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**“Taking Occam’s Razor to the
Endogeneity Problem in Economic Voting”**

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Abstract

Conventional economic voting models are increasingly being challenged by the problem of endogeneity – that is, causality may not run, as they suggest, in one direction from economics to politics. Rather, causality may run in the other direction, from politics to economics, or be bi-directional.

While a small, but growing, number of studies are highlighting the endogeneity problem in economic voting models, there is a tendency to identify and then attempt to manage, rather than eliminate, the distortions caused by endogeneity in economic voting models. At least worst, economic voting models which do not deal with endogeneity are vulnerable to producing biased results; at worst, the results may be spurious.

Rather than just attempting to manage the endogeneity problem in, this study proposes a strategy to purge it from, economic voting models. However, in doing so, it further brings into question the fulcrum idea of economic voting models, finding instead ‘politics drives economics’ rather than the other way around.

Introduction

Endogeneity – also known as reverse causality – is a serious, and under-recognised, problem in economic voting models. Rather than running in a single direction – from economics to politics, in conventional economic voting models - there is increasing evidence causality may run in the other direction – from politics to economics – or be bi-directional – each having a causal effect on the other.

The presence of endogeneity within economic (or any issues/policy-based) voting model is not a trivial issue, but challenges the foundation and the effectiveness of the ‘reward/punishment’ model of electoral accountability, and potentially the efficacy of democracy systems of government. If ‘politics drives economics’ then manipulation of perceptions, attributions and/or assessments by incumbent governments can make them less accountable for deficient policy designs or outcomes, meaning they are more likely to invest political capital in promoting ‘spin’ rather than delivering meaningful economic outcomes.

While there is a vast and growing literature analysing economic voting (potentially 500 or more studies extant in the mid-2010s), rigorous examinations of the problem of endogeneity in economic voting models have been small in number. Many of these studies use techniques, such as two-stage least squares (2SLS) to manage, as distinct from eliminating, the problem, while others accept the seeming inevitability of endogeneity and develop models to exploit it.

This article does not seek to add to the complexity of politico-econometric methods which can be used to explore for, measure and/or deal with the seemingly endemic problem of endogeneity in economic voting models. Rather, it looks to apply Occam's Razor – which values simplicity over complexity – to identify a parsimonious and simple approach to purging endogeneity from such models. In doing so, it adds to the small but growing literature finding there is a fundamental and serious problem with conventional economic voting models – that is, it appears 'politics drives economics', not the other way around.

The Endogeneity Problem

Economic voting is premised on a very simple idea: economics matters to voters in forming and exercising their vote choice (Key, 1966; Goodhart and Bhansali, 1970; Kramer, 1971). Voters reward governments for 'good' and punish them for 'bad' economic times (whether policy settings, management or outcomes) signalled in real time through contemporary polls but ultimately, and most forcefully, at the ballot box. The economic voting literature is already vast, and growing. By some estimates the number of published studies on economic voting topped 300 at the turn of the century (Lewis-Beck and Stegmaier, 2000), reaching close to 400 less than a decade later (Lewis-Beck and Stegmaier, 2006), which a decade or so further on has probably pushed through the 500 barrier. This literature is too broad and diverse to easily summarise (nevertheless, for good reviews: Nannestad and Paldam, 1994; Lewis-Beck and Stegmaier, 2000; Stegmaier and Lewis-Beck, 2013).

Even so, several common messages tend to emerge from the economic voting literature: economic factors appear to account for around 30 per cent of the popular vote; inflation and unemployment are the main drivers in economic voting equations; voters tend to place greater emphasis on past performance and outcomes ahead of prospective/ outlook; national (sociotropic) economic voting is probably stronger than personal (egocentric) economic voting; and, there is instability problem in economic voting equations, so the coefficients in models can, and often do, differ across time and space (Lewis-Beck and Paldam, 2000; Anderson 2007).

