



RESEARCH ARTICLE



## Economic voting and state-business relations in OECD countries

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### ABSTRACT

Regarding the variance of economic voting, the literature draws on various political institutions and individual-level contexts but pays little attention on how to comprehensively analyze political and economic spheres. Given that politics and economy are closely intertwined by resource acquisition and allocation, this study proposes state-business relations (SBR) to explain the variance across countries. The empirical analysis of 31 OECD countries from 1995 to 2019 confirms that the SBR's explanatory power is significant as a coordination mechanism in a country and moderates political and economic contexts. This study highlights the importance of systematic integration of political and economic spheres and calls for additional efforts to elaborate the nuance of SBR in economic voting across countries.

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The literature on economic voting states that voters punish the incumbent party or leader for a bad economy but reward them through votes if the economy takes a turn for the better (Erikson 1989; Nadeau *et al.* 2013). Nevertheless, several economic voting conditions obscure the effect as well. Earlier studies have introduced diverse explanations, generally focusing on political institutions. For instance, economic voting varies with clarity of government responsibility: political contexts, such as clarity of responsibility, affect the linkage between economic performance and voters' choices (Powell and Whitten 1993; Hobolt *et al.* 2013). Others associate economic voting with such variables as party

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polarization (Ellis and Ura 2021), party systems (Duch and Stevenson 2008), or economic openness (Crespo-Tenorio *et al.* 2014).

However, while the literature examines political and economic variables simultaneously, they pay little attention on how to comprehensively analyze the intertwined political and economic contexts of a country in economic voting. Given the definition of politics, ‘authoritative allocation of value’ (Easton 1965), political systems are closely intertwined with economic activities. As we can observe in many transition economies, such as the Eastern European countries, economic voting is affected more by newly settled resource allocation principles than by political systems alone (Tucker 2006). Thus, this study aims to extend the literature beyond a simultaneous but respective inclusion of political and economic institutions and emphasizes a systematic integration of politics and economy into the economic voting analysis.

In particular, this study proposes state-business relations (SBR) as a measure of intertwined political and economic spheres in a country. SBR, defined as characteristics of interactions between the state and business in a country’s resource acquisition and allocation activities, indicates that each economy presents a distinctive coordination mechanism, accumulated through socio-economic traditions and subsequently modified by external environments (Hall and Soskice 2001; Weiss 2005; Yoo and Lee 2009). Ranging from state-activism to laissez-faire, SBR helps to understand how actively or loosely a state coordinates economic activities. Therefore, the SBR of a country could have a wide range of influence on people’s behavior in economy and politics, consequently affecting economic voting. Pitting the idiosyncratic role of SBR against earlier studies’ political and economic elements, this study suggests that a country’s intertwined political economy helps to delineate the trajectory of economic voting across countries.

Using the data on 31 OECD (Organization for Economic Co-operation and Development) countries from 1995 to 2019, this study investigates the explanatory power of SBR in economic voting, even after controlling for other political and economic variables in the literature. SBR is measured by the Index of Economic Freedom, published by the Heritage Foundation (2021). The index illustrates how pervasively the state is present and intervenes in economic activities and thus helps to identify the coordination trajectory in each country (Yoo and Jho 2015). The central argument of this study is that among OECD countries, high SBR, i.e. the conspicuous presence of the state in economic activities or tight regulatory tradition, moderates economic voting and alleviates

the effect of political institutions, i.e. clarity of government responsibility. It might be because the institutional arrangements that allow for a state's active participation in economic activities could highlight the *role* of government rather than its *responsibility* regardless of economic outcomes, consequently mitigating the respective influence of economic and political elements on voting behavior. Therefore, when voters are faced with a choice to either vote for or against the incumbent in a subsequent election, they are *more* likely to acknowledge the government's role in the economy and *less* likely to attribute responsibility for bad economic outcomes to the incumbent. The empirical results of this study provide evidence of economic voting affected by SBR. They raise a theoretical insight into the overall importance of the political-economic context, to which little attention has been paid by the literature of economic voting and electoral politics.

This study is organized as follows. The subsequent section reviews the literature on economic voting and suggests a complementary intertwined political-economic approach with the SBR concept. The following two sections explain the research method and empirical outcomes. In the conclusion section, theoretical implications are discussed with remarks on future research directions.

## Theoretical backgrounds and hypotheses

### *Economic voting and political institutions*

Economic voting theory posits that voters reward the incumbent when the economy has improved and are more likely to punish him or her when it has gotten worse. Following this reasoning, an incumbent government is likely to be judged by its economic performance, often measured via macroeconomic indicators such as GDP growth. The theory's application is confirmed in various countries: Argentina (Remmer and Gélinau 2003), Greece (Kosmidis 2018), Ireland (Marsh and Mikhaylov 2012), Italy, Portugal and Spain (Lobo and Lewis-Beck 2012), and USA (Erikson 1989) to name just a few. Complementing macroeconomic indicators with micro-level contexts, the literature further assesses the effect of individual elements on economic voting, such as economic vulnerability (Singer 2011), personal income records (Healy *et al.* 2017), and psychological and motivational factors (Hadjar and Beck 2010).

However, a variance of economic voting tendencies is still notable within the country and across countries (Duch and Stevenson 2008;

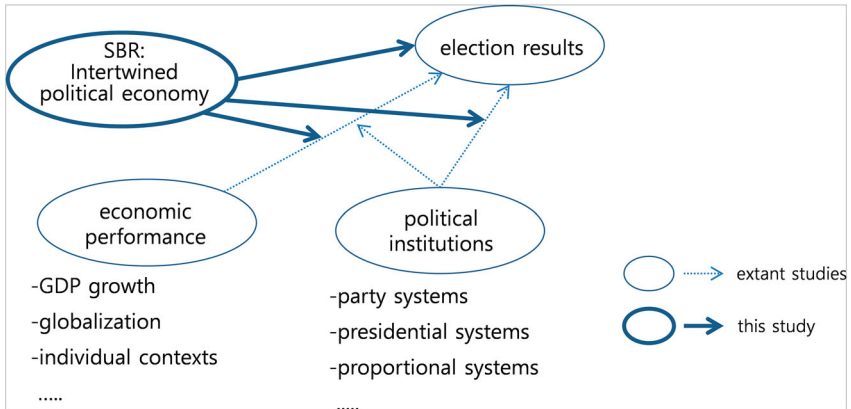
Van der Brug *et al.* 2007; Wimpy and Whitten 2017). The literature draws on political institutions, such as party polarization (Ellis and Ura 2021), party positions (Hellwig 2012), and presidential term-limit and regional government's power (Valdini and Lewis-Beck 2018). Many other components of political contexts, such as presidentialism and parliamentarism (Hellwig and Samuels 2008), information and media's role (Ashworth 2012), and proportional and majoritarian systems (Lijphart 1999), have been examined to explain the variance of economic voting.

The central mechanism of political institutions in economic voting is that they alter 'the quality of the signal' about how well the incumbent performed in the economy (Duch and Stevenson 2008). Clarity of responsibility is defined by two principal features: voting cohesion of the major governing party or parties, and a participatory and inclusive committee system in the legislature, is a critical concept in understanding economic voting (Powell and Whitten 1993). Voters are more likely to reward or punish the incumbent government when there is high clarity of responsibility for economic conditions, while clarity of responsibility often denotes inconsistent outcomes (Dassonneville and Lewis-Beck 2017; Royed *et al.* 2000).

Clarity of responsibility can also apply to economic contexts. For instance, voters in open economies are less likely to award or blame domestic politicians for economic performance, since incumbents are less accountable for exogenous influences (Fernández-Albertos 2006). Others have also measured clarity of responsibility in different ways to complement its inconsistent outcomes in economic voting. For instance, the ideological cohesion of governing parties and the number of parties in parliament are suggested as complementary indexes of clarity of responsibility (Nadeau *et al.* 2002).

### ***An intertwined political economic approach***

Nevertheless, extant research on economic voting can be complemented in the following aspects. First, earlier studies on economic voting are short of comprehensively elucidating the link between economy and politics, while they emphasize close relationships between the two. As illustrated in Figure 1, their analyses rely on the respective treatment of economic and political institutions. However, the inclusion of economy and politics do not appropriately capture the political economy of a country as a nexus between contingent factors and economic voting. It



**Figure 1.** SBR's moderating effect on economic voting.

is because a country's political economy is intertwined through resource acquisition and allocation, and thus its analysis requires an understanding of comprehensive relationships beyond a simple sum of economy and politics.

