

Predictors of fossil fuel taxation attitudes across post-communist and other Europe

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Abstract

Purpose – This study examines how the effects of three predictors, namely left–right political orientation, generalized trust and political trust, on fossil fuel taxation attitudes vary between post-communist and other European countries.

Design/methodology/approach – By using European Social Survey (ESS) Round 8 data and ordinary least squares (OLS) regression, this paper studied the effects of the hypothesized predictors on fossil fuel taxation attitudes across post-communist and other European countries. The countries were analyzed both in group and individually.

Findings – The results showed that stronger left-wing orientation, higher generalized trust and higher political trust predict more support for fossil fuel taxation at the country group level in both post-communist and other Europe. However, the effects were generally speaking less consistent and significant in the countries of the post-communist Europe. By and large, the effect of political trust was the most significant and universal.

Originality/value – The findings contribute to the understanding how left–right political orientation and generalized trust have somewhat distinct effects on fossil fuel taxation attitudes in different European country contexts, while the effect of political trust is more universal across the continent.

Keywords Climate policy, Generalized trust, Post-communist countries, Political trust, Fossil fuel taxation, Left–right political orientation

Paper type Research paper

Introduction

Due to the progress of climate change there is urgent, increasing and global need to understand how support of carbon taxation is formed in different societal contexts (Carattini *et al.*, 2019). One significant predictor for supporting climate policies is political orientation (Drews and van den Bergh, 2016). The cleavage between left and right has traditionally been the most important dividing line of politics. Left-wing ideology is typically associated with interests of the working class, relatively high taxation, equal income distribution and large welfare state, while right-wing ideology is often connected with lower taxation, smaller welfare state, less equal income distribution and benefits of the business life.

Later on, climate change and other environmental problems have added a new dimension to the political divide. While the public argument on tackling certain other environmental problems had already begun earlier, the breakthrough of climate change into political debates took place in the 1980s. When compared to right-wingers, supporters of left-wing are typically more concerned about the climate change (Clements, 2012; Kvaløy, *et al.*, 2012) and more in favor of climate policies (Bechtel *et al.*, 2019; Drews and van den Bergh, 2016; Neumayer, 2004).

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In a closer look however, it seems that the described climate-related left–right divide applies to the non-post-communist Europe but not for post-communist countries (McCright *et al.*, 2016). Even though post-communist states have stepped away from the communist rule, it appears that the period in question has – for its part – etched a distinctive influence on the political systems and attitudes among the post-communist countries. One reason for this could be that in the post-communist region liberalism is “consolidated” that is, market liberals are also liberal toward other societal issues (Gray, 1993; Whitefield, 2002). In turn, leftists in the post-communist countries are – contrary to other European leftists – relatively supportive to authoritarianism (Pop-Eleches and Tucker, 2019). Additionally, a study by McCright *et al.* (2016) finds that the left-wing orientation in the post-communist Europe predicts less willingness-to-pay for climate change mitigation. On the other hand, there is evidence that left–right political orientation is limited or insignificant factor in the post-communist region as it regards attitudes toward other type of environmental policies (Chaisty and Whitefield, 2015; McCright, *et al.*, 2016; Smith and Mayer, 2019).

Based on the discussion above, the first research question asks (RQ1): does leftist political orientation predict less support for higher fossil fuel taxation in the post-communist Europe and more support in the other Europe, and are the findings consistent across individual countries?

Previous studies also show that support for environmental policies, such as environmental taxes, is related to trust in other people (Fairbrother, 2016; Smith and Mayer, 2018) and political institutions (e.g. Fairbrother *et al.*, 2019; Harring, 2013). Without trust in other people, citizens may see each other as potential free-riders who do not contribute in solving collective problems, such as climate change (Jagers *et al.*, 2019; Smith and Mayer, 2018; Sønderskov, 2011). Moreover, if citizens do not trust political institutions then they are less willing to support political reforms that include uncertain or risky outcomes (Rudolph, 2017; Trüdinger and Bollow, 2011).

Due to the differing levels of trust (e.g. Kouvo, 2011) and societal backgrounds between post-communist and other European countries, the effects of trust on the fossil fuel taxation attitudes may differ between the regions or countries in question. Hence, the second research question is articulated as follows (RQ2): are the hypothesized positive effects of generalized and political trust on supporting higher fossil fuel taxation consistent across Europe?