The endogeneity problem in economic voting models, however, casts a shadow over their efficacy, suggesting people's assessments of economic indicators (national/ personal; backward/ forward looking) are framed by their political preferences. As such, in contrast to the conventional economic voting model (where 'economic assessments drive political preferences'), endogeneity implies causality runs in the reverse direction (where 'political preferences drive economic assessments'). That is, what voters see, hear and think of economic conditions and prospects is not driven by their objective assessment of relevant economic information, but filtered and framed by their political predispositions (ideology, partisanship or attitudes toward the current political players).

Such endogeneity may well reflect a number of factors, ranging across the perceived inherent superiority as economic managers of their preferred party (Johnston et al, 2005), a desire to reduce what they (the voter) may see as an otherwise inconsistency between their political preference and economic assessments (Anderson et al, 2004; Johnston et al, 2005; Tilley et al, 2008; Geber and Huber, 2010), and/or reflecting the voter's tendency to regard their favoured party as the preferred source of information, analysis and assessment on economic matters (Evans and Andersen, 2001 and 2004; Gerber and Huber, 2010) – all of which echo Campbell et al's (1960) 'perceptual screen', the filter through which all politically related information is evaluated.

The problem of endogeneity as a contaminant in conventional economic voting models also appears to be general, rather than particular to one country or system-design, being found in both executive (such as the United States: Erikson, 2004; Ladner and Wlezien, 2007; Gerber and Huber, 2009 and 2010; Brandt and Freeman, 2009; Enns, Kellstedt and McAvoy, 2012; Michelitch et al, 2012; Gomez and Hansford, 2015; De Neve, 2014) and in Westminster (such as the United Kingdom: Evans and Andersen, 2001 and 2004; Anderson et al, 2004; Johnston et al 2005; Ladner and Wlezien, 2007; Chzhen et al, 2014) systems.

Endogeneity in electoral modelling is not limited solely to conventional economic voting designs, but has been found to exist between economic conditions and voter turnout, with turnout in voluntary voting systems being greater when the economy is performing poorly and the incumbent in standing for re-election (Gomez and Hansford, 2015), and turnout and the intensity of electoral competition (measured as the expected closeness of the election outcome: Garman, 2014).

Studies have also found endogeneity between partisanship and issue proximity amongst voters and parties (on issues such as taxation, income distribution and European integration: Evans and Andersen, 2004), between social cleavages such as religiosity (both denomination and attendance) and vote support for conservative parties (Raymond, 2011), and between the design of electoral systems and the size of political parties (Best, 2012). Endogeneity in economic voting has also been found to be more pervasive amongst lower information/less engaged voters than their more sophisticated/engaged counterparts (Tilley et al, 2008).

The implications of endogeneity in economic voting models are far from trivial, ranging across over-estimation of the impact of economic on political variables (Wlezien et al, 1997; Evans and Andersen, 2001; Erikson, 2004; Enns, Kellstedt and McAvoy, 2012) even to the point of producing biased and/or spurious results (Anderson et al, 2004; Hansford and Gomez, 2010; De Neve, 2014; Garmann, 2014). As such, endogeneity in economic voting models can potentially bring into question the effectiveness of the economic reward and punishment model of electoral behaviour (implying politicians may not necessarily be held accountable, or as accountable, for economic performance as may otherwise have been the case: Evans and Andersen, 2001; Anderson et al, 2004).

A conventional approach to dealing with endogeneity in economic voting equations involves the use of instrumental variables (IVs) in Two Staged Least Squares (2SLS) models. (For good discussions of the application of 2SLS in economic voting models see: Gawande and Hi, 2009; Fraile and Lewis-Beck, 2010.) A key challenge in performing IV estimations is to find a suitable instrument – that is, a variable which is highly correlated with the (right hand side) explanatory variable, but not correlated with the error term from the overall explanatory side of the equation.