Second, as a consequence, the respective treatment of economy and politics do not fully cover the institutional environment that affects clarity of responsibility in economic voting. As discussed above, the central mechanism by which political and economic institutions affect economic voting is that they alter the quality of the signal or information by which voters assign responsibility to the incumbents. Therefore, the intertwined relationships between economy and politics could provide a comprehensive and distinctive picture about the institutional environment for responsibility signaling and subsequently speak to something different about what occurs regarding the signal or information.

For instance, countries with similar clarity index may still display distinct voting behaviors due to their idiosyncratic political economic characteristics. According to Powell and Whitten (1993), France and the UK have similar clarity scores: 4.9 and 4.8, respectively. However, the 2010 European Social Survey (ESS) reveals a contrasting political economy between France and the UK. To the question of 'the government should take measures to reduce differences in income levels', 41.5% and 15.6% of respondents in France and the UK, respectively, agree strongly (European Social Survey Round 10 Data 2020). The difference illustrates characteristic political economic traditions between France and the UK, despite the two countries' similar clarity

scores. France demands a higher degree of government's involvement than the UK.

The public preference towards government involvement in economic spheres is not directly interpreted as the ideology of government or of the public. In France, where the public prefers government involvement more than the British, their president in 2010 was a conservative Nicolas Sarkozy. France has experienced government changes from conservatives to socialists to center rightists over the past 10 years. The British, who prefer the government involvement less than the French, also has experienced similar, but in an opposite direction, government changes from leftists to rightists over the same period. This indicates that public preference towards government's involvement in economic spheres can be distinguished from the ideology of government or of the public, and rather reflects a feature of political economy or coordination mechanism in a country. This paper particularly focuses on the latter aspect and examines the mechanism through which it affects the public's economic voting tendency.

Thus, this study extends the literature on economic voting, by complementarily proposing an intertwined political economic approach as a comprehensive institutional environment whereby each economic and political institution is devised and working. Resource acquisition and allocation, a representative feature of a country's political economy, is organized in various forms. Some countries show less frequent and limited government's involvement in economic activity, whereas others favor extensive government coordination and advocate the state's presence in business (Hall and Soskice 2001). The former is usually recurrent in *laissez-faire* economies, which are characterized by flexible labor relations and lack of government intervention in firm-level labor coordination (Hall and Gingerich 2009). In the latter type, government's active participations are expected in labor relations and innovation activities (Yoo and Lee 2009). Therefore, distinctive characteristics of political economy could make the government's role have different implications on domestic politics, and consequently moderate both the influence of economic outcome and functions of political institutions, e.g. clarity of responsibility.

### *Hypotheses: SBR and economic voting*

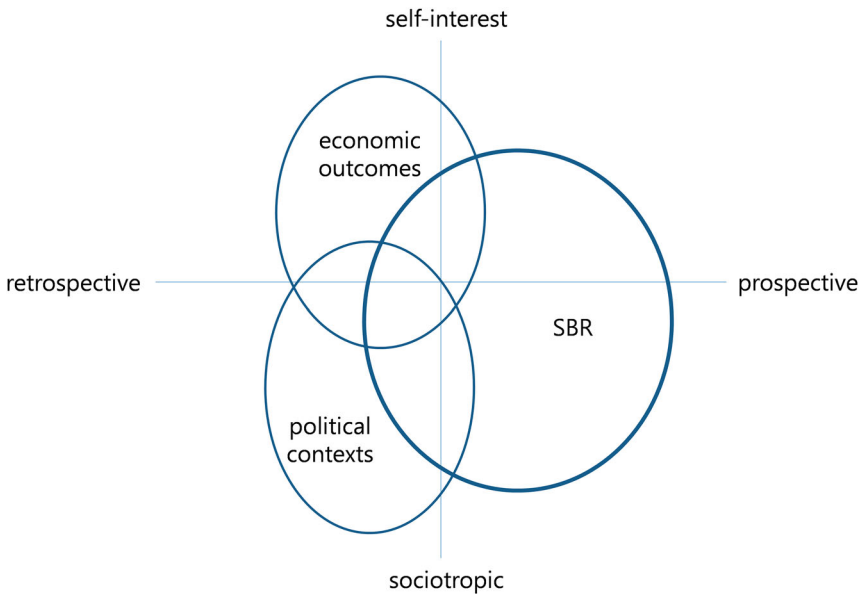
Political economy, shaped by how the state and businesses interact (Leftwich 1994), is not a simple sum of political contexts and economic factors (Hall and Soskice 2001; Bachmann and Witteloostuijn 2009). A political

system, such as presidential system, does not say much about how resources are allocated in a country. Different coordination mechanisms between France and the USA are the case. Under presidential systems, France is characterized by state activism, whereas the USA upholds market-based coordination, regardless of whether left-wings or right-wings are serving as an incumbent. Economic indexes, such as GDP growth, also do not say much about the characteristics of coordination mechanism in a country. Thus, we need to comprehensively incorporate politics and economy into the analysis of economic voting.

State and business relations (SBR) reflect the historically accumulated and consequently idiosyncratic socio-economic traditions and shed light on the dynamics in coordination mechanism across countries (Yoo and Lee 2009). Certain countries display tight coordination, while others adopt loose coordination between the state and businesses. Tight or loose SBR might be related to the degree of economic development or democratic processes (Cali and Sen 2011; Rodrik 1991). However, as illustrated in the French or South Korean cases, tight SBR can be also found in economically advanced or institutionally democratized countries. Characterized as *dirigiste* or state-activism (Yoo and Lee 2009; Schmidt 2003), the French government is still actively involved in many economic activities, for example, through the European Framework Program. In South Korea, even liberalization in telecommunications policy has been adopted as a state-initiated development strategy (Jho 2007).

SBR facilitates the understanding of seemingly unrealistic but practically possible coexistence of increased autonomy in management and the redirected but still active presence of the state in business (Whitley 2006). Regarding the accountability issue, evaluations of government on economic issues are influenced by the traditions of a country's political-economic relations. That is, voters in a country where the government plays an active role in economy either could decrease economic voting, providing support for the state's role by the incumbent, or might increase economic voting, believing it is the government's responsibility for the current problems.

Voters do not make judgements about their incumbent governments solely based on economy or political systems. This study suggests that if voters are accustomed to a government's strong presence in business, for instance, through government's expenditure and wage coordination processes, voters would tend to acknowledge the incumbent government due to their expectations on the state's role, regardless of economic outcomes. This implies that the coordination mechanism, SBR, could function as a prospective framework (see Figure 2), separating government's role from



**Figure 2.** SBR's position in the voter's cognitive framework.

its responsibility. As illustrated by the French case where people prefer government's active role in dealing with economic inequality, tight SBR has promoted the presence of the state in the center stage of economy for the prospective role. In contrast, in the countries with loose SBR, economic outcomes could take center stage in voting, since the state has not much involved in the economy and consequently voters' attention is concentrated on the outcomes as a responsibility of the past (incumbent).

Thus, the higher the level of government presence in the economic sphere, the more likely voters are to pay attention to the state's active role rather than economic outcomes. This means that when we take account of SBR in economic voting, its effects on the size of incumbent's vote results will be positive. At the same time, the effect of SBR will be curvilinear in a reversed U-shape, since SBR that is too tight could increase government's responsibility rather than shed light on government's role. Specifically, extreme levels of SBR could backfire in the sense that voters consider economic outcomes as mainly the result of government actions; this would reinforce their economic voting tendencies instead of mitigating them. Therefore, the following is raised:

**Hypothesis 1:** Tight SBR curvilinearly, in a reversed U-shape, leads to larger incumbent's vote share.



Furthermore, we expect that SBR will negatively moderate (decrease) the effect of economic outcome on incumbent's vote results. It is because, under tight SBR, voters are more likely to acknowledge government's role and call for its involvement rather than attribute responsibility to the government, alleviating the effect of economic performance. Furthermore, by definition, SBR is a more comprehensive concept than economic outcomes. Incorporating this variable will thereby diminish the effect of economic outcomes in an analysis of economic voting. In contrast, an opposite argument could also be plausible. Under tight SBR, which denotes strong relationships between the state and businesses, voters would easily assign responsibility to a government for economic procedures or private investments: Therefore, contesting hypotheses are raised as follows:

**Hypothesis 2a:** Tight SBR negatively moderates (decreases) the influence of economic outcome on incumbent's vote share.

**Hypothesis 2b:** Tight SBR positively moderates (increases) the influence of economic outcome on incumbent's vote share.

