

Does the Economy have a Null Effect on Turnout? A Voter Turnout Model Based on Spatially Benchmarked Economy

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Abstract

Existing studies suggest two competing theories explaining the effect of the economy on voter turnout: 'mobilization' and 'withdrawal.' However, empirical results from cross-national samples have failed to reach a satisfactory determination between these two theories. I argue that one reason for this ambiguity is rooted in a misunderstanding of how voters form attitudes about economic performance. Previous research implicitly presumes that voters' economic assessments are based solely on information about the domestic economy. In contrast, I argue that voters compare their national economy with that of others. If the economy has an effect on turnout, the relative economy rather than the domestic economy will affect voters' evaluations, and consequently their decision to turn out. This research finds supporting evidence for the 'withdrawal' hypothesis: a poor relative economy reduces voters' confidence in the incumbent's skill in managing the economy, which leads to alienation from and indifference to politics among voters, who subsequently turn out less.

Key words: relative economy, withdrawal, mobilization, voter turnout

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Introduction

Existing literature has suggested conflicting expectations about the role of the economy on voter turnout. One strand of literature argues that economic downturn mobilizes voters to express their grievances at the poll (the 'mobilization' hypothesis). Another strand of literature suggests that economic hardships depress electoral participation (the 'withdrawal' hypothesis) by limiting their capacity to participate in politics (Wolfinger and Rosenstone 1980; Caldeira et al. 1985) or dampening their confidence in their government as well as in politics in general. Each of these sides has received some empirical support, but most previous empirical tests in cross-national analyses have shown null findings (Fornos et al. 2004; Blais and Dobrzynska 1998). Put simply, extant knowledge has yielded an ambiguous conclusion on the linkage between the economy and turnout.

One possible source of the ambiguity is that the economy variables in the previous turnout models may not fully assist voters to form their assessment about the incumbent competency in their job performance. Previous literature, although it suggests the opposite expectations, is rooted in the common mechanism that suggests that voters decide to turn out based on the incumbent's competency in handling the economy. According to the 'mobilization' hypothesis, voters turn out to punish their incompetent government for the troubled economy, whereas the 'withdrawal' hypothesis predicts that voters become indifferent to and alienated from the political arena due to the incompetency of their politicians.

However, to capture the incumbent's competency, all previous cross-national studies have employed temporally benchmarked economy variables. For instance, growth has been measured by comparing the annual GDP growth rate to the previous year's growth rate. Although the retrospective economic performance data is useful, it has great limitations for predicting how voters will form opinions about incumbent performance. Thus, previous approaches cannot fully explain how voters arrive at economic evaluations, and as a result, will suggest an insufficient frame in depicting the relationships between the economy and turnout.

In this paper, I argue that to form assessments about the job performance of their government, citizens extract the competence signal from the observed economy (Duch and Stevenson 2008), and to do so, they tend to make comparisons with other countries (Kayser and Peress 2012; Aytac 2018). In other words, a relative good (bad) economy signals strong (weak) competence of the government. If voters assess incumbent competence based on relative economy performance, it is more appropriate to include spatial benchmark(s) of economy variables into the turnout model. In other words, the spatial benchmark(s) of the economy facilitates the evaluation of government competency, which helps voters decide to turn out or not, or in other words, mobilize or withdraw.

Using a novel dataset which identifies unique spatial references per country and election from domestic media coverage in 29 democracies since the 1980s, this paper tests how the relative economy affects voter turnout. To do so, I employ two sets of empirical strategies suggested by Arel-Bundock, Blais and Dassonneville (forthcoming) and Kayser and Peress (2012). Although the two specifications have been proven to be mathematically identical, I use both models not only for robustness purposes, but because each has its own merits in testing nuanced benchmarking hypotheses.

The results show that voters tend to turn out less when their domestic growth is underperforming compared to the benchmark's, supporting the withdrawal argument. It also finds that voters abstain not because of the weak growth domestically, but because of the weak growth relatively. This suggests that the weak economy affects voters' decision to turn out not by limiting their financial resources, but by dampening their interest in politics. In addition, the paper finds that there is a negativity bias in that voters are more sensitive to underperforming cases than outperforming ones. Finally, this paper shows that voters are fairly prudent when they make a comparative economic assessment. They do not make an *ad hoc* comparison with random countries but tend to look to the economic conditions of relevant countries where they share great commonalities.

The Effects of the Economy on Voter Turnout

The effects of the economy have been heavily studied as determinants of vote choice but much less so in terms of turnout. In recent studies, the two main theories, 'mobilization', which suggests that economic hardships encourage people to be more active (Scholzman and Verba 1979), and 'withdrawal', which posits that a deteriorating economy causes voters to abstain (Rosenstone 1982), are viewed as complementary.

The 'withdrawal' hypothesis expects that economic difficulty is stressful, and thus voters who are preoccupied with their financial problems have limited time and resources to ponder politics. Rosentone (1982) argues that "when a person experiences economic adversity, his scarce resources are spent on holding body and soul together 'surviving' rather than on remote concerns like politics" (26). Similarly, increases in economic hardships actually reduce the level of surplus resources available to people, which eventually lead them to spend their limited resources on basic human needs rather than on political participation (Southwell 1988).

Another line of reasoning for the 'withdrawal' hypothesis argues that economic hardships make citizens indifferent to and alienate them from politics. More specifically, a negative economy informs the public that the government is not capable of addressing such problems, which leads to a decrease in democratic satisfaction and a loss of confidence in representative institutions (Van Erkel and Van der Meer 2016). Taylor (2000) also describes these alienated citizens as 'frustrated' voters.

Poor economic management increases indifference among voters in two ways (Weschle 2014). If voters are government supporters, economic hardships will not necessarily lead them to support the opposition, who may be too far away on the political spectrum. They will also be reluctant to vote for the incumbent because poor economic management signals a lack of competence. They are therefore more likely to be indifferent, leading them to stay at home on election days (Tillman 2008). Consequently, as people become disillusioned with political institutions, democratic performance, and vote choice, they tend to turn out less in an election (Cox 2003; Gronlund and Setala 2007).

The 'mobilization' hypothesis suggests the opposite expectation: citizens under economic hardships are more prone to vote. In this view, citizens are encouraged to be more active politically because they blame the government for their economic strain and are thus willing to seek redress for their grievances (Schlomezman and Verba 1979; Kern et al. 2015). One immediate way to express their grievances is to punish the incumbent government for its economic mismanagement by giving their political support to other parties at the polls.