Absent a fully exogenous IV, the re-estimation method may only be extracting some proportion, but not all, of the endogeneity – that is, reducing but not eliminating the problem (Gawande and Hi, 2009; Fraile and Lewis-Beck, 2010). Unfortunately, very few studies test for and evaluate the adequacy and the rigor of their instruments, with a small number of notable exceptions (Raymond, 2011; Hansford and Gomez, 2010; Gomez and Hansford, 2015). Other scholars (Erikson, 2004) take the view if 2SLS and Ordinary Least Squares (OLS) estimates of the same model deliver the same results, then there is no real endogeneity problem.

Other studies have taken a markedly different approach: rather than lamenting and seeking to redress the endogeneity problem, they have sought to exploit it through the use of vector auto-regression models which build on the multi-directional causality between the economic and the political variables of interest (such as presidential approval, economic growth, inflation and unemployment: Brandt and Freeman, 2009).

Other studies have generally accepted the inherent problem of endogeneity in economic voting models, examining instead whether it exists in all politico-economic contexts. In one approach, the units of study are segmented into partisans (for whom endogeneity in economic voting is broadly accepted) and non-partisans who, in theory, should not be subject to endogeneity in their economic voting calculus (given they have no a priori partisan predispositions). These studies find as partisanship weakens the impact of economic factors on the vote becomes more important (Kayser and Wlezien, 2011; Enns, Kellstedt and McAvoy, 2012; Michelitch et al 2012). In another approach, economic conditions are distinguished between ‘normal’ and ‘bad’ circumstances, with endogeneity in economic voting models being lower during ‘normal’ or ‘good’ economic times (when

economic issues are less salient to voters) than in poor or turbulent times when it is much stronger (Chzhen et al 2014).

Not unsurprisingly, proponents of the conventional economic voting model have hit back at critics, describing proponents of the 'endogeneity challenge' as "*provocative*" (Lewis-Beck, 2006: 208) and labelling them (using the academic pejorative of) "*revisionist*" (Fraile and Lewis-Beck, 2010: 210) or 'dissenters' (Fraile and Lewis-Beck, 2014: 161). Amongst their criticisms of the 'revisionist' approach are the latter's tendency to by-pass the serious challenge of identifying and evaluating the adequacy of the fully exogenous variables necessary for inclusion in models (such as 2SLS) designed to deal with the endogeneity problem, and/or otherwise just arbitrarily selecting the potential instruments needed for the construction of such models (Fraile and Lewis-Beck, 2010), points variously conceded by some of the so-called 'revisionists' (Gawande and Hi, 2009; Brandt and Freeman, 2009). When endogeneity is properly addressed in economic modelling designs, proponents argues economic voting effects are still practically and statistically significant (Fraile and Lewis-Beck, 2014).

