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How Should Individual-Level Economic Voting Studies Measure Perceptions? A Meta-Analysis

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ABSTRACT

The literature on economic voting is vast. One of the primary debates is about how to measure economic performance as the central variable explaining incumbent survival. This paper offers a systematic examination of accumulated knowledge on economic voting and about different operationalizations of the key explanatory variable in individual-level economic voting studies. By investigating studies published in top-ranked journals and meta-analyzing the reported estimates, this paper finds that a sociotropic-retrospective measure, i.e., an individual's perception of national economic conditions in the recent past, has a higher predictive power than other measures common in studies of economic voting. While a systematic meta-analysis has never been attempted using a large collection of works on individual-level economic voting studies, the findings also give us a strong reason to use sociotropic evaluation rather than pocketbook evaluation and more utilization of retrospective judgment than prospective. These other methods are also examined in the current article. This finding should help researchers choose measurement strategies in future studies.

Keywords: economic voting, economic perceptions, measurement, meta-analysis

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The basic proposition of the vast literature on economic voting is that people reward or punish incumbent politicians based on economic performance. For decades, economic voting has been conceptually defined as people voting for incumbents (*reward*) as people positively perceive incumbents' economic performance; or people vote for challengers (*punish*) as they are unsatisfied with incumbents' performance (see, for instance, Anderson, 2007; Fiorina, 1978; Hellwig, 2012; Kramer, 1971; Lewis-Beck, 1997). Although scholars of economic voting have engaged with one another's research, no one has yet systematically meta-analyzed accumulated knowledge in this area. Whether the effects of economic perceptions across individual-level studies converge or diverge is not known. This paper systematically investigates the extent to which voters' perceptions of economic conditions have an effect on voting decisions based on the accumulated knowledge in the literature on economic voting. Additionally, it looks at how different measures of economic perceptions predict incumbents' electoral fate.

Although a large number of studies on economic voting made use of macroeconomic data and actual voting outcomes, the center of gravity in the field has shifted to studies using individual-level survey data. Some argue that individual-level measures of perceived economic performance avoid the risk of ecological fallacy found in macro-level studies.[3] Within individual-level studies, scholars have been divided on how to best gauge economic performance under the incumbent. Following Fiorina's pioneering work (Fiorina 1978, 1981), supporters of a pocketbook measure suggest that evaluating personal economic conditions "inside" the household better predicts whether voters want to reward the incumbent with reelection or to punish their administration. On the other hand, starting from Kinder and Kiewet's (1979, 1981) seminal works, proponents of sociotropic measures contend that gauging perceptions over general economic conditions (e.g., the national economy or surrounding businesses) is superior for investigating performance-based voting decisions. Some suggest that pocketbook and sociotropic perceptions are equally important (see Healy et al. 2017, p.775).

To summarize the central findings of the economic voting literature and to contribute to the debate about pocketbook versus sociotropic measures, I analyze 100 economic voting estimates published in eight top-ranked journals. This paper confirms that voters' perceptions of economic conditions affect their preferences for the incumbent. Importantly, I show that perceptions of general economic conditions in the past (i.e., sociotropic-retrospective measures) have strong predictive power over voters' voting decisions relative

[3] The debate on micro- versus macro-level studies has existed since the onset of the literature on economic voting (see Kramer, 1983).

to other measures of economic perceptions. I do not find a significant publication bias in the metadata.

Methodological Debates

As "our understanding of economic voting depends crucially on the quality of available data" (Healy et al., 2017, p. 772), competing theoretical arguments in the study of individual-level economic voting partly stem from binary methodological debates, namely, between retrospective (the past) and prospective (the future) judgments; and between pocketbook (personal) and sociotropic (national) evaluations. Singer and Carlin (2013), nevertheless, provide evidence that both sociotropic and retrospective approaches are contextually dependent on prosperity while retrospective and prospective judgments temporally rely upon electoral cycles.[4] Thus, let's trace back the principal premises of this debate and trajectory of this scholarship.

In his pioneering work on the retrospective thesis, Fiorina (1978, 1981) suggests that individual micro-level assessment of economic conditions explains support for the incumbent president by assessing voters' past economic conditions. Subsequent authors (e.g., Conover & Feldman, 1986; Healy et al., 2017; Mutz & Mondak, 1997) then followed Fiorina's basic question of the retrospective voting model. Meanwhile, in line with Kuklinski & West (1981), other works refer to the bankers' analogy when voters use prospective judgment for their political decision in the election (Alt et al., 2016; MacKuen et al., 1992).[5]

In this respect, we might expect that both past economic evaluations and future predictions are dependent on the electoral cycle, given the fact that most citizens are poorly informed and unsophisticated (Barabas et al., 2014; Bullock et al., 2013; Bullock & Lenz, 2019; Converse, 1964/2006; Lane, 1962). During an electoral cycle, short-term evaluations (say, the last six-month period) might generate a so-called myopic judgment (Achen & Bartels, 2017) for the retrospective question but yields benefit for the prospective measure. In contrast, long-term evaluations (e.g., the last four-year period) situate a better retrospective study than prospective research. In this regard, both retrospective and prospective judgments might hypothetically generate indifferent predictive power for the mechanism of electoral accountability (i.e., incumbent's electoral gain).

[4] They maintain that "prospective expectations diminishes over the election cycle as the honeymoon ends and [voters] retrospectively evaluate the incumbent's mounting record (Singer & Carlin, 2013, p. 731).

[5] These scholars analogically view voters who strongly employ prospective judgment for their voting decision as bankers who are used to have their financial decisions based on their predictions over the economic dynamics in the future.

In the other area of debate, Fiorina's (1978) survey has been one of the starting points of the pocketbook approach in order to complement the aggregate level studies conducted by Kramer (1971) and Tufte (1975). Some scholars follow Fiorina's path.[6] Kuklinski and West argue that "economic voting implies a relationship between voters' expected financial condition and their vote" (Kuklinski & West, 1981, p.442). Conover and Feldman's psychological assessment also supports the pocketbook measure, contending that "emotional reactions to personal economic condition influence political evaluations [and] personal well-being is important to understanding how people judge presidential and governmental performance" (Conover & Feldman, 1986, p.75).

Meanwhile, the sociotropic thesis suggests that citizens evaluate national economic conditions relative to their financial situation when evaluating the incumbent or determining their vote choice (see Kinder & Kiewiet, 1981, p.132).[7] As a pioneering work in this camp, Kinder and Kiewet (1979) only find two significant results across 11 surveys from 1956 to 1972; and five significant results from six surveys measuring sociotropic voting in 1962-1976. Mutz and Mondak's (1997) group-level perceptions also basically support a sociotropic voting pattern, as the perceptions rely on collective evaluation and judgment. Others contend that "in the battle between the familiar pocketbook and sociotropic measures, now taken to the aggregate level, sociotropic wins: a president achieves greater popularity by having people think the economy is booming" (MacKuen et al., 1992, p. 602; see also, Klašnja et al., 2016; Lewis-Beck & Ratto, 2013).