However, most cross-national studies find no effects of economic fluctuations on voter turnout across regional samples including the US (Arcelus and Meltzer 1975), Latin America (Fornos et al. 2004), post-Communist countries (Fauvelle-Aymar and Stegmaier 2008; Kostadinova 2003), and a global sample found in Blais and Dobrzynska (1998) and Blais (2000). In fact, both conflicting and null findings lead Blais (2006), in his comprehensive survey of the turnout literature, to conclude that "there is no clear relationship between the economic conjuncture and turnout" (117).

The null effect hypothesis raises questions of whether the turnout functions are being properly modeled. For instance, Radcliff (1992) showed that there is a 'withdrawal' effect in industrialized countries, but the 'mobilization' effect is stronger in developing countries. He explained that the welfare state conditions the effect of the economy on electoral participation, thus the economy variables (i.g., GDP, unemployment, inflation) should interact with a measure of social welfare program in a turnout model. More to the point, Radcliff (1992) also suggested that turnout increases when the economy is doing either very poorly or very well, and it decreases when the economy is somewhere in between because in these latter cases non-economic issues gain more saliency during electoral campaigns.

Martins and Veiga (2013) suggest a similar expectation that both mobilization and withdrawal effects exist simultaneously and the degrees of economy, either good/bad or moderate, affect voters differently. Since voters want to reward/punish their government at the poll according to the economic conditions, a good/bad economy tends to mobilize them to turn out in a given election, whereas a moderate economy offers fewer reasons

to express satisfaction/dissatisfaction. Simply put, the relationship between the economy and turnout is not linear but 'u-shaped'.

This paper takes further steps and raises the question of whether economy variables are being properly introduced in the turnout models. Existing studies have employed temporally compared economy variables exclusively. This is because scholars unwittingly assume that voters define a good or bad economy by comparing the current state of the economy to the economy of years gone by, which is known as retrospective evaluation. However, recent scholarship has investigated an 'across-nations' yardstick as an alternative sources of comparison (Kayser and Peress 2012; Olsen 2017; Hasen et al. 2015; Aytaç 2018), and finds that the relative economy affects voters' behavior significantly and does so more than the retrospective economy (Kayser and Peress 2012; Olsen 2017). If voters tend to form an attitude toward their government based more on the relative economy than the retrospective economy, we should consider that the relative economy may better capture the competence signal of the government in handling the economy. If this is true, the relative economy variables would perform better in the turnout model with greater *validity* by measuring what it is purported to measure according to causal mechanisms. In the next section, I illustrate why the relative economy is useful and how voters would take information of relative performance into consideration when deciding whether to turn out.

How does the Relative Economy affect Voter Turnout?

Similar to the Vote-Popularity function, the underlying assumption of the link between economy and turnout, either through mobilization or withdrawal, is based on voters' assessments of the incumbent's competence in handling the economy (Duch and Stevenson 2008). If voters want to express their grievance about a poor economy, and accordingly want to hold their government accountable at the polls, they must be able to extract the competence signal, which captures the extent to which shocks to the economy are a result of the competence of government. The same logic applies to the 'withdrawal' hypothesis. If voters become alienated from and indifferent to politics due to a loss of confidence

in their government, and therefore become reluctant to participate in elections, they also have to be able to determine the extent to which economic hardships are exacerbated by the incumbent's managerial skill. In other words, voters' decisions whether to vote or not are based on competence signals from incumbents.

However, voters may not be able to extract the competence signal by looking the observed economy (Duch and Stevenson 2008). This is because the observed economy consists of two parts, competency shock and exogenous shock, and voters cannot reliably isolate one from the other. If adverse economic conditions are not driven by incumbent competency but rather by exogenous shocks, such as a global financial crisis or oil shock, there is less reason to conclude that the poor economy reflects poorly on the incumbent's competency. As such, extracting competence signals from the observed economy is an important task for voters should they want to avoid inappropriate assessments of their elected officials. Thus, the first step that voters should take is to evaluate whether their economic adversity originates from an exogenous shock or poor incumbent competency.

Comparisons can play a useful role in helping voters extract competence signals from the composite parts of the observed economy by providing a heuristic shortcut in voters' minds. Although ordinary citizens commonly make both temporal and spatial in our daily lives, scholars have predominantly used the temporal approach exclusively for comparisons in their turnout models.

A temporal comparison, however, is greatly limited in its ability to help voters distinguish competency shock from exogenous shock, and therefore provides insufficient information about incumbent competency. Consider that country A recorded a negative growth rate this year compared to last year. This negative value indicates that country A's economy is problematic, but suggests nothing else about the incumbent competency of country A. Because we know that the observed economy does not directly reflect incumbent competency, voters in country A need additional information to determine whether the adverse economy is the result of poor economic management of the incumbent or due to an exogenous shock that is beyond the incumbent's control.

In this regard, spatial comparison provides voters with useful information. For instance, if voters in country A compare their decline in growth rate with that of other countries (e.g. neighbors or regional economy), and realize that their decline is in tandem with other countries', voters in country A will place less emphasis on competence shock. The decline in country A's economy would not be perceived as managerial incompetence when all other neighboring countries have undergone similar economic adversity. By contrast, if the decline in growth rate is only observed in country A while either no change in growth or even a positive growth rate appears in countries which they benchmark, it becomes apparent for voters in country A that the poor performance is a sign of the managerial incompetence of their government.

Once voters extract the competence signal by making spatial comparisons, it is easy for them to make a decision on whether to turn out. If the 'mobilization' theory is correct, then we would observe higher voter turnout in countries where the economy is relatively poor. When voters believe that the relatively underperforming economy is a result of incumbent incompetency, they want to express their grievances by punishing the government and are therefore more likely to appear at the polling stations. On the other hand, if the 'withdrawal' theory is correct, voters will withdraw from their political activities, including casting their ballots, when their national economy is doing worse than other countries. A relatively poor performance clearly suggests to voters that the government is not able to address the problem, resulting in a loss of confidence in their government and an increase in democratic dissatisfaction (Taylor 2000; Van Erkel and Van der Meer 2016). In turn, as voters become disenchanted with political institutions and democratic performance, they become less likely to turn out on election days.

When one's own national economy is poorer than the previous year but performs better than other countries', there is no reason for voters to mobilize actively or to lose their confidence in their government because they have perceived the competence of their government based on the relative outperforming economy. In this case, if we use the temporally benchmarked economy in turnout models, the empirical model would not yield the expected outcome, either 'mobilization' or 'withdrawal', but would result in a

'null' effect because voters would not perceive their economy as in bad shape given that it is actually doing better than other economies.

