DCM final: effect of political ideology on voting behavior

Yiqiu Wang

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Abstract

What could affect individual's voting choice? Many have studied the effect of age, gender and education level, but we argued that voting choice should very much result from political ideology. Views on immigrants and religiosity should also paly a role in voting. Using data from the European Social Survey (ESS) and the Manifesto Project Dataset, we applied a binary logistic regression model, a multinomial logistic regression, and a conditional logistic regression model to investigate the effect of these variables on voting outcomes. The results suggest that political ideology is a significant factor in party choice. Left leaning parties are more likely to be favored by older voters, female voters, highly educated voters and voters who think positively of immigrants while high level of religiosity makes a voter prefer right leaning parties.

Introduction

Voting behavior has long been a topic which many researchers have conducted their study on. While it could be rational to regard political ideology as a predictor, few have studied how strong the effect of political ideology is and if such effect remains strong when more factors are controlled. In this study, we used a binary logistic regression model, a multinomial logistic regression model and a conditional logistic regression model to test the effect of political ideology on a voter's party choice controlling for gender, age, education level, views on immigrants and religiosity.

Theoretical background and hypotheses

Gender

Different party features could attract voters of different genders. Inglehart and Norris (2000) has found that women are more often left leaning than men and Harteveld and colleagues (2019) argued that women favor parties which share the concern of social harmony with them. In this study, we expect women to be more likely to vote for left parties but we also expect gender to be only one of the reasons for such preference.

Age

Studies have been carried out to see if the increase in age would make a voter more authoritarian (Tilley 2005) and more likely to vote for right parties. However, the results of these studies are diverse as some have shown aging does make people favor conservative parties (Tilley and Evans, 2014) while others found no significant effect of aging on the likelihood to vote for right parties (Goerres 2008). It could be the inclusion of other variables which might moderate the effect of aging or the assumed effect of aging in fact comes from other variables. In this study, we expect the often-observed tendency of elders voting for right parties is in

fact caused by something more implicit (possibly associated with age) about the voters instead of merely increased age.

Education

It is found that individuals with high level of education are more likely to vote for liberal parties and less likely to vote for radical right parties (Attewell 2022). We expect voters who received high level of education to be more left leaning.

Political ideology Individuals' placement on the left or right of the political spectrum has been proved to be relatively stable (Prior 2010). We expect political ideology being a major factor when deciding which party to vote for and its effect should enjoy a high degree of robustness.

View on immigrants

The general feature of left parties is that they recognize the value immigrants could bring in term of economy and culture. This feature makes voters who view immigrants positively favor them (Malloy et al. 2022).

Religiosity

The relationship between religiosity and party vote choice is proved to be different in different parts of European as more religious voters in western European countries are less willing to vote for right wing parties but some countries in east-central European countries witness the increase in likelihood of voting for right wing parties of highly religious voters (Marcinkiewicz and Dassonneville 2022). We expect religious voters to be in general left leaning.

Method and Data

Method(models)

A binary logistic regression model, a multinomial logistic regression and a conditional logistic regression model are used in this study. For the first model, the outcome is binary based on whether left parties are voted. As one expansion of the former model, the multinomial model could present the effect of variables on voting for another party type compared to that of voting for left parties (Long 1997). In the last model, both the traits of voters and parties are taken into consideration.

Data source

We used data from the ninth round of European Social Survey (ESS, 2018) which covered covers 30 countries and the latest version of Manifesto Project Dataset (2022). The gender, age, education, political ideology, view on immigrants, religiosity and voting outcome of participants are drawn from ESS. Gender and education are set as binary variables which female voters and voters with a degree no lower than bachelor are coded 1 and 0 otherwise. Political ideology, immigration view and religiosity are self-reported and recorded based on a 10-point scale with higher values indicating more right leaning, more positive on immigrants and more religious. We used "parfam" which set the standard for the grouping of political parties (12 types) in the Manifesto Project Dataset to categorize all voted parties. Based on "parfam", we further set parties belong to "Ecological parties", "Socialist or other left parties" and "Social democratic parties" as left parties. "Liberal parties" are set as a unique party type. Parties belong to "Christian democratic parties"

and "Conservative parties" are set as right parties. "Nationalist and radical right parties" are set as radical right parties. "Electoral alliances of diverse origin without dominant party" and missing information are kept missing. For simplicity, other parties are kept as "others".