The predictors are analyzed both at the region level (comparing the total data, post-communist and other Europe) and across individual countries. The study utilizes European Social Survey (ESS) Round 8 data and ordinary least squares (OLS) methodology.

Predictors of support for higher fossil fuel taxation

Left–right political orientation and citizens’ fossil fuel taxation attitudes in the post-communist and other European countries

Carbon and fuel taxes can be considered as relatively cost-effective climate policy instruments as they have successfully decreased emissions where they have been put in place (Stern, 2007; Stern and Robinson, 2018). When it comes to support of climate policy instruments there is an attitudinal gap between experts’ and public’s opinion. Experts tend to prefer carbon or fossil fuel taxation over subsidizing renewable energy and other “softer” policy measures, whereas citizens – in general – are more in favor of subsidizing renewable energy than carbon taxation (Drews and van den Bergh, 2016; Lucas, 2017). Public opinion has a habit of overestimating the possible negative outcomes of carbon taxation, such as job losses, and underestimating the advantages of decreased emissions (Carattini *et al.*, 2019).

There are however, potentially influential factors that are related to the fossil fuel taxation attitudes. This study examines the significance of three factors: left–right political orientation, political trust and generalized trust. The dividing line between left and right can be characterized as “old-politics” cleavage that is related conflicts on social class and

economic questions. Traditionally, left-wing orientation has promoted for higher taxes, more equal income redistribution and larger welfare state, whereas right-wing orientation has aimed for the opposite objectives. “New-politics” cleavage, instead, is considered to be more independent from the traditional social class structure, including questions such as minority rights and environmental protection (Hooghe *et al.*, 2002). On the other hand, environmental questions are not apart from the left–right cleavage as left-wing orientation predicts typically more supportive attitudes toward environmental protection (e.g. Bechtel *et al.*, 2019; Drews and van den Bergh, 2016).

Fossil fuel taxation includes elements from both old and new political cleavages. Higher fossil fuel taxation can decrease the amount of certain country’s carbon dioxide (CO₂) emissions, while higher taxation on the one hand can gather more tax revenues to the National Economy, but can also – depending on the details – put stress on household economies (Klenert *et al.*, 2018; Markandya and Ortiz, 2008). As climate protection requires interventionist policies from the state it is sometimes thought to be ill-fitting for the political right (Priest, 2016). Even though fuel or carbon taxes can advance development of the climate-friendly innovations (Hsu, 2016), one could interpret that higher tax on fossil fuels can hamper at least short-term success of the business life and thus, government should avoid raising energy taxation. As this viewpoint is more common among the rightists it is arguably one reason why they more often oppose environmental taxation than the leftists. The above arguments about the left and right ideology may not however, apply to the countries of the post-communist Europe.

The bygone communist era does not only affect the current public institutions but also people’s attitudes in the countries of the post-communist Europe. According to Tavits and Letki (2009), left-wing parties in the post-communist countries have adapted ideological orientations that have traditionally characterized right-wing ideology. For instance, conservative values are more associated with the right-wing ideology in the Western Europe and with the left-wing ideology in the post-communist countries (Barni *et al.*, 2016).

Chaisty and Whitefield (2015) explain the attitudinal differences in question with “sticky” values: the bygone communist era has shaped the way citizens view political issues, and the attitudes have sustained after the transition to capitalism possibly due to experiences related to the problems with democracy and high corruption. This can also be seen in terms of environmental attitudes. People in the post-communist countries view environmental question through a specific perspective that differs from other regions, and there is a relatively weak connection between environmental issues and other “more salient” political questions such as economic policy (Chaisty and Whitefield, 2015).

However, there is a reason to note that left- and right-wing politics have different meanings also between particular post-communist and other countries. In certain countries left–right cleavage is relatively unclear, of which Portugal is an extreme example (Freire and Belchior, 2013). Additionally, although right-wing is generally speaking related to the more liberal values in the post-communist Europe, but it is connected to more conservative and nationalistic values, for instance, in Hungary (Palonen, 2018) and post-East Germany (Kemper, 2015). On the other hand, in countries that are relatively dependent on fossil energy – such as Russia and Poland (IndexMundi, 2014) – the dependency may alter the relationship between political ideology and fossil fuel taxation attitudes (Harring *et al.*, 2019).