In this case, the null effect raises the question of whether the independent variables are properly used in turnout models. In other words, if voters tend to use spatially benchmarked values for economic evaluations, using temporally benchmarked variables in a turnout model would cause attenuation bias, so on average the estimated Ordinary Least Square (OLS) effect will be always closer to zero than it is supposed to be (Wooldridge 2015). Since a temporally benchmarked economy variable is insufficient in helping voters extract the competency signal and lacks validity in measuring what it is purported to measure, there is a substantial potential benefit in introducing the spatially benchmarked economy variables into the turnout model for empirical accuracy.

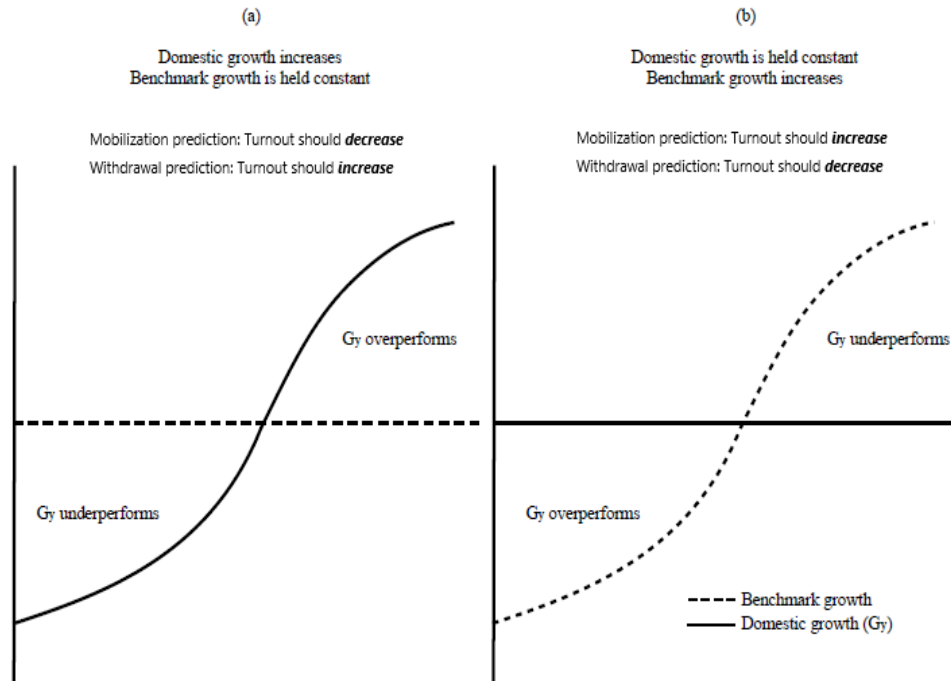
Of course, there is another line of reasoning that underlies the withdrawal theory. As mentioned above, voters will not take part in politics when they are hindered due to financial constraints. When an economic downturn limits voters' financial resources, it will reduce their ability to engage in politics because their energy must be focused instead on making a living (Rosenstone 1982: 26). If voters withdraw their interest from politics through the channel of limited resources, and not because of incumbent managerial skill, voters will react strongly to the fluctuations in domestic economic conditions because they better capture the changes in voters' financial resources.

Model Specification

To verify above stated arguments, I follow Arel-Bundock, Balis and Dassonneville (forthcoming) who introduce an innovative way of testing the effects of relative economy in vote choice models. Although their research focuses on incumbent vote share as an outcome variable, the empirical strategy that they suggest is not only applicable but also most appropriate to test the effect of the relative economy in turnout models. To illustrate conceptual intuition of relative economy hypothesis, Arel-Bundock et al. (forthcoming)

present the marginal effects of benchmark growth on votes for the incumbent in Figure 1¹. The solid line shows the domestic growth rate, and the dashed line shows the growth rate that voters use as a benchmark to evaluate the relative economic conditions.

Figure 1: Marginal Effects of Domestic and Benchmark Growth on Turnout



Source: Arel-Bundock, Blais, and Dassonneville (forthcoming: p.3)

When the domestic growth is held constant, the benchmark growth increases when we move from left to right in sub-figure (b). This invites a changes in relative domestic economic performance from *over-performance* (i.e., the solid line is above the dashed line) to *under-performance* (the solid line is below the dashed line). When this performance gap changes from 'over' to 'under', the mobilization theory predicts that turnout will increase to blame/punish the government for their relative economic strain. In contrast, the withdrawal theory suggests the opposite: turnout will decrease because voters become more indifferent and alienated from the politics as they lose confidence in their government. In other words, the marginal effect of the benchmark growth should be positive according

¹Note that Arel-Bundock et al. use incumbent vote share as a dependent variable, whereas I examine voter turnout as a dependent variable.

to the mobilization theory, whereas it should be negative according to the withdrawal theory.

The scenario in sub-figure (a) predicts the opposite. When we move from left to right in sub-figure (a), the status of relative domestic economy changes from *under-performance* to *over-performance*. Since the domestic economy gets better than benchmark's, the driving forces of higher turnout such as dissatisfactions and grievances in mobilization theory are now disappearing, so it predicts that turnout should decrease. In contrast, the withdrawal theory suggests that voters are likely to turnout because there are no reasons, at least from the economy, to become disillusioned and frustrated with politics and incumbent performance. Put simply, mobilization theory predicts that the marginal effect of the domestic growth will be negative, whereas the withdrawal theory predicts that the marginal effect of domestic growth should be positive.

Based on the intuition, Arel-Bundock et al. suggest a newer empirical strategy to test the benchmarking theories as follows² where I modify the dependent variable with *Turnout*:

$$\begin{aligned} \text{Voter Turnout}_{it} = \\ \alpha + \beta_1 \text{Domestic}_{it-1} + \beta_2 \text{Benchmark}_{it-1} + \beta_3 \text{Controls} + \varepsilon_{it} \end{aligned} \quad (1)$$

In Equation (1), the coefficient of *Domestic* (β_1) is the marginal effect of domestic growth on the voter turnout, and the coefficient of *Benchmark* (β_2) measures the marginal effect of the benchmark growth on turnout³. In line with the expectations in Figure 1, the mobilization theory predicts the sign of β_1 should be negative and β_2 should be positive, whereas the withdrawal theory suggests the opposite directions: positive β_1 and negative β_2 .

²This simpler specification has several merits such that it “directly translates the theoretical institutions of *benchmarking hypothesis*, and immediately reveals the relevant test statistics” (Arel-Bundock et al. forthcoming: 6).