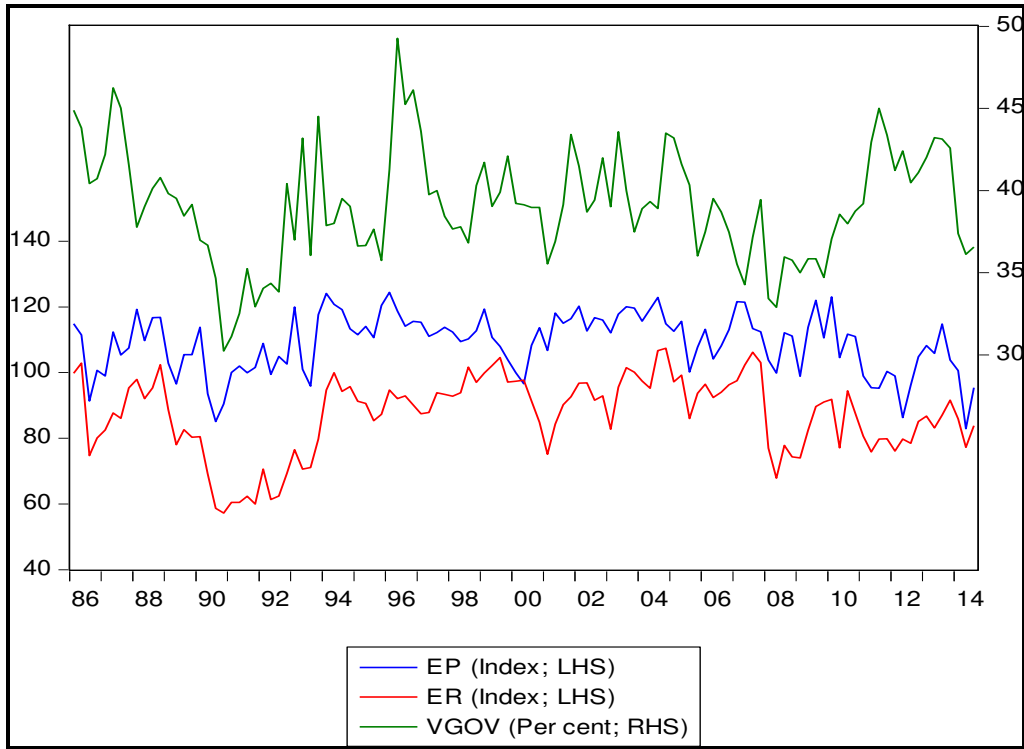
The Data

The data series used in this study were drawn from two sources. The political data was derived from Newspoll surveys collected by the eponymous polling house. The political metric used in this study was vote intention for the incumbent government, which was originally recorded by Newspoll as primary vote intention for one or other of the major political parties (either the Australian Labor Party, or the Liberal National Party coalition) and then recoded by the author to be 'vote intention for government' when the party had incumbency. The Newspoll data, while originally reported on a fortnightly basis, were filtered to extract a monthly figure being the observation closest to the mid-point for the relevant month, with the average monthly figure for each quarter being taken as the representative observation for that quarter (for example, the average of the results for April, May and June were used as the 'September Quarter', and so on).

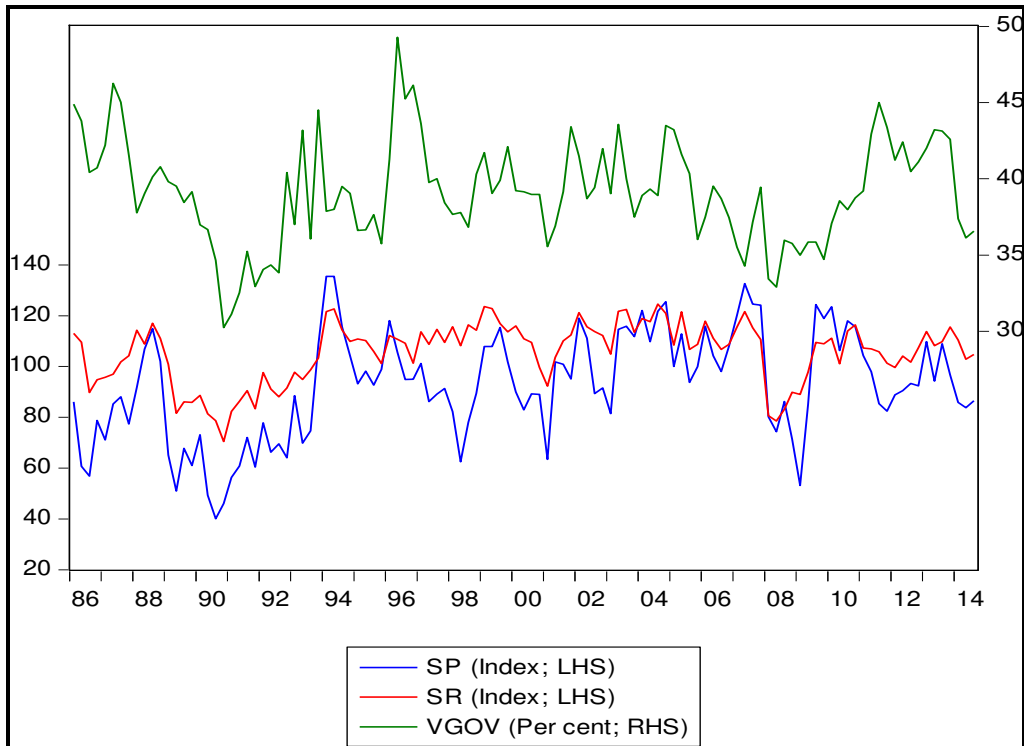
The economic data were obtained from the monthly consumer sentiment surveys undertaken by the Melbourne Institute of Applied Economic and Social Research (MIAESR), part of the University of Melbourne. The subjective economic assessments were based on the standard-form questions of respondent's perspectives of past national economic performance and personal financial situation (sociotropic and egocentric, retrospective), and expected national economic performance and personal financial situation (sociotropic and egocentric, prospective). All figures are reported as index numbers based on deviations from 100 (neutral), with numbers above 100 being optimistic/positive, and those below 100 being pessimistic/negative. All quarterly figures are simply the average of the monthly results for the applicable three month period.