Though there is a debate regarding whether sociotropic voting implies an altruistic attitude[8] due to the collective evaluation or a self-interested attitude because of the voters' view of the national economy as a public good (Kinder & Kiewiet, 1979, 1981; Kramer, 1983), proponents of the sociotropic approach argue that voters are not necessarily well informed and sophisticated since they simply "form impressions of how the economy performing […]" (Kinder and Kiewiet 1981, p. 156). At this point, linking national or general economic conditions approximates the incumbent performance (Dassonneville & Lewis-Beck, 2014; Singer, 2011, 2013). This mechanism might drive us to expect that sociotropic perceptions have a stronger power to predict incumbent reelection than retrospective evaluation.

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[6] Some employ a term "egotropic" to denote Fiorina's initial term of pocketbook (see, for example, Lewis-Beck & Stegmaier, 2000; Nannestad & Paldam, 1995, 1997; Singer & Carlin, 2013). This article maintains the original term as it was initially defined and is terminologically straightforward.

[7] Kinder and Kiewiet (1979, p.522) claimed that their study conforms Lane's (1955) classic study on 15 ordinary Americans that individual's experiences and judgments which are itemized and fragmented.

[8] Meehl introduces the term of sociotropic in his lengthy dialogue-based model between imaginary Standard Old Party (SOP) and Flat Earth Vegetarian (FEV) when FEV says, "I should not say altruistic, but something weaker, say *sociotropic*" (Meehl, 1977, p. 14).

Correspondingly, debate of how to best reveal economic voting at individual-level studies has not been systematically examined. As the proponents of the competing measures evenly provide their justifying arguments, we need an empirical examination to observe whether one measure has a stronger predictive power on voting decision than the other. A meta-analysis is a one way to systematically quantify this accumulation of knowledge. This approach provides objective measures to assess the studies, rather than subjecting reasoning prevalent in the literature review (Ahmadov, 2014; Hunter et al., 1982). The following section describes the strategies employed to develop the metadata and analyses.

Data and Methods

Papers included in the meta-analysis are published in top-ranked peer-reviewed journals that commonly publish research on voting behavior. I use the top ten journals in the SCImago Journal Rank (SJR) and Google Scholar (GS) rankings. The use of SJR and GS as an entry procedure for journal selection provides a justifiable method to seek relevant articles in terms of publication time-span, scholarship engagement, and influence. Though it is not necessary that the analysis should address more or less than ten journals, the number of the selected journals is assumed to capture the journals that publish individual-level studies on economic voting over several decades. In SJR, I draw from the "Political Science and International Relations" category; the reported h-index captures the whole period of journal publication. In GS, the rankings come from the "Political Science" category, but the reported h-index only captures the period 2017-2021. As a result, the two rankings reveal different journals (see Table A1 in Appendix A). I only included studies that primarily investigate economic voting. Accordingly, I employed keywords strongly associated with this scholarship, including "economic voting," "retrospective voting," "sociotropic," "pocketbook," and unigrams of these phrases found in titles, abstracts, or keywords.

I found that only eight of the selected journals published relevant research, namely, *American Journal of Political Science* (AJPS)*, American Political Science Review* (APSR)*, British Journal of Political Science* (BJPS), *The Journal of Politics (JOP), Comparative Political Studies (CPS), European Journal of Political Research (EJPR), Annual Review of Political Science (ARPS),* and *Political Psychology*. I found 155 articles that broadly investigate economic rationales for voting decisions (the details are in Table A2 in Appendix A).

I then selected the papers that employed individual-level data, including any papers that employed both micro and macro-level data. Limiting the corpus to papers that explicitly measure economic perceptions, evaluations, or judgments, I ultimately found 41 eligible articles. In doing so, the selection procedure neglected distribution of geographical areas of economic voting studies covered in these articles. Yet, though economic voting theory stems

from voting experiences in the United States, there is no criterion that omits studies from outside of the United States. Thus, several datasets covered in the selected articles come from developing democracies outside the United States, including some countries in Eastern Europe and Asia (see Appendix B). However, I acknowledge that an inability of the selection procedure to take regional variation of the meta-data into account is a limitation of this study.

In these studies, the estimates may come from a dichotomous measure of economic perceptions (bad or good) or an ordinal measure. The dependent variable may also be generated by a binary variable, i.e., whether the respondents said they would vote for the incumbent or not, or nominal variables, e.g., names of multiple candidates, found mostly in non-U.S. contexts (see, for example, Blais et al., 2004). Given the nature of the dependent variables, most authors employ logit or probit estimators. As normalizing the coefficients and creating a variance for each study is only feasible when the sample size and standard errors are provided (Hunter et al., 1982; Fleiss & Berlin, 2019), I exclude coefficients without reported standard errors. Unfortunately, some pioneering works (Fiorina, 1978; Kinder & Kiewet, 1979) do not report standard errors. These selection procedures returned 100 coefficients from 32 articles. Table A2 in Appendix A depicts the selection process.

After exploring the descriptive overview of the metadata to seek which measures are applied more than the others, my next analytical strategy was a heterogeneity test to investigate the level of heterogeneity, i.e., whether the estimates across studies tend to diverge or converge. I employed an I-squared and tau-squared restricted maximum likelihood estimator to test for heterogeneity (Borenstein et al., 2010). Next, I estimated the effect size across measures of economic perceptions. As the true estimates of the metadata may differ from one study to another due to scale heterogeneity of the variables of interest, I applied a random-effects model. These models reveal the overall estimate from all studies included in the meta-analysis. Lastly, I employed diagnostic measures to look for influential studies and publication biases (Egger et al., 1997).

Results

Looking at the measures of performance employed in the studies, Table 1 shows that sociotropic evaluations (59) were somewhat more common than pocketbook evaluations (41); studies also more commonly used retrospective (69) rather than prospective (31) judgments. The descriptive analysis showed more than three-quarters of coefficients on sociotropic measures were statistically significant. In contrast, only 40% of pocketbook measures returned statistically significant estimates. Studies that used sociotropic

evaluation with retrospective judgments were particularly likely to return statistically significant coefficients (86.49%).

Table 1

Distribution of Measures of Economic Voting

Measures	*N*	Sig (%)	I^2	τ^2
Pocketbook	41	40.00	95.93	0.0368*
Sociotropic	59	76.36	99.49	0.0624*
Prospective	31	46.67	94.74	0.0398*
Retrospective	69	67.69	99.44	0.0594*
Pocketbook-Prospective	12	33.33	7.82	0.0002
Pocketbook-Retrospective	29	42.86	96.92	0.0444*
Sociotropic-Prospective	19	55.56	95.73	0.0516*
Sociotropic-Retrospective	40	86.49	99.64	0.0660*

Note. *N* = the number of estimates across the metadata; Sig (%) = The proportion of the estimates (percentage from each category of the economic measure) that are statistically significant at $p < .05$ significance level; I^2= total heterogeneity (0-100%); τ^2 = estimated amount of total heterogeneity (0-1); * (asterisk) = the *Q*-test of the heterogeneity at the $p < .05$ significance level