³To see, take the partial derivative of Equation (1) with respect to *Domestic*, then it turns out that the marginal effect of domestic growth is β_1 . The partial derivative with respect to *Benchmark* shows that β_2 is the marginal effect of benchmark growth.

Furthermore, previous researches show a negativity bias in political behavior (Lau 1982; Soroka 2006; Kahneman and Tversky 1979). In particular, Lau (1982) notes that there is a tendency for “negative information to have more weight than equally extreme or equally likely positive information.” (353) Much scholarship has empirically shown that there is a clear negativity bias in media as it gives much more coverage to negative economic news than positive (Soroka 2006; Hetherington 1996). Being exposed to this one-sided media, citizens appear to react *asymmetrically* to the economy itself. Said differently, citizens are more aware of economic fluctuations during bad times, voters will be more sensitive toward the *under-performance* case than the *over-performance* one. The discussion on the negativity bias suggests that the magnitude of β_2 (domestic economy moving toward *under-performance* area shown in sub-figure (b)) should be greater than β_1 (domestic economy moving toward *over-performance* area shown in sub-figure (a)).

For robustness, I also adopt Kayser and Peress’ (2012) empirical strategy which has been widely used to test benchmarking hypotheses in the economic voting literature⁴. In their model, Kayser and Peress include a deviation, 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 shown in Equation (2).

$$\begin{aligned} \text{Voter Turnout}_{it} = \\ \alpha + \beta_1(\text{Domestic} - \text{Benchmark})_{it-1} + \beta_2\text{Benchmark}_{it-1} + \beta_3\text{Controls} + \varepsilon_{it} \end{aligned} \quad (2)$$

With this model, scholars have treated the coefficient of relative indicator (β_1) as the effect of relative economic performance (Kayser and Peress 2012; Aytaç 2018; Ebeib and Rodden 2006). If the β_1 is statistically significant and β_2 is zero, this will suggest that “voters would be responding not to growth, but the extent to which growth in their country outperformed or underperformed the international benchmark” (Kayser and Peress 2012: 668).

⁴For more discussion on how to test benchmarking hypotheses, see recent debate between Arel-Bundock et al. (forthcoming) and Kayser and Peress (forthcoming) in *British Journal of Political Science*.

Table 1: Theoretical Expectations of $Beta(\beta)$ Coefficient on the Growth

	Arel-Bundock et al. (forthcoming)		Kayser and Peress (2012)	
	<i>Mobilization</i>	<i>Withdrawal</i>	<i>Mobilization</i>	<i>Withdrawal</i>
β_1	–	+	–	+
β_2	+	–	0	0
<i>Comparison</i>	$\beta_1 < \beta_2$		$\beta_1 > \beta_2$	

Although it is proven that the two empirical strategies are mathematically identical specifications (Arel-Bundock et al. forthcoming), I use the two strategies not only because it offers robustness, but because each has its own merits to test nuanced benchmarking hypotheses. For instance, Arel-Bundock et al.’s model allows to test how voters respond differently when their growth out-or underperforms the benchmark’s growth. By including both domestic and benchmark variables additively in the regression equation, one can immediately compare the marginal effect of domestic growth with the marginal effect of benchmark growth. This comparison allows us to see if voters are more sensitive toward being relatively poor condition than being relatively better one.

Kayser and Peress’ model is also very useful in testing three plausible benchmarking scenarios: *full, partial, and no benchmarking*. As above stated, if the β_1 is statistically significant and β_2 is zero in Equation (2), this supports full benchmarking. When both of the coefficients (β_1 and β_2) are statistically insignificant but zero, voters do not consider the growth in turnout decision. If voters partially benchmark, which means only some proportion of population benchmark and others do not, the coefficient will not be zero, and the degree of this partial benchmarking can be seen by dividing the coefficient of benchmark (β_2) by the coefficient of deviation (β_1) in Equation (2) (Kayser and Peress, forthcoming). Table 1 summarizes the theoretical expectations of the beta coefficient based on the two Equations (1) and (2).

Data and Variables

Data

I obtain information on voter turnout in 29 countries since the 1980s. They are mostly, not all, members of the Organization for Economic Co-operation and Development (OECD). The scope of the data restricts itself to the countries and times for which electoral results and media information are available in the ParlGov dataset (Döring and Manow 2012). In particular, because I focus on relative economic voting using the media-coverage-based spatial reference points, explained below, the time dimension of the dataset is heavily restricted to data availability in Lexis-Nexis database.

Outcome Variables

The outcome variable is *Voter Turnout*. There has been substantial disagreement about the measure of turnout. On the one hand, scholars measure the percentage of Registered Voters (REG) that go to the polls (Powell 1986; Blais and Dobrzynska 1998; Franklin 2004, Dettrey and Schwindt-Bayer 2009). On the other hand, it is measured as the proportion of the Voting-Age Population (VAP) that turns out to vote (Powell 1986; Gray and Caul 2000; Fonos et al. 2004; Dettrey and Schwindt-Bayer 2009). Each way of measuring has its own limitations.

For instance, the registration-based measure has narrow variation because it is based on the group of people that is already predisposed to turn out to cast a ballot. The age-based measure might cause problems for cross-national comparability due to the exclusion of some group in the voting-age population in some countries (Blais et al. 2001)⁵. To reduce this cross-national comparability problem, I use the percentage of registered voters as dependent variable. For robustness, I also report the results of the same analyses using the measures of the proportion of the voting-age population in the paper and appendix. I obtain both measures (REG and VAP) of turnout from the Voter Turnout Database of

⁵For a review on turnout measurement, see Appendix A in Geys (2006).

Institute for democracy and Electoral Assistance (IDEA)⁶.

Explanatory Variables

The key explanatory variables are GDP growth rate and unemployment rate⁷. For spatial comparisons (benchmarked economy), it is important to employ the best possible spatial reference points across time and space because in an empirical model, we do not want to force each election and country to compare its economy with a random or universal reference point. To do this, I use a novel dataset (Author), which identifies unique international benchmark(s) across countries and elections.

Using the distribution of domestic media message on foreign economic performance from Lexis-Nexis, the volume of news reports on foreign economy has been calculated from 12 month prior to an election. Based on the frequency of news item, two sets of reference points are constructed. The first spatial reference point is the one which appears the most in one's own domestic media. It is also possible that multiple countries, such as X, Y, and X, jointly appear in the country's domestic media. To consider this joint reference points, the weighted average of economic indicators from all three countries is used where the weights are given by the proportion of media coverage.