Some studies have noticed differences between Western Europe and post-communist Europe in terms of environmental attitudes (Chaisty and Whitefield, 2015) and activism (Marquart-Pyatt, 2012). A cross-country study by McCright *et al.* (2016) shows that in Western Europe left-wing orientation predicts more willingness-to-pay for climate change mitigation, while in post-communist countries people with stronger left-wing orientation are less willing to pay for climate protection (McCright *et al.*, 2016). As opposing climate change mitigation is typically associated to more conservative values it may be that in the post-

communist countries stronger left-wing orientation predicts less support for increasing fossil fuel taxation.

Based on the discussion above, first and second hypothesis are produced as follows:

- H1.* Across post-communist Europe, stronger left-wing orientation predicts less support for higher fossil fuel taxation.
- H2.* Across non-post-communist Europe, stronger left-wing orientation predicts more support for higher fossil fuel taxation.

The significance of generalized and political trust

Trust is an important aspect in the formation of citizens' environmental policy attitudes. Both generalized and political trust predict supportive attitude toward environmental protection, whereas mistrust has the opposite effect (e.g. Fairbrother, 2016; Smith and Mayer, 2018). Generalized trust can be defined as a belief that others do not want to harm us but want to look after our interests (Delhey and Newton, 2005). It has been identified as a crucial element of participating in solving large-N collective problems (Sønderskov, 2009, 2011) of which climate change is a model example (Jagers *et al.*, 2019). People tend to cooperate when they expect others to do the same and do not consider each other as free-riders (Sønderskov, 2011).

In turn, political trust reflects "evaluations of whether or not political authorities and institutions are performing in accordance with the normative expectations held by the public" (Miller and Listhaug, 1990, p. 358). Trust in political institutions is especially crucial when it comes to supporting political reforms that include risks: people may lack profound knowledge about political questions, so when they evaluate how worthwhile certain reform is political trust plays a key role in the evaluation process (Rudolph, 2017; Trüding and Bollow, 2011). The importance of political trust in the support of carbon or fuel taxation has been shown in several studies (Fairbrother *et al.*, 2019; Hammar and Jagers, 2006; Jagers *et al.*, 2010). Political trust is a crucial element in supporting carbon taxation since even if people believe in climate change they may not support carbon taxation if they find political institutions unreliable (Harring, 2018).

There is evidence that there typically prevail relatively low levels of generalized and political trust in the countries with the communist past (e.g. Bjørnskov, 2007; Kouvo, 2011; Závecz, 2017). Due to the differing societal contexts, the relationship between trust and climate policy attitudes in the post-communist European countries – that have gone through extensive societal change and where often facing relatively high level of corruption (Chaisty and Whitefield, 2015) – may differ from other European countries. Therefore, it is interesting to examine how consistent the effects of generalized and political trust are on the fossil fuel taxation attitudes across post-communist and other European countries. To accomplish this aim, following hypotheses are formed:

- H3.* Across Europe, higher generalized trust predicts more support for increasing fossil fuel taxation.
- H4.* Across Europe, higher political trust predicts more support for increasing fossil fuel taxation.

Data and research methodology

This study utilizes data from ESS Round eight that were collected during 2016–2017 (ESS, 2018). The data enable comparative research on European nations with representative population samples. Since this study is concerning Europe, the data from Israel were not added to this analysis. The countries' sample sizes can be seen in Table 1.

Country/region	<i>N</i>	Predictors of fossil fuel taxation attitudes
Post-communist Europe	14,392	
The Czech Republic	2,269	
Estonia	2019	
Hungary	1,614	
Lithuania	2,122	
Poland	1,694	
Post-East Germany	937	
Russia	2,430	
Slovenia	1,307	
Other Europe	27,438	
Austria	2010	
Belgium	1766	
Finland	1925	
France	2070	
Great Britain	1959	
Iceland	880	
Ireland	2,757	
Italy	2,626	
The Netherlands	1,681	
Norway	1,545	
Portugal	1,270	
Post-West Germany	1915	
Spain	1958	
Sweden	1,551	
Switzerland	1,525	
Total	41,830	

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Table 1.
Country/region sample sizes

After all, the data contains 23 countries (with exception of Germany that was classified to post-East and post-West Germany). In the Results section, the analysis is carried out at both country group level (the total data, post-communist Europe and other Europe) and across individual countries.