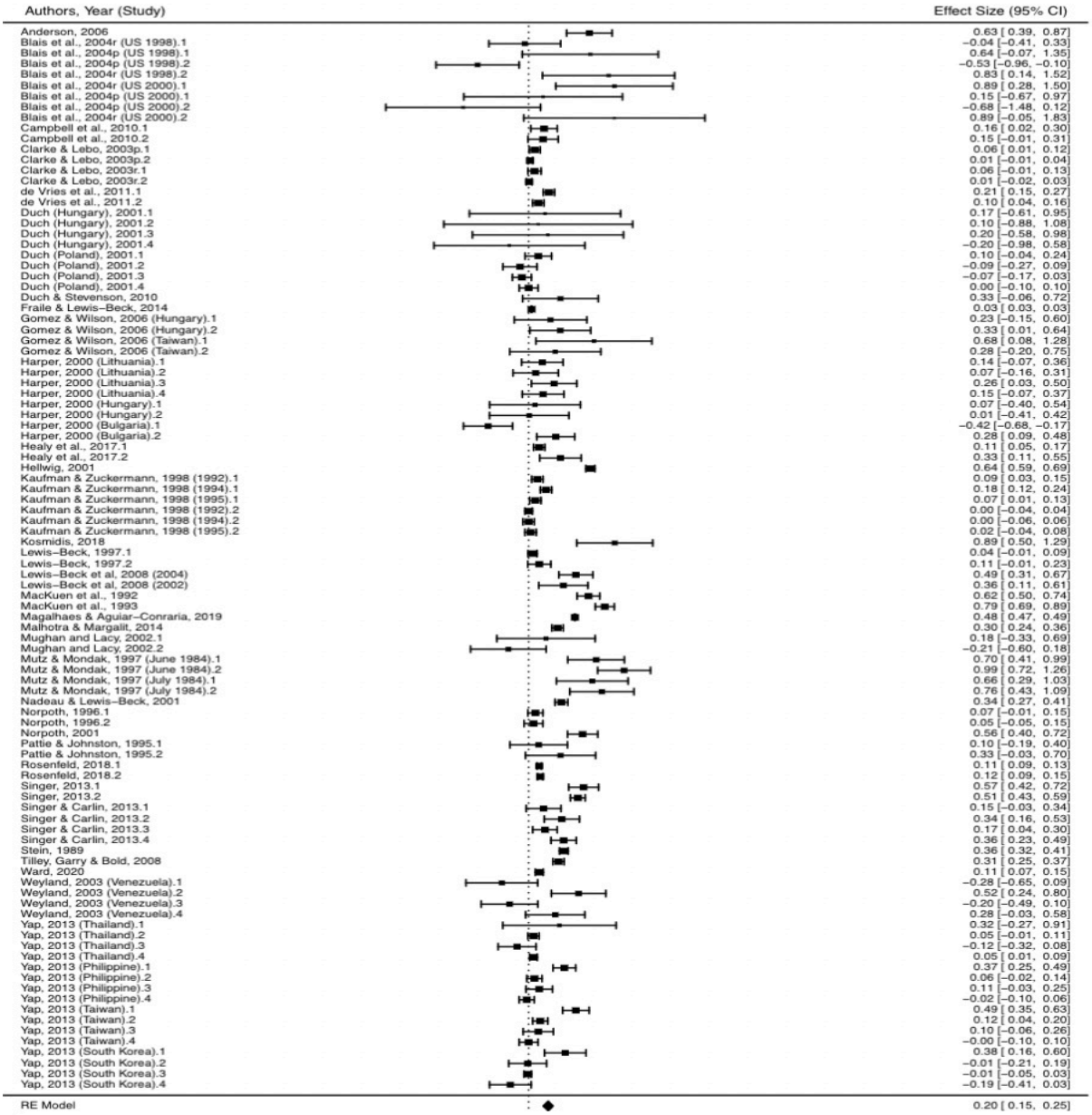
As reported in the last two columns of Table 1, the heterogeneity test statistics from all measures are similar, except for Pocketbook-Prospective—I did not find significant heterogeneity across the estimates of this measure. As higher I^2 and the τ^2 statistics mean more heterogenous estimates in each measure, the results imply that findings of economic voting studies diverge. The heterogenous findings are not surprising. However, the extent to which the economic voting studies diverge was relatively high across measures. A closer look nevertheless suggests that the coefficients of the sociotropic-retrospective measure (I^2 of 99.64% and $\tau^2$of .066) diverge more but are also the most likely to be significant relative to those of the other measures.

As shown in Figure 1, overall, I found a positive relationship between economic perceptions and support for incumbent reelection across 100 measures. The average effect size was .20 (log odds ratio) which means that, all else equal, a positive economic perception

affects the likelihood of voting for the incumbent at 1.2 odds. Details of the metadata and results are in Table B1 and Table C1 in the Appendix.

Figure 1

Forest Plot: Estimating Effects of the Overall Studies (see Appendix A for details)

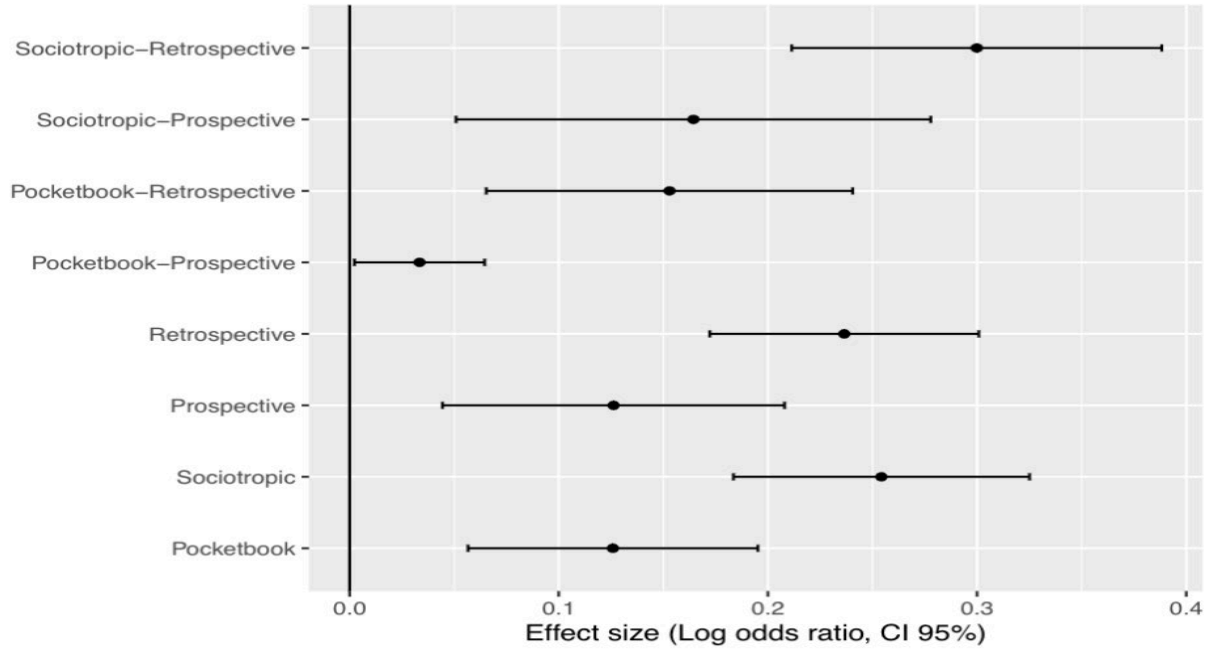


Note. 99.23% of I^2 (total heterogeneity); 0.0548 of τ^2 (estimated amount of total heterogeneity); 130.51 of H^2 (total variability); $p < .001$ of Q-Test (test for heterogeneity). $N = 100$ observed meta-data (coefficients of economic-voting studies).

