

# Homework 2

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## Introduction

For this assignment I will be replicating the results, testing the validity of panel-data assumptions, and selecting a better-fitting models for the country-level analysis from the following article: Abou-Chadi, T. & Wagner, N. (2019), "The Electoral Appeal of Party Strategies in Postindustrial Societies: When Can the Mainstream Left Succeed?", *Journal of Politics*, 81 (4). The paper explores two main research questions. What explains the varying levels of electoral success and electoral failure of mainstream left parties in developed democracies? How do changes in the party strategies contribute to these developments?

## Original paper

The authors argue that in the post-industrial society, positions on the distributive politics have shifted towards investment-consumption scale. Given that the new electorate of mainstream left parties are highly educated middle class voters, who strongly favor investment over consumption in redistributive politics, the authors argue that mainstream left parties will appeal to this. Thus, they hypothesize that more investment-oriented policy positions increase the vote share of mainstream left parties.

Furthermore, the authors argue that union strength will have an effect on this relationship. Unions are sources of information and drivers of electoral behavior for working-class voters. Given that unions prefer consumption over investment policies, the authors hypothesize that in the countries with stronger unions, the effect of having more investment oriented positions on vote share will be weaker.

Finally, they argue that in the post-industrial society, the question of post-material values has become highly salient, especially for more educated voters. The authors place these values on a second dimension called "cosmopolitan/liberal-authoritarian/nationalist", and argue that many core voters strongly prefer the former. Thus, they hypothesize that when investment oriented policies are coupled with cosmopolitan/liberal positions on the second dimension, the effect of the former on vote share becomes stronger for mainstream left.

To test, their hypotheses the authors conduct a country-level and individual-level analysis. In this assignment I focus only on the former, for which the authors use a panel-level data. They combine electoral performance of mainstream left parties across all legislative elections from 1975 to 2015 in 22 advanced democracies. They combine these data with their own measures of investment/consumption (more + means more investment-oriented) and "second dimension" (more + means less cosmopolitan and liberal) positions for each party at each election date, which they obtain by analyzing the data from Manifesto Project dataset. Finally, they measure the strength of unions for each country during for each election event.

The authors regress vote share at each election date on the investment position, second dimension position, union strength, as well as the multiplicative interaction of the latter two with parties' positions on investment. They also control for whether a party is in the government during each election, and for the previous cycle vote share (to partially address autocorrelation on the DV). In their longer models, they also control for the parties' state-market positions, investment position of the mainstream right party in a given country at a given election, whether any radical left or radical right party is in the government, unemployment, GDP growth, and de-industrialization. Furthermore, the authors include party-level fixed effects, as they are interested in over-time changes within the party for each country. The authors cluster the standard-errors by party and election date. Below, are the results from the original paper. Followed by my successful replication of these results (with slight difference in the standard errors). in Table 1.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Lagged vote share	.456*** (.0938)	.432*** (.0980)	.449*** (.0873)	.419*** (.0815)	.442*** (.0878)	.425*** (.0957)
Investment	.764 (.648)	.972 (.701)	5.307* (2.518)	7.043** (2.423)	.570 (.551)	.813 (.637)
Union influence	2.106 (1.488)	.213 (1.395)	4.601* (1.988)	2.964 (1.814)	2.140 (1.349)	.589 (1.118)
Union influence × investment			−2.266* (1.125)	−2.974** (1.009)		
Second-dimension position	−.421 (.509)	.0759 (.426)	−.559 (.516)	−.0655 (.394)	.477 (.502)	.725* (.318)
Investment × second-dimension position					−1.183*** (.320)	−.971** (.331)
Party in government (0/1)	−2.825* (1.158)	−2.418 (1.353)	−2.813** (1.068)	−2.432 (1.247)	−3.332** (1.169)	−2.951* (1.374)
Mainstream right position on investment		.372 (.504)		.400 (.491)		.263 (.493)
State-market position		−.0799 (.419)		−.00517 (.394)		.0419 (.404)
Radical-right party (0/1)		−3.857** (1.434)		−3.755** (1.376)		−.0291 (.242)
Radical-left party (0/1)		3.834** (1.459)		4.526** (1.432)		−.0227 (.175)
Unemployment		−.0427 (.261)		.00230 (.236)		−.0291 (.242)
GDP growth		−.0183 (.173)		−.0275 (.157)		−.0227 (.175)
Deindustrialization		−9.307 (13.03)		−15.30 (12.83)		−8.524 (12.35)
Party fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	16.62*** (4.319)	25.71** (9.087)	11.99* (5.336)	23.96** (9.179)	16.81*** (3.893)	24.13** (8.890)
R <sup>2</sup>	.82	.92	.83	.92	.83	.92