SBR could also change the effect of political institutions, i.e. clarity of responsibility. By definition, SBR includes distinct interactions between political and economic spheres, denoting another but more comprehensive coordination mechanism in a country: property rights, government integrity, judicial effectiveness, tax burden, government spending, fiscal health, business freedom, labor freedom, monetary freedom, investment freedom, and financial freedom. Substantively, tight SBR means that a government more actively participates in these economic dimensions and thus voters take into account such government's role, regardless of positively or negatively, when attributing responsibility. This would obscure the role of clarity in economic voting since voters have other cues from the incumbent, state's role in the business sector, to evaluate them. Therefore, the following is raised:

**Hypothesis 3:** Tight SBR negatively moderates (decreases) the influence of clarity on incumbent's vote share.

## Data and methods

### Data

By utilizing replication data available in the literature and adding the SBR variable, this study examines the robustness of SBR in comparative terms of economic and political contexts. The dataset incorporates 215 election

**Table 1.** SBR and OECD countries.

Country	Mean	Std. Dev.	Min	Max
Australia	21.17	3.06	17.64	26.35
Austria	31.26	2.50	29.07	36.01
Belgium	33.31	3.28	29.05	38.88
Canada	24.78	4.70	20.04	33.15
Czech	32.28	2.42	27.90	35.37
Denmark	26.79	4.58	22.34	33.82
Estonia	26.40	4.63	23.01	36.21
Finland	28.94	4.12	26.07	37.25
France	41.06	2.75	38.39	44.67
Germany	31.48	3.59	27.40	37.55
Greece	44.10	2.94	41.11	49.23
Hungary	37.43	3.13	35.12	43.57
Iceland	27.43	1.95	24.86	29.95
Ireland	22.30	4.01	17.82	28.10
Italy	40.34	1.28	38.92	42.34
Japan	30.68	2.38	28.27	34.20
Latvia	34.91	3.61	27.65	38.78
Lithuania	34.74	9.87	26.18	52.26
Luxembourg	25.45	2.79	21.17	28.40
Netherlands	26.98	2.40	25.20	31.91
New Zealand	18.68	1.64	16.57	21.91
Norway	33.08	3.62	27.28	37.61
Poland	39.42	4.41	33.53	45.06
Portugal	37.64	1.40	35.93	39.54
Slovakia	37.00	5.35	31.57	44.43
Slovenia	41.98	4.50	37.20	50.70
Spain	34.97	3.45	31.78	42.65
Sweden	30.17	4.33	24.66	37.92
Switzerland	20.62	1.63	18.63	22.96
UK	23.37	1.716	20.91	25.52
USA	23.23	2.345	18.77	25.84

cases in 31 OECD countries from 1995 to 2019, collected from various sources, such as the Comparative Political Data Set (Armingeon *et al.* 2021). The replication package containing the code to replicate the findings presented in this article can be found on Zenodo (<https://doi.org/10.5281/zenodo.7357595>). Specific data sources of all variables are described below. The following countries are included: Australia, Austria, Belgium, Canada, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the UK, and the USA. Descriptive statistics of SBR for each country are reported in Table 1.

### Dependent variable

*Incumbent's vote share difference* is adopted as the dependent variable, in line with the literature (e.g. Powell and Whitten 1993). Gains or losses of

party with the largest vote share are calculated in a given election, compared to their previous election in terms of the percentage of votes they received. The largest party may not be always the incumbent party. However, the case of minority government is not a prevalent phenomenon. And CPDS dataset, which holds broadest data on elections, does not fully provide information about an incumbent's party identification. We also note that the possible inconsistency between the incumbent party and the largest party can be partially, although not completely, controlled by the clarity index, which considers the blurring factors (including minority government and coalition government) for the accountability.

The results of both presidential and parliamentary elections are collected from the Comparative Political Data Set (Armingeon *et al.* 2021). With regards to changing election dates, we followed the coding rules of CPDS. It states that 'if there were two elections in a year, the date of the second is given (Armingeon *et al.* 2021, 7)'. It further mentions that there are two cases within the time frame that had two elections in one year, Greece in 2012 and Spain in 2019 – and that only the results of the second one are entered in the dataset.

### **Explanatory variables**

First, the Index of Economic Freedom, which has been published every year since 1995 by the Heritage Foundation (Heritage Foundation and Wall Street Journal 2021), helps identify the characteristic trajectory of SBR in each country by measuring how conspicuously its government is present and intervenes in business activities, particularly, when faced with globalization since the mid-1990s (Yoo and Jho 2015). Economic freedom is measured based on 12 quantitative and qualitative factors, grouped into four broad categories: (1) rule of law (property rights, government integrity, judicial effectiveness); (2) government size (government spending, tax burden, fiscal health); (3) regulatory efficiency (business, labor, and monetary freedom); and (4) open markets (trade, investment, and financial freedom) (Heritage Foundation 2021). Each of the twelve factors is graded on a scale of 0–100, and a country's overall score is derived by averaging the scores, with equal weight given to each. Among the twelve factors, this study adopts eleven factors to calculate SBR except trade. SBR is calculated by deducting the average score from 100, denoting the higher SBR scores, the tighter state-business relations. Instead of trade, it utilizes the index of trade

openness from the World Bank (World Bank 2012). This is to comply with the measurement of trade openness in the literature (Ezrow and Hellwig 2014). Trade openness is a measure of country  $k$ 's exposure to the international economy at time  $t$ .

Second, a country's economic performance in a given year is adopted. Following the literature on electoral accountability, this study collects *real gross domestic production growth (GDP)* from CPDS. GDP growth is constructed as a measure of change, reflecting the percentage change in the value compared with the year before. As an alternative measure of economic performance, *unemployment rate* in the year of the election is collected from CPDS.

Third, to test whether SBR would serve as a significant variable even after accounting for political contexts in the literature, the following variable is adopted: *clarity of responsibility*. Although diverse indexes are suggested to measure the clarity of responsibility, this study adopts Powell and Whitten's index. It is because a body of alternative approaches mainly discuss and compare their methods with Powell and Whitten's. This study includes the alternatives as control variables. Specifically, Powell and Whitten (1993) used an averaged clarity index by country in 19 countries from 1969 to 1988. We updated the index from 1995 to 2019 (the time window of this study based on the SBR index) and expanded it for 31 OECD countries. Powell and Whitten's index is a composite of five dummy variables: (1) cohesiveness of party, (2) inclusive committee system in legislature, (3) bicameral opposition, (4) minority government, and (5) coalition government. We adopted relevant indexes from V-Dem (V-Dem 2021) and DPI (DPI 2020) that match Powell and Whitten's indicators above. We summed up all variables to generate a 5-scale score and took an average score by country during the time window, as in Powell and Whitten. We finally constructed the clarity index by subtracting original scores from 5 to have larger value mean higher clarity.

### **Control variables**

To further validate SBR's salience in economic voting, control variables used commonly in the literature are also included. This study adopts the following eight control variables. *Right-wing* indicates the ideological inclination of the incumbent party. Powell and Whitten (1993) assume that a party's ideological inclination affects economic policy and subsequent voting results. It is coded 0 if the incumbent party is left-wing;

1 if centrist; 2 if center-rightist; and 3 if right-wing, according to CPDS. *Number of parties*, sourced from CPDS, is a variable that measures effective number of parliamentary parties in the election year. Fractures in the party system lead to the blurring of electoral accountability (Anderson 2000).

*Openness* indicates the trade openness of a country in the corresponding year. It is a continuous variable from the World Bank, measuring the ratio of total trade to GDP in terms of percentage. *EU* tells whether a country holds membership in the European Union. EU membership could clarify whether the voters blame their incumbents less because they assign responsibility to the EU instead of their domestic governments. It is coded 1 if a country is a member of the EU, and 0 otherwise.

The electoral system of *proportional representation* (PR) affects voting results. It is an ordinal measure, coded 0 if completely FPTP (first past the post) and 2 if completely PR, according to Lijphart (1999). *Presidential* indicates whether the election is about the presidential or parliamentary one, collected from CPDS. It is coded as 4 if the election is presidential; 3 if semi-presidential dominated by president; 2 if hybrid; 1 if semi-presidential dominated by parliament; and 0 if parliamentary.

Among the political contexts of Valdini and Lewis-Beck (2018), *concurrent election* and *media freedom* are also included. *Concurrent election*, collected from Hobolt, Tilley, and Banducci (2013), is an ordinal variable capturing whether legislative and executive elections are always (2), sometimes (1), or never (0) held on the same day. *Media freedom* captures the level of media restriction which could alter public perception about government's responsibility. This study adopts the scores from Freedom House (Binhadab *et al.* 2021). Freedom House measures media freedom in terms of political rights and civil liberties (Freedom House 2021). Each score of the two indexes ranges from 1 (best) to 7 (worst). Media freedom is calculated by deducting the aggregated score of the two indexes from 14, denoting the higher the scores, the better media freedom.