The data set commences in the March Quarter 1986 and concludes in the September Quarter of 2014 (N = 115). The ALP was the incumbent government from the March Quarter 1986 to the March Quarter 1996, and then again from the March Quarter 2008 to the September Quarter 2013 (N = 64), while the LNP was in power from the June Quarter 1996 to the December Quarter 2007, and then again from the March Quarter 2014 to the temporal end point of September Quarter 2014 (N = 51). A party was deemed to be the incumbent government if it was in power for the majority of the relevant quarter. The political and each of the economic data series are reported in their original levels, that is not seasonally adjusted or, in the latter case, in their trend forms.

Graph 1 reports the general pattern of the vote intention for the government (vgov; right hand side axis) with consumer sentiment indexes for past personal financial conditions (egocentric, retrospective: label = er) and expected personal financial outlook (egocentric, prospective: label = ep), while Graph 2 retains the political metric vgov, but reports survey respondents' views, in the aggregate, for past national economic conditions (sociotropic, retrospective: label = sr) and expected national economic outlook (sociotropic, prospective: label = sp).



Graph 1: *Vote Intention and Personal Financial Assessments*



Graph 2: *Vote Intention and National Economic Assessments*

The immediate (lag = 0) correlations between the political variable (vgov) and the subjective economic variables ranged from a high of 0.412 ($t = 4.80$; $p = 0.00$) for vote intention for the government (vgov) and sociotropic-retrospective (sr) and 0.410 ($t = 4.78$; $p = 0.00$) for vgov and egocentric-retrospective (er), through 0.250 ($t = 2.74$; $p = 0.01$) for vgov and sociotropic-prospective (sp), and to 0.165 ($t = 1.78$; $p = 0.08$) for vgov and egocentric-prospective (ep). That is, three of the four political-economic pairs showed clear practical and statistical significance at conventional levels, with the fourth pairing only marginally outside of statistical significance.