The dependent variable of this study is fossil fuel taxation attitude and independent variables are left–right political orientation, generalized trust and political trust, while control variables are the International Socio-Economic Index of Occupational Status (ISEI), age and gender. The control variables attempt to ensure that the possible differences between effects of independent variables are not related to differences in socioeconomic statuses, age or gender. Details of the dependent variable and independent and control variables are shown in [Table 2](#).

The dependent variable measures attitudes toward higher fossil fuel taxation. The question for the respondents was: “To what extent are you in favor or against the following

Variable	<i>n</i>	Mean	<i>SD</i>	Min	Max	Share (%)
Fossil fuel taxation attitude	40,093	2.82	1.23	1	5	
Right–left political orientation	36,226	4.91	2.18	0	10	
Generalized trust	41,739	5.13	1.87	0	10	
Political trust	40,536	3.76	2.24	0	10	
ISEI	37,874	42.52	21.28	11.01	88.96	
Age	41,702	47.35	18.70	15	100	
Gender	41,821	1.52	0.50	1	2	
1 Male						47.34
2 Female						52.66

Table 2.
Descriptive statistics of the dependent variable and independent and control variables

policies in [your country] to reduce climate change?” Then respondents were asked to opinion on “increasing taxes on fossil fuels, such as oil, gas and coal.” For easier interpretation, the original answer scale was reversed so that higher number means more support for the increasing fossil fuel taxes: 1 = strongly against, 2 = somewhat against, 3 = neither in favor nor against, 4 = somewhat in favor and 5 = strongly in favor. Distribution of the dependent variable by post-communist and other European countries is presented in [Figure A1](#).

Left–right political orientation was measured by “placement on a left–right scale” and an option scale: 0 = left – 10 = right. Since left-wing ideology is assumed to have a positive connection with the dependent variable in most countries in the data, so to enable easier comparison of the effects of independent variables, the scale was reversed so that 0 means right-wing orientation and 10 means left-wing orientation.

Generalized trust is studied with statements and answer scales: (1) “most people can be trusted or you cannot be too careful,” 0 = you cannot be too careful – 10 = most people can be trusted; (2) “most people try to take advantage of you or try to be fair,” 0 = most people try to take advantage of me – 10 = most people try to be fair and (3) “most of the time people are helpful or mostly looking out for themselves,” 0 = people mostly look out for themselves – 10 = people mostly try to be helpful (e.g. [Hooghe et al., 2009](#)). In turn, political trust is measured by following variables: (1) trust in [country]’s Parliament, (2) trust in politicians and (3) trust in political parties ([Listhaug and Ringdal, 2008](#)). All these dimensions of political trust were originally measured with the following scale: 0 = no trust at all – 10 = complete trust.

Cronbach’s alpha value for the generalized trust sum variable is 0.77 and 0.91 for the political trust sum variable. The original scale of these sum variables was 0–30. To enable easier comparison between the effects of the independent variables, the original values of generalized trust and political trust sum variables were divided by three. Values with decimals were rounded to the nearest integer value. Hence, the scale of all the three independent variables is 0–10. [Figures A2, A3, and A4](#) present the Pearson correlation values of independent variables and the dependent variable at the level of country averages.

The control variable ISEI is a continuous variable that is derived from the ISCO-occupation codes ([Ganzeboom, 2010; Ganzeboom et al., 1992](#)). The ISEI value consists of education, occupational status and earnings that are typical to each occupation that is included in ISCO-classification. The ESS Round eight data includes ISCO-08 codes ([ESS, 2018](#)). The conversion from ISCO-08 to ISEI was done with codes from [Ganzeboom and Treiman \(2010\)](#). Variable age ranges from 15 to 100. Both ISEI and age are centered to the mean of the country or region that the analysis is concerning. Gender, in turn, is classified as follows: 1 = male and 2 = female.

All the used variables were tested for multicollinearity and all the VIF-values were clearly under ten. The used research method was OLS regression (e.g. [Eye and Schuster, 1998](#)). In order to better compare the effects of independent variables, all the three independent variables, as well as control variables are included in the same regression models. To ensure that larger population or sample sizes do not overrule other ones, a weight was formed to secure that all countries are represented with equal amount of respondents ([Dülmer, 2018; Skinner and Mason, 2012](#)). Additionally, the analysis was also weighted with a post-stratification weight, provided by [ESS \(2014\)](#), which corrects biases that are related to the survey design and nonresponse rates. The study was executed with Stata, version 15.1.