Number of participants

All voters who had at least one missing value in the variables above are excluded from this study. Voters under 18 who we consider was not eligible of voting are also excluded which reduced the number of participants from 50845 to 14145 in 16 countries.

Descriptive Statistics

Table 1 shows the descriptive statistics of the participants which the outcome is binary.

For all voters, the number of male and female is close and the average value on their political ideology, immigration view and religiosity are close to the middle of the scale. The percentage of voters without a high degree (70.62%) is more than two times of that of highly educated voters (29.38%). The number of non-left voters (9817) is about two times of left voters (4328). Left party were more popular among female judging from the percentage of female voters (55.13%).

The age of non-left voters and left voters do not deviate much from the average age of all voters. Left voters had a higher percentage of high education (32.60%) than non-left voters (27.96%). Compared with non-left voters, left voters were in general more left leaning and less religious but had a more positive view on immigrants.

In Table 2, we extend the binary results to different party classifications.

Most voters chose the right party. The number of left party voters is slightly lower. But the least number of voters chose the radical right party. The average ages of voters are similar for all party types, but right party voters were generally the eldest. Left party had the highest percentage of female voters (55.13 %) and radical right party had the highest percentage of male voters (58.20%). Liberal party voters had the highest percentage of high education (40.40%) but radical right party voters had the lowest (14.20%). Voters' political ideology went much in line with their party choices with left party voter being the most left leaning, radical right party voters being the most right leaning. Left party voters had the most positive view on immigrants (5.69) while radical party voters had the least (3.50). Surprisingly, right party voters appeared to be the most religious (5.01) instead of radical right party voters. Liberal party voters were the least religious (3.66).

Results

1.Binary logistic regression

Table 3 shows the results from the binary logistic regression models. Age doesn't have a significant effect on voting for left party in both models. The significant effect of high education becomes not significant as we controlled for immigration view and religiosity. But the effects of gender and political ideology remain significant ($p < 0.001$) as we move to Model 2 and the positive effect of gender become strong while the negative effect of political ideology become weaker. Holding all other variables constant, being a female increases the odds of voting left by 25.5%. But each unit increase in the left-right scale lowers the odds of voting left by 46.4%. A unit increase in the view of immigrants increases the odds of voting left by 14.3% ($p < 0.001$). But a unit increase in religiosity decreases the odds of voting left by 4.1%.

Female voters, left leaning voters, voters who are more positive about immigrants but less religious are more likely to choose left party.

Table 1: Descriptive Statistics for Participants in the 2018 Europe Election (ESS). Binary outcomes

		Min	Max	Mean	SD	N	Percent
All participants							
	Number					14145	100.00
	Age	19.00	90.00	53.84	17.00	14145	100.00
Female	0					6971	49.28
	1					7174	50.72
High education	0					9989	70.62
	1					4156	29.38
	Left-right scale	0.00	10.00	5.30	2.27	14145	100.00
	Immigration view	0.00	10.00	5.08	2.32	14145	100.00
	Religiosity	0.00	10.00	4.36	3.10	14145	100.00
Non_left Party voters							
0	Number					9817	100.00
	Age	19.00	90.00	53.99	17.00	9817	100.00
Female	0					5029	51.23
	1					4788	48.77
High education	0					7072	72.04
	1					2745	27.96
	Left-right scale	0.00	10.00	6.06	2.01	9817	100.00
	Immigration view	0.00	10.00	4.81	2.31	9817	100.00
	Religiosity	0.00	10.00	4.56	3.09	9817	100.00
Left Party voters							
1	Number					4328	100.00
	Age	19.00	90.00	53.50	16.99	4328	100.00
Female	0					1942	44.87
	1					2386	55.13
High education	0					2917	67.40
	1					1411	32.60
	Left-right scale	0.00	10.00	3.59	1.86	4328	100.00
	Immigration view	0.00	10.00	5.69	2.23	4328	100.00
	Religiosity	0.00	10.00	3.90	3.08	4328	100.00

