Compared to what? Media-guided reference points and relative economic voting

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ABSTRACT

The idea of the relative economy, or benchmarking economic voting, has been around for a long time. However, the choice of international benchmark(s) remains underspecified, especially in cross-national and time-series studies. This paper argues that the selection process of benchmark(s) should be guided by the theory suggesting that voters benchmark countries that are *similar, familiar, and connected*, and that media guide voters to appreciate these reference points. Using domestic media coverage from Lexis-Nexis spanning 22 languages, 29 democracies, and over 30 years, this research identifies the unique reference points across time and space. Analysis of this novel dataset shows that voters react strongly to relative economic performance when they make vote choices. Moreover, the benchmarking effects become more pronounced with highly educated populations, but are not affected by *clarity of responsibility*.

How do voters evaluate the state of the economy when making a choice at the polls? Conventional economic voting literature suggests a simple answer: A good economy helps incumbents in a given election, but a bad economy hurts them. How then do voters differentiate a 'good' economy from a 'bad' economy? Are all positive numbers in growth rates (i.e. 0.1%, 2%, 5% etc.) understood as 'good' while negative ones are 'bad'?

Since the data do not answer these questions directly, it is imperative that we clarify "how citizens map these absolute numbers onto a subjective scale of good and poor performance from which they make informed decisions" (Olsen, 2017: 2). To answer this question, scholars of social comparison theory suggest that people are more likely to base their assessments on the comparison between their own domestic performance and other reference points (Festinger, 1954; Hansen et al., 2015).

In the conventional economic voting literature, voters tend to define an economy as good or poor by comparing the economy's current state to the economy of years gone by, a phenomenon known as retrospective economic voting. For the past three decades, scholars have predominantly used this temporal reference point for economic performance comparisons. However, recent scholarship has begun to question temporal reference points as the dominant method for comparing performance data. Instead, scholars have been investigating 'across-borders' yardsticks or 'benchmarking' as an alternative source of comparisons (Kayser and Peress, 2012; Aytaç, 2018; Hansen et al., 2015; Jérôme et al., 2001; Olsen, 2017).

Given that comparison tends to be guided by reference points, finding appropriate reference points, especially spatial ones, is crucial to ensuring empirical accuracy. However, identifying a proper spatial yardstick is a daunting task for a large *N* analysis. To address this difficulty, scholars have used a common reference point such as the median or average economic indicator as international yardsticks (Powell and Whitten, 1993; Kayser and Peress, 2012). However, as Kayser and Peress (2012) indicate, the application of the universal reference point requires a strong assumption that all countries tend to be equally affected by common reference points.

This article suggests a systematic way of finding the spatial reference points by looking at domestic media coverage. Not only does the media *prime* public opinion but it also *reflects* their interests. Thus, media coverage will provide useful information in identifying possibly the most relevant spatial reference points, particularly for cross-national time-series analysis. Domestic media sources in 22 languages from 29 democracies found in Lexis-Nexis are used to construct novel data which indicate unique reference points for each country and election.

This media-guided data allows for the development of a benchmarking hypothesis stating that voters reward/punish their executive officials according to relative economic performance. Incumbents tend to be rewarded with an increasing vote share for out-performing growth and are punished for the opposite. Not surprisingly, it turns out that voters do not benchmark random countries, which further highlights the

usefulness of media-guided reference points. In addition, it is found that education increases the salience of benchmarking, whereas clarity of responsibility has no moderating effects.

The main contribution of this research is its innovative way of identifying benchmarks through an analysis of the distribution of domestic media messages about foreign economic performance. With the help of media-guided benchmarks, this research also contributes to the measurement of economic conditions in economic voting literature. Duch and Stevenson (2008) pointed out Hibbs (2006) demonstration of potential errors in the conception of economic evaluations. According to Hibbs (2006), higher levels of error in the measure of economic evaluations tends to cause a downward bias in its coefficient in a vote function. If the economic variables contain considerable obstacles to inducing accurate economic evaluations, correlation between economic evaluations and vote choice will be low (Duch and Stevenson, 2008). By using proper macro-economic variables derived from the properly benchmarked economy and thus capturing voters' assessments of economic performance, the noise in the error term will be reduced.

1. Relative economy and a vote choice

The idea of relative economy has been around for a long time and has been tested in several studies.[1] Using small *N* cases, scholars have examined benchmarking with a specific reference point per case. In one instance, a study of benchmarking in the Danish context carried out Hansen et al. (2015) shows that Danish voters do care strongly about how the Danish economy evolves relative to Sweden. Jérôme et al. (2001) also test how relative economic performance affects citizen vote choice: their research shows that when French economic growth outperforms German growth, the ruling coalitions in the French National Assembly obtain more votes (more specifically, each percentage point increase in GDP will increase a vote share by about 4% points). On the other hand, incumbents gain more votes in Bundestag elections when German growth rates are greater than those of the French. In forecasting the German Bundestag election in 2013, Kayser and Leininger (2015) use the relative economic performance of Germany in comparison to the three other most important economies in Europe: France, the UK and Italy. Specifically, they use the deviation of German growth rates from the reference points-the average of British, French and Italian growth.

In their cross-national analysis, Powell and Whitten (1993) test the idea of comparative economic voting by using international average levels of economic indicators (growth, inflation and unemployment). By examining data from 19 western democracies between 1969 and 1988, they find that relative economic growth is statistically significant. If a countries' GDP growth is higher than the international average, incumbents tend to receive more votes. More recently, Kayser and Peress (2012) have used aggregate as well as individual level data to show evidence of voters benchmarking national economic conditions against the state of the economy abroad. By making use of objective economic indicators and dividing the economic variation into a relative and an international component, they show that the relative component significantly explains voting behavior, which suggests that voters are using benchmarking.[2]

In an argument similar to the benchmarking hypothesis, Fortunato et al. (2018) posit that citizens construct economic evaluations using economic information from other Relativeities. Using individual-level survey data from the Cooperative Congressional Election Study (2006, 2008–2012), they find that a voter's perception of national economic performance depends on comparative assessments with other states that share economic similarity and are identified as such by the media. Since voters in a particular area (state) tend to have different mixtures of economic information from other Relative areas (states) based on shared economic, political, and geographic similarities, Fortunato et al. rely on a spatial model to determine the Relative (states) that are the most relevant to the voters of that Relativity.

Aytaç (2018) proposes a reference point theory which suggests that "Voters need reference points to interpret economic outcomes and evaluate the incumbent's performance in managing the economy". By identifying the international reference point from the weighted average growth rate of a country's five export markets, he finds that relatively better (worse) economic performance in domestic and international contexts tend to reward (punish) the incumbents at the poll in 475 elections in 62 countries. He further finds that the effect of relative international performance also exists in countries with highly educated populations and a high volume of trades.