Results

The purpose of this analysis was to explore how the effects of left–right political orientation, political trust and generalized trust on fossil fuel taxation attitudes varying across post-communist and other European countries. The results presented in [Figures 1, 2, and 3](#) test

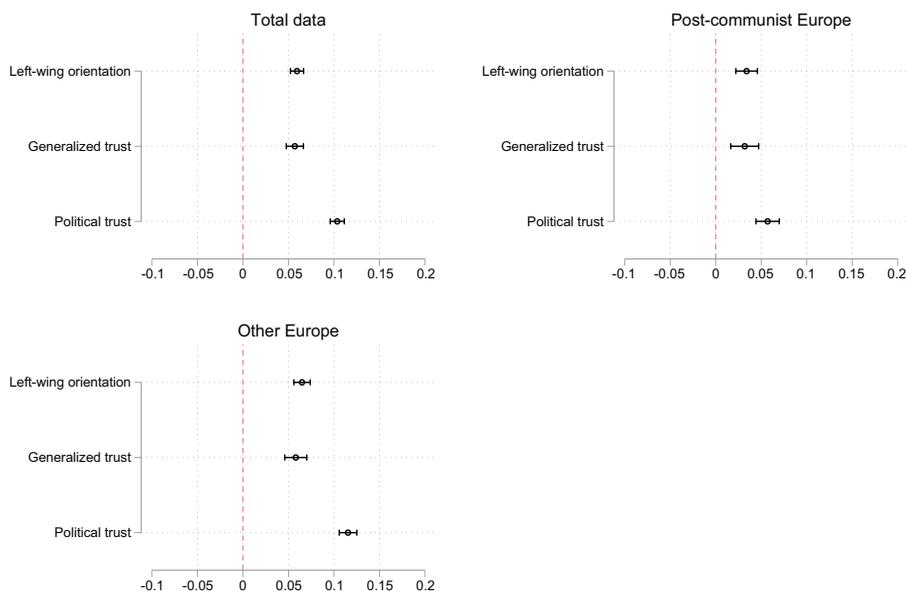


Figure 1. OLS regression: the effects of left-wing orientation, generalized trust, and political trust on attitudes towards higher fossil fuel taxes in the total data, post-communist Europe, and other Europe. ISEI, age, and gender are controlled for 95% CIs

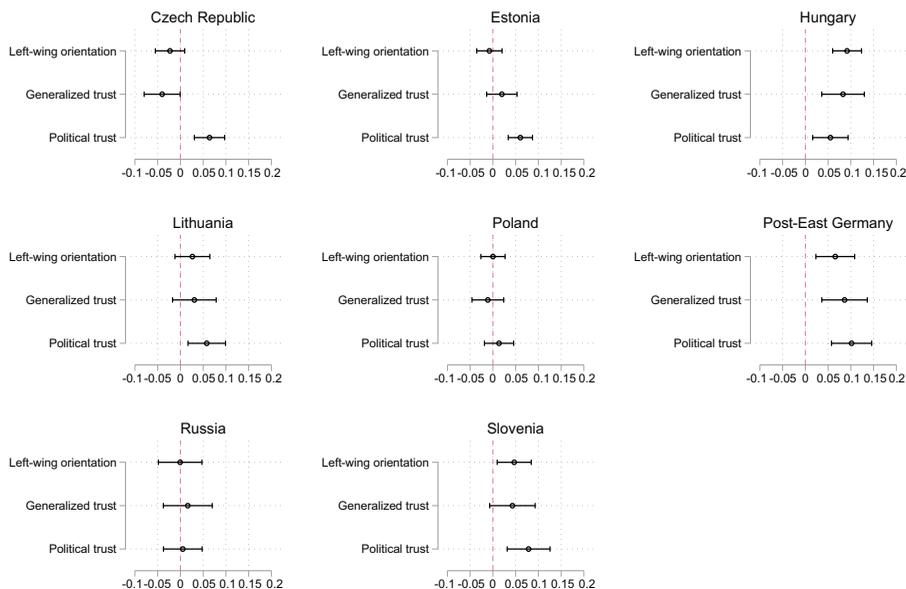


Figure 2. OLS regression: the effects of left-wing orientation, generalized trust, and political trust on attitudes towards higher fossil fuel taxes in the post-communist countries. ISEI, age, and gender are controlled for 95% CIs