Figure 2 shows the variations in domestic GDP (marked with dashed line) and *Relative GDP* (marked with solid line). One noticeable point is that relative GDP tends to be lower than domestic GDP because, by definition, the relative value is calculated by subtracting the benchmark's value from domestic one. However, when domestic GDP is positive and benchmark economy is negative, the relative GDP becomes greater than the domestic one such as Belgium (2010), Cyprus(2011), Estonia (2008), Latvia((2008, 2010), Poland (2010), the UK (2008), the Netherlands(2010).

The variation in relative GDP can tell us more story. If the value of relative GDP is positive, this means domestic GDP outperforms compared to the benchmark GDP. If the

⁶website: <http://www.idea.int>

⁷I obtained information on the GDP growth rate from Conference Board (2014), and information of unemployment rate from IMF.

Figure 2: Variation in Domestic and Relative GDP across Countries



relative GDP line falls below the zero line in the figure, it indicates that the domestic GDP underperforms compared to the benchmark GDP. Indeed, there is great within-country variations in the relative GDP since the solid line fluctuates across the zero line in most of the countries in Figure 2. This suggests that most of the countries in the sample do not deliberately benchmark a particular spatial reference point that is consistently under or out-performing country.

To account for rival explanations, I control various political and socioeconomic variables based on previous studies⁸. I include *Compulsory Voting* variable. In decades of scholarship, a positive correlation between turnout and mandatory voting has been found (Powell 1986; Gray and Caul 2000; Fornos et al. 2004). The effect number of parties that participate in the election is also controlled. There are two competing arguments: 1) A larger number of parties increases the choice offered to the voters, enlarging the benefits of voting to the voters (Hansen 1994); 2) A larger number of parties increases probability of coalition formation, which can decrease the direct effect of the voters in the choice of government (Balis and Dobrzynska 1998). The former expects a positive effect of the number of parties whereas the latter expect the opposite.

In a similar vein, there are two opposing causal logic at work with regards to electoral system. It is expected that PR system leads to more and ideologically distinct parties, which allows a wider range of choices to the voter. This increases the chances they find a party they wish to support and therefore, PR systems encourage voters to turnout (Cox 1999). The opposing argument is that a larger numbers of parties in PR systems reduce the decisiveness of elections by enhancing the probability for a coalition government, and thus, lead to decreased turnout (Powell 2000). A dummy variable for presidential election is also included as the data contains both legislative and presidential elections.

I also include levels of Polity IV, and expect that matured democracy would have higher turnout because political rights respect and civil liberties would encourage citizens to express various views and participate in political arena (Fornos et al. 2004). I use

⁸In particular, the choice of control is guided by Geys (2006) who provides a comprehensive review of aggregate-level research on voter turnout.

the Polity IV variable, which ranges from -10 (strongly autocratic) to $+10$ (strongly democratic) (Marshall et al. 2014). In addition, I account for election competitiveness, following the plausible expectation that citizens tend to turn out more in competitive elections because the marginal effect of any additional vote on the outcome is going to be larger the closer the race is (Powell 1986; Franklin 2004).

Population size and urbanization are also included. Based on Blais (2000), I expect that turnout will be higher in smaller countries because a single vote in a small state is regarded as having a higher probability of being decisive, inviting a larger effect in electoral outcome (Geys 2006; Blais 2000). With regards to urbanization, the argument holds that people in cities tend to be more individualistic so that they face less ‘peer pressure’ to turn out (Riker and Ordeshook 1968).

Finally, I accounts for serial dynamic of the voter turnout models by including a lagged dependent variable, thus making the analysis dynamic. To deal with the threat of unobservable unit specific error in the composite error term, some models include Fixed Effects estimations.

Results and Analysis

Table 2 presents the results of Feasible Generalized Least Squares (FGLS)⁹ and Fixed Effects estimations based on the empirical strategy which Arel-Bundock et al. (forthcoming) suggest. Model 1 is based on the conventional strategy including domestic variables only. The other four models incorporate international benchmark(s) economy. In model 2 and 3, I use the first spatial reference point (noted *Benchmark 1*) which appears the most in one’s domestic news media. Model 4 and 5 are based the joint spatial reference points (noted *Benchmark 2*) which is calculated by the weighted average of economic indicators

⁹For potential serial correlation in the idiosyncratic error, I use FGLS that allows estimation in the presence of AR(1) autocorrelation within panels. A model with FGLS fits well to the data, which have a large number of cross-sections (big N) but with each election observed only a few times (small T) (Davidson and MacKinnon 1993; Greene 2012).

Table 2: The Effect of Domestic and Benchmark Economy on Voter Turnout (Arel-Bundock et al.'s model)

DV: Turnout (REG)	Domestic	Benchmark 1		Benchmark 2	
	(1)	(2)	(3)	(4)	(5)
Previous Turnout	0.842*** (0.047)	0.813*** (0.050)	0.350*** (0.106)	0.837*** (0.043)	0.391*** (0.103)
Domestic GDP	-0.042 (0.136)	0.296* (0.172)	0.306 (0.201)	0.233 (0.187)	0.160 (0.222)
Domestic Unemployment	-0.007 (0.122)	-0.055 (0.129)	0.046 (0.227)	-0.019 (0.116)	0.089 (0.216)
Benchmark GDP		-0.609*** (0.190)	-0.423* (0.221)	-0.684*** (0.229)	-0.372 (0.265)
Benchmark Unemployment		-0.129 (0.166)	-0.109 (0.229)	-0.332 (0.210)	-0.346 (0.341)
Compulsory Voting	3.079* (1.783)	3.102* (1.933)	4.467 (5.868)	2.665* (1.621)	3.278 (5.509)
Effective N. of Party	-0.306 (0.338)	-0.467 (0.360)	-0.971 (0.698)	-0.365 (0.314)	-1.317** (0.655)
Electoral Competition	-0.033 (0.036)	-0.027 (0.037)	-0.001 (0.050)	-0.023 (0.033)	0.014 (0.048)
Polity IV	0.688 (0.778)	0.012 (0.819)	-2.641** (1.276)	0.384 (0.729)	-2.647** (1.198)
Majoritarian	-0.692 (1.701)	-1.408 (1.880)	1.043 (4.204)	-1.175 (1.573)	3.456 (3.836)
Presidential Election	-2.067 (2.162)	-1.666 (2.119)	0.724 (2.688)	-1.842 (1.989)	1.508 (2.524)
Population	-0.275 (0.422)	-0.143 (0.487)	-0.499 (12.98)	-0.231 (0.404)	-7.056 (12.30)
Urbanization	0.150*** (0.057)	0.192*** (0.063)	-0.071 (0.259)	0.134** (0.054)	0.0722 (0.245)
Constant	-3.437 (8.745)	3.576 (9.869)	86.08 (118.8)	4.632 (9.100)	137.0 (112.4)
Elections	139	139	139	139	139
Countries	29	29	29	29	29
Fixed Effects	—	—	√	—	√

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

from the three most appeared countries in domestic news messages. FGLS estimations are in Model 2 and 4, and Fixed Effects are in Model 3 and 5¹⁰.