Figure 1: Original results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Lag Vote Share	0.46*** (0.09)	0.43*** (0.10)	0.45*** (0.08)	0.42*** (0.08)	0.44*** (0.08)	0.42*** (0.09)
Investment position	0.76 (0.60)	0.97 (0.65)	5.31* (2.36)	7.04** (2.25)	0.57 (0.50)	0.81 (0.58)
Union Influence	2.11 (1.37)	0.21 (1.29)	4.60* (1.85)	2.96 (1.69)	2.14 (1.24)	0.59 (1.03)
Second Dimension	-0.42 (0.43)	0.08 (0.35)	-0.56 (0.45)	-0.07 (0.33)	0.48 (0.44)	0.72* (0.25)
Incumbent	-2.82* (1.05)	-2.42 (1.23)	-2.81** (0.98)	-2.43* (1.13)	-3.33** (1.07)	-2.95* (1.26)
Investment $\times$ Union Strength			-2.27* (1.05)	-2.97** (0.93)		
Investment $\times$ second-dimension position					-1.18*** (0.28)	-0.97** (0.30)
Mainstream Right Investment Position		0.37 (0.45)		0.40 (0.44)		0.26 (0.44)
State-Market Position		-0.08 (0.37)		-0.01 (0.35)		0.04 (0.36)
Radical Right in gov't		-3.86** (1.31)		-3.76** (1.27)		-3.24* (1.41)
Radical Left in gov't		3.83** (1.34)		4.53** (1.31)		3.81** (1.33)
Unemployment		-0.04 (0.24)		0.00 (0.22)		-0.03 (0.22)
GDP Growth		-0.02 (0.14)		-0.03 (0.12)		-0.02 (0.14)
Deindustrialization		-9.31 (12.16)		-15.30 (11.96)		-8.52 (11.51)
Num. obs.	172	172	172	172	172	172
Num. groups: party	20	20	20	20	20	20
R <sup>2</sup> (full model)	0.82	0.84	0.83	0.85	0.83	0.85
R <sup>2</sup> (proj model)	0.21	0.28	0.24	0.33	0.25	0.31
Adj. R <sup>2</sup> (full model)	0.79	0.80	0.80	0.82	0.81	0.81
Adj. R <sup>2</sup> (proj model)	0.18	0.22	0.21	0.27	0.22	0.24

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

Table 1: Differenced panel regression models

The authors interpret the results in the following way. Given that there is only partial evidence that taking more investment-oriented positions significantly increases the vote share (Model 3 and 4 only) the authors can not confidently accept the first hypothesis. They conclude that there is not enough evidence that taking more investment-oriented positions increases the vote share of left parties. The authors notice, that the interaction effect of investment positions and union strength is negative and significant in both models. This allows them to conclude that as unions become stronger, the effect of taking investment-oriented positions on the vote share becomes weaker. The authors confidently accept hypothesis 2. Similarly, the authors find significant negative interaction terms between investment-oriented positions and position on the second dimension in both models. They conclude that as parties adopt less cosmopolitan and less liberal positions on the second dimension, the effect of adopting investment-oriented positions on the vote share becomes weaker. These findings allow them to confidently accept hypothesis 3.

The authors conclude that mainstream left parties can successfully appeal to the educated voters by adopting pro-investment positions only when these positions are coupled with more cosmopolitan and liberal positions. At the same time, they argue that doing so can create electoral losses among the working class voters in the countries with strong unions. The paper greatly contributes to the literature on the comparative party politics and political behavior, as it theoretically explores the ideological

realignments in the post-industrial democracies and how they empirically affect the electoral performance of mainstream left parties.

## Testing for the assumptions of the panel data methods

There are several potential points of concern with these panel data. First, it is that panel is not balanced between the groups, as different parties have different numbers of elections recorded. The absence of balance in the panel can potentially bias the estimates produced via fixed effects because we can not properly absorb the between-party variance with unequal number of observations per party. Second, some parties have very few election-level observations (2 or 3). This is problematic as it violates large-T asymptotic assumption, whereas estimates made with FE on these few observations will be biased, especially given that we have more co-variables than observations for some units.