whether the four hypotheses are supported by the analysis. Regression [Tables A1, A2, and A3](#) show more detailed information of the results presented in the figures in question. [Figure 1](#) shows how leftist orientation, generalized trust and political trust predict attitudes toward higher fossil fuel taxation in the total data, post-communist Europe and other Europe. [Figure 2](#) presents the effects of the independent variables on the dependent variable in the

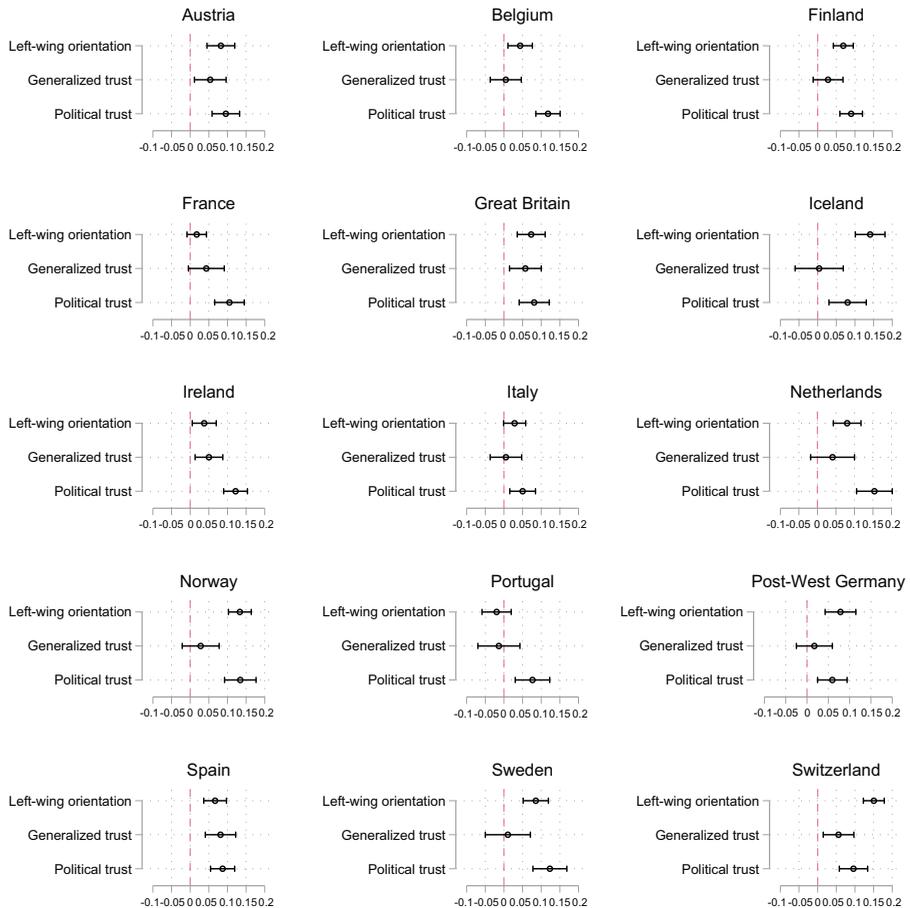


Figure 3. OLS regression: the effects of left-wing orientation, generalized trust, and political trust on attitudes towards higher fossil fuel taxes in the non post-communist countries. ISEI, age, and gender are controlled for 95% CIs

post-communist European countries, including post-East Germany and Figure three illustrates the effects in question in the non-post-communist countries and post-West Germany.

First hypothesis (H1) predicted that across the post-communist Europe, stronger left-wing orientation predicts less support for higher fossil fuel taxes. When looking at the post-communist Europe as a whole in Figure 1 this hypothesis was not supported but quite the opposite: stronger left-wing orientation predicted more support toward fossil fuel taxation.

When the post-communist countries were explored separately in Figure 2, stronger left-wing orientation predicted slightly less support for the fossil fuel taxation in the Czech Republic, Estonia and Russia but the effects were not statistically significant. On the other hand, stronger left-wing orientation predicted more support for the taxation statistically significantly only in Hungary, post-East Germany and Slovenia.