## Analyses

This study employs a Hausman test. The results rejected the null hypothesis for a random-effects model at a significance level of 1%. Thus, a fixed-effect panel model was considered. The heteroscedasticity and correlation issues in panel data were also addressed. Given the choice of fixed-effect and the significance of heteroscedasticity and correlation issues in this

study, there are two options: feasible generalized least squares (FGLS) and panel-corrected standard errors (PCSE) estimations (Blackwell 2005). The two estimations provide all of the tools for panel-specific heteroscedasticity and correlation problems (Blackwell 2005). However, FGLS is not as efficient as PCSE, especially for panel data with relatively short time periods (Blackwell 2005). The panel data of this study consist of 31 panels and 12 time periods. This study thus adopted PCSE estimation using the STATA program (version 13.1). The following is the baseline PCSE equations in this study:

$$\begin{aligned} \text{Incumbent Vote Share}_{e-1} &= \alpha + \beta_1 \text{GDPgrowth}_{t/(t-1)} \\ &+ \beta_2 \text{SBR}_t + \beta_3 \text{SBR}_t^2 + \beta_4 \text{SBR}_t * \text{GDPgrowth}_{t/(t-1)} \\ &+ \beta_5 \text{SBR}_t^2 * \text{GDPgrowth}_{t/(t-1)} \\ &+ \beta_6 \text{controls}_t (\text{including incumbent vote share}_{(e-1)} \text{ and clarity}_t) \\ &+ \text{country} - \text{dummies} + \varepsilon \end{aligned}$$

$e$ : election in issue,  $e-1$ : previous election,  $t$ : year of the election in issue,  $t-1$ : a year before the election in issue.

For robustness of the analysis, this study also presents the outcomes of FGLS and fixed-effect estimations, using the following equations:

$$\begin{aligned} \text{Incumbent Vote Share}_{e-1} &= \alpha + \beta_1 \text{GDPgrowth}_{t/(t-1)} \\ &+ \beta_2 \text{SBR}_t + \beta_3 \text{SBR}_t^2 + \beta_4 \text{SBR}_t \\ &* \text{GDPgrowth}_{t/(t-1)} + \beta_5 \text{SBR}_t^2 \\ &* \text{GDPgrowth}_{t/(t-1)} + \beta_6 \text{controls}_t (\text{including clarity}_t) \\ &+ \text{year} - \text{dummies} + \varepsilon \end{aligned}$$

$e$ : election in issue,  $t$ : year of the election in issue,  $t-1$ : a year before the election in issue.

## Results

Table 2 presents the summary statistics, showing the means, standard deviations, and Pearson's correlations of the variables in this study. Multicollinearity in the regression was checked. The VIFs of all variables in Table 4 are much less than 10, indicating that the coefficient estimates are stable.

**Table 2.** Summary statistics and Pearson's correlations of variables.

Variables	Obs.	Mean	Std. Dev.	Min.	Max.	1	2	3	4	5	6	7	8	9	10	11	12	13	
1. Vote difference	215	1.38	10.29	-31.6	49.6	1.00													
2. GDP growth	215	2.62	2.63	-7.66	11.84	0.27*	1.00												
3. Unemployment	215	7.67	4.21	1.8	24.9	0.11	-0.09	1.00											
4. SBR	215	30.74	7.66	16.57	52.26	0.27*	-0.01	0.50*	1.00										
5. Clarity	215	3.22	.27	2.75	3.85	0.01	-0.11	0.26*	0.20*	1.00									
6. Right-wing	215	1.61	1.36	0	3	0.06	0.07	-0.05	-0.05	0.07	1.00								
7. No. of parties	215	3.54	1.18	2	6.13	-0.05	-0.07	0.00	0.02	-0.07	-0.01	1.00							
8. Openness	215	69.48	38.64	15.43	178.9	0.23*	0.19*	0.05	0.13*	-0.23*	-0.00	0.35*	1.00						
9. EU membership	215	.61	.48	0	1	0.00	-0.05	0.25*	0.30*	-0.03	-0.13	0.24*	0.38*	1.00					
10. Proportional	215	1.6	.70	0	2	0.06	0.00	0.16*	0.31*	-0.50*	-0.12	0.45*	0.39*	0.35*	1.00				
11. Presidential	215	.62	1.03	0	4	0.05	0.01	-0.11	-0.10	0.03	0.11	-0.29*	-0.21*	-0.21*	-0.39*	1.00			
12. Media freedom	215	11.68	.619	8	12	-0.26*	-0.02	-0.30*	-0.41*	-0.27*	0.01	0.07	-0.04	0.02	-0.00	0.16*	1.00		
13. Concurrent	215	.70	.05	.60	.87	-0.14*	-0.08	-0.20*	-0.04	0.18*	0.06	-0.15*	-0.15*	-0.10	-0.30*	0.40*	0.13*	1.00	

Note. \* $p < .05$ .

As discussed by Lenz and Sahn (2021), control variables could increase the statistical significance of key variables. Table 3 thus reports economic voting behavior in relative terms of SBR without control variables in the estimations. While the effect of GDP growth on incumbent's vote share is positively significant, it turns negative or invalid when the interaction term between GDP growth and SBR is included (see models 6, 8, and 9). In contrast, SBR keeps its positive effect (see models 4, 5, 6, and 7). Furthermore, when the squared term of SBR is included, PCSE estimations illustrate the effect of SBR in a reversed U-shape (see models 4, 5, 6 and 7). However, the curvilinearly positive effects of SBR are not supported in FGLS and fixed-effect estimations (see models 8 and 9).

The interaction term between GDP growth and SBR is positive (see models 6, 8 and 9), denoting SBR positively moderates (increases) the effect of GDP growth on incumbent's vote share. Nevertheless, under non-linearity of SBR, SBR negatively moderates (decreases) the effect of GDP growth, while its interaction with GDP growth turns positive in a quadratic form (see model 7).

Table 4 describes the economic voting behavior in relative terms of SBR with control variables including clarity in the estimations. The results are generally the same with those of Table 3. While the effect of GDP growth on incumbent's vote share is positively significant, it turns negative when the interaction term between GDP growth and SBR is included (see models 14 and 20). However, SBR keeps curvilinearly positive effect in a reversed U-shape (see models 13, 14, 15, 18, and 19), while the positive effects are not supported in FGLS and Hausman-Taylor (which is adopted to keep invariable clarity, as an alternative to fixed-effect) estimations (see models 20 and 21). The interaction term between GDP growth and SBR is positive, when quadratic form of SBR is not considered (see models 14 and 20). As in Table 3, however, under non-linearity of SBR, its interaction with GDP growth is negative, while it turns positive in a quadratic form (see models 15, 18 and 19).

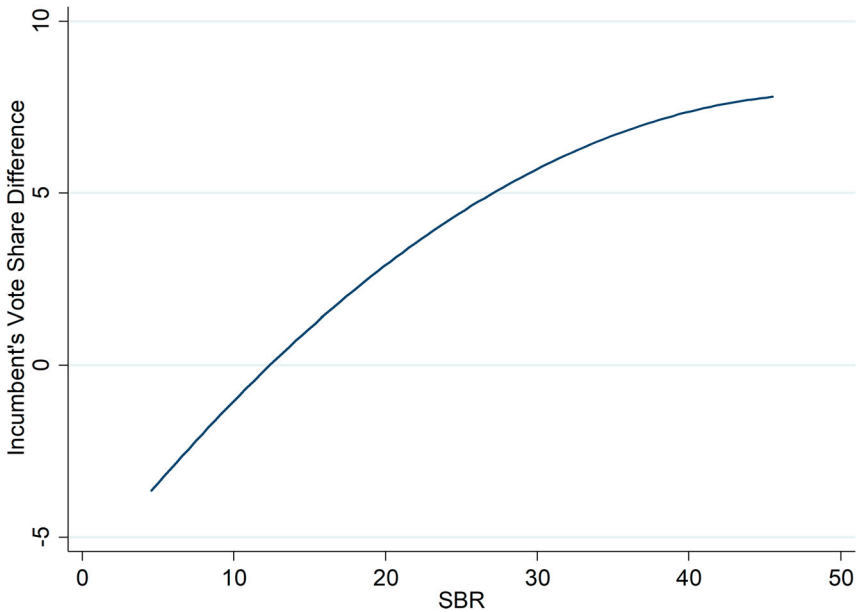
The results of Tables 3 and 4 show that PCSE estimations support Hypotheses 1 and 2a. In contrast, FGLS estimations uphold only Hypothesis 2b, not supporting non-linearity of SBR, while fixed-effect (or Hausman-Taylor) estimations do not support either Hypotheses 2a or 2b. Nevertheless, it is noteworthy that the effect of GDP growth is negative, when the interaction between SBR and GDP growth is positive (see model 20). This denotes that the overall effect of SBR in the FGLS estimations decreases the effect of GDP growth, as in the PCSE estimations.