Importantly, the meta-analysis uncovered that the estimated effect size for sociotropic-retrospective measures (log odds ratio of 0.30), displayed in Figure 2 was relatively higher (about twice higher) than that for sociotropic-prospective measures (log odds ratio of .16) and pocketbook-retrospective measures (log odds ratio of .15), though their confidence intervals overlap one another (for statistical details, see Table C1 in Appendix C). The pocketbook-prospective measure, nevertheless, is recorded to have a very low predictive power (log odds ratio of .03) such that future studies may need to avoid or refine the questions used to obtain pocketbook-prospective measures.

Figure 2

Variation in Meta-Analysis Effect Size by Economic Voting Measures



Note. The estimates in each measure are the product of different meta-analytic regressions (i.e., random-effect models) whereas the meta-data indicated in Figure 1 is categorized based on the four measures of the economic voting studies, along with their combinations.

Most of the estimated coefficients, shown also in Figure 1, are positive, with many of them statistically significant; when negative coefficients—a result that does not meet theoretical expectations—are estimated, most of them are indistinguishable from zero. While the largest estimates are .99 (Mutz & Mondak, 1997) and .89 (Blais et al., 2004) in the sociotropic and retrospective models respectively, the smallest estimates are -0.53 (sociotropic model) and -0.68 (pocketbook model), which both come from Blais et al.'s studies (2004). In the sociotropic model, I only observed two negative coefficients found in prospective perceptions in the U.S. 1998 data (Blais et al., 2004) and also prospective

judgment in the Poland study (Duch, 2001). In the pocketbook model, we have five negative estimates from studies contained in three articles (Blais et al. 2004; Duch 2001; Mughan & Lacy 2002), where only one of them stems from a prospective question. These patterns may suggest that prospective judgment about national or general economic conditions is a less convincing measure.

We may suspect that some variation in effect size is due to the temporal or country context. I examined studies that measured both sociotropic and pocketbook perceptions in the same contexts (countries or periods of the study), excluding studies that only report a single measure (e.g., Anderson, 2006; Lewis-Beck et al., 2008; Ward, 2020). In this subset of studies, as shown in Appendix C, the estimated effect size of the sociotropic measure was still higher than that of the pocketbook measure, although the average effect size for the sociotropic estimate falls by 0.26 log-odds points, whereas the pocketbook estimate falls by only 0.16 points. These estimates reinforce the initial meta-analysis results that sociotropic - retrospective measures have stronger predictive power than the other measures. Publication bias and influential study diagnostics in Appendix C also show that the results are robust.

Discussion

Two logics might explain the findings presented above. First, sociotropic perceptions might conceptually have a more direct link to assessing incumbent performance. The measures might more tangibly capture the collective consciousness when compared to assessments of personal or household economic performance. This claim might be validated through larger batteries of psychological measures that explore voters' feelings or emotions about economic performance. Moreover, the pocketbook measure complicates whether we should address individual's or household's economic conditions—such as "your financial situation" in Fiorina's (1978) pioneering survey and "family's financial situation" in Mutz and Mondak's (1997) South Bend study—while we do not find such an enigmatic case in sociotropic one.

Second, retrospective evaluations of economic conditions or performance are arguably based on factual judgments, and such experiential assessments better predict incumbent survival. Meanwhile, prospective measures are necessarily more perceptual but less factual, which in turn might lead such measures to be less predictive than the retrospective ones. While being a banker-like voter does not necessarily require a high level of knowledge and sophistication to calculate or to predict the future, as contended by MacKuen et al. (1992), experiential evaluation strongly promoted under a retrospective approach obviously necessitates less effort than a predictive attempt.

Furthermore, though the current article meta-analyzes economic voting studies at the micro level, mostly based on survey research, the finding touches a link to studies exploiting macro-economic data. Given the result that sociotropic-retrospective measure is superior relative to the other measures on individual-level studies, such a measure might better mitigate what Dassonneville and Lewis-Beck (2014) called a micrological fallacy. Sociotropic measures force individuals to assess national economic conditions while pocketbook question asks respondents to merely evaluate their household economic condition. Though this article does not imply that it resolves the debate between ecological and macrological fallacies—traced back to Fiorina's individual-level survey data and Kramer's macro-economic data since the onset of economic voting studies in the 1970s—the conclusion on the preferred sociotropic measure might slightly reconcile the two camps of economic voting studies, i.e., we should pay more attention to national (or general) economic conditions.

We might need to be cautious, however, with the timeframe used in retrospective measure since existing studies for evaluating economic conditions range between "the last 6 months" and "the last few years." Though this paper does not meta-analyze the timeframe as these details are mostly not reported in the selected articles, variation in time span potentially creates variation in effect sizes (Achen & Bartels, 2017, Chapters 6–7). For instance, while six-month evaluations seem to be better from the point of view of voters' capacity, they neglect the majority of the incumbent's administration. Also, the "last few years" measure might better approximate a comprehensive evaluation, but voters' capacity might not be suitable for this. This is also a useful area for future research.

Conclusion

Given the results and discussion, I conclude that economic voting studies are better equipped by a measure that approximates a direct nexus between voter's national economic perception and incumbent survival formulated in sociotropic evaluation, and an experiential perception exemplified by retrospective judgment. Furthermore, the predictive power of a sociotropic measure revealed by the meta-analysis at some points reconciles the theoretical debate between individual-level and macro-economic approaches. Further methodological examinations, nevertheless, need to be attempted in individual-level studies in response to critiques on economic voting theories, e.g., potential myopic judgment and violated economic evaluation by random shocks.

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APPENDIX A: Inclusion Procedures of the Journals and Articles

Table A1

Top-Ten Journals Based on Scimagojr and Google Scholar

Scimagojr[1]		Google Scholar[2]	
Journals	**h-index**	**Journals**	**h5-index**
American Political Science Review	182	American Journal of Political Science	69
American Journal of Political Science	180	American Political Science Review	68
International Organization	151	Journal of European Public Policy	66
World Politics	114	The Journal of Politics	60
International Security	113	British Journal of Political Science	54
Journal of Conflict Resolution	113	Comparative Political Studies	53
Journal of Peace Research	108	Annual Review of Political Science	51
International Studies Quarterly	106	JCMS: Journal of Common Market Studies	51
Political Psychology	102	European Journal of Political Research	47
British Journal of Political Science	101	Journal of Democracy	46

Note. 1) The Scimagojr.com ranking is based on citations for all years of the journal publication (Accessed March 2022). Sorting procedures were as follows: Social Sciences | Political Science and International Relations | All regions / countries | All types | 2021.

2) Google.Scholar ranking is based on recorded citations between 2017-2022 (Accessed July 2022). Sorting procedures is as follows: Categories | Social Sciences | Political Science | 2017-2022.