Data Source: round 9 of the European Social Survey (ESS)

available on https://www.europeansocialsurvey.org/

High education is coded 1 if the voter has a degree no low than bachelor and 0 otherwise

Left-Right scale shows the voter's political view with the lower values meaning more left

Higher value in Immigration view means more postive view on immigrants

The higher the value in Religiosity is, the more religious the voter is

2.Multinomial logistic regression

Table 4 shows the results from the multinomial logistic regression model. Looking at the results of Model 3, the increase in age has different effect on choosing other different party types over left. For liberal and right party, it has a positive effect with the effect on voting for liberal party stronger. Holding all other variables constant, for each year older, the odds of voting liberal party versus voting left significantly ($p < 0.01$) increases by 0.5%. But for radical right and other party, the effects are negative with the effect on voting other party stronger. Holding all other variables constant, for each year older, the odds of voting other party versus voting left significantly ($p < 0.001$) decreases by 1.6%.

Older voters tend to favor liberal or right party more than left party but favor radical right and other

party less than left party.

Being a female has significant (p < 0.001) negative effects on voting radical right, right or other party compared with voting left with the negative effect for voting radical right being the strongest. But its negative effect on voting liberal party is insignificant (p > 0.1). Holding all other variables constant, being a female lowers the odds of voting radical right party versus voting left by 40.9%.

Being a female makes a voter least likely to choose radical right party over left party.

High education has a significant (p < 0.001) positive effect on choosing liberal party over left, but it has significant (p < 0.001) negative effects on choosing radical right or other party over left with the negative effect on voting radical right being stronger. The negative effect of high education on voting right party versus left is insignificant (p < 0.1). Holding all other variables constant, high education increases the odds of voting liberal party versus voting left by 58.2%. Holding all other variables constant, high education lower the odds of voting radical right party versus voting left by 52.9%.

Highly educated voters tend to favor liberal party over left party but favor left party over radical right and other party. They are the least likely to choose radical right party over left party.

Being more right leaning has significant (p < 0.001) positive effects on choosing radical right, right, liberal or other party over left party with the positive effect on choosing radical right party instead of left being the strongest. Holding all other variables constant, a unit righter in political ideology increases the odds of voting radical right party versus voting left by 125.7%.

Given only two party type(left and non-left) to vote for, right leaning voters always drop left party.

Positive view on immigrants has significant (p < 0.001) negative effect on choosing radical right, right, liberal or other party over left party with the negative effect on voting radical right party being the strongest. Holding all other variables as constant, a one unit increase (more positive) in immigrant view lowers the odds of voting radical right party versus left party by 34.1%.

Voters with positive view on immigrants generally favor left party and are least likely to choose radical right party over left party.

High level of religiosity has significant (p < 0.001) positive effects on choosing radical right, right and other party over left party with the positive effect on voting right party being the strongest. But it has a significant (p < 0.001) negative effect on choosing liberal party over left. Holding all other variables as constant, a one unit increase in religiosity increases the odds of voting right party versus left party by 9.0%. Holding all other variables as constant, a one unit increase in religiosity lowers the odds of voting liberal party versus left party by 4.7%.

Highly religious voters tend to prefer radical right, right and other party than left party and are most likely to choose right party over left party. They are less likely to choose liberal party over left party.

3.Conditional logistic regression

Table 5 shows the results from the conditional logistic regression model.

"rile" is a variable created based on "rile" in the Manifesto Project Dataset (2022) which indicates the left-right position of a party with a higher value showing more right leaning. We obtained the "rile" for our five party types (left, radical right, right, liberal, other) by grouping the country, party type and party names and taking the mean of the original "rile".

Compared with a one-year younger voter, a unit increase in the left-right position of the party lowers the odds of a voter voting for the party by 0.05(p < 0.001), holding all other variables constant. Older voters are less likely to vote for right leaning parties than young voters. Compared with a male voter, a unit increase in rile lowers the odds of a female voter voting for the party by 1.62% (p < 0.001), holding all other variables constant. Female voters are less likely to vote for right leaning parties than male voters. Compared with a voter with low education, a unit increase in rile lowers the odds of a highly educated voter voting

for the party by 1.33% (p < 0.001). Highly educated voters are less likely to vote for right leaning parties. Compared with a one unit more left leaning voter, a unit increase in rile increases the odds of a voter voting for the party by 1.62% (p < 0.001). Right leaning voters favor right leaning parties. Compared with a voter with a one unit less positive view on immigrants, a unit increase in rile lowers the odds of a voter voting for the party by 0.89% (p < 0.001). Voters who think of immigrants positively are less likely to vote for right leaning parties. Compared with a voter who is one unit less religious, a one unit increase in rile increases the odds of a voter voting for the party by 0.1% (p < 0.001). More religious voters favor right leaning parties.