Second hypothesis (H2) was that in the non-post-communist Europe, stronger left-wing orientation predicts more support for higher fossil fuel taxes. This assumption was supported when the region was analyzed as a whole (Figure 1). When non-post-communist countries were analyzed individually in Figure 3, stronger left-wing orientation predicted more support

in most countries with exception of France, Italy and Portugal. In France and Italy, the effects in question were positive but statistically insignificant, and in Portugal the effect was slightly negative but insignificant.

Third, this study hypothesized (H3) that higher generalized trust predicts more support for increasing fossil fuel taxes across Europe. When countries were examined in groups, the assumption was supported in total data, in post-communist region and other Europe. The effect was slightly weaker in the post-communist than in other Europe. However, when countries were studied one by one the effect was statistically insignificant in most countries. Considering all countries in the used data, generalized trust predicted statistically significantly more support for higher fossil fuel taxes in Hungary, post-East Germany, Austria, Great Britain, Ireland, Spain and Switzerland. An exceptional case was the Czech Republic where higher generalized trust predicted statistically less significant support for higher fossil fuel taxation.

The fourth hypothesis (H4) assumed that higher political trust predicts more support for increasing fuel taxation across Europe. At the country group level, the hypothesis was supported in the total data, post-communist Europe and other Europe (Figure 1). However, the effect was weaker in the post-communist region. When countries were explored separately in Figure 3, the hypothesis was supported in every non-post-communist country and most of the post-communist countries. The exceptions were Poland and Russia where higher political trust did not predict statistically significantly more support for higher fossil fuel taxes.

Conclusions

This study examined the effects of left–right political orientation, generalized trust and political trust on fossil fuel taxation attitudes in different societal contexts: post-communist and other European countries. The analysis considered country groups as well as individual countries. The first research question (RQ1) asked whether stronger leftist political orientation predicts less support for fossil fuel taxation in the post-communist Europe and more support in other Europe and if the presumptions in question are consistent across individual countries. Unlike expected, this study was not in line with the previous finding that stronger left-wing orientation predicts less willingness-to-pay for climate protection in the post-communist Europe (McCright *et al.*, 2016). Instead, stronger left-wing orientation predicted more support for higher fossil fuel taxation within the post-communist region as a whole but the effect was inconsistent between individual countries. In Slovenia, Hungary and post-East Germany people with stronger leftist orientation statistically significantly more supportive, but in other post-communist countries, the effect of left–right political orientation was not significant.

As expected, when looking at the non-post-communist Europe as a whole, stronger left-wing orientation predicted more support for fossil fuel taxation. When non-post-communist countries were studied individually only exceptions were France, Italy and Portugal, where the effect of left–right political orientation was insignificant.

Second research question (RQ2) attempted to find out whether the (hypothetically positive) effects of generalized and political trust on supporting fossil fuel taxation are consistent across Europe. When countries were grouped, higher generalized trust predicted more support for fossil fuel taxation in the total data, post-communist Europe and other Europe. However, when countries were examined one by one, the effect was insignificant in most countries. Exceptionally, the effect of generalized trust was statistically significantly negative in the Czech Republic. This finding would be an interesting topic for further investigation.

At the country group level, higher political trust predicted more support for higher fossil fuel taxation in the total data, post-communist Europe and other Europe. When countries

were explored separately, higher political trust was found to predict statistically significantly more support in every non-post-communist country and also in most of the post-communist countries.

Altogether, the positive effects of generalized and political trust on supporting fossil fuel taxation were not entirely consistent across Europe and the effects were not statistically significant in each country. The effect of political trust was, however, clearly more consistent across the studied countries than the effect of generalized trust.

Poland and Russia were the only countries where none of the three examined predictors had a significant effect. It may be that Poland's and Russia's high dependency on fossil energy ([IndexMundi, 2014](#)) alters the relation between the predictors and attitudes as the increase of fossil fuel taxation is presumably felt more directly in such countries. In Poland the support for the increase of fossil fuel taxation was also smallest of all countries ([Figure A1](#)). The link between fossil fuel dependency and carbon taxation attitudes would be a relevant topic for further research.