Furthermore, elections at different countries occurred at different times, meaning that measurements were obtained asynchronously across the countries. This can lead to the lack of cross-sectional independence, given that FE assume comparable time-periods, and bias the estimates. Moreover, it can violate stationarity assumption since each T means different periods for each unit.

To illustrate these concerns, I plotted the time-series for each variable for each party used in the model 1, 2, and 3. For brevity, I will focus only on these models, and not on the models with controls. The plot is depicted below.

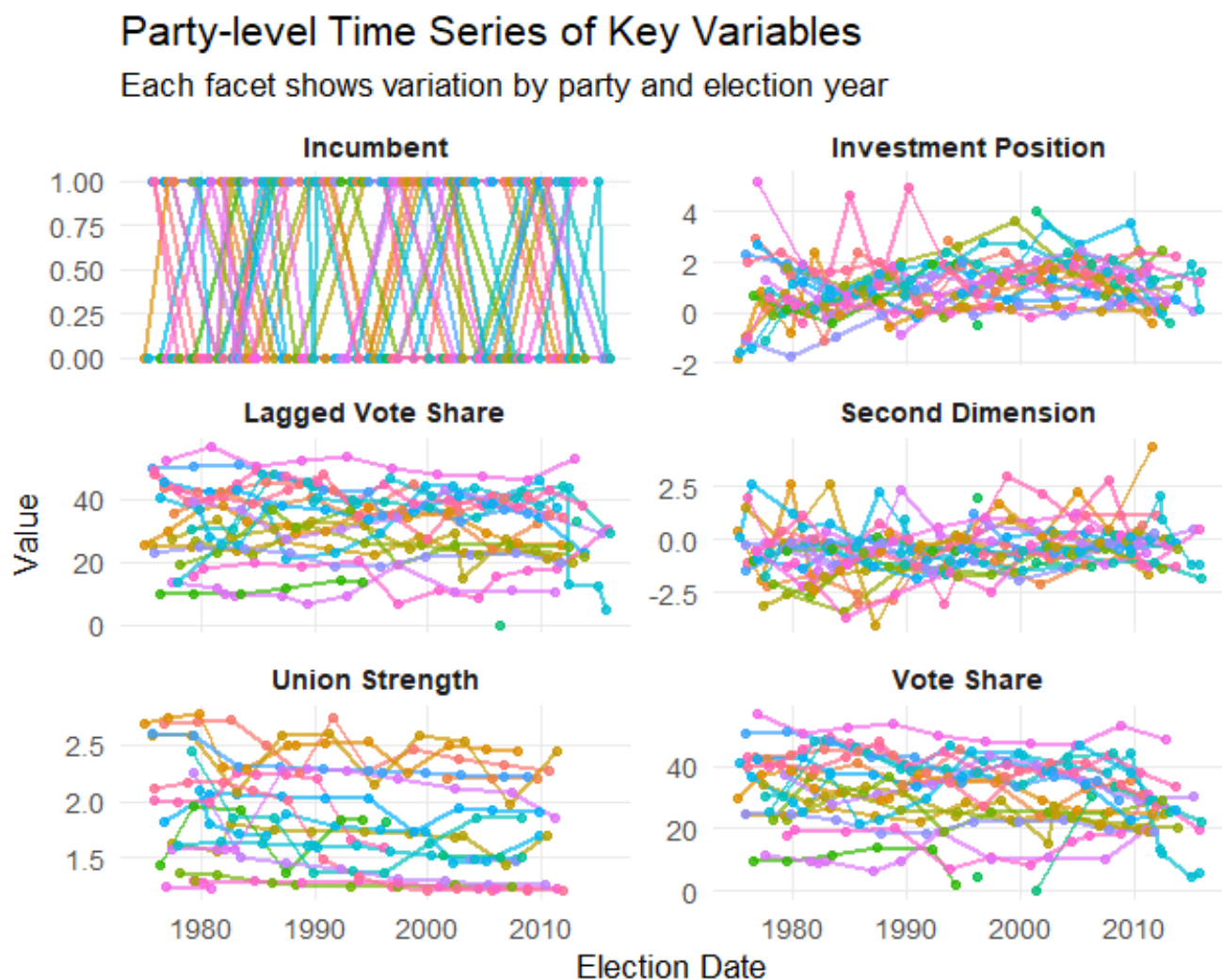


Figure 2: Time-series for each variable for each party

Figure 2 unequivocally demonstrates what I just described. More each variable, different parties have

different number of observations taken at different time points. Moreover, for some variables for some parties, there are extremely few observations. Moreover, this plot demonstrates that for some variables for some parties, the variables have a clear temporal trend, indicating autocorrelation. This is potentially problematic. If regressors are correlated with errors, the estimates may be biased since the exogeneity assumption is violated. Moreover, this violates the stationary error assumption which biases the standard errors.