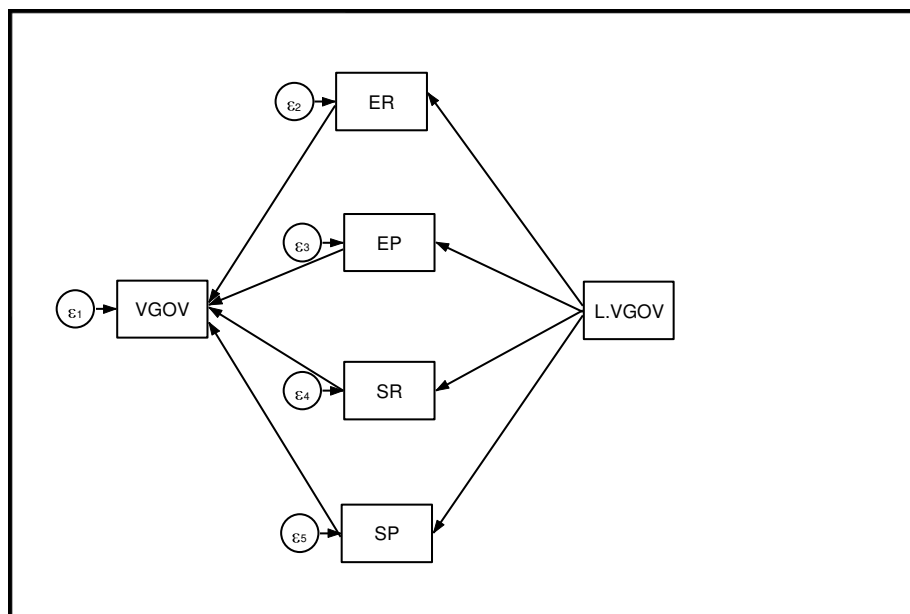
These results are echoed in Johansen tests of cointegration, looking for the presence of common linear trends in pairs of data series across time. While not expressly testing for endogeneity, the presence of such trends is suggestive particularly where the Johansen tests report two cointegrating equations, suggesting bi-directional causality. The null hypothesis of not more than 1 cointegrating equation was rejected at conventional levels of significance for the vgov-er pairing (trace = 6.97; cv = 3.94; $p = 0.01$), for the vgov-ep pairing (trace = 7.59; cv = 3.84; $p = 0.01$), for the vgov-sr pairing (trace = 6.95; cv = 3.84; $p = 0.01$), and for the vgov-sp pairing (trace = 9.92; cv = 3.84; $p = 0.00$). Taken as a whole, these results suggest strong underlying trends in all the pairs of data series, each driving themselves and the other, consistent with the endogeneity problem.

Applying Occam's Razor

This article applies an Occam's Razor approach to dealing with endogeneity in economic voting models. Hailing back to the early fourteenth century, the underlying idea of Occam's Razor is to favour simplicity over complexity when developing an idea or testing an hypothesis. In the current context, applying an Occam's Razor to the endogeneity problem means developing and applying a simple model design which purges prior political attitudes from assessments of economic conditions and prospects, and then use the unaccounted-for (residual) component in a conventional economic voting model.

This study extends the scholarly examination of the endogeneity problem in economic voting in a number of ways, including expanding the scant literature using dynamic/ time series based methods (seemingly limited at the moment to Enns, Kellstedt and McAvoy, 2012; De Neve, 2014, who use error correction modelling methods), and by developing an Occam’s Razor- (or purging-) based method to extract the endogenous effects of political preferences of voters on their economic assessments, before estimating the conventional economic voting model.

The problem of endogeneity in economic voting can be highlighted in a two stage structural equation model. Reading from the right to the left hand sides of the model (see Graph 3), the first stage reverses the conventional direction of causality by positing political predispositions (one period lag of vote intention) cause each of the subjective economic assessments – that is, ‘politics causes economics’, per the revisionist economic voting framework. The second stage of the modelling posits each of the four subjective economic assessments then drive vote intention for the incumbent government – that is, the ‘economics causes politics’ per the conventional economic voting model. Both stages of the (structural equation) model are estimated in logs to facilitate comparison of the results, and are thus elasticities. A pictorial representation of the model can be found in Graph 3, while results for both stages, are reported in Table 1.