The first noticeable point is that the domestic economy appears to have no effect as shown in Model 1. The coefficients of both *Domestic GDP* and *Domestic Unemployment* are statistically insignificant. The null findings are consistent with Blais' (2006) observation, that is "there is no clear relationship between the economic conjuncture and turnout" (Blais 2006: 117).

In all four models, the coefficient of *Benchmark GDP* (noted as β_2 in Table 1) is negative and statistically significant except Model 5. The negative sign is in line with *withdrawal* argument. Voter are less like to turnout when their economy is under-performing than its benchmark(s). The positive sign of *Domestic GDP* (noted as β_1 in Table 1) further supports the withdrawal expectation, but its statistical significance reaches at the conventional level only in Model 2.

Regarding unemployment, the coefficient of domestic and benchmark is never distinguishable from zero in all four models, suggesting that there is no evidence of either withdrawal or mobilization hypothesis. This is the similar finding in that the benchmark unemployment has no effect in vote choice (Kayser and Peress 2012; Aytaç 2018).

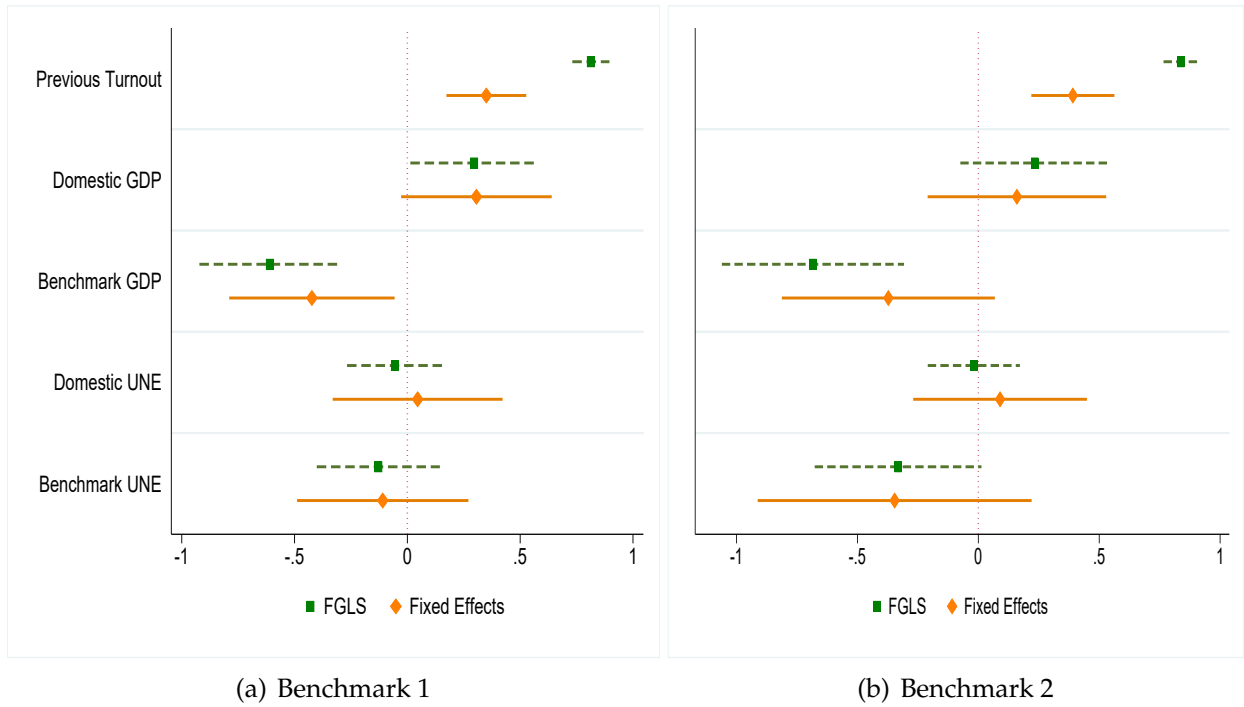
It is expected that the marginal effect of benchmark growth will be greater than that of domestic one due to presence of a negativity bias. Indeed, the coefficients of *Benchmark GDP* in model 2, 4, and 5 are substantially larger than the coefficients of *Domestic GDP*, indicating that there is clear evidence of negativity bias.

This comparison becomes more noticeable in Figure 3 which plots each of the coefficients¹¹. Sub-figure (a) is based on model 2 and 3, and sub-figure (b) is based on model 4 and 5 in Table 2. The dashed line represents the confidence intervals of the coefficients from FGLS estimations, and the solid line represents the confidence intervals of the coefficients from Fixed Effect estimations.

¹⁰For robustness, I also estimate the same models using the voting age population based turnout measure as an alternative DV. The results, which is available in Table 5 in appendix, remain robust.

¹¹For simplicity, the figure shows the key variables only although it is based on the full models in Table 2.

Figure 3: The Effect of Domestic and Benchmark(s) Economy on Voter Turnout



The coefficients of *Benchmark GDP* (or β_2) are clearly further away from the zero line than that the coefficients of *Domestic GDP* (or β_1) in both of the sub-figures. This suggests that the magnitude of benchmark growth is greater than that of the domestic growth. It is also apparent that β_2 is robust in three models containing no zero line in their confidence intervals, whereas β_1 is unstable except in FGLS of sub-figure (a). This simple comparison implies that voters react asymmetrically to the economic condition: They tend to react strongly to under-performing conditions, but their responses to over-performing conditions are not so much.