To further diagnose this problem, I conducted ADF test for each variable-party combination. ADF test will demonstrate if the series is stationary (if null is rejected) or if the series is not stationary (if null is not rejected). I restricted this analysis to parties with more than 5 temporal observations as to not bias the ADF test results with too few observations. I will stick with this specification for the remainder of my discussion in order to address my concern about the effect of having too few observations on the party FE estimates. I extracted the p-values for each ADF test I conducted and plotted them for each variable in Figure 3.

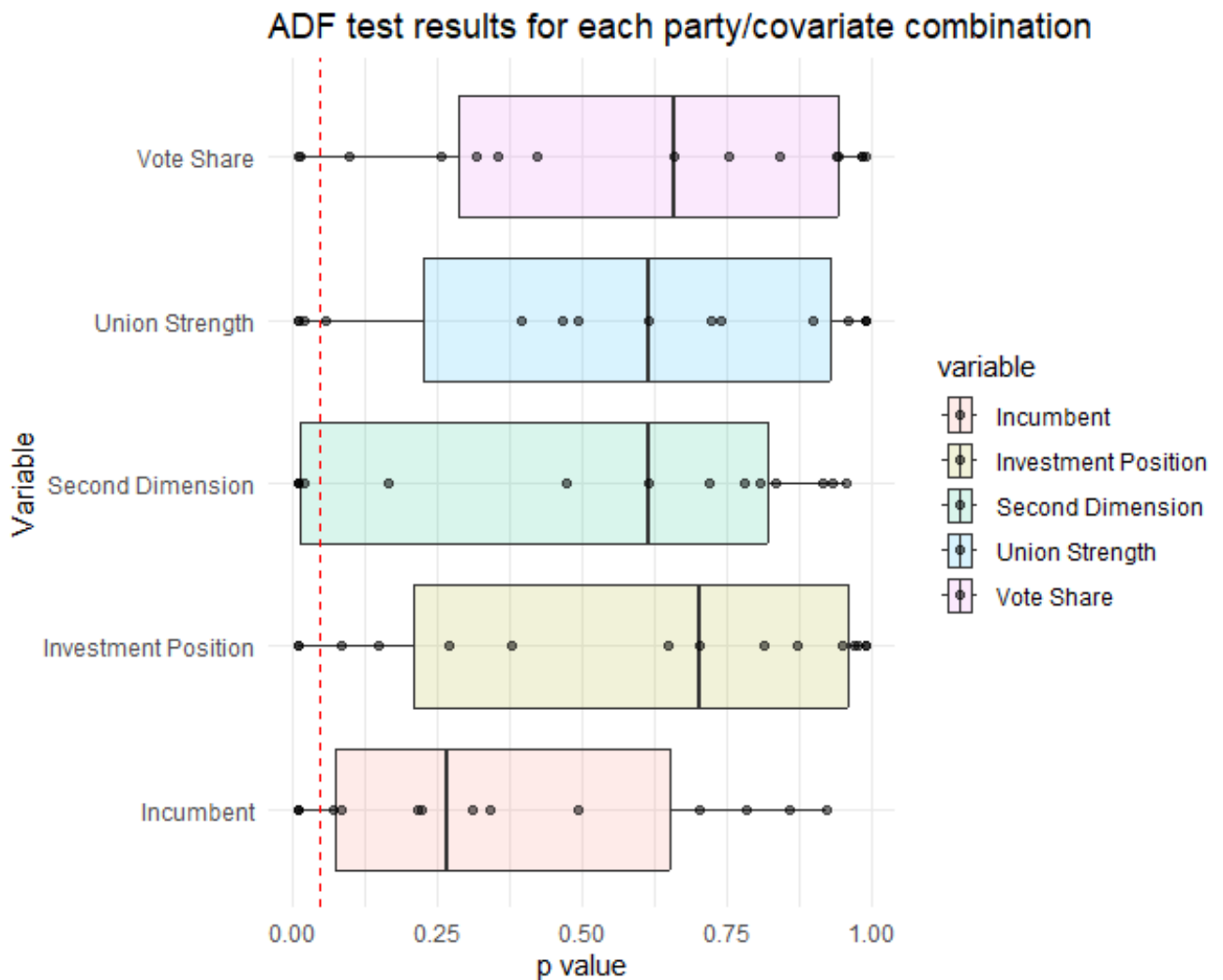


Figure 3: ADF test results

Red dotted line indicates  $p < 0.05$  below which we can confidently reject the null, conclude that the series for each party is mean-reverting, which would mean that the assumptions of no serial correlation are satisfied. As seen from the figure, for each variable, very few dots (party/covariate pair) are to the left of the line. This means that for all variables, for the majority of party-level variables we can not reject the null and accept the assumption of no serial correlation. We thus need to address this problem for all variables.

