |
| 3. Sociotropic economic voting has a greater impact than egotropic (+). |
| 4. Retrospective economic voting has a greater impact than prospective (+/−). |
| 5. The economic vote is not asymmetric (+/−). |
| 6. Sociotropic economic voting is not necessarily self-interested (+). |
| 7. The economic vote is influenced by interactions with political agents (+). |
| 8. Voters do not have much knowledge about the economy (−). |
| **Macro-Studies:** |
| 9. The macro-findings mirror the micro-processes of economic voting (+). |
| 10. The macro-models of economic voting have high R-squared (+/−). |
| 11. Unemployment and Inflation, maybe Growth, are the important predictors (+/−). |
| 12. The e-part, economics, is stronger than the p-part, politics (−). |
| 13. The political variables are weakly measured (−). |
| 14. Voters are myopic, with a typical memory of one year (+/−). |
| 15. Incumbents incur an electoral cost of ruling (+). |
| 16. VP-functions manifest a lack of stability (−). |

*(+) = support for proposition in the literature; (+/−) = mixed support for proposition in the literature; (−) = lack of support for proposition in the literature

have exaggerated the predictive role of inflation, at the expense of growth (evaluation of proposition 11). In addition, their sanguinity about voter myopia seems to rest more on reflexive practice, than on actual testing of alternative time specifications (evaluation of proposition 14).

With respect to the macro-studies, the most noteworthy errors come from their conclusions that the e-part dominates the p-part, and that the models are unstable. What we see instead is that, when both the economic and political variables are comparably measured, they tend to have about equal weight, at least within the single-equation constraint (evaluation of propositions 12 and 13).[6] Furthermore, once model specification takes into account the relevant institutional and political features of the democratic system(s) under investigation, the models appear inherently stable, functioning according to known structural imperatives (evaluation of proposition 16).

Overall then, many of the N&P propositions are still standing, and these tend to be the more important ones on the list. These amount to confirming that, generally speaking, the economic vote, at the micro- or macro-levels, has statistical and substantive significance in democratic political systems. Moreover, for the citizen, the economic vote can be characterized as sociotropic and subject to changing institutional contexts that alter the clarity of responsibility, and thus the weight, of the economic vote. We would ourselves add that, rather than a sign of instability, these changing weights for the economic vote merely reflect the choices a reasoning voter makes.

[6] When indirect effects and reciprocal links between economic and political variables are taken into account, in systems of equations, this judgment may be qualified.

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