Robustness

For robustness, I also adopt the widely used empirical strategy suggested by Kayser and Peress (2012) in which they include the gap between one's domestic economy and the benchmark's economy. Table 3 presents the results. Model 1 and 2 use the percentage of registered voters (REG) that go to the polls, and Model 3 and 4 use proportion of the voting age population (VAP) that turns out as dependent variable. The international bench-

Table 3: The Effect of Benchmarking Economy on Voter Turnout (KP's model)

DV: Turnout	REG (1)	REG (2)	VAP (3)	VAP (4)
Previous Turnout	0.813*** (0.050)	0.350*** (0.106)	0.920*** (0.045)	0.449*** (0.124)
Deviation GDP	0.296* (0.172)	0.306 (0.201)	0.396** (0.191)	0.387* (0.233)
Benchmark GDP	-0.314* (0.156)	-0.117 (0.175)	-0.042 (0.174)	-0.116 (0.201)
Deviation Unemployment	-0.055 (0.129)	0.046 (0.227)	-0.008 (0.136)	-0.030 (0.263)
Benchmark Unemployment	-0.184 (0.194)	-0.064 (0.267)	-0.300 (0.214)	-0.458 (0.303)
Compulsory Voting	3.102 (1.933)	4.467 (5.868)	-1.562 (1.807)	4.428 (6.814)
Effective N. of Party	-0.467 (0.360)	-0.971 (0.698)	0.163 (0.370)	-0.213 (0.809)
Electoral Competition	-0.027 (0.037)	-0.001 (0.050)	-0.012 (0.039)	0.008 (0.059)
Polity IV	0.012 (0.819)	-2.641** (1.276)	-1.130 (0.872)	-2.712* (1.445)
Majoritarian	-1.408 (1.880)	1.043 (4.204)	0.112 (1.893)	0.013 (4.956)
Presidential Election	-1.666 (2.119)	0.724 (2.688)	-3.792 (2.357)	-1.161 (3.108)
Population	-0.143 (0.487)	-0.499 (12.98)	0.069 (0.498)	-19.98 (15.00)
Urbanization	0.192*** (0.062)	-0.071 (0.259)	0.177*** (0.062)	-0.189 (0.323)
Constant	3.576 (9.869)	86.08 (118.8)	3.044 (10.21)	267.9* (136.9)
<i>p</i> -value from Wald Test				
Deviation GDP = Benchmark GDP	0.001***	0.058*	0.037**	0.051*
Deviation UNE. = Benchmark UNE.	0.437	0.635	0.109	0.106
Elections	139	139	139	139
Countries	29	29	29	29
Fixed Effects	—	√	—	√

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

mark is the country which appears the most in ones' domestic news reports (Benchmark 1).

The results in three models (1, 3 and 4) show that *Deviation GDP* has a positive and statistically significant effect, suggesting that voters respond to their country's deviation from its spatial reference point. The positive sign of *Deviation GDP* is consistent with the withdrawal argument in that voters tend to abstain when the domestic growth underperforms the benchmark's growth, but turn out more when the domestic growth outperforms the benchmark's growth. More to the point, the *Benchmark GDP* in model 3 and 4 are statistically indistinguishable from zero (while *Deviation GDP* is significant), this indicates that voters respond to deviation from its benchmark, but not to the benchmark itself, noted as 'full benchmarking' in Kayser and Peress (2012: 668). Thus, this results are consistent with benchmarking hypothesis and are in line with the main findings in Table 2.

While I find no evidence of benchmarking from Model 2, the result in Model 1 suggests that as least some voters are benchmarking and others do not ('partial benchmarking' in Kayser Peress (2012)) because the coefficient of *Benchmark GDP* is not zero. Kayser and Peress (forthcoming: 2) note that the degree of partial benchmarking can be easily obtained by dividing the coefficient of *Benchmark GDP* by the coefficient of *Deviation GDP*. Following this simple calculation, I obtain 1.061 (0.314/0.296), which surprisingly indicates that there are more people who do not benchmark than people who benchmark.

At the bottom of the same table, I report the results of a Wald test for the joint hypothesis that the coefficients on *Deviation GDP* and *Benchmark GDP* are equal. In all four models, I can reject the null hypothesis, which demonstrates that the different estimated coefficients on these variables are highly unlikely to have emerged by accident. This is in line with Kayser and Peress (2012) which further supports benchmarking argument on economic growth. However, similar Wald tests on the unemployment (*Deviation UNE* = *Benchmark UNE*) shows that they are statistically indistinguishable from each other in all four models, indicating that voters do not tend to benchmark on unemployment.

Table 4: The Effect of Domestic and Placebo Economy on Voter Turnout (FGLS)

DV: Turnout	REG (1)	VAP (2)
Previous Turnout	0.843*** (0.047)	0.944*** (0.039)
Domestic GDP	-0.042 (0.136)	0.169 (0.148)
Domestic Unemployment	-0.007 (0.122)	0.015 (0.124)
Placebo GDP	-0.034 (0.362)	0.305 (0.387)
Placebo Unemployment	0.003 (0.246)	0.119 (0.277)
Compulsory Voting	3.064* (1.781)	-1.084 (1.595)
Effective N. of Party	-0.302 (0.338)	0.227 (0.336)
Electoral Competition	-0.033 (0.036)	-0.009 (0.038)
Polity IV	0.695 (0.778)	-0.614 (0.803)
Majoritarian	-0.706 (1.701)	0.399 (1.644)
Presidential Election	-2.078 (2.184)	-3.982* (2.370)
Population	-0.269 (0.424)	0.043 (0.418)
Urbanization	0.150*** (0.057)	0.157*** (0.054)
Constant	-3.585 (8.963)	-6.687 (8.965)
Election Countries	139 29	138 29

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, although it is assumed that voters arrive at a reasonable comparative assessment as they look to its most relevant reference country's economic condition, rather than making an *ad hoc* comparison, it is hard to tell if they actually do so. In this regard, it would be effective to highlight the difference in results when one uses systematic benchmark(s) verse when uses randomly selected set of benchmark(s) (perhaps countries that were seldom reported in the domestic news). There should be no effect of the economy on turnout based on these placebo spatial reference points.

Based on Arel-Bundock et al.'s empirical modeling, Table 4 presents the results of the placebo test. It is apparent that voters do not respond to the economic conditions of irrelevant countries. In both models, the marginal effect of *Placebo Growth* and *Placebo Unemployment* are never distinguishable from zero¹². This result suggests that voters benchmark in a systemic manner by looking to the relevant countries that have a great commonality in between. They do not benchmark any random and irrelevant countries when they make a comparative assessment regarding the economy.

Discussion

These two dominant theories on the effect of the economy on voter turnout present the conflicting expectations that voters either withdraw or mobilize during economic hardships. However, most cross-national studies find that there is no relationship between economic fluctuation and voter turnout. In this paper, I questioned whether the existing literature has included appropriate economy variables into the turnout models. More specifically, I argue that one source of this null finding is that scholars have only studied domestic economies, and thus left out the power of relative economy in citizens' minds when forming performance evaluations. Even though making spatial comparisons is ordinary human behavior, previous studies have not considered this obvious behavioral pattern in turnout models.