**Table 3.** SBR and economic voting in OECD countries (without controls).

Variables	(1)	(2)	(3)	(4)	Incumbent's vote share		(7)	(8)	(9)
	PCSE				FGLS		Fixed-effect		
GDP growth	0.502*** (0.146)	0.601*** (0.164)			0.478*** (0.142)	-1.027+ (0.576)	9.573*** (2.217)	-1.617** (0.623)	-1.575 (1.199)
GDP growth_squared		-0.035 (0.039)							
SBR			0.075 (0.117)	1.170* (0.487)	1.032* (0.429)	0.887* (0.441)	2.997*** (0.531)	0.088 (0.076)	0.017 (0.273)
SBR_squared				-0.016* (0.008)	-0.014* (0.007)	-0.014* (0.007)	-0.045*** (0.008)		
SBR*GDP growth						0.048** (0.017)	-0.605*** (0.130)	0.078*** (0.022)	0.069+ (0.040)
SBR_sq*GDP growth							0.009*** (0.002)		
Vote difference (e-1)	-0.885*** (0.057)	-0.886*** (0.054)	-0.883*** (0.054)	-0.887*** (0.052)	-0.887*** (0.054)	-0.879*** (0.055)	-0.877*** (0.044)		
Constant	40.586*** (3.114)	40.679*** (3.007)	40.111*** (3.313)	23.582*** (6.900)	24.583*** (6.307)	28.680*** (6.214)	-4.943 (8.368)	-3.170 (2.339)	0.392 (8.360)
Country (Year) dummy	Included	Included	Included	Included	Included	Included	Included	(Included)	(Included)
Observations	215	215	215	215	215	215	215	215	215
R-squared (Wald chi <sup>2</sup> )	0.775	0.775	0.759	0.767	0.782	0.788	0.796	(71.62)	0.092
No. of groups	31	31	31	31	31	31	31	31	31

Note. + $p < .1$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Standard errors are in parentheses for PCSEs and FGLS estimations; Robust standard errors are in parentheses for fixed-effect estimations; Heteroscedasticity and panel-specific autocorrelation are controlled; FGLS and fixed-effect estimations do not support squared-term of SBR.

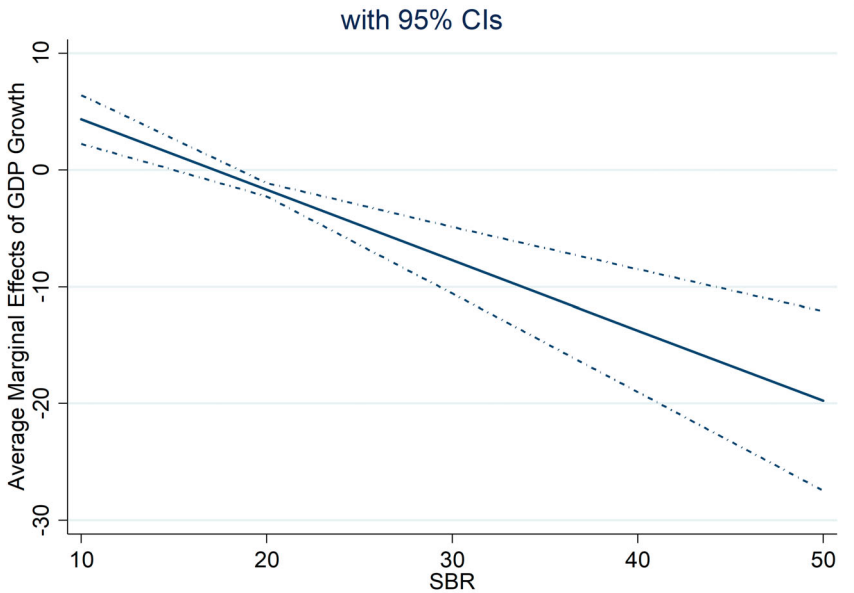


**Figure 3.** Curvilinear effects of SBR on incumbent's vote share difference (with GDP growth).

When interaction variables are included in a regression, the interpretations of some of the coefficients are quite different compared to when they are not included (Hayes *et al.* 2012). We thus present Figures 3 and 4 below to better illustrate the interactive effects of these two variables.

Figure 3 illustrates the reversed U-shaped curvilinear effect of SBR in model 19 of Table 4. Figure 4 portrays the decreasing marginal effects of GDP growth on vote share, when SBR increases (see the right end of X-axis of Figure 4 where SBR ranges from 30 to 50). The X-axis represents the change of SBR, ranging from 10 on the left-end to 50 on the right-end (see each country's SBR scores in Table 1). The marginal effect of GDP growth on incumbent's vote share, the Y-axis, was calculated by the moderating effect of SBR and  $SBR^2$  on the relationship between GDP growth and incumbent's vote share.

In contrast, clarity does not show moderating effects on GDP growth (see models 17, 19, 20, and 21) or its effects are very weak (see model 18), while clarity significantly affects vote results. Regarding the moderating effects of SBR on clarity, all estimations do not illustrate that SBR negatively moderates (decreases) the effect of clarity on incumbent's vote share (see models 19, 20, and 21). This does not sustain Hypothesis 3.



**Figure 4.** Marginal effects of GDP growth on incumbent's vote difference, as SBR changes.

To further examine the robustness of SBR in predicting economic voting, SBR is pitted against an alternative economic outcome, unemployment. Table 5 describes the effect of unemployment and generally shows similar, but in an opposite direction, outcomes with those of GDP growth in Table 4. According to PCSE estimations, the effect of unemployment on incumbent's vote share is negative in general. The effect of SBR is curvilinear in a reversed U-shape (see model 25). However, when the interaction term between SBR and unemployment is taken into account, the curvilinear effect of SBR on incumbent's vote share forms a U-shape (see models 26 and 29). Despite the contrasting effects of SBR in model 25, Figure 5, based on model 30, shows that the overall curvilinear effect of SBR is in a reversed U-shape, denoting same results in model 25. In short, these figures highlight SBR's role as a moderator of economic outcomes.

Furthermore, SBR positively moderates the negative effect of unemployment on vote share (see models 26, 29, and 30). This denotes SBR changes the effect of economic outcome into an opposite direction, compared with that in Table 4. The contrasting results can be interpreted as following: SBR reverses the effect of economic outcome, putting government's role in the center stage, independent of economic outcomes.