Table A2

Economic Voting Studies in the Top-Ten Selected Journals

Selected Journals	**Relevant Articles[a]**	**Selected Articles[b]**	**Meta-Data Articles[c]**	**Reported Measures[d]**
American Journal of Political Science	30	11	9	25
American Political Science Review	29	4	4	16
The Journal of Politics	25	10	9	14
British Journal of Political Science	24	5	2	8
Comparative Political Studies	20	4	4	28
European Journal of Political Research	20	5	3	8
Annual Review of Political Science	4	1	0	0
Political Psychology	3	1	1	1
World Politics	0	0	0	0
Journal of Democracy	0	0	0	0
Total	155	41	32	100

Note. [a]) Relevant Articles: Articles that discuss or examine economic voting.

[b]) Selected Articles: Individual-level studies that employ either pocketbook or sociotropic measures.

[c]) Meta-Data Articles: Articles that report coefficients for the given measures along with standard errors. [d]) Reported Measures: The number of reported coefficients.

APPENDIX B: Metadata

Table B1

Details of the Metadata

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Anderson	2006	socio	retro	0.63	0.12	25238	US	AJPS	0.630	0.014
Blais et al.	2004r (US 1998)	pocket	retro	-0.04	0.19	649	US	AJPS	-0.040	0.036
Blais et al.	2004p (US 1998)	pocket	prosp	0.64	0.36	649	US	AJPS	0.640	0.130
Blais et al.	2004p (US 1998)	socio	prosp	-0.53	0.22	649	US	AJPS	-0.530	0.048
Blais et al.	2004r (US 1998)	socio	retro	0.83	0.35	649	US	AJPS	0.830	0.123
Blais et al.	2004r (US 2000)	socio	retro	0.89	0.31	507	US	AJPS	0.890	0.096
Blais et al.	2004p (US 2000)	socio	prosp	0.15	0.42	507	US	AJPS	0.150	0.176
Blais et al.	2004p (US 2000)	pocket	retro	-0.68	0.41	507	US	AJPS	-0.680	0.168
Blais et al.	2004r (US 2000)	pocket	prosp	0.89	0.48	507	US	AJPS	0.890	0.230
Campbell et al.	2010	socio	retro	0.16	0.07	15257	US	JOP	0.160	0.005
Campbell et al.	2010	socio	prosp	0.15	0.08	15257	US	JOP	0.150	0.006
Clarke & Lebo	2003p	pocket	prosp	0.06	0.03	210	UK	BJPS	0.063	0.001
Clarke & Lebo	2003p	socio	prosp	0.02	0.01	210	UK	BJPS	0.015	0.000
Clarke & Lebo	2003r	pocket	retro	0.06	0.04	210	UK	BJPS	0.061	0.001
Clarke & Lebo	2003r	socio	retro	0.01	0.02	210	UK	BJPS	0.005	0.000
de Vries et al.	2011	socio	prosp	0.21	0.03	11688	Europe	CPS	0.210	0.001
de Vries et al.	2011	socio	retro	0.10	0.03	11688	Europe	CPS	0.100	0.001

Table B1

Details of the Metadata (Contd.)

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Duch (Hungary)	2001	socio	retro	0.17	0.40	1498	Hungary	APSR	0.170	0.160
Duch (Hungary)	2001	socio	prosp	0.10	0.50	1498	Hungary	APSR	0.100	0.250
Duch (Hungary)	2001	pocket	retro	0.20	0.40	1498	Hungary	APSR	0.200	0.160
Duch (Hungary)	2001	pocket	prosp	-0.20	0.40	1498	Hungary	APSR	-0.200	0.160
Duch (Poland)	2001	socio	retro	0.10	0.07	1199	Poland	APSR	0.100	0.005
Duch (Poland)	2001	socio	prosp	-0.09	0.09	1199	Poland	APSR	-0.090	0.008
Duch (Poland)	2001	pocket	retro	-0.07	0.05	1199	Poland	APSR	-0.070	0.003
Duch (Poland)	2001	pocket	prosp	0.00	0.05	1199	Poland	APSR	0.000	0.003
Duch & Stevenson	2010	socio	retro	0.33	0.20		Multi	JOP	0.330	0.040
Fraile & Lewis-Beck	2014	socio	retro	0.03	0.00	18838	Europe	EJPR	0.030	0.000
Gomez & Wilson	2006 (Hungary)	pocket	retro	0.23	0.19	679	Hungary	AJPS	0.227	0.037
Gomez & Wilson	2006 (Hungary)	socio	retro	0.33	0.16	679	Hungary	AJPS	0.328	0.026
Gomez & Wilson	2006 (Taiwan)	socio	retro	0.68	0.31	836	Taiwan	AJPS	0.677	0.094
Gomez & Wilson	2006 (Taiwan)	pocket	retro	0.28	0.24	836	Taiwan	AJPS	0.276	0.058
Harper	2000 (Lithuania)	pocket	retro	0.14	0.11	730	Lithuania	CPS	0.142	0.012
Harper	2000 (Lithuania)	pocket	prosp	0.07	0.12	730	Lithuania	CPS	0.073	0.014
Harper	2000 (Lithuania)	socio	retro	0.26	0.12	730	Lithuania	CPS	0.264	0.014
Harper	2000 (Lithuania)	socio	prosp	0.15	0.11	730	Lithuania	CPS	0.150	0.012

Table B1

Details of the Metadata (Contd.)

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Harper	2000 (Hungary)	pocket	retro	0.07	0.24	582	Hungary	CPS	0.066	0.058
Harper	2000 (Hungary)	pocket	prosp	0.01	0.21	582	Hungary	CPS	0.006	0.044
Harper	2000 (Bulgaria)	socio	retro	-0.42	0.13	719	Bulgaria	CPS	-0.421	0.017
Harper	2000 (Bulgaria)	socio	prosp	0.28	0.10	719	Bulgaria	CPS	0.281	0.010
Healy et al.	2017	socio	retro	0.11	0.03	854	Sweden	APSR	0.110	0.001
Healy et al.	2017	pocket	retro	0.33	0.11	854	Sweden	APSR	0.330	0.012
Hellwig	2001	socio	retro	0.64	0.02	14490	OECD	JOP	0.640	0.001
Kaufman & Zuckermann	1998 (1992)	socio	retro	0.09	0.03	1616	US	APSR	0.090	0.001
Kaufman & Zuckermann	1998 (1994)	socio	retro	0.18	0.03	1588	US	APSR	0.180	0.001
Kaufman & Zuckermann	1998 (1995)	socio	retro	0.07	0.03	896	US	APSR	0.070	0.001
Kaufman & Zuckermann	1998 (1992)	pocket	retro	0.00	0.02	1616	US	APSR	0.000	0.000
Kaufman & Zuckermann	1998 (1994)	pocket	retro	0.00	0.03	1588	US	APSR	0.000	0.001
Kaufman & Zuckermann	1998 (1995)	pocket	retro	0.02	0.03	896	US	APSR	0.020	0.001
Kosmidis	2018	socio	retro	0.89	0.20	1019	US	AJPS	0.893	0.040
Lewis-Beck	1997	socio	retro	0.04	0.02	302	Paris	EJPR	0.040	0.001
Lewis-Beck	1997	socio	prosp	0.11	0.06	302	Paris	EJPR	0.110	0.004
Lewis-Beck et al	2008 (2004)	socio	retro	0.49	0.09	629	US	AJPS	0.490	0.008

Table B1

Details of the Metadata (Contd.)