Although this discussion tends to lead us to conclude that *voters evaluate national outcomes relative to those obtained by other countries*, Arel-Bundock et al. (forthcoming) arrive at a different conclusion, namely that there is not much empirical evidence in favor of benchmarking. They note that a conventional way of testing the hypothesis, which entails including a relative variable (i.e. a differenced value between domestic and benchmark GDP) and the benchmarks into the same models, "changes the substantive meaning of our regression coefficients" (Arel-Bundock et al. forthcoming, 5) and eventually creates unnecessary risks of misinterpretation of the estimation results. By replicating the analyses of Kayser and Peress (2012) and Aytaç (2018) with a straightforward way of testing the benchmarking hypothesis,[3] Arel-Bundock et al. show that the effects of benchmarking are not only unstable but disappear once they control for rival explanations.

As seen in the literature, the benchmarking argument has accrued good theoretical credit but still lacks empirical robustness. This paper proposes an innovative method for determining relevant benchmarks by looking at the distribution of domestic media coverage about foreign economies. This novel data is validated by adopting Arel-Bundock et al.'s empirical strategy in order to determine whether the media-guided measures of benchmarks offer indications of benchmarking. In the next section, the importance of correctly selecting spatial reference points will be explained, along with the way previous studies have measured them.

2. Compared to what? Spatial reference points and the media

Selecting the proper reference points for benchmarking is vital for understanding how voters make use of performance data. Having appropriate reference points is also crucial for conducting accurate empirical tests because using inappropriate reference points will result in model misspecification, which induces omitted variable bias.

Fundamental questions about the reference points, however, remain unanswered. Temporal reference points are not difficult to construct because it is only a matter of selecting a particular time point in the past to compare with current performance. Although scholars argue that different lags of the economy variables (3-month, 6-month, 12-month) should be considered because voters respond to the changes in the economy at different speeds (Conover et al., 1986), the issue still deals only with selecting an appropriate cut-off point within a single country.

The problem of finding an appropriate reference point becomes more salient in a cross-sectional time-series analysis because it becomes more complicated to assign a particular reference point for each country and election in a large sample. Perhaps in part due to this limitation, scholars have used the average or median value of international economic growth as the reference point for all countries in the sample (Powell and

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[1] For a review, *see* Stegmaier et al. (2017).

[2] Regarding reference points, Kayser and Peress decomposed economic variations into Relative and global components in three ways and subtracted global economic performance—growth and unemployment—from the respective measure of national economic performance. *See* Kayser and Peress (2012) for more information.

[3] More discussion can be found in the *Model Specification* section.

Whitten, 1993; Kayser and Peress, 2012). However, using the universal reference point is problematic because, as Kayser and Peress (2012) acknowledge, it is based on two strong assumptions.

First, the measure assumes that there is a single and common global component that drives the correlation in economic performance across countries. Second, the measure also assumes that all countries are equally affected by this global component (Kayser and Peress, 2012, 665). This assumption disregards numerous factors such as the size of the economy, the level of economic integration in the world market, geographical distance, political and economic similarity, cultural and historical relationships, etc. Therefore, application of a common reference point does not seem to reflect the dynamics of reference points in the real world.

As an alternative method, Kayser and Peress (2012) have used 'principal components'. They argue that the composition of global components should not be based on the median value of economic performance because voters across different countries may place different weights on global components. The way they address this issue is by constructing the 'principal components,' which account for a country's integration into international and regional economies. By doing so, the authors argue that the measure has the advantage of capturing international and regional economic covariation with other economies depending solely on their integration into the world economy.

Similarly, Aytaç (2018) measures the international benchmarks by using the weighted average growth rate of its five export markets. However, it is doubtful whether these benchmark measures can function as ideal reference points. They still leave out important factors such as social, political, historical and cultural elements that may affect the process of constructing reference points.[4]

Given that selecting a spatial reference point is fundamental to testing the benchmarking hypothesis properly, the first goal of this research is to find the appropriate spatial reference points for each country and elections within each country in a time-series cross-national sample by using domestic media coverage. Before the usefulness of media as an appropriate source for spatial reference points is demonstrated, some theory driven criteria for choosing spatial reference points based on Yockey and Kruml (2009) will be discussed.

3. Criteria for spatial reference points

Yockey and Kruml (2009) investigate and propose a general theory of reference points by identifying several dimensions thereof: *familiarity, connectivity, and similarity*.[5]

First, people must be *familiar* with some aspects of a stimulus in order to use it as a reference point. This does not mean that people need to know everything about the reference point, but they need to at least be aware of its specific characteristics. In the case of relative economic

voting, for instance, it is necessary for voters to know about the economic conditions of other countries, if they tend to benchmark those countries. Thus the more *familiar* people are with a stimulus, the more likely they are to use it as a reference point.

The second dimension, *connectivity*, suggests that the reference point must share a common attribute with the stimulus. According to Yockey and Kruml (2009), people are likely to categorize an object into multiple domains based on its various characteristics. For instance, people tend to categorize an apple by its size, shape, color, or edibility. In this sense, a shared feature (connectivity) facilitates the categorization process. In relative economic voting, voters tend to select a reference point from the same category tree. A country in the European Union block is likely to be compared with other countries in the EU and so on.

In a similar vein, the third dimension of reference points focuses on *similarity*, which makes comparison more meaningful and appropriate. Similar to the categorical connection, further similarities increase the perceived appropriateness of the reference point (Yockey and Kruml, 2009). For instance, though it is in the EU block, Latvia will look to Estonia and Lithuania for relative comparisons rather than Germany and France due to the similar size of economies, the similar political/-historical contexts, and geographical vicinity. Put differently, the greater the *similarity* it is, the more likely that it will serve as a reference point (Yockey and Kruml, 2009). In fact, Fortunato et al. (2018) argue that voters are more sensitive to economic performance of a states which have similar structures of economic production. For instance, voters in agriculture-heavy states tend to look at the economies of other agriculture-heavy states for comparisons while voters in finance-heavy states tend to use other finance-heavy states' economic conditions as yardsticks.

Following Yockey and Kruml (2009) sources of reference points, this paper argues that citizens tend to care more about countries that are familiar, connected, and similar to their own. It also argues that familiarity, connectivity, and similarity may be deeply rooted in political, cultural, geographical, and historical backgrounds. How then do we know which countries are more familiar, connected, and similar to one another? Unless there is a survey asking individuals directly about which country or countries they care more about, it is hard to know which foreign countries the average citizens in a given country are likely to pay attention to.

4. Media and spatial reference

To answer the question of how to find familiarity, connectivity, and similarity, media coverage can be used to find where citizens are looking. There is ample evidence showing that the media plays an integral role in affecting economic evaluations (Hetherington, 1996; De Boef and Kellstedt 2004; Duch and Stevenson, 2007, 2008; Erikson et al., 2002; Nadeau et al., 1999). Hetherington (1996) suggests two main channels of media, *priming* and *framing*, that form voters' evaluations.

First, the media can prime the public to evaluate incumbents on the basis of what the media emphasizes. Given that electorates are known to be fairly low in political sophistication (Converse, 2000), they must rely on what is readily accessible in memory (Hetherington, 1996). Because the media is a primary source of information, it can influence opinion formation. Second, if the media presents a series of news on broader societal concerns in a thematic framework, this may cause media consumers to assign blame to elected officials or institutions. For instance, thematic framing of a poor economy may lead media viewers to attribute its condition to incumbents.