**Table 4.** Estimations on SBR and economic voting in OECD countries (with control variables).

Variables	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Incumbent's vote share						PCSE		FGLS		Hausman-Taylor	
GDP growth	0.440*** (0.118)	0.580*** (0.153)	0.428*** (0.118)	0.410*** (0.118)	-1.195** (0.451)	9.397*** (2.125)	0.548*** (0.136)	-2.377 (2.234)	13.23*** (3.353)	12.65*** (3.413)	-4.568* (1.906)	-3.733 (3.336)
GDP growth_squared		-0.040 (0.031)										
SBR			0.120 (0.092)	1.080* (0.468)	0.905+ (0.502)	2.946*** (0.541)			3.164*** (0.572)	4.271*** (1.188)	0.840 (0.651)	-0.024 (1.938)
SBR_squared				-0.015* (0.007)	-0.014* (0.007)	-0.04*** (0.008)			-0.04*** (0.009)	-0.04*** (0.009)		
SBR*GDP growth					0.051*** (0.014)	-0.60*** (0.124)			-0.63*** (0.129)	-0.62*** (0.131)	0.061* (0.028)	0.062 (0.044)
SBR_sq*GDP growth						0.010*** (0.002)			0.010*** (0.002)	0.010*** (0.002)		
Clarity							-340*** (58.286)	-305*** (69.051)	-314*** (63.309)	-301*** (60.576)	9.350 (6.454)	-0.902 (20.144)
Clarity*GDP growth								0.915 (0.701)	-1.097+ (0.617)	-0.956 (0.606)	1.042 (0.724)	0.752 (1.267)
SBR*Clarity										-0.385 (0.355)	-0.257 (0.195)	0.022 (0.591)
Vote difference (e-1)	-0.88*** (0.038)	-0.89*** (0.038)	-0.85*** (0.037)	-0.88*** (0.039)	-0.87*** (0.041)	-0.87*** (0.041)	-0.891** (0.057)	-0.88*** (0.056)	-0.88*** (0.042)	-0.89*** (0.044)		
Right-wing	0.071 (0.300)	0.079 (0.296)	0.053 (0.302)	0.121 (0.296)	0.110 (0.296)	0.267 (0.287)	0.214 (0.319)	0.277 (0.317)	0.245 (0.269)	0.249 (0.265)	0.328 (0.256)	0.296 (0.492)
No. of parties	-5.803+ (3.240)	-5.941+ (3.238)	-5.457* (2.200)	-5.397* (2.242)	-6.002** (2.152)	-6.334* (3.162)	-34.03** (6.293)	-31.1*** (7.309)	-33.3*** (6.985)	-33.7*** (7.152)	-1.37*** (0.392)	-0.618 (2.616)
Trade openness	0.014 (0.034)	0.016 (0.033)	0.020 (0.034)	0.019 (0.034)	0.025 (0.036)	0.007 (0.038)	0.002 (0.036)	0.006 (0.037)	0.003 (0.035)	0.011 (0.037)	0.034* (0.016)	0.047 (0.039)
EU	1.734 (1.956)	1.723 (1.917)	2.234 (2.008)	1.472 (2.059)	2.026 (2.042)	2.190 (1.709)	1.617 (2.046)	1.450 (2.035)	2.642 (1.658)	2.353 (1.655)	-1.205 (0.872)	-1.195 (2.599)
Proportional	4.954 (3.239)	4.873 (3.201)	4.704 (3.223)	4.922 (3.288)	5.765+ (3.163)	5.446* (2.386)	4.941+ (2.606)	5.371+ (2.788)	5.479* (2.262)	5.762* (2.241)	3.242*** (0.992)	0.587 (3.716)

Presidential	4.705+	4.643+	4.750+	4.692+	4.930*	4.916+	5.054+	5.035+	4.927+	4.792+	1.268*	3.523+
	(2.591)	(2.583)	(2.516)	(2.516)	(2.413)	(2.551)	(2.689)	(2.634)	(2.547)	(2.627)	(0.512)	(1.983)
Media freedom	-1.960*	-1.903*	-1.915*	-1.897*	-2.131*	-2.46***	-2.214*	-2.167*	-2.61***	-2.60***	-3.38***	-3.583**
	(0.850)	(0.859)	(0.836)	(0.852)	(0.842)	(0.758)	(0.935)	(0.898)	(0.783)	(0.776)	(1.018)	(1.357)
Concurrent	-	-	-	-	-	-	-	-	-	-	-22.16**	-38.549
											(8.409)	(37.410)
Constant	56.681**	56.821**	52.302**	37.889*	45.458*	17.219	1,269***	1,143***	1,136***	1,099***	22.268	67.385
	(21.428)	(21.777)	(18.260)	(18.203)	(18.161)	(17.971)	(211.138)	(251.273)	(231.239)	(221.622)	(23.434)	(70.907)
Country (Year) dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	(Included)	(Included)
Observations	215	215	215	215	215	215	215	215	215	215	215	215
R-squared (Wald chi <sup>2</sup> )	0.810	0.812	0.810	0.814	0.820	0.809	0.793	0.796	0.815	0.815	(111.62)	(37.31)
No. of groups	31	31	31	31	31	31	31	31	31	31	31	31

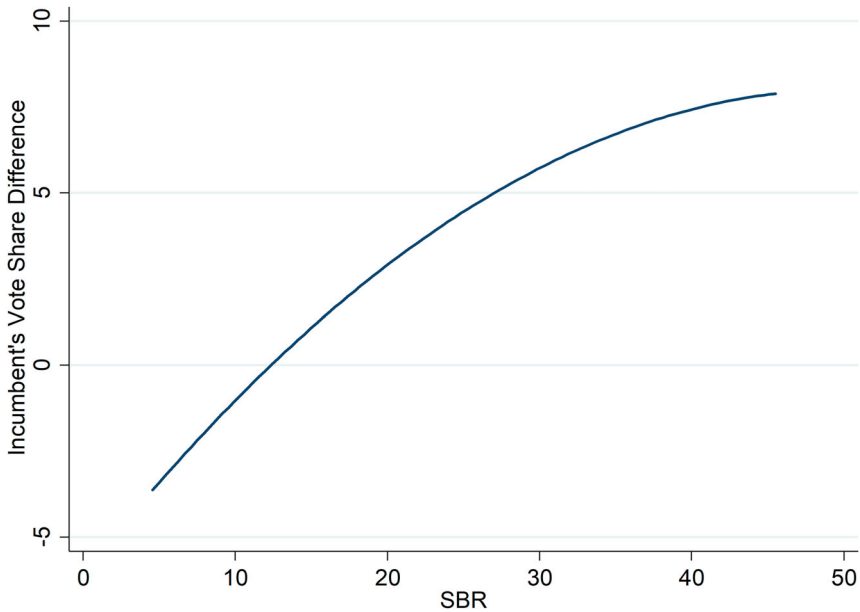
Note. + $p < .1$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Standard errors are in parentheses for PCSEs and FGLS estimations; Robust standard errors are in parentheses for fixed-effect estimations; Heteroscedasticity and panel-specific autocorrelation are controlled; FGLS and fixed-effect estimations do not support squared-term of SBR; To keep and examine the effect of clarity (invariable), Hausman-Taylor estimation was adopted instead of fixed-effect estimation.

**Table 5.** Results of PCSE, FGLS, and Hausman-Taylor estimations on SBR and economic voting (unemployment).

Variables	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	
	Incumbent's vote share											
	PCSE						FGLS		Hausman-Taylor			
Unemployment	-0.48*** (0.152)	0.352 (0.352)	-0.56*** (0.155)	-0.54*** (0.153)	-8.43*** (2.499)	-0.491*** (0.144)	2.270 (2.216)	-9.294* (4.421)	-9.495* (4.594)	5.411** (1.901)	7.527* (3.088)	
Unemployment_squared		-0.034* (0.016)										
SBR			0.253* (0.112)	1.187* (0.499)	-2.431* (1.038)			-2.417* (1.134)	-1.411 (1.441)	0.362 (0.743)	-0.960 (2.044)	
SBR_squared				-0.014+ (0.008)	0.039** (0.015)			0.040* (0.017)	0.040* (0.017)			
SBR*Unemployment					0.480*** (0.148)			0.486** (0.154)	0.484** (0.155)	0.028 (0.021)	0.034 (0.028)	
SBR_sq*Unemployment					-0.01*** (0.002)			-0.007** (0.002)	-0.007** (0.002)			
Clarity						-269.8*** (67.371)	-253.2*** (76.282)	-286.6*** (59.623)	-280.0*** (56.213)	16.911* (6.892)	7.155 (21.320)	
Clarity*Unemployment							-0.828 (0.680)	0.251 (0.864)	0.319 (0.912)	-2.022** (0.625)	-2.708** (1.047)	
SBR*Clarity									-0.326 (0.362)	-0.083 (0.229)	0.329 (0.638)	
Vote difference(e-1)	-0.91*** (0.049)	-0.91*** (0.046)	-0.91*** (0.052)	-0.91*** (0.049)	-0.91*** (0.049)	-0.926*** (0.050)	-0.918*** (0.049)	-0.939*** (0.056)	-0.942*** (0.058)			
Right-wing	0.154 (0.310)	0.283 (0.324)	0.133 (0.312)	0.231 (0.323)	0.355 (0.302)	0.185 (0.297)	0.233 (0.294)	0.391 (0.283)	0.386 (0.281)	0.590* (0.249)	0.384 (0.500)	
No. of parties	-5.818** (1.963)	-6.405* (2.937)	-6.110+ (3.311)	-6.291* (3.175)	-7.757** (2.838)	-28.98*** (6.617)	-28.27*** (7.291)	-32.32*** (6.250)	-32.85*** (6.317)	-1.135** (0.419)	1.310 (2.748)	
Trade openness	0.009 (0.037)	0.008 (0.037)	0.026 (0.038)	0.017 (0.039)	0.034 (0.030)	0.010 (0.036)	0.017 (0.036)	0.033 (0.031)	0.039 (0.033)	0.051** (0.016)	0.050 (0.040)	
EU	0.374 (2.010)	0.815 (2.085)	1.078 (1.928)	0.698 (1.848)	1.556 (1.629)	0.428 (2.008)	0.447 (1.987)	1.658 (1.662)	1.477 (1.627)	-1.485+ (0.835)	-1.336 (2.621)	
Proportional	4.243+ (2.541)	4.407+ (2.471)	3.850 (2.725)	4.123 (2.547)	4.623* (2.262)	4.425+ (2.530)	4.429+ (2.469)	4.897* (2.288)	5.135* (2.211)	1.780+ (1.049)	-1.889 (3.787)	