¹²In Fixed Effects estimation, the results remain robust. See Table 6 in appendix.

I argue that voters' evaluations of the economy as good or bad are not merely based on national economic conditions. Instead, they tend to look to other countries' economies to gauge the relative conditions of their economy. The relative economy provides voters with the competence signal indicating how the incumbent is handling the economy. A relatively poor economy either leads voters to lose confidence in their government and renders them alienated from and indifferent to politics (the 'withdrawal' argument) or makes voters express their grievances actively by holding their government accountable at the polls (the 'mobilization' argument).

Using a novel dataset which identifies unique spatial reference points per country and election based on domestic media coverage from 29 countries since the 1980s, and employing two sets of empirical strategies, this paper finds supportive evidence for the 'withdrawal' argument. Relatively worsening economic growth makes voters *abstain* from voting because they lose confidence in the managerial competence of their government. Indeed, voters do base their judgments on incumbent economic policy performance by comparing their national economy with others' and decide whether to turn out or not accordingly.

This paper also finds that there is an asymmetry in voters' reactions to the relative economy. Voters are far more sensitive to a relatively underperforming growth than to an outperforming one, indicating a negativity bias in voting behavior. A result from an additional test using a random spatial reference point suggests that voters do not make an *ad hoc* comparison, but instead they arrive at a reasonable comparative economic assessment by looking to the economic conditions of relevant country(ies).

This paper also reveals that there is no statistically significant relationship between the domestic economy and voter turnout, which is consistent with previous literature. This null finding has two implications. First, the ambiguity in existing studies comes in part from poor measures of the economic variable. The non-benchmarked economy is insufficient in its ability to assist citizens in evaluating the health of the economy and incumbent competence. Citizens receive more accurate and useful information on incumbent com-

petence at handling the economy by ‘comparing’ their performance with others, the same way that individuals tend to ‘compare’ things in their daily lives.

Second, it suggests that voters tend not to make a decision to turn out based on availability of the resources. Scholars have argued that citizens might not take part in politics simply due to financial constraints. If so, voters should react only to the fluctuations in domestic economic conditions regardless of economic conditions abroad. However, the finding of this paper does not support this claim as the domestic growth appears to have no effect on turnout. Instead, they do so after losing confidence in their incumbent when their economy is relatively poor than other relevant countries.

This is, to the best of my knowledge, the first research that examines the effect of relative economy on voter turnout. Although the relative performance theory has been around for a long time in economic voting literature, its applications have been very limited to vote choice. This research attempts to expand the boundary of applications by looking at how voters react to relative economic performance when they make a decision to turnout. The finding of this research demonstrates the applicability of the benchmarking hypothesis to various research topics in political science.

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Appendix A

Table 5: The Effect of Domestic and Benchmark Economy on Voter Turnout (Arel-Bundock et al.'s model)

DV: Turnout (VAP)	Domestic	Benchmark 1		Benchmark 2	
	(1)	(2)	(3)	(4)	(5)
Previous Turnout	0.941*** (0.043)	0.920*** (0.045)	0.906*** (0.029)	0.449*** (0.124)	0.360*** (0.117)
Domestic GDP	0.161 (0.151)	0.396** (0.191)	0.370** (0.188)	0.387 (0.233)	0.225 (0.245)
Domestic Unemployment	0.013 (0.131)	-0.008 (0.136)	-0.026 (0.099)	-0.030 (0.263)	0.026 (0.239)
Benchmark GDP		-0.439** (0.211)	-0.653*** (0.242)	-0.502* (0.254)	-0.511* (0.287)
Benchmark Unemployment		-0.292 (0.183)	-0.558*** (0.189)	-0.428 (0.263)	-0.606 (0.373)
Compulsory Voting	-1.175 (1.749)	-1.562 (1.807)	-0.774 (1.163)	4.428 (6.814)	4.402 (6.128)
Effective N. of Party	0.222 (0.361)	0.163 (0.370)	0.149 (0.247)	-0.213 (0.809)	-0.450 (0.723)
Electoral Competition	-0.010 (0.039)	-0.012 (0.039)	-0.009 (0.029)	0.009 (0.059)	0.025 (0.052)
Polity IV	-0.679 (0.845)	-1.130 (0.872)	-1.078* (0.649)	-2.712* (1.445)	-3.118** (1.302)
Majoritarian	0.359 (1.807)	0.112 (1.893)	-0.691 (1.176)	0.013 (4.956)	3.379 (4.367)
Presidential Election	-3.847 (2.388)	-3.792 (2.357)	-4.740** (1.929)	-1.161 (3.108)	-0.555 (2.793)
Population	0.074 (0.458)	0.069 (0.498)	0.246 (0.316)	-19.98 (15.00)	-28.92** (13.64)
Urbanization	0.167*** (0.058)	0.177*** (0.062)	0.115*** (0.042)	-0.189 (0.323)	0.028 (0.293)
Constant	-5.429 (9.096)	3.044 (10.21)	9.821 (7.810)	267.9* (136.9)	347.7*** (124.5)
Elections	138	138	138	137	137
Countries	29	29	29	29	29
Fixed Effects	—	—	√	—	√

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: The Effect of Domestic and Placebo Economy on Voter Turnout (Fixed Effects)

DV: Turnout	REG (1)	VAP (2)
Previous Turnout	0.312*** (0.106)	0.451*** (0.129)
Domestic GDP	0.046 (0.153)	0.056 (0.178)
Domestic Unemployment	0.012 (0.218)	-0.184 (0.254)
Placebo GDP	-0.383 (0.423)	-0.325 (0.502)
Placebo Unemployment	0.009 (0.261)	0.002 (0.308)
Compulsory Voting	4.214 (5.932)	4.612 (6.982)
Effective N. of Party	-1.037 (0.699)	-0.231 (0.819)
Electoral Competition	-0.001 (0.051)	-0.016 (0.059)
Polity IV	-2.716** (1.295)	-2.651* (1.485)
Majoritarian	3.106 (4.050)	1.631 (4.847)
Presidential Election	1.527 (2.716)	-0.565 (3.178)
Population	-4.478 (13.129)	-23.576 (15.382)
Urbanization	-0.033 (0.264)	-0.114 (0.337)
Constant	123.79 (120.14)	293.02* (140.64)
Election	139	138
Countries	29	29
Fixed Effects	✓	✓

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$