Scholars have also found the media to be a useful source of benchmarking activity. For instance, Kayser and Peress (2012) show that media actually provided pre-benchmarked information; for example, the tone of economic news in *The Times* becomes positive when the UK economy is outperforming other countries. In their follow up research, Kayser and Peress (2015), using a dataset of 32 newspapers from 16 countries in six languages, show that the effect of economic growth on

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[4] Acknowledging the complexity of choosing the specific reference points for spatial comparison, Kayser and Peress (2012) leave some important questions open for further scrutiny. For instance, "Do countries use more specific sets of comparison countries than those identified in their analysis? Do countries with cultural, linguistic, and historical similarities benchmark against each other more? Might larger countries benchmark less than smaller countries?" (Kayser and Peress, 2012, 681).

[5] Yockey and Kruml (2009) actually propose five dimensions including either internal or external *Locus* and *Temporal* dimensions. *Locus* refers to the originating source of the reference point. This dimension is more relevant at organizational or individual level. The *Temporal* dimensions refers to whether the reference point is based on past, present, or future criteria. A large volume of studies in economic voting has reveal that voters tend to compare current economic conditions against that of the past, so called 'retrospective economic voting'. As stated above, the first goal of this research is to identify the appropriate spatial reference points at a country-level, the *Locus* and *Temporal* dimensions are not include in this analysis.

the vote is heavily mediated by media reporting. Similarly, Fortunato et al. (2018) also use media coverage to construct a weights matrix (*W*) for a spatial analysis. They incorporate news media as a means of providing economic information in a comparative context and calculate the portions of economic news articles that are about other states. The greater the portion about a particular state, the bigger the role of that state as a reference point.

Following this line of research, it can be assumed that citizens evaluate overall variance in shocks to the economy based on the information that the media disseminates. Said differently, the media increases public awareness on other countries' economies. The way the media assigns a portion of its coverage to a particular country depends on the extent to which the countries have familiarity, connectivity, and similarity. Thus, there is a high probability that a country or countries that share a great deal of historical, political, cultural, and economic/trade relationships will be reported on frequently by domestic news agencies. In contrast, a country or countries that lack common ground with a particular country would receive less media attention. Therefore, the proportion/frequency of media coverage in country A on a particular country or countries tells us to what extent that country is familiar, connected, and similar to country A.

Second, given that media coverage is also a reflection of public opinion, it can be expected that there is large overlap between what the media sees and what the public sees. If Germany is the country that appears most frequently in French media, this implies that the French citizens tend to care about what is going on in Germany. In this case, it is reasonable to assume that French voters would compare the state of their economy with German economic conditions. Put differently, Germany is the appropriate spatial reference point for French voters. In contrast, if French media do no cover much about Germany but rather focus more on other countries like the UK or the US, this means that the French would find themselves as either rivals of or more familiar, connected, or similar to the US or the UK. Again, this implies that the French voters would tend to use the UK or the US as yardsticks when they evaluate their own domestic economic conditions. In sum, media coverage is useful because it is not only the reflection of public attention, but also creates public awareness by disseminating information about a country or countries.

5. Data collection

To identify appropriate spatial reference points across countries and across elections, the frequency of news reports of other countries are calculated by using content analysis of economic news items obtained from Lexis-Nexis. Lexis-Nexis contains arguably the most comprehensive news reports (from more than 1500 news agencies, business and legal sources) from more than 120 countries in about 50 languages since the 1970s.

First, all available domestic news media sources in each country in the sample were collected. There are great variations in the number of available news media sources across countries in Lexis-Nexis. In the case of France, there are over 50 news media sources in French and English, whereas there are only four news media sources for Malta. In most cases, there is at least one media source per country available in its own language, except the Baltic countries (Latvia, Estonia, and Lithuania).[6] On average, there are about 15 news media sources per country.[7]

Based on these selected news media sources, a country's name was used as a keyword to search any news items reporting about that country. For instance, once news media sources from Italy are selected, the objective is to see how often these Italian news media mention

Greece, Spain, Germany, France, the UK, the US, the Netherlands, Belgium, Switzerland, Austria, and so on.[8] Selection of the group of countries is based on the theory-driven criteria: similarity, connectivity, and familiarity, so attempts were made to include countries that share borders, have similar size and composition of the economy, come from similar historical and political backgrounds, and so on.

Once a list of country names as potential candidates for a spatial reference point is selected, the scope of news topics is limited to economy-related news. The media delivers news on a wide variety of topics including politics, culture, sports, security, the environment, and so on. The economy is almost always one of them. If Spain appears in Italian news media frequently, but the topic is almost always about sports, such as soccer, then it is rather questionable to conclude that Italian voters use Spanish economy as a yardstick in comparing their own economic performance. In order to assist voters in conducting a relative economic comparison, the reference points will function best if they are attached to the economy. Put simply, Spanish economic information, rather than stories about the Spanish soccer league, will help Italian voters evaluate their own economy.

For this reason, various economy-related key words are taken into consideration, such as *economy, economic, growth, inflation, unemployment, job, jobless, income, interest rate, trade, spending, investment, credit, consumer price, money, productivity, business, output, wage, price, finance, consumption, expenditure, debt, industry, goods and services*. These words are translated into a country's official languages.[9] If countries use multiple official languages, such as Belgium, the economy-related key words in all of its official languages are used. All in all, the key words for the economy have been used in searches in 22 languages[10]

The time period of this news search begins one year prior to an election day. This strategy allows spatial reference points to vary across elections, so Spain does not have to be the spatial reference point for Italian voters regardless of different time zones. Spain could be a salient/important country to compare to Italy in the 1990s, but it would not be as important as Germany in 2015. Although it is assumed there is a strong path-dependent tendency in spatial reference points, it can be verified that this assumption holds by allowing time to vary based on an election day.

For each election in a country, the frequency of economic news reports is obtained and then ranked according to the quantity of media reports. Based on this ranking, the top three countries (Rank 1, 2 and 3) are selected for the source of constructing spatial reference points. Only three are used because it is likely more realistic that voters will only use a small number of references. More specifically, the reference points function as a heuristic short cut for voters to make comparisons, and thus it is reasonable to assume that they tend to make a small number of comparisons rather than many. In addition, it is also cognitively demanding for voters to make such a large number of comparisons because multiple comparisons require more information.

Once the ranks are constructed based on the amount of foreign news coverage, the proportion for each county in each rank is also calculated. For instance, if Spain, Germany, and the UK are ranked as the top three reference points of Italy in a given year, the relative percentage of news volume per country is obtained in order to construct a weighted average

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[6] For these three countries, I only obtained domestic news articles, but written in English.

[7] The list of new media source per country is available in Table A4 in Appendix B.

[8] I type the name of each country in English and Italian such as Greece (Grecia), Spain (Spagna), Germany (Germania), France (Francia), the United Kingdom/Great Britain (Regnao Unito/Gran Breganga), the United States/America (Stati Uniti/America), the Netherlands (Olanda), Belgium (Belgio), Switzerland (Svizzera), Austria (Austria).