Conclusion and discussion

A voter's political ideology is a strong predictor of the voter's party choice. Left leaning voters favor left leaning parties over other parties and the same for right leaning voters. In general, older voters, female voters, highly educated voters and voters who think positively of immigrants tend to be more left leaning while more religious voters prefer right leaning parties.

In this study, different countries are viewed as a whole and all the parties are categorized into five party types. Considering the political atmosphere and party structure in different countries are different and the features of parties which have been put in the same party type here could be slightly different, further studies could be conducted to test if the effect of these variables should be different for different countries. In addition, a voter's political ideology is self-reported which could be problematic to some extent as a voter might be unwilling to admit being extremely left/right. More aspects revealing the voter's true political ideology could be taken into consideration.

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Table 2: Descriptive Statistics for Participants in the 2018 Europe Election (ESS). Multiple outcomes

			Min	Max	Mean	SD	N	Percent
Left		Number					4328	100.00
		Age	19.00	90.00	53.50	16.99	4328	100.00
	Female	0					1942	44.87
		1					2386	55.13
	High education	0					2917	67.40
		1					1411	32.60
		Left-right scale	0.00	10.00	3.59	1.86	4328	100.00
		Immigration view	0.00	10.00	5.69	2.23	4328	100.00
		Religiosity	0.00	10.00	3.90	3.08	4328	100.00
Radical Right		Number					1493	100.00
		Age	19.00	90.00	52.93	16.31	1493	100.00
	Female	0					869	58.20
		1					624	41.80
	High education	0					1281	85.80
		1					212	14.20
		Left-right scale	0.00	10.00	6.71	2.01	1493	100.00
		Immigration view	0.00	10.00	3.50	2.22	1493	100.00
		Religiosity	0.00	10.00	4.60	3.05	1493	100.00
Right		Number					4491	100.00
		Age	19.00	90.00	55.78	16.85	4491	100.00
	Female	0					2248	50.06
		1					2243	49.94
	High education	0					3272	72.86
		1					1219	27.14
		Left-right scale	0.00	10.00	6.36	1.95	4491	100.00
		Immigration view	0.00	10.00	5.04	2.27	4491	100.00
		Religiosity	0.00	10.00	5.01	3.04	4491	100.00
Liberal		Number					2327	100.00
		Age	19.00	90.00	53.68	17.19	2327	100.00
	Female	0					1118	48.04
		1					1209	51.96
	High education	0					1387	59.60
		1					940	40.40
		Left-right scale	0.00	10.00	5.45	1.85	2327	100.00
		Immigration view	0.00	10.00	5.12	2.15	2327	100.00
		Religiosity	0.00	10.00	3.66	3.10	2327	100.00
Other		Number					1506	100.00
		Age	19.00	90.00	50.14	17.08	1506	100.00
	Female	0					794	52.72
		1					712	47.28
	High education	0					1132	75.17
		1					374	24.83
		Left-right scale	0.00	10.00	5.42	2.00	1506	100.00
		Immigration view	0.00	10.00	4.93	2.30	1506	100.00
		Religiosity	0.00	10.00	4.57	2.95	1506	100.00

Data Source: round 9 of the European Social Survey (ESS)

available on https://www.europeansocialsurvey.org/

High education is coded 1 if the voter has a degree no low than bachelor and 0 otherwise

Left-Right scale shows the voter's political view with the lower values meaning more left