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Lewis-Beck et al	2008 (2002)	socio	retro	0.36	0.13	593	US	AJPS	0.360	0.017
MacKuen et al.	1992	pocket	retro	0.62	0.06	126	US	APSR	0.620	0.004
MacKuen et al.	1993	socio	prosp	0.79	0.05	110	US	APSR	0.790	0.003
Magalhaes & Aguiar-Conraria	2019	socio	retro	0.48	0.00	42656	Multi	PolPsy	0.480	0.000
Malhotra & Margalit	2014	socio	retro	0.30	0.03		US	JOP	0.300	0.001
Mughan and Lacy	2002	socio	retro	0.18	0.26	726	US	BJPS	0.180	0.068
Mughan and Lacy	2002	pocket	retro	-0.21	0.20	726	US	BJPS	-0.210	0.040
Mutz & Mondak	1997 (June 1984)	pocket	retro	0.70	0.15	1101	US	AJPS	0.700	0.023
Mutz & Mondak	1997 (June 1984)	socio	retro	0.99	0.14	1101	US	AJPS	0.990	0.020
Mutz & Mondak	1997 (July 1984)	pocket	retro	0.66	0.19	848	US	AJPS	0.660	0.036
Mutz & Mondak	1997 (July 1984)	socio	retro	0.76	0.17	848	US	AJPS	0.760	0.029
Nadeau & Lewis-Beck	2001	pocket	retro	0.34	0.03	11969	US	JOP	0.340	0.001
Norpoth	1996	socio	retro	0.07	0.04		US	JOP	0.070	0.002
Norpoth	1996	socio	prosp	0.05	0.05		US	JOP	0.050	0.003
Norpoth	2001	socio	retro	0.56	0.08		US	JOP	0.560	0.006
Pattie & Johnston	1995	pocket	retro	0.10	0.15	2699	UK	EJPR	0.104	0.023
Pattie & Johnston	1995	socio	retro	0.33	0.19	2699	UK	EJPR	0.331	0.035

Table B1

Details of the Metadata (Contd.)

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Rosenfeld	2018	pocket	retro	0.11	0.01	25887	US	AJPS	0.110	0.000
Rosenfeld	2018	socio	retro	0.12	0.01	25887	US	AJPS	0.120	0.000
Singer	2013	socio	retro	0.57	0.08	6817	Latin America	EJPR	0.570	0.006
Singer	2013	pocket	retro	0.51	0.04	6817	Latin America	EJPR	0.510	0.002
Singer & Carlin	2013	socio	retro	0.16	0.09	152630	Multi	JOP	0.155	0.008
Singer & Carlin	2013	socio	prosp	0.34	0.09	152631	Multi	JOP	0.344	0.009
Singer & Carlin	2013	pocket	retro	0.17	0.07	152632	Multi	JOP	0.169	0.004
Singer & Carlin	2013	socio	prosp	0.36	0.07	152633	Multi	JOP	0.363	0.004
Stein	1989	pocket	retro	0.37	0.02	22210	U.S. States	JOP	0.365	0.001
Tilley, Garry & Bold	2008	socio	retro	0.31	0.03	13608	Europe	EJPR	0.310	0.001
Ward	2020	pocket	retro	0.11	0.02	67040	Europe	AJPS	0.110	0.000
Weyland	2003 (Venezuela)	socio	retro	-0.28	0.19	847	Venezuela	CPS	-0.278	0.036
Weyland	2003 (Venezuela)	socio	prosp	0.52	0.14	847	Venezuela	CPS	0.518	0.021
Weyland	2003 (Venezuela)	pocket	retro	-0.20	0.15	847	Venezuela	CPS	-0.198	0.023
Weyland	2003 (Venezuela)	pocket	prosp	0.28	0.16	847	Venezuela	CPS	0.276	0.025
Yap	2013 (Thailand)	socio	retro	0.32	0.30	965	Thailand	CPS	0.320	0.090
Yap	2013 (Thailand)	socio	prosp	0.05	0.03	965	Thailand	CPS	0.050	0.001

Table B1

Details of the Metadata (Contd.)

Author	Year (Study)	Evaluation	Judgment	Coefficient	*se*	Sample	Country	Journal	*yi*	*vi*
Yap	2013 (Thailand)	pocket	retro	-0.12	0.10	965	Thailand	CPS	-0.120	0.010
Yap	2013 (Thailand)	pocket	prosp	0.05	0.02	965	Thailand	CPS	0.050	0.000
Yap	2013 (Philippines)	socio	retro	0.37	0.06	826	Philippines	CPS	0.370	0.004
Yap	2013 (Philippines)	socio	prosp	0.06	0.04	827	Philippines	CPS	0.060	0.002
Yap	2013 (Philippines)	pocket	retro	0.11	0.07	828	Philippines	CPS	0.110	0.005
Yap	2013 (Philippines)	pocket	prosp	-0.02	0.04	829	Philippines	CPS	-0.020	0.002
Yap	2013 (Taiwan)	socio	retro	0.49	0.07	933	Taiwan	CPS	0.490	0.005
Yap	2013 (Taiwan)	socio	prosp	0.12	0.04	934	Taiwan	CPS	0.120	0.002
Yap	2013 (Taiwan)	pocket	retro	0.10	0.08	935	Taiwan	CPS	0.100	0.006
Yap	2013 (Taiwan)	pocket	prosp	-0.00	0.05	936	Taiwan	CPS	0.000	0.003
Yap	2013	socio	retro	0.38	0.11	634	South Korea	CPS	0.380	0.012
Yap	2013	socio	prosp	-0.01	0.10	635	South Korea	CPS	-0.010	0.010
Yap	2013	pocket	retro	-0.01	0.02	636	South Korea	CPS	-0.010	0.000
Yap	2013	pocket	prosp	-0.19	0.11	637	South Korea	CPS	-0.190	0.012