[9] For instance, they would be in Italian: *economia, economico, crescita, inflazione, disoccupazione, lavoro, senza lavoro, reddito, tasso d'interesse, commercio, la spesa, investimento, credito, prezzo al consumo, denaro, produttività, business, produzione, salario, prezzo, finanza, consumi, spese, debito, industria, beni e servizi.*

[10] Table A5 in Appendix B presents the list of economy-related key words in 22 different languages.

of country performance. Table A1 in Appendix A presents the list of countries and the relative proportion that appeared in each country's domestic news media regarding the economy. It also shows how the distribution has changed over time and if it responds in sensible ways to secular changes, like the increasing importance of a particular country.

6. Model Specification and variables

To test the effect of relative economy on aggregate-level support for incumbent parties by using a unique spatial reference point(s), this research uses the empirical strategy that Arel-Bundock et al. (forthcoming) recently suggest. Previous studies have tested the benchmarking hypotheses by including a relative indicator, which is the difference between one's own economy and the reference country's economy, and the international indicator, which is the reference country's economy itself (Kayser and Peress, 2012; Aytaç, 2018) as it appears in Equation (1).

$$Incumbent\ Vote_{it} = \alpha + \beta_1(Domestic - Global)_{it-1} + \beta_2 Global_{it-1} + \beta_3 Controls + \varepsilon_{it} \tag{1}$$

With this model, scholars have treated the coefficient of relative indicator (β_1) as the effect of relative economic performance (Kayser and Preress, 2012; Aytaç, 2018; Ebeid and Rodden, 2006). Although this model is intuitive, Arel-Bundock et al. argue that the coefficient (β_1) does not measure the effect of comparative economy on votes because it is equivalent to the marginal effect of domestic growth.[11] Instead, the marginal effect of global growth is a linear combination of coefficients ($\beta_2 - \beta_1$), and there should be a further test such as a *Wald* test to see if this combination is negative and statistically significant.

They also demonstrate that the conventional way of interpretation on the β_1 is ultimately incorrect, and the source of confusion lies in the fact that the *Global* variable appears two times on the right-hand side in Equation (1), which eventually changes the substantive meaning of the β_1. To eliminate the root of confusion, Arel-Bundock et al. (forthcoming) suggest a simpler test of benchmarking with which one can directly tell if the benchmarking effect exists as follows:

$$Incumbent\ Vote_{it} = \alpha + \beta_1 Domestic_{it-1} + \beta_2 Global_{it-1} + \beta_3 Controls + \varepsilon_{it} \tag{2}$$

In Equation (2), the coefficient of *Domestic* (β_1) is the marginal effect of domestic growth on the incumbent vote share, and both conventional and benchmarking economic voting expect that β_1 should be positive. More importantly, the coefficient of *Global* (β_2) measures the marginal effect of the relative economic performance on votes for the incumbent, so this should be negative and statistically significant to support benchmarking hypothesis.[12] This simpler specification has several merits such that it avoid misinterpretation of β_1 in Equation (1), but "direct translates the theoretical institutions of *benchmarking hypothesis*, and immediately reveals the relevant test statistics" (Arel-Bundock et al. forthcoming, 6).

The literature on the economic vote is replete with studies that find that various contexts affect the influence of the economy on vote choice. For instance, individual-level studies of performance voting have argue that politically sophisticated citizens are able to hold their government accountable for the performance (i.e., de. Vries and Giger, 2014). Given that comparative assessments are even more cognitively demanding as it requires being informed and comprehend not only about their own conditions but also about those in the relevant benchmark(s), scholars argue that the availability of relevant information to voters makes the

effect of benchmarking more pronounced (Aytaç, 2018). For a proxy of the availability of information, Aytaç (2018) suggests the average level of education in a country, based on the idea that there could be more flows of information if ordinary citizens are better educated. More to the point, education enhances citizens' ability to process and evaluate the information (Price and Zaller, 1993; Jerit et al., 2006), so it is expected that voters' ability in obtaining and processing the information about the relative economic conditions compared to benchmark(s) will be strongly activated when they become more educated than less. To test this conditional hypothesis, this paper also adopts Arel-Bundock et al.'s strategy which shows a way to test conditional theories of benchmarking as follows:

$$\begin{aligned} Incumbent\ Vote_{it} = \\ \alpha + \beta_1 Domestic_{it-1} + \beta_2 Global_{it-1} + \beta_3 Education_{it-1} + \\ \beta_4 Domestic_{it-1} \times Education_{it-1} + \beta_5 Global_{it-1} \times Education_{it-1} \\ + \beta_6 Controls + \varepsilon_{it} \end{aligned} \tag{3}$$

In this equation, a positive marginal effect of *Domestic* ($\beta_1 + \beta_4 Education > 0$) would be consistent with both conventional economic voting and benchmarking, whereas a negative marginal effect of *Global* ($\beta_2 + \beta_5 Education < 0$) would be consistent with benchmarking.[13] So, if the *Education* variables increases the salience of *Global*, then the marginal effects of *Global* should be more negative where *Education* is high.

Finally, it is widely accepted that institutional differences moderate the impact of economy on the vote choice. The initial idea appears in Lewis-Beck (1986), arguing that as the number of parties in the ruling coalition increases the clarity of government responsibility decreases, which reduces the economic vote coefficient. In a similar vein, Powell and Whitten (1993) suggest the idea that in order for the voters to issue reward or punishment for economic outcomes they need to identify who is responsible, and coined the phrase 'clarity of responsibility' in their cross-national study. In other words, voters cannot hold their governments accountable according to economic policy performance if responsibility for policy making is not clearly linked to the incumbents such as in a context of minority government, large number of parties in the governments, and weak party cohesion (Powell and Whitten, 1993).[14] To verify this conditional hypothesis, this paper tests Equation (4) by including an interaction term between *Clarity of Responsibility (COR)* and the economy.

$$\begin{aligned} Incumbent\ Vote_{it} = \\ \alpha + \beta_1 Domestic_{it-1} + \beta_2 Global_{it-1} + \beta_3 Clarity\ of\ Responsibility\ (COR)_{it-1} + \\ \beta_4 Domestic_{it-1} \times COR_{it-1} + \beta_5 Global_{it-1} \times COR_{it-1} + \beta_6 Controls + \varepsilon_{it} \end{aligned} \tag{4}$$

Similar to the interpretation of Equation (3), a positive marginal effect of *Domestic* ($\beta_1 + \beta_4 COR > 0$) would be consistent with both conventional economic voting and benchmarking. In contrast, a negative marginal effect of *Global* ($\beta_2 + \beta_5 COR < 0$), which would be consistent with benchmarking is expected. In other words, if the *Clarity of Responsibility* makes the effect *Domestic* on incumbent votes salient, then the marginal effect of *Domestic* should be more positive when *Clarity of Responsibility* is high. If the effect of relative assessment becomes stronger under the clearer context of responsibility, then the marginal effect of *Global* should be more negative where *Clarity of Responsibility* is high.

6.1. Data and outcome variables

To test above-stated equations, this research assembled information on the electoral outcome of governments in 29 democracies, mostly the

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[11] To see, take the partial derivative of Equation (1) with respect to *Domestic*, then the marginal effect of *Domestic* turns out to be β_1 as well. For more information, see the Fig. 1 and Equation (4) in Arel-Bundock et al. (forthcoming).
[12] For detailed information, *see* Fig. 1 and Equation (5) in Arel-Bundock (forthcoming).