Presidential	4.486+	4.958+	4.741+	4.598+	4.346+	4.458+	4.347+	4.324+	4.227+	1.007+	3.596+
	(2.585)	(2.564)	(2.578)	(2.421)	(2.467)	(2.586)	(2.566)	(2.462)	(2.541)	(0.519)	(2.028)
Media freedom	-1.952*	-2.177*	-1.880*	-1.853*	-2.342**	-1.954*	-2.062*	-2.353**	-2.361**	-3.350***	-3.096*
	(0.860)	(0.854)	(0.906)	(0.831)	(0.753)	(0.853)	(0.803)	(0.747)	(0.744)	(1.022)	(1.366)
Concurrent	-	-	-	-	-	-	-	-	-	-24.334*	-51.794
										(10.681)	(38.440)
Constant	62.61***	60.78***	55.532**	42.141*	108.9***	1,023***	967.5***	1,129***	1,110***	0.252	43.405
	(16.416)	(17.915)	(18.902)	(17.829)	(25.744)	(241.671)	(273.749)	(216.870)	(204.150)	(24.770)	(73.279)
Country (Year) dummy	included	included	Included	included	included	included	included	included	included	(included)	(included)
Observations	215	215	215	215	215	215	215	215	215	215	215
R-squared (Wald chi <sup>2</sup> )	0.788	0.788	0.796	0.796	0.823	0.793	0.797	0.828	0.828	(113.01)	(31.85)
No. of groups	31	31	31	31	31	31	31	31	31	31	31

Note. + $p < .1$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Standard errors are in parentheses for PCSEs and FGLS estimations; Robust standard errors are in parentheses for fixed-effect estimations; Heteroscedasticity and panel-specific autocorrelation are controlled; FGLS and fixed-effect estimations do not support squared-term of SBR; To keep and examine the effect of clarity (invariable), Hausman-Taylor estimation was adopted instead of fixed-effect estimation.



**Figure 5.** Curvilinear effects of SBR on incumbent's vote share difference (with unemployment).

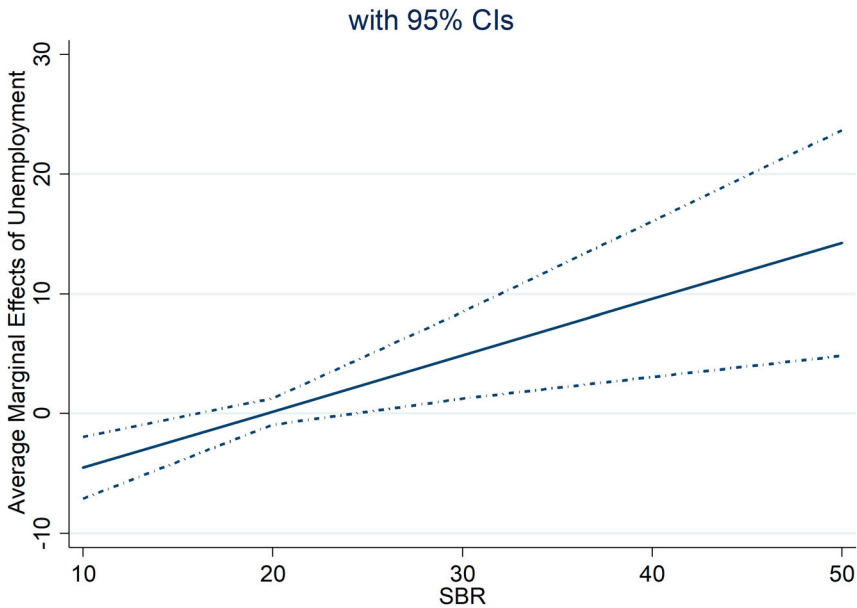
Therefore, SBR decreases the positive effects of GDP growth, as illustrated in Figure 4. However, SBR decreases the negative effects of unemployment and consequently gives an advantage to the incumbent (see Figure 6).

As similarly as in Table 4, SBR does not negatively moderate (decrease) the effect of clarity on incumbent's vote share change (see models 30, 31, and 32). The results do not confirm Hypothesis 3.

## Discussion and conclusion

This study connects political and economic spheres in the economic voting literature, proposing a complementary state-business relations measure, namely SBR. Using updated and expanded data on elections from 1995 to 2019 in 31 OECD countries, this study generally supports economic voting and acknowledges the significance of political variables for how voters perceive government responsibility. Existing models implicitly assume a singular form of government's role in the economy and pay little attention to the fact that each country differs in its relationship with the business sector. This study expands the literature of economic voting by introducing an intertwined political-economic





**Figure 6.** Marginal effects of unemployment on incumbent's vote difference, as SBR changes.

mechanism that characterizes coordination traditions between the state and economic spheres as a comprehensive institutional arrangement of a country. Shedding light on the phenomenon whereby economic spheres are arranged through their interactions with the state, SBR provides novel insight into the literature that we should also account for the relationship between political and economic spheres, which is not a simple sum of political contexts and economic activities, but rather an accumulation of a country's socioeconomic traditions.

The findings are critical as they show how the relationship mechanism could conceptually differ over political or economic contexts, and how it must, therefore, be measured in ways that are appropriate to the characteristics of political-economic systems. In the analyses of PCSE estimations (see model 7 of Table 3 and model 19 of Table 4), SBR shows reversed U-shaped curvilinear effects on incumbent's vote share (Hypothesis 1, see Figure 3). It negatively moderates (decreases) the effect of GDP growth (Hypothesis 2a, see Figure 4). It is also notable that the effect of clarity of responsibility on the relationship between economic factors and incumbent's vote share difference is not significant or very weak (see Table 4). This implies that the effects of economic factors vary according to SBR. The difference stems from the comprehensive and idiosyncratic political-economic

characteristics which embrace respective economic and political dimensions in the society. Additional analyses by alternative variables such as unemployment (see [Table 5](#) and [Table A2](#)) also support the effects of SBR and its moderating role on economic element. The results illustrate that countries that have high SBR tendencies seem more likely to provide advantages to the incumbent, possibly since voters acknowledge the proactive role of the state. This study helps reconsider some nuanced implications of economic voting in different political-economic traditions.

This study also helps to understand economic voting in terms of a comparative-historical framework of political economy, i.e. the varieties of capitalism framework (Hall and Soskice 2001; Yoo and Lee 2009). While political systems, such as parliamentary systems, identify a political characteristic of a country, it is short of providing a comprehensive picture of a country's political-economic system. In contrast, SBR takes into account diverse dimensions of interactions between the state and economic spheres. The Index of Economic Freedom in this study incorporates rule of law, government size, regulatory efficiency and open markets. The SBR thus delineates diverse 'institutional patterns of authority and organization' (Biggart and Guillén 1999, 722) in economic voting behaviors.

Still, much remains to be done to comprehensively link the economic and political spheres. A possible realm of research may delve on critical yet unexamined mechanisms to explain how SBR has different connotations in each country, as illustrated by inconsistent statistical outcomes of PCSE, FGLS, and fixed-effect estimations. A lack of consideration of dominant social configurations in an economy, such as trust, could also lead to misinterpretation of the underlying logic of voting behaviors. Future research calls for a more detailed analysis of political-economic variables that lead to sustained differences in economic voting.

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## Appendix. Additional Robustness Checks

This study conducted additional robustness checks. First, **Table A1** reports the effect of SBR in terms of partisan influence using FLGS and fixed-effect estimations (PCSE estimation is not available, since no time periods are common to all panels). The FGLS estimation shows that the moderating effect of SBR is still significant regardless of whether the incumbent party is left-wing or right-wing (models 34 and 36). However, the fixed-effect estimation shows that the moderating effect of SBR is significant under right-wing parties (model 40).

This study pointed to the possibility of both a negative or positive bias. Voters could be critical of the incumbent when things are not going well. In other words, citizens might punish governments for bad economic performance but not reward them if they are successful. The opposite case might also be plausible. The results of **Table A2** depict the effects of sub-divided economic outcomes (bad, average, and good) on incumbent's vote results. In the estimations with GDP growth, the effect of GDP growth is negative in most economic situations (see models 42, 43, 45, and 46). In contrast, the moderating effect of SBR on the relationship between

**Table A1.** Results of FGLS and fixed-effect estimations on SBR and economic voting (when incumbents are left- or right-wing).