Graph 3: SEM of the Economic Voting Framework

Table 1: SEM Results

		S1	S1	S1	S1	S2
x =	y =	er	ep	sr	sp	vgov
Er	b	...	...	...	...	0.21
	P	...	...	...	...	0.04
Ep	b	...	...	...	...	-0.19
	P	...	...	...	...	0.11
Sr	b	...	...	...	...	0.25
	P	...	...	...	...	0.08
Sp	b	...	...	...	...	-0.03
	p	...	...	...	...	0.53
vgov (lag 1)	b	0.69	0.06	0.51	0.53	...
	P	0.00	0.48	0.00	0.04	...
Cons	b	1.92	4.46	2.77	2.55	2.58
	p	0.00	0.00	0.00	0.01	0.00
AIC		...	...	...	...	-1130.15
BIC		...	...	...	...	-1113.73
R Sq		0.179	0.004	0.144	0.036	0.262

A number of messages emerge from an inspection of Table 1. Looking the first stage (S1, reported in its components) political predispositions (one period lag of vote intention) had noticeable practical and statistically significant effects on three of the four subjective economic assessments (on egocentric-retrospections, sociotropic-retrospections, and sociotropic-prospections, but not on egocentric-prospections). Turning to the second stage, (S2) it appears only egocentric-retrospections (er) had any meaningful practical or statistically significant impact on vote intention for the government ($b = 0.21$; $p = 0.04$), although sociotropic-retrospections (sr) showed practical, but close-to-statistical significance ($b = 0.25$; $p = 0.08$).

(When the model is re-specified to include a direct link from one period lagged vote intention direct to vote intention for the government, thus leaping over the intervening stage of the subjective economic assessments, there are no real changes in the parameters or diagnostics for the first stage of the model but there are sizeable changes to those for the second stage. In the latter case, generally speaking, the parameter coefficients drop substantially, and the p-values for all of the subjective economic variables rise considerably pointing to deterioration in their statistical significance. There is also a sizeable jump in the goodness of fit metric, with the Adjusted R2 surging to 54.1 per cent with the added link in the model, compared to 29.9 per cent in the model without the politics-to-politics link. The net result is a further weakening of the case for the conventional economic voting model.)

Taken together, this picture suggests political predispositions have a greater impact on economic assessments than the other way around, a finding which can be explained further by testing the equality of coefficients across the system of models. In effect, such testing is asking whether the 'effect of x on y' in one equation is the same as 'y on x' in the other equation; in our modelling design 'are the effects of politics on economics the same as economics on politics'? The testing of the equality of coefficients finds: political predispositions have a greater impact on egocentric-retrospections, than egocentric-retrospections have on vote intention ($\chi^2 = 7.64$; $p = 0.01$); political predispositions have a greater impact on sociotropic-prospections than sociotropic - prospctions have on vote intention ($\chi^2 = 4.55$; $p = 0.03$), while the impact of political predispositions on egocentric-prospections, and egocentric prospctions on vote intention are essentially the same ($\chi^2 = 2.85$; $p = 0.09$) at conventional levels of statistical significance) and are also the same for sociotropic retrospections ($\chi^2 = 202$; $p = 0.16$). Distilled to its essence, this modelling casts a dark shadow over the conventional economic voting model, finding politics drives economics more than economics drives politics.

Conclusion

Conventional economic voting models are coming under increasing challenge from a growing scholarly literature which is identifying a serious problem with endogeneity – that is, causality may not be uni-directional – from economics-to-politics – as they hold out. Rather, there is growing evidence of reverse causality – from politics-to-economics – or bi-directional causality – each having a causal impact on the other. If so, this would challenge one of the core pillars of electoral accountability – the electorate can effectively hold their political representatives accountable for economic policy settings and/or outcomes.

This study joins the small but growing volume of studies casting doubt over the veracity of the conventional economic voting model. Purging endogeneity from economic voting models, rather than just simply trying to manage the problem, shows causality most likely runs from politics-to-economics rather than the other way around. The message for politicians and political strategists is clear: ‘good spin’ (media management) rather than good economic stewardship may well deliver better electoral outcomes at the ballot box.

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