[13] The slopes of these marginal effects (β_4 and β_5) show the extent to which *Education* variable moderates comparative economic assessments.
[14] For a review, *see* Stegmaier et al. (2017).

member of Organization for Economic Co-operation and Development (OECD) except Bulgaria, Romania, and Cyprus from ParlGov dataset (Döring and Manow, 2012). Because the main goal of this research is to test comparative economic voting using the media-based spatial reference points, the scope of the data is heavily restricted to data availability in the Lexis-Nexis database. All in all, the data contains information on 168 elections in 29 countries since the 1980s.[15]

The main outcome variable, *Incumbent Vote*, is measured as the percentage of votes received by the incumbent party. In case of a coalition government, this paper uses the percentage of votes earned by the executive party (the prime minister's party) as the dependent variable. The choice of using an executive parity's vote share is guided by previous studies. For instance, scholars argue that citizens do not reward or punish all parties in a government in the same way (Anderson, 1995), but they tend to hold the prime minister accountable (Lewis-Beck, 1997; Duch and Stevenson, 2008). This is because voters perceive competence to make a decision of party support, and to do so they consider each party's amount of responsibility and role in economic policy performance (Nadeau et al., 1996). Consequently, they are likely to blame or praise the prime minister's party for economic conditions in parliamentary systems (Lewis-Beck, 1997).

6.2. Explanatory variables

The main explanatory variables are GDP growth rate and unemployment rate.[16] This paper uses one year lagged values of these economic indicators. Based on the original information of spatial reference points, this paper constructs three different ways of reference points. The first spatial reference point is the one which appears the most in one's own domestic media. It is also possible that two or three countries, such as X, Y, and Z, mostly appear in country A's domestic media. In this case, they are jointly considered as reference points for country A. Regarding joint spatial reference points, the weighted average of economic indicators from rank 1 and rank 2 is used for the second reference point, and the weighted average of economic indicators from all countries in the rank 1, 2, and 3 from Table A1 in Appendix A is used for the third reference point.[17]

For robustness, this paper also uses two plausible alternative measures of reference points. Since making comparisons is cognitively challenging, voters are likely to keep up with the information about the single dominant country in their media coverage. If the media proportion of the spatial reference point in rank 1 is over 50%, then this paper uses it as the 'dominant' reference point; and if not, replaces it with the weighted average economy of the first two countries from the ranks.

The second alternative measure uses the US information. Given the dominance of the US economy in the global market, she is likely to receive media attention from all over the world regardless of its *connectivity*, *similarity*, and *familiarity*. In fact, domestic news media from a number of countries such as Bulgaria, Cyprus, Czech, Lithuania, Hungary etc. report about the US economy more than other relevant countries' economy. In the original dataset, the US was not considered as the appropriate reference point unless it satisfies the criteria of spatial reference points. However, for an additional test, the US is included as the reference point if the media say so.

Finally, this paper uses a randomly selected set of benchmark countries to see if we get different results when one uses the theory-media driven reference points verses when one uses a random

reference point.[18] This placebo-like test would highlight the usefulness of the dataset if it reveals substantially different outcomes.

To control for *Clarity of Responsibility*, this paper follows Dassonneville and Lewis-Beck (2017). They propose two dimensions of clarity of responsibility and come up with two different measures of it—*Institutional Rules* and *Power Rules*. The former captures static institutional settings, whereas the latter focuses on dynamic political settings. Because several studies find that the static *Institutional Rule* has no conditioning effects to the economy on vote choice (Hobolt et al., 2013; Dassonneville and Lewis-Beck, 2017; Park et al., 2019), this paper only includes the dynamic variable of clarity of responsibility, the *Power Rules*.[19] In order to test the conditional hypothesis on education, this paper uses the adult population's average years of total schooling in a country (*Average Schooling*) following Aytaç (2018).

Based on existing knowledge, this paper also includes a set of controls. Models control for the coalition size in parliamentary democracies (*Coalition*) as larger governing coalitions are expected to lead to smaller vote shares for the government. In a similar vein, this paper also includes the effective number of parties (*ENV*). A dummy variable for *Presidential* is included as the data contains both legislative and presidential elections. The *Year* dummy variables allow for a time trend. This research further accounts for serial dynamic of the vote share function by including lagged dependent variable (*Previous Vote Share*). To deal with the threat of unit specific error in the composite error term, it also include country Fixed Effects estimations.

Table 1
The effect of benchmarking in the economic vote (baseline).

	(1)	(2)	(3)
Domestic GDP	0.689***	0.656**	0.553*
	(0.259)	(0.288)	(0.310)
Domestic Unemployment	−0.734***	−0.693***	−0.714***
	(0.240)	(0.243)	(0.247)
Global 1 GDP	−0.891***		
	(0.288)		
Global 1 Unemployment	0.276		
	(0.290)		
Global 2 GDP		−0.843**	
		(0.336)	
Global 2 Unemployment		0.023	
		(0.411)	
Global 3 GDP			−0.794**
			(0.374)
Global 3 Unemployment			0.142
			(0.445)
Constant	33.37***	35.05***	34.44***
	(2.602)	(3.297)	(3.506)
Elections	158	157	155
Countries	29	29	29
Fixed Effects	√	√	√

Standard errors in parentheses.
*$P<.10$, **$P<.05$.***$P<.01$

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[15] In a placebo test, this paper uses random reference point which is not guided by news media coverage. In this test, the sample increases up to 249 elections from 32 countries because it does not rely on the information from the Lexis-Nexis. *See* Table 4 for a result of the placebo test.
[16] I obtained information on the GDP growth rate from Conference Board (2014), and information of unemployment rate from IMF.
[17] The weights are given by the proportion of media coverage.

[18] I select the economic indicators from a random country using STATA programming. To increase randomization, I allow STATA to select the economic indicators not only from the sample (29 countries) since they are likely to be reference points among themselves, but also outside of the sample (179 countries), which increases the probability that they are *not* similar, familiar and connected with the benchmarking country.
[19] *See* Dassonneville and Lewis-Beck (2017, 537–543) for further information such as the specific elements (i.e., single-party government, majority government, limited number of parties, closed economy, stable cabinet) and the source of information.

7. Results and analysis

Table 1 presents the baseline specification on the effect of benchmarking on economic voting. The *Domestic GDP* and *Domestic Unemployment* are the one year lagged national GDP growth and unemployment rate. *Global GDP* and *Global Unemployment* are the GDP and unemployment rate of the three spatial reference points. Each column in the table employs each of the reference point (*Global* 1, 2, 3) to test the benchmarking hypotheses. It is expected to see positive and statistically significant relationships between the *Domestic* variables and the incumbent vote, and negative and statistically significant coefficients of *Global* variables.