Higher value in Immigration view means more postive view on immigrants

The higher the value in Religiosity is, the more religious the voter is

Table 3: Binary logistic regression models. Voting for left parties

	Model 1	Model 2
(Intercept)	8.885***	4.351***
	(0.874)	(0.494)
Age(years)	0.999	1.001
	(0.001)	(0.001)
Gender(ref:male)	1.196***	1.255***
	(0.051)	(0.055)
Education(ref:low education)	1.194***	1.002
	(0.056)	(0.049)
Left-right scale(1-10)	0.526***	0.536***
	(0.007)	(0.007)
Immigration view(1-10)		1.143***
		(0.012)
Religiosity(1-10)		0.959***
		(0.007)
Num.Obs.	14 145	14 145
AIC	13 331.1	13 129.7
BIC	13 368.9	13 182.6
Log.Lik.	−6660.570	−6557.873
F	658.591	454.953
RMSE	0.39	0.39

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Source: Data Source: round 9 of the European Social Survey (ESS)

available on https://www.europeansocialsurvey.org/

Comments:

Voters with a degree equals to or higher than bechelor is considered having high education.

The higher the value in Left-right sacle, the more right leaning the voter's political view is

The higher the value in Immigration view, the more positive the voter thinks about immigrants

The higher the value in Religiosity is, the more religious the voter is

Table 4: Multinomial logistic regression. Party Choice in the 2018 Europe Election (ESS).

	Model 3			
	Radical Right	Right	Liberal	Other
(Intercept)	0.054***	0.029***	0.080***	0.175***
	(0.010)	(0.004)	(0.012)	(0.028)
Age(years)	0.991***	1.003*	1.005**	0.984***
	(0.002)	(0.002)	(0.002)	(0.002)
Gender(ref:male)	0.591***	0.808***	0.944	0.703***
	(0.041)	(0.041)	(0.053)	(0.045)
Education(ref:low)	0.471***	0.899+	1.582***	0.730***
	(0.043)	(0.052)	(0.095)	(0.054)
Left-right scale(1-10)	2.257***	2.101***	1.654***	1.619***
	(0.044)	(0.031)	(0.025)	(0.028)
Immigration view(1-10)	0.686***	0.909***	0.898***	0.879***
	(0.011)	(0.011)	(0.012)	(0.013)
Religiosity(1-10)	1.076***	1.090***	0.953***	1.080***
	(0.013)	(0.009)	(0.009)	(0.012)
Num.Obs.	14 145			
R2	0.146			
R2 Adj.	0.146			
AIC	36 286.4			
BIC	36 498.0			
RMSE	0.36			

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Source: Data Source: round 9 of the European Social Survey (ESS)

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Comments:

Voters with a degree equals to or higher than bechelor is considered having high education.

The higher the value in Left-right sacle, the more right leaning the voter's political view is

The higher the value in Immigration view, the more positive the voter thinks about immigrants

The higher the value in Religiosity is, the more religious the voter is

Table 5: Results of conditional logit models estimating factors affecting voting behavior

	Model 4	Model 5
altLiberal	0.7600***	0.8883***
	(0.0245)	(0.0294)
altOther	0.4581***	0.5446***
	(0.0163)	(0.0199)
altRadical Right	0.3039***	0.3856***
	(0.0137)	(0.0178)
altRight	0.8588***	1.0619
	(0.0311)	(0.0399)
rile:Age(year)	0.9992***	0.9995***
	(0.0000)	(0.0000)
rile:Gender(ref:male)	0.9814***	0.9838***
	(0.0014)	(0.0015)
rile:Education(ref:low)	0.9734***	0.9867***
	(0.0016)	(0.0018)
rile:Left_right political view(1-10)	1.0139***	1.0162***
	(0.0003)	(0.0004)
rile:Immigration view(1-10)		0.9911***
		(0.0003)
rile:Religiosity(1-10)		1.0010***
		(0.0003)
Num.Obs.	56 191	56 191
AIC	34 016.5	33 231.1
BIC	34 088.0	33 320.5
RMSE	0.40	0.40

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Source: Data Source: round 9 of the European Social Survey (ESS)

available on https://www.europeansocialsurvey.org/

Comments:

rile indicates the left-right position of a party type with a higher showing more right leaning

Voters with a degree equals to or higher than bechelor is considered having high education.

The higher the value in Left-right sacle, the more right leaning the voter's political view is

The higher the value in Immigration view, the more positive the voter thinks about immigrants

The higher the value in Religiosity is, the more religious the voter is