Variables	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
	Incumbent's vote share							
	FGLS				Fixed-effect			
	Left-wing		Right-wing		Left-wing		Right-wing	
GDP growth	0.703*** (0.205)	-0.946 (1.001)	1.257*** (0.212)	-2.429*** (0.716)	0.766 (0.449)	-0.337 (2.551)	0.782 (0.700)	-3.246 (2.501)
SBR	0.326*** (0.072)	0.296*** (0.077)	0.348*** (0.082)	0.106 (0.092)	-0.141 (0.283)	-0.227 (0.339)	0.237 (0.431)	-0.095 (0.418)
SBR*GDP growth		0.051+ (0.029)		0.116** (0.021)		0.032 (0.070)		0.120+ (0.070)
No. of parties	0.533 (0.494)	0.590 (0.480)	-0.743 (0.556)	-0.713 (0.523)	-	-	-	-
Trade openness	-0.001 (0.016)	0.007 (0.016)	0.057*** (0.017)	0.030+ (0.017)	-0.187+ (0.100)	-0.194+ (0.099)	0.093 (0.078)	0.123 (0.091)
EU	-5.324*** (1.098)	-4.401*** (1.222)	-3.416** (1.232)	-1.486 (1.258)	-2.819 (3.479)	-2.417 (3.349)	-0.682 (7.153)	1.085 (7.060)
Proportional	0.072 (1.044)	-0.806 (1.023)	-1.615+ (0.943)	-1.276 (0.956)	2.884 (4.218)	2.043 (5.016)	11.439 (10.510)	15.609 (11.707)
Presidential	3.730* (1.680)	3.332+ (1.758)	1.546* (0.679)	1.492** (0.510)	2.782 (3.953)	2.565 (4.080)	7.881 (5.076)	9.019+ (4.889)
Media freedom	-0.685 (0.735)	-0.069 (0.813)	-1.870+ (1.065)	-2.059+ (1.062)	-2.736 (1.844)	-2.414 (1.984)	-5.922 (4.583)	-7.398 (4.493)
Concurrent	-25.465*** (7.608)	-25.187*** (7.509)	-58.744*** (12.678)	-39.031*** (10.277)	-	-	-	-
Constant	13.024 (12.379)	6.000 (13.524)	54.749*** (14.920)	50.533*** (13.665)	46.216** (15.426)	47.147** (16.428)	34.729 (42.650)	51.906 (41.285)
Year (dummy)	included	Included	included	included	Included	included	included	included
Observations	71	71	110	110	76	76	111	111
Wald chi <sup>2</sup> (R-squared)	2496.03***	313.76***	321.26***	1229.08	0.377	0.380	0.178	0.229
No. of groups	20	20	26	26	25	25	27	27

Note. + $p < .1$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Standard errors are in parentheses for FGLS estimations; Robust standard errors are in parentheses for fixed-effect estimations; Heteroscedasticity and panel-specific autocorrelation are controlled.

**Table A2.** Results of FGLS and fixed-effect estimations on SBR and economic voting (when economy is average, bad or good).

Variables	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)
	Incumbent's vote share											
	FGLS			Fixed-effect			FGLS			Fixed-effect		
	34% < gdp. < 66%	34% > gdp.	66% < gdp.	34% < gdp. < 66%	34% > gdp.	66% < gdp.	34% < unemp. < 66%	66% < unemp.	34% > unemp.	34% < unemp. < 66%	66% < unemp.	34% > unemp.
GDP growth ( <i>unemploy.</i> )	9.939+	-8.39***	-9.41***	4.471	-9.819**	-10.7***	(-8.41)***	(5.079)**	(-7.285)+	(-1.866)	(1.808)	(-2.651)
	(5.554)	(2.208)	(1.843)	(7.757)	(3.419)	(2.316)	(2.191)	(1.683)	(4.182)	(4.283)	(2.539)	(4.817)
SBR	0.775	-0.082	-1.59***	-0.297	0.234	-2.38***	-1.291*	2.357***	-0.665	-0.236	0.913	0.083
	(0.528)	(0.136)	(0.315)	(0.715)	(0.584)	(0.516)	(0.504)	(0.563)	(0.682)	(1.143)	(0.779)	(0.741)
SBR*GDPgr. ( <i>unemploy.</i> )	-0.201	0.260***	0.344***	-0.174	0.303***	0.442***	0.266***	-0.135**	0.223	0.100	-0.055	0.167
	(0.185)	(0.059)	(0.064)	(0.291)	(0.078)	(0.084)	(0.075)	(0.044)	(0.149)	(0.147)	(0.055)	(0.194)
Right-wing	1.872***	0.880*	0.137	0.838	2.475+	-0.344	0.003	0.089	-0.020	1.571**	1.023	-0.748
	(0.413)	(0.442)	(0.375)	(0.666)	(1.269)	(1.134)	(0.302)	(0.849)	(0.338)	(0.556)	(1.752)	(0.686)
No. of parties	-2.47***	-1.74***	-0.521	-	-	-	0.282	0.946	-1.553*	-	-	-
	(0.750)	(0.513)	(0.460)				(0.343)	(0.780)	(0.718)			
Trade openness	0.044**	0.039*	0.138***	0.061	-0.138	-0.181*	-0.04***	0.088***	0.040+	-0.303*	-0.021	-0.043
	(0.017)	(0.016)	(0.015)	(0.130)	(0.165)	(0.070)	(0.008)	(0.027)	(0.024)	(0.136)	(0.168)	(0.059)
EU	1.635	-1.164	-6.99***	19.79***	2.722	-0.864	-1.670	-6.629+	1.487	8.256	-3.028	16.019*
	(1.053)	(2.172)	(1.248)	(5.343)	(12.709)	(6.611)	(1.109)	(3.600)	(1.552)	(6.791)	(5.707)	(6.754)
Proportional	1.166	1.851	1.002	-	0.740	-0.653	0.706	-6.669	-0.467	17.495*	-8.991	-
	(1.341)	(1.162)	(0.987)		(5.356)	(13.992)	(0.578)	(4.177)	(0.955)	(8.099)	(5.789)	
Presidential	0.671	1.073+	1.878*	10.472**		29.30***	-0.132	6.851***	0.303	6.931	7.179	-
	(0.567)	(0.619)	(0.774)	(3.539)		(6.570)	(0.321)	(1.996)	(0.621)	(5.668)	(4.398)	
Media freedom	2.654	-0.878	-4.80***	-4.694+	5.607	-9.931*	1.896*	-4.111*	1.993	-3.492	-1.402	6.749
	(2.248)	(1.205)	(0.514)	(2.424)	(4.079)	(3.659)	(0.874)	(1.909)	(1.712)	(3.649)	(5.932)	(5.163)



Concurrent	-4.036 (13.571)	-11.854 (16.132)	-12.674 (10.508)	-	-	-	-9.962 (6.920)	-98.1*** (23.148)	-9.485 (11.187)	-	-	-
Constant	-65.215* (28.403)	22.740 (18.701)	103.8*** (14.443)	47.789+ (27.618)	-68.201 (50.154)	176.7*** (26.040)	25.129 (16.933)	30.073 (37.196)	9.962 (28.249)	24.850 (32.240)	1.417 (66.245)	-92.409 (63.461)
Year (dummy)	included	included	included	included	Included	included	included	included	included	Included	included	included
Observations	60	64	71	70	72	73	62	72	68	67	74	71
Wald chi <sup>2</sup> (R-squared)	495.14	187.03	909.31	(0.712)	(0.453)	(0.682)	1388.19	297.10	3047.17	0.524	0.172	0.333
No. of groups	19	19	21	29	27	23	19	18	17	24	20	20

Note. + $p < .1$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Standard errors are in parentheses for FGLS estimations; Robust standard errors are in parentheses for fixed-effect estimations; Heteroscedasticity and panel-specific autocorrelation are controlled.

GDP growth and vote results is significant when the economy is bad (GDP growth < 34% of samples, see models 42 and 45) or good (GDP growth > 66% of samples, see models 43 and 46). In the estimations with unemployment, FGLS analysis supports the negative effects of unemployment on vote results (see models 47 and 49). The moderating effect of SBR on the relationship between GDP growth and vote results is significant when the economy is bad (unemployment > 66% of samples, see model 48) or average (34% < unemployment < 66% of samples, see model 47). Fixed-effect models do not support the statistical significance of SBR or unemployment in the estimations (see models 50, 51, and 52).