The coefficients of *Domestic GDP* and *Domestic Unemployment* are positive and statistically significant. This is in line with conventional wisdom as well as the benchmarking hypothesis. More importantly, the coefficients of *Global GDP* are negative and statistically significant in all three models. This is consistent with benchmarking theory. However, none of the *Global Unemployment* coefficients is statistically indistinguishable from zero, which shows no evidence of benchmarking with respect to unemployment. For this null finding, Kayser and Peress (2012) refer Palmer and Whitten (1999) where they provide a plausible answer. They consider the unemployed as a voting bloc whose members tend to find their government incompetent in dealing with the economy, so changes in unemployment rate are likely to affect the size of this potential bloc of voters regardless of what happens in the reference countries (Kayser and Peress, 2012, 669). Because whether the unemployment rate is comparatively low or high does not alter the discontent of the unemployed (Palmer and Whitten, 1999, 627), citizens' evaluation on government may be not affected by the relative unemployment performance.

The models in Table 2 consider two alternative measures of reference points. Considering cognitive demands of benchmarking, one dominant spatial reference point where her media proportion is over 50% is used in Column 1. The coefficients of *Domestic* variables are consistent with expectation (positive and statistically significant). The *Global GDP* is negative and statistically significant, which supports the benchmarking hypothesis.

The model in Column 2 includes the US as its reference point if the media portray the US economy more than other countries despite she fails to meet the theory-driven criteria of spatial reference points. The results of all economic variables except domestic unemployment are statistically insignificant. Even though the US tends to receive media attention from all parts of the world due to its dominant influence to global economy, voters do not benchmark with the US economy unless

she is connected, familiar and similar to their national economy.

Since the models in the previous tables are fairly simple specifications, it is hasty to conclude that voters do benchmark. Models in Table 3 account for several rival explanations and the previous vote shares (LDVs), rendering the models dynamic. Following the general approach in the literature (e.g., Kayser and Peress, 2012; Arel-Bundock et al. forthcoming), models 2, 4, and 6 include country fixed effects[20] The results are stable in all six models and consistent with the main findings in the baseline models even after accounting for control variables. The marginal effect of *Domestic* variables is statistically significant with expected signs, which is consistent with conventional economic voting and benchmarking. The marginal effect of *Global GDP* is negative and clearly distinguishable from zero from all six models, which suggests that the evidence of benchmarking remains robust with respect to growth rate. Indeed, incumbent party tends to be not punished if its growth performed less abysmally than the reference countries.

Regarding the control variables, the *Effective Number of Party* and *Presidential* show a negative and statistically significant effects, which is consistent with previous findings (Aytaç, 2018), and the lagged dependent variable and *Year* dummy variable are significant in four models.

It would be more effective to highlight the difference in results when one uses theory/media driven reference point(s) verse when uses randomly selected set of reference point (perhaps countries that were seldom reported in the domestic news). There should be no economic voting based on these placebo benchmarks.

Table 4 presents the results of the placebo test and indicates that voters do not respond to the economic conditions of irrelevant countries. In both models, with and without fixed effects, the marginal effect of *Domestic Growth* and *Domestic Unemployment* are statistically significant with correct signs. However, the marginal effect of *Placebo* variables is never distinguishable from zero, and the positive sign of *Placebo GDP* is not consistent with expectation. This result suggests that voters benchmark in a systemic manner by looking at the countries where they have similarity, connectivity, and familiarity. They do not benchmark any random and irrelevant countries when they make a comparative assessment regarding the economy.

7.1. Conditional hypotheses of benchmarking

Previous studies point out that the magnitude of economic voting depends on various factors such as clarity of responsibility (Powell and Whitten, 1993) and availability of information (Aytaç, 2018). With regards to benchmarking hypothesis, Aytaç (2018) insists that the availability of information about global economic conditions is a necessary condition for the electoral performance of relative international performance, and education offers more exposure to relevant information and the ability to process it. Following this line of logic, this paper also adopts Arel-Bundock et al.'s empirical strategy expressed in Equation (3) in Model Specification section. If education increases the effect of benchmarking, then the marginal effect of *Domestic GDP* should be more positive, and the marginal effect of the reference point (*Global GDP*) should be more negative where education is high.

Fig. 1 shows the estimated marginal effect of *Global* economy across different levels of *Education*.[21] Sub-figure (a) is the marginal effect graph of benchmark's growth, and sub-figure (b) is the marginal effect graph of benchmark's unemployment. The shaded area shows the 95% confidence intervals. From sub-figure (a), it is clear that the marginal effect is not negative, and its 95% confidence intervals contains zero at the lower level of *Education* (measured by the average schooling years). However,

Table 2
Alternative measure of reference points.

	(1)	(2)
Domestic GDP	0.767***	0.272
	(0.271)	(0.240)
Domestic Unemployment	−0.645***	−0.607**
	(0.239)	(0.237)
Global GDP	−0.941***	
	(0.310)	
Global Unemployment	−0.013	
	(0.319)	
US GDP		−0.074
		(0.420)
US Unemployment		0.199
		(0.376)
Constant	34.80***	32.29***
	(2.804)	(3.161)
Elections	159	158
Countries	29	29
Fixed Effects	√	√

Standard errors in parentheses.
*P<.010, **P<.0.05.***P<.0.01

Table 3
The effect of benchmarking in the economic vote with controls.

	Global 1		Global 2		Global 3	
	(1)	(2)	(3)	(4)	(5)	(6)
Domestic GDP	0.602***	0.607***	0.601***	0.611***	0.515**	0.517**
	(0.187)	(0.210)	(0.204)	(0.228)	(0.214)	(0.239)
Global GDP	−0.676***	−0.610***	−0.748***	−0.704***	−0.728***	−0.671**
	(0.208)	(0.230)	(0.241)	(0.262)	(0.266)	(0.288)
Domestic Unemployment	−0.375***	−0.374*	−0.374***	−0.359*	−0.361***	−0.349*
	(0.133)	(0.199)	(0.136)	(0.199)	(0.138)	(0.200)
Global Unemployment	−0.103	0.152	−0.303	−0.170	−0.237	−0.071
	(0.182)	(0.233)	(0.240)	(0.325)	(0.261)	(0.350)
Previous Vote Share	0.205**	0.166*	0.151*	0.134	0.156*	0.149
	(0.083)	(0.092)	(0.080)	(0.093)	(0.086)	(0.092)
ENV	−3.928***	−4.425***	−3.982***	−4.547***	−4.008***	−4.687***
	(0.474)	(0.619)	(0.471)	(0.611)	(0.469)	(0.608)
Year	−0.106	−0.105	−0.146**	−0.153*	−0.153*	−0.157*
	(0.073)	(0.079)	(0.074)	(0.080)	(0.073)	(0.079)
Coalition	0.165	0.015	−0.268	−0.308	−0.290	−0.399
	(0.735)	(0.834)	(0.745)	(0.840)	(0.743)	(0.835)
Presidential	−5.330**	−6.054**	−4.241*	−4.876*	−4.983***	−6.025**
	(2.329)	(2.755)	(2.330)	(2.763)	(2.487)	(2.983)
Constant	257.6*	257.9	342.4**	358.8**	356.5**	365.3**
	(147.7)	(158.6)	(148.1)	(161.8)	(147.7)	(160.1)
Elections	168	168	167	167	165	165
Countries	28	28	28	28	28	28
Fixed Effects	−	√	−	√	−	√

Standard errors in parentheses.
*P<.10, **P<.05.***P<.01

Table 4
Placebo Tests using a Random Reference Point.