APPENDIX C: Estimates and Contextual Effect Size

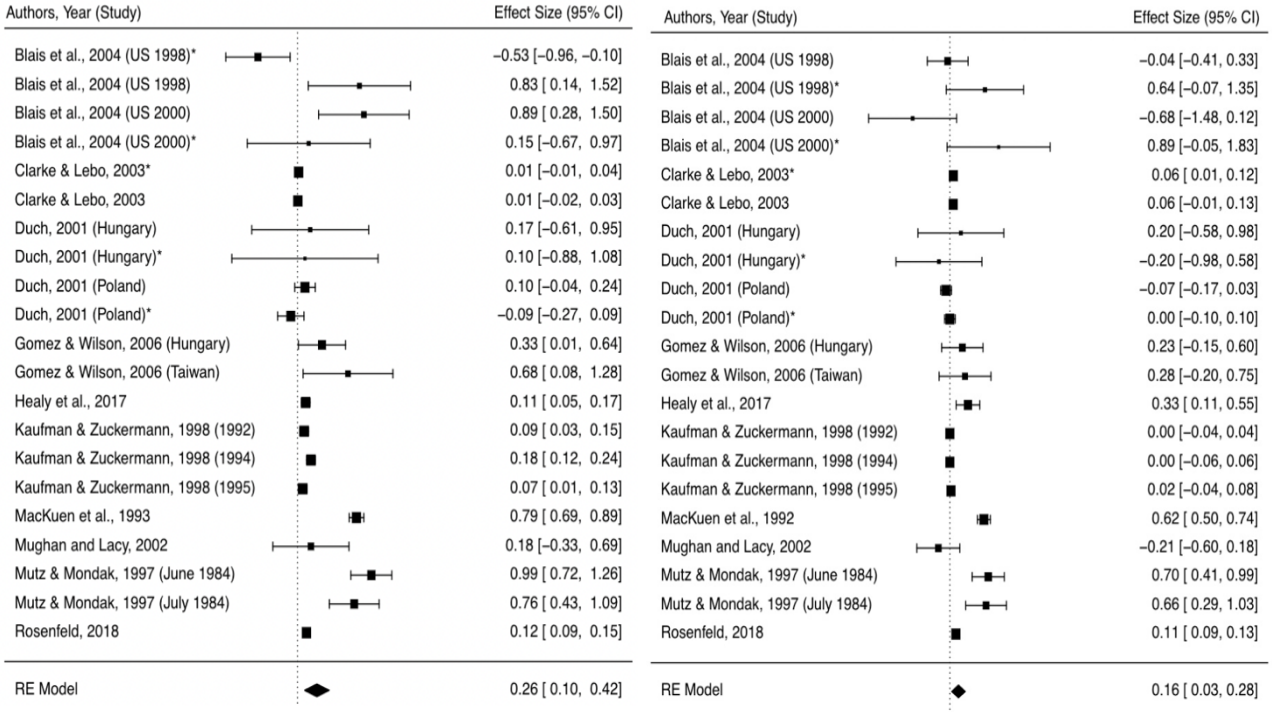
Table C1

Meta-Analysis of the Categories of Measurement Strategies in Individual-Level Studies of Economic Voting

Measures	Estimate	*se*	*z*	*p*	ci.lb	ci.ub
All Measures	0.20	0.03	7.66	.000	0.15	0.25
Pocketbook	0.13	0.04	3.56	.000	0.06	0.20
Sociotropic	0.25	0.04	7.04	.000	0.18	0.33
Prospective	0.13	0.04	3.02	.002	0.04	0.21
Retrospective	0.24	0.03	7.21	.000	0.17	0.30
Sociotropic-Prospective	0.16	0.06	2.84	.005	0.05	0.28
Sociotropic-Retrospective	0.30	0.05	6.64	.000	0.21	0.39
Pocketbook-Prospective	0.03	0.02	2.11	.035	0.00	0.06
Pocketbook-Retrospective	0.15	0.04	3.42	.001	0.07	0.24

Figure C1

Comparable Forest Plots Between Sociotropic (Left-Hand Side) and Pocketbook (Right-Hand Side) Based on Country and Time of the Studies



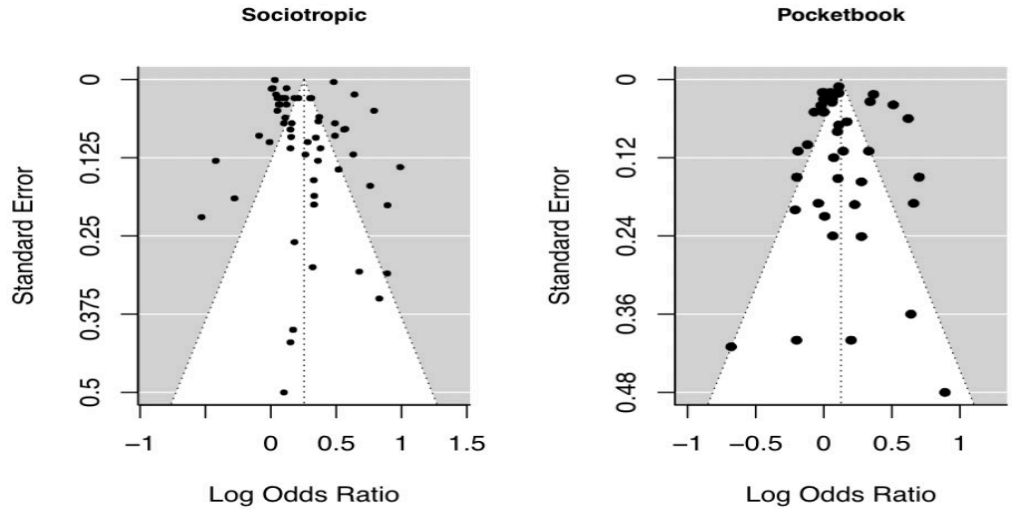
APPENDIX D: Robustness

Publication Bias

The funnel plot in Figure D1 displays whether or not the publication bias is present where the dots are the estimates in each study. While the x-axis refers to the effect size or estimates (log odds ratio) of the economic evaluation, the standard error in the y-axis represents the precision of the estimates. Studies with sizeable statistical power (small standard errors) are on the top and those with small power are at the bottom. The steep dashed lines are the pseudo 95% confidence interval (for further details, see Egger et al., 1997). The plot displays heterogeneity across studies as some estimates are spread outside the "triangle" or the pseudo confidence interval. However, heterogeneity does not mean bias.

Figure D1

Funnel Plot of Publication Bias Diagnostics



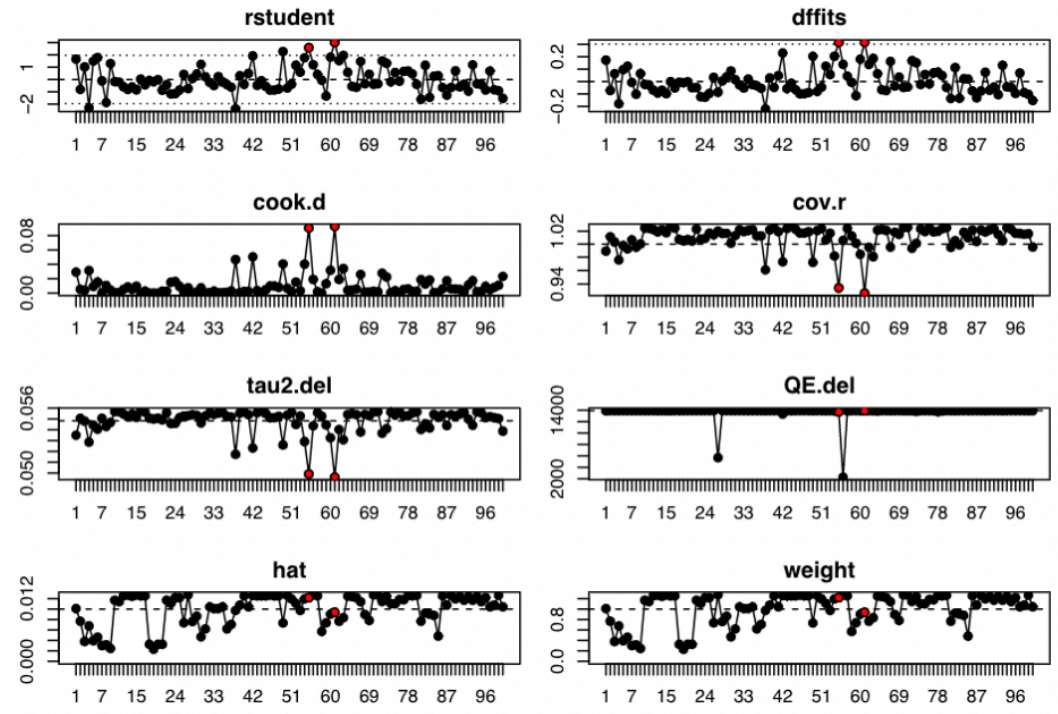
Publication bias would mean that the studies included in the metanalysis do not capture results from other studies that are not published or published in non-English journals. In this regard, as shown in Figure D1, the symmetric funnel plot shows that the estimates (the dots) are evenly distributed in the left-side and right-side of the overall estimate represented by the dashed vertical line. Publication bias occurs when the funnel plot depicts an asymmetric pattern where most of the estimates are on the right side or the left side of the vertical line (the overall effect size), which is not in the case of Figure D1. A regression test for the funnel plot asymmetry reveals a test statistic (p = .172) that is not statistically significant. In other words, the resulting estimates of both the sociotropic and pocketbook meta-analysis models that we have discussed earlier are not influenced by publication bias.