## Mitigating the concerns

Some of the concerns identified above can not be confidently addressed. Given the structure of these data, we can not correct for panel imbalance, and for cross-sectional independence given that we only have the election-level measurements we have. I already addressed the concern of some groups having too few observations by restricting the analysis to the parties with at least 5 observations.

Serial correlation concerns, however, can be addressed with adjusting the variables for time variance. A proper time-series model can not be used, but an event-based model with corrections for time-variance can be used. To choose the best specifications I do the following. 1. I fit model 1 from the original analysis with all covariates lagged by t-1 (further lags are impossible due to the data structure). 2. I fit model 1 with the first temporal difference on all covariates, including the previous vote share. 3. I compare these two models with the original model 1 but fit only on parties with at least 5 observations. The results of these tests are summarized in the table below. I use the degree of model fit to select the

	Model 1	Model 2	Model 3
Lag Vote Share	0.23** (0.08)	0.20** (0.07)	
Investment	0.80 (0.52)		
Union Influence	3.92 (2.01)		
Second Dimension	-0.62 (0.44)		
Incumbent	-1.27 (1.06)		
Lagged Investment		-0.08 (0.50)	
Lagged Union Influence		4.10* (1.72)	
Lagged Second Dimension		-0.56 (0.44)	
Lagged Incumbent		-1.97* (0.98)	
$\Delta$ Vote Share			0.58*** (0.06)
$\Delta$ Investment			0.13 (0.34)
$\Delta$ Union Influence			-2.15 (1.76)
$\Delta$ Second Dimension			0.07 (0.27)
$\Delta$ Incumbent			2.03*** (0.59)
R <sup>2</sup>	0.12	0.13	0.45
Adj. R <sup>2</sup>	-0.01	0.00	0.36
Num. obs.	162	162	147

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

Model 1 & 2 use lagged variables; Model 3 uses first differences.

Table 2: Lagged and Differenced Panel Regression Models

appropriate model specification. Model 1 has a negative adjusted R-squared which makes it the worst performing one. Between lagged and first difference model, the latter performs the best at explaining the model fit. It's adjusted R-squared value is the highest which means it explains the most variance.

To further test the robustness of my selected model specification, I conduct Wooldrige and Breusch-Godfrey tests for serial correlation in the model 3. Both tests returned a p-value less than 0.05 which allows to confidently reject both nulls, and conclude that this model specification does not have serial

correlation and that there is no serial correlation in idiosyncratic errors. Given these diagnostics, I proceed with the first difference specification for the rest of the analysis.

## Refitting the models

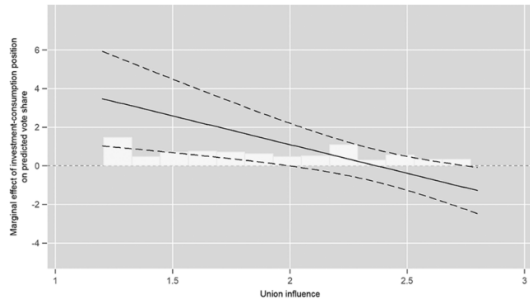
Using the chosen specification, I refit models 1, 2, and 3 from the original analysis. Table 3 summarizes these findings.

	Model 1	Model 2	Model 3
$\Delta$ Vote Share	0.58*** (0.06)	0.58*** (0.06)	0.58*** (0.06)
$\Delta$ Investment	0.13 (0.34)	0.03 (0.37)	-0.05 (0.35)
$\Delta$ Union Influence	-2.15 (1.76)	-2.12 (1.76)	-2.24 (1.74)
$\Delta$ Second Dimension	0.07 (0.27)	0.04 (0.27)	0.08 (0.27)
$\Delta$ Incumbent	2.03*** (0.59)	2.06*** (0.59)	2.04*** (0.58)
$\Delta$ Investment $\times$ $\Delta$ Union Influence		-0.99 (1.44)	
$\Delta$ Investment $\times$ $\Delta$ Second Dimension			-0.32 (0.19)
$R^2$	0.45	0.45	0.46
Adj. $R^2$	0.36	0.36	0.37
Num. obs.	147	147	147