	(1)	(2)
Domestic GDP	0.425***	0.488***
	(0.140)	(0.147)
Placebo GDP	0.350	0.412
	(0.314)	(0.328)
Domestic Unemployment	−0.302***	−0.282*
	(0.107)	(0.145)
Placebo Unemployment	0.118	0.201
	(0.205)	(0.212)
Previous Vote Share	0.382***	0.367***
	(0.066)	(0.072)
ENV	−3.434***	−4.085***
	(0.389)	(0.508)
Year	−0.025	0.016
	(0.044)	(0.045)
Coalition	0.262	−0.168
	(0.570)	(0.629)
Presidential	−5.177**	−5.104**
	(2.110)	(2.365)
Constant	83.11	4.016
	(87.62)	(90.48)
Elections	249	249
Countries	32	32
Fixed Effects	−	√

Standard errors in parentheses.
*P<.10, **P<.05.***P<.01

once the value of average schooling years exceeds a certain threshold,

the marginal effect becomes negative and statistically significant.[22] The results offer evidence of conditional benchmarking theory, so education indeed increases the salience of comparative economic evaluations when voters have at least 10.5 years of schooling on average.[23] However, the marginal effect is statistically indistinguishable from zero when it comes to unemployment as shown in sub-figure (b). This is consistent with the findings in the previous tables in that the average effect of *Global Unemployment* is not statistically significant.

Finally, in order for voters to reward or punish based on economic outcomes, they should be able to tell who is responsible. Previous studies found that institutional and political arrangements affect a voter's ability to identify who is responsible, and as a result, affect the economic vote. In countries where policymaking responsibility is clear, the economy has a stronger effect on a vote choice, whereas in countries where the responsibility is burred, the economy has a weak or no effect to voters' decision (Powell and Whitten, 1993). Based on this idea, this paper tests whether the benchmarking hypothesis is affected by the level of clarity of responsibility. To test this conditioning hypothesis, it employs an interaction term of *Global GDP* and *Clarity of Responsibility (COR)*.

Fig. 2 presents the marginal effect graph showing the degree to which the level of clarity of responsibility conditions the effect of benchmarked economy on executive party's election outcomes. Sub-figure (a) is the marginal effect graph of benchmark's growth, and sub-figure (b) is the marginal effect graph of benchmark's unemployment.[24]

Even though the marginal effects of *Global Growth* shows the upward

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[22] For robustness, I test the same hypothesis based on Aytaç's empirical strategy using the *Relative Global Growth*, which is the difference between domestic and global growth. The result, presented in Figure A1 in Appendix A, is consistent with Aytaç's (2018) finding.

[23] Aytaç's (2018) result indicates that the threshold is about 8 years. This is because his data include both developed and developing countries (62 countries over a period of 40 years from 1965), or perhaps the analysis is based on different estimation strategies.

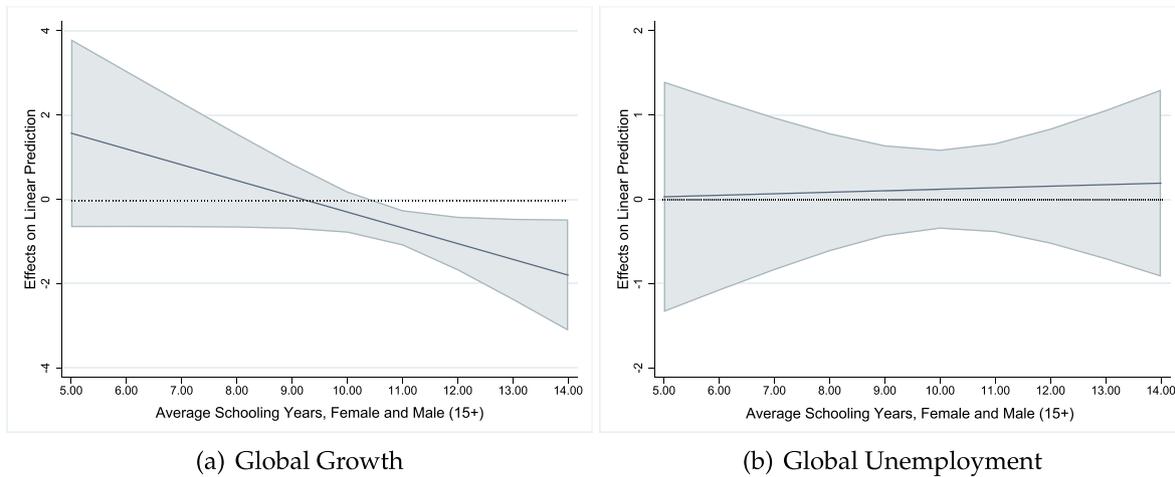[24] The result is based on Model (1) in Table A3 in Appendix A.

(a) Global Growth

(b) Global Unemployment

Fig. 1. Marginal Effect of the Relative Economy on Votes conditioned by Education (95% CI). *Note*: The value of *Average Schooling Years* ranges from 5 to 14(max), which contains 97% of the sample.

(a) Global Growth
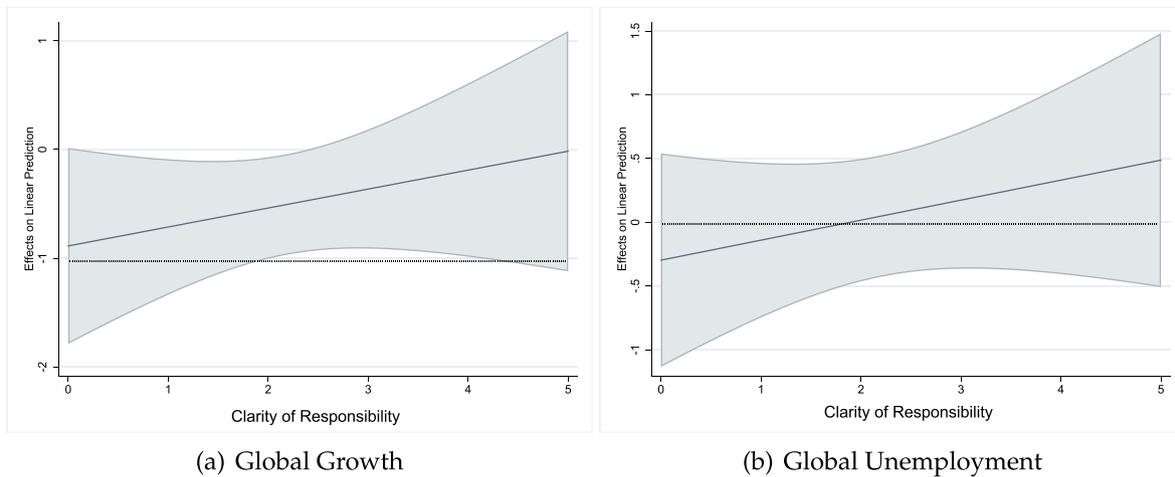
(b) Global Unemployment

Fig. 2. Marginal Effect of the Relative Economy on Votes conditioned by Clarity of Responsibility (95% CI).

heading pattern in sub-figure (a), the large proportion of confidence intervals contain zero in between, suggesting that there is no conditional effect by the clarity of responsibility. This becomes more apparent when it comes to the *Global Unemployment* in sub-figure (b). There is no evidence that the clarity of responsibility conditions the effect of benchmarked unemployment on votes. Its marginal effects include zero across entire levels of clarity of responsibility and the slop is rather flat. The low-clarity context of responsibility does not make the effect of benchmarked economy disappear, so voters tend to reward/punish their incumbent according to relative economic performance regardless of the levels of clarity of responsibility.