Influential Studies

Furthermore, the influence diagnostic, i.e., a leave-one-out diagnostic for each case (each observation in the metadata), reveals that two studies can be considered influential. An influential study means that there is a study that will drive the results of the meta-analysis model. Note that each plot represents a measure of influence diagnostics. For example, the 'diffits' indicate how many standard deviations the predicted (average) effect changes after excluding that case from the model fitting.

Figure D2

Diagnostics for Influential Studies



As shown in the diagnostic plots in Figure D2, two red-dot (influential) estimates are observed. A red dot within the plots indicates an influential study (estimate). After pulling out these two estimates, i.e., one sociotropic-prospective estimate from MacKuen et al. (1993) and one sociotropic-retrospective estimate from Mutz & Mondak (1997), the sociotropic-retrospective measure (0.28) remains the strongest estimate followed by slight difference between pocketbook-retrospective (0.13) and sociotropic-prospective (0.15), as shown in Figure D3 below. The diagnostics in Figure D4 also show that we no longer have any red dots (influential estimates).

Figure D3

Meta-Analysis Without Influential Estimates

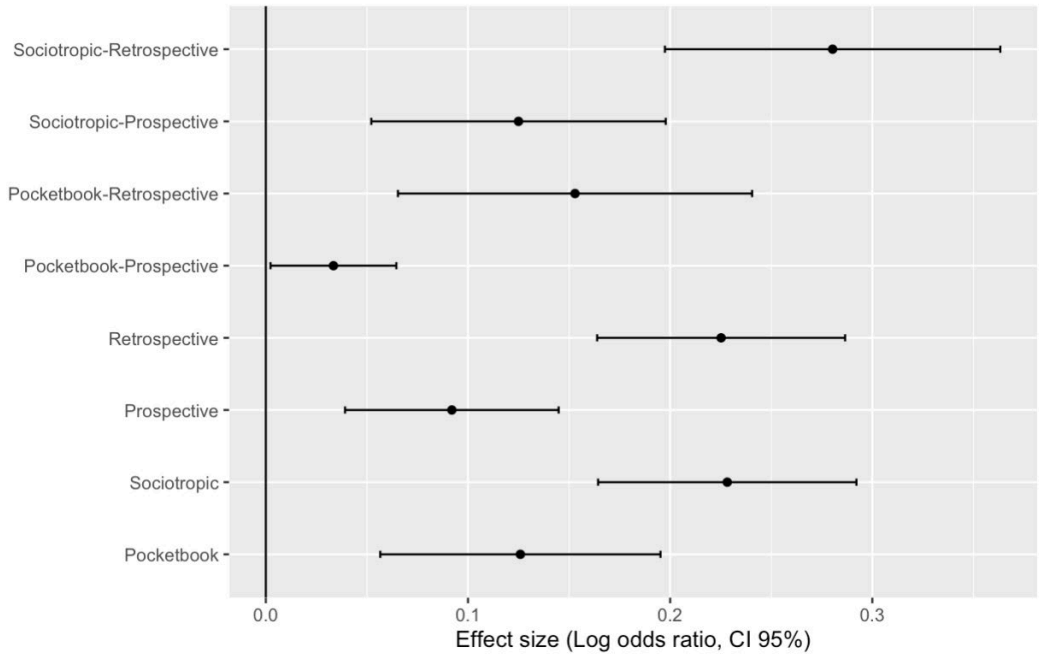
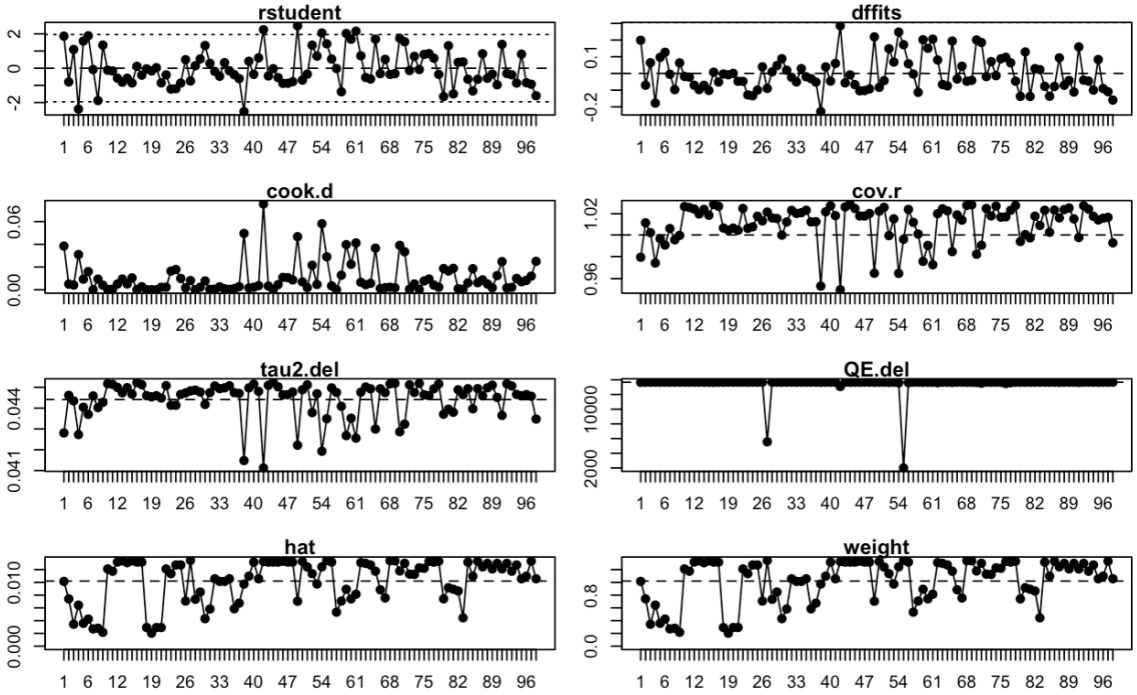


Figure D4

Influential-Study Diagnostics Without Influential Estimates



Biographical Note

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