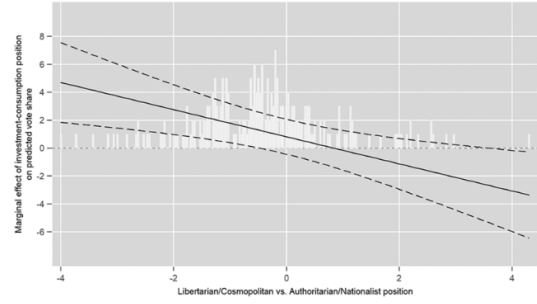
\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table 3: Differenced panel regression models

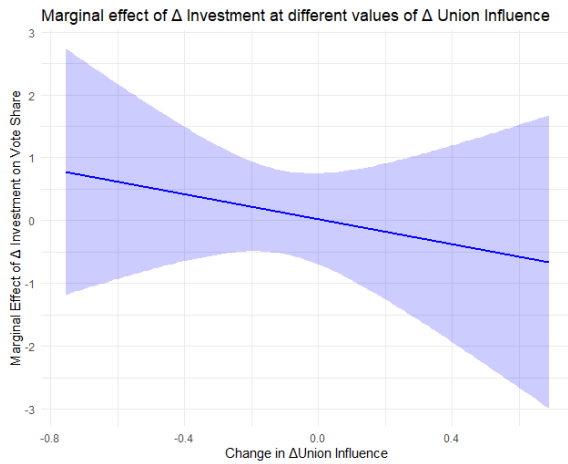
Two important differences emerge compared to the original analysis. The direct effect of investment (controlled for time-variance) is not statistically significant in any model, further providing evidence for the null authors concluded. More importantly, neither of the interaction effects is significant. Substantively, this means that the effect of adopting more investment-oriented positions on the vote share does not become significantly weaker in countries with weaker unions, and does not become significantly stronger when coupled with liberal/cosmopolitan positions on the second dimension. To further contextualize these findings, we plot the marginal effects for both of these interaction effects as the authors did in the original paper. These plots are depicted in the figure below. As depicted there, unlike in the original analysis, my estimated marginal effects of investment policy position on vote share are not distinguishable from 0 at any value of either union strength or second dimension position. This speaks into the evidence that original hypotheses 2 and 3 can not be confidently accepted.



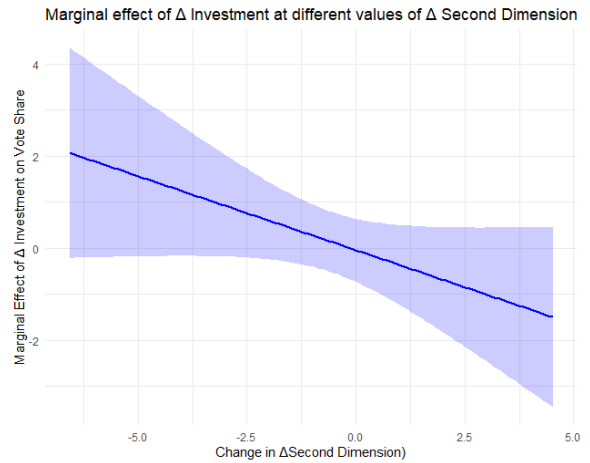
(a) Original interaction effects of investment\*unions



(b) Original interaction effects of investment\*second dimension



(c) My interaction effects investment\*unions



(d) My interaction effects of investment\*second dimension

Figure 4: Comparison of original and my interaction effect plots

## Conclusion

In this exercise, I tested the assumptions of the panel data methods used in the original analysis. I re-estimated the original models controlling for the time-variance on the covariates and obtained null results on hypotheses 2 and 3. Contrary to the authors conclusion, my analysis shows that adopting both pro-investment and culturally liberal positions might not be a good strategy for left parties in advanced postindustrial democracies. Moreover, strength of the unions do not necessarily harm the chances of mainstream left parties with working-class voters when they adopt the pro-investment policies. My findings contribute to the overall discussion on the potential strategies for left parties' electoral improvement. If my findings are correct, these means that adopting complex two-dimensional policy positions is not a good electoral strategy. This is an important insight, since mainstream left parties in post-industrial democracies are at the forefront in the fight against populist and authoritarian right. Therefore, figuring out effective strategies is both theoretically and practically crucial.