Out of the two conditional effects, this paper shows that the benchmarking hypothesis is conditioned by the level of education but not by the clarity of responsibility. Although answering why we observe such discrepancy is beyond the scope of this research, this might be explained by a recent study of Dassonneville and Lewis-Beck (2017) where they find that the economic vote does not become weaker in low-clarity contexts but remains stable regardless of contextual factors. The finding that the benchmarking is not affected by attribution of responsibility comes closer to their conclusion in that "when it comes to holding incumbents to account, voters are more sophisticated than is commonly assumed", and therefore, "the economic vote is more stable than is regularly assumed" (Dassonneville and Lewis-Beck, 2017, 553). That said, voters are likely to respond to the relative performance data

regardless of whether the environment tells who is responsible for the deviations. In contrast, benchmarking becomes stronger in high cognitive contexts since making a comparison requires being informed not only about the national economic conditions but also about those in the relevant benchmark(s). Simply put, education is more likely to activate benchmarking tendency.

8. Discussion

The idea of international benchmarking has been around for a long time. However, the choice of spatial reference points is rather underspecified and mostly based on common intuition, such as the idea that the Swedish will always benchmark the Danish economy and vice versa. The task of selecting spatial reference points within cross-national time-series data is more sophisticated. Since each country and each election is likely to have its own unique reference points according to its political, cultural, geographical, and historical background as well as its economical/trade relationships, the assumption of equal reference points across all countries and elections is unrealistic. As a result, an empirical analysis relying on common reference points will yield a biased estimation. Although scholars have been cautious about such a strong assumption, sometimes *ad hoc* decisions are likely to be made unless substantial information guides the choice of spatial reference points.

The most important contribution of this research to the literature is its innovative method of determining relevant benchmark(s) through an analysis of the distribution of domestic media messages about foreign economic performance. The selection of a set of countries is also guided by the theory suggesting that voters will benchmark countries that are *similar, familiar, and connected.* Based on domestic media sources from 29 democracies in Lexis-Nexis, and the specific economy-related key words in 22 different languages, novel data is constructed which identifies unique spatial reference points per country and election.

Using the media-guided spatial reference points, this research tests the effects of relative economy on incumbent vote share. For empirical accuracy, this research relies heavily on Arel-Bundock, Blais and Dassonneville (forthcoming), who introduce a straightforward way to test the benchmarking hypothesis: each variable (*Domestic* and *Global*) are included additively in the regression equation rather than using a composite variable (the difference between *Domestic* and *Global* variable, which causes great risks in interpretation of the empirical findings). In this newer strategy, a negative marginal effect of benchmark (*Global*) on electoral support for the executive party will support the benchmarking hypothesis. In order to see that voters indeed react to the economic conditions of the media-driven reference point differently, a placebo test is also conducted using a random reference point that is seldom reported in one's domestic news media. Finally, context-conditionality such as education and clarity of responsibility is tested to see if the effect of benchmarking varies across different context and populations.

The empirical evidence supports the expectation that voters reward/punish their governing officials based on spatially benchmarked economic growth. Incumbents tend to be rewarded with increasing vote shares for out-performing growth and are punished for the opposite. However, voters do not benchmark with irrelevant or random countries' economies, but rather tend to look at the information of the economies of countries to which they have regular access from domestic news media. Interestingly, even if a country receives a tremendous attention due to its economic influence (e.g. the US), citizens do not benchmark with that country unless it has a reasonable commonality. It suggests that citizens are *pretty prudent* media consumers.

It is also found that education makes it easier for a voter to arrive at a comparative economic assessment. More to the point, it is shown that clarity of responsibility mediates the link between the domestic economy and incumbent vote share in general but its conditioning effect disappears when it comes to benchmarking. Voters indeed strongly react to relative economic performance regardless of the institutional context of responsibility.

This research directly speaks to the important question of 'how voters integrate international economic outcomes into their evaluations'. As Aytaç (2018) proposes, citizens like to acquire the primary information about economic conditions of other countries through the media. This research shows a systematic cross-national analysis of how the media report international economic outcomes. In this regard, an extension to this research would test the role of the media signal directly by measuring the *tone* of the economic news reports. Since the media disseminates information that helps citizens evaluate overall variance in shocks to the economy, it would be useful to directly model the *tone* of the economic media coverage as a key explanatory variable instead of calculating objective economic indicators.

This research also speaks to the issue of measurement of economic conditions. Aggregate studies have used objective macroeconomic measures such as economic growth and the unemployment rate. Studies using survey data use perceived measures of the economy, commonly sociotropic or egotropic ones. One concern arises about how well the perceived measures of the economy reflect the objective ones and vice versa. Indeed, scholars have found a gap between these two types of measures (i.e., Kramer, 1983; Nadeau and Lewis-Beck, 2001).

The gap between the objective economy and the perceived economy may be due to voters using different reference points when they look at objective economic indicators to form their perception of the economy. This research indicates that voters have a strong tendency to make comparisons, so they tend to look at not only their domestic performance but also the economic performance in relation to other countries. However, previous studies have principally employed the domestic economic measures in both aggregate and individual levels of studies, and have thereby ignored an important way that citizens form their attitudes on incumbent job performance. Although further studies should verify this, there is a good reason to believe that using relative economic indicators will considerably reduce the gap between the objective and perceived economy.

Finally, this paper implies that policymakers have to pay particular attention to how their national economic performance compares to that of other yardstick countries. In this regard, some argue that policymakers are incentivized to make downward comparisons by pointing to the performance of countries doing worse than their own. For instance, Olsen (2017) writes that "figures don't lie, but liars do figure, and the citizen has very little defense in this field, and in other realms of reporting and adverting" (Olsen, 2017, 28).

From a campaign perspective, this downward comparison can be a re-election strategy as relative economic performance indicators are a heuristic that voters tend to weigh strongly. Although this downward strategy is not implausible, the findings of this research cast doubt on its usefulness. If this strategy is in place and is reflected in the domestic media as incumbents hope it is, then we should only see the positive values of *Relative Growth*, which is the difference between the national economy and reference point economy. That is, at least the domestic media in my sample do not reveal any indication of downward comparisons. Even if my economy is better than country A, if A is not connected, familiar, and similar to my country, there is no reason for the media (or the public) to look at A to make a comparison. Thus, comparisons must be based on relevancy, and irrelevant downward comparisons will not appeal to the media or their consumers.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.electstud.2019.102085.

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