[Figures A2, A3, and A4](#) imply that while higher generalized and political trust are clearly connected to stronger support for higher fossil fuel taxation at the country average level, left–right political orientation does not have the same type of relationship with the dependent variable. Hence, one can interpret that left–right political orientation is – especially in the non-post-communist Europe – a significant factor in the formation of fossil fuel taxation attitudes at the individual level but hardly at the level of country averages. Instead, political trust appears to be a relevant factor at both country and individual level. At the level of country averages, generalized trust was slightly more correlated with support of fossil fuel taxation than political trust, but political trust was typically more significant factor at the individual level.

It seems that generalized trust and, in particular, left–right political orientation works in a different way between certain post-communist and other studied countries. When it comes to differing effects of the left and right political orientation one explanation could be that in, for example, Estonia, the Czech Republic and Russia the bygone communist era still influences how citizens understand left and right-wing politics. Arguably, the formation of fossil fuel taxation attitudes is relatively independent from the left–right political orientation in the countries in question. On the other hand, as stated earlier, the relationship between left–right political orientation and attitudes toward fossil fuel taxation was not significant in each non-post-communist country either.

In all, this article supports the earlier research that stressed how strengthening of trust in political institutions is a valuable objective, among other things, in terms of promoting taxes that attempt to mitigate climate change (e.g. [Smith and Mayer, 2018](#)). However, to get more comprehensive understanding on the formation of carbon or fossil fuel taxation attitudes, more research is needed on the links between different country contexts and the attitude formation. There are obviously relevant factors that are related to fossil fuel taxation attitudes and were not added to this study. To get more trustworthy picture about formation of fossil fuel taxation attitudes, future studies could use longitudinal data and take different country-level conditions – such as the levels of current fossil fuel taxation and emissions – into account.

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Table A1.
OLS regression: the effects of left-wing orientation, generalized trust, political trust, ISEI, age and gender on attitudes toward higher fossil fuel taxes in the total data, post-communist Europe and other Europe

Country/Region	Intercept/variable	Coef	SE	<i>p</i> -value	<i>n</i>	<i>R</i> ²
Total data	Intercept	2.3227	0.0311	0.000	31,880	0.0900
	Left-wing orientation	0.0594	0.0037	0.000		
	Generalized trust	0.0570	0.0048	0.000		
	Political trust	0.1036	0.0039	0.000		
	ISEI	0.0064	0.0004	0.000		
	Age	-0.0049	0.0004	0.000		
Post-communist Europe	Intercept	2.0666	0.0510	0.000	9,852	0.0296
	Left-wing orientation	0.0339	0.0060	0.000		
	Generalized trust	0.0318	0.0078	0.000		
	Political trust	0.0569	0.0065	0.000		
	ISEI	0.0039	0.0006	0.000		
	Age	-0.0035	0.0008	0.000		
Other Europe	Intercept	1.7905	0.0397	0.000	22,028	0.1055
	Left-wing orientation	0.0649	0.0046	0.000		
	Generalized trust	0.0580	0.0062	0.000		
	Political trust	0.1155	0.0049	0.000		
	ISEI	0.0071	0.0004	0.000		
	Age	-0.0052	0.0005	0.000		
	Gender (Ref. Male)	0.0756	0.0185	0.000		

Table A2.
OLS regression: the effects of left-wing orientation, generalized trust, political trust, ISEI, age and gender on attitudes toward higher fossil fuel taxes in the post-communist countries

Country/Region	Intercept/Variable	Coef	SE	<i>p</i> -value	<i>n</i>	<i>R</i> ²
The Czech Republic	Intercept	2.5873	0.1337	0.000	1830	0.0181
	Left-wing orientation	-0.0228	0.0164	0.165		
	Generalized trust	-0.0401	0.0202	0.047		
	Political trust	0.0640	0.0170	0.000		
	ISEI	-0.0006	0.0016	0.706		
	Age	-0.0023	0.0022	0.296		
Estonia	Intercept	2.2321	0.1246	0.000	1,590	0.0456
	Left-wing orientation	-0.0077	0.0142	0.588		
	Generalized trust	0.0197	0.0170	0.247		
	Political trust	0.0604	0.0136	0.000		
	ISEI	0.0048	0.0012	0.000		
	Age	-0.0037	0.0014	0.009		
Hungary	Intercept	1.7698	0.1483	0.000	1,032	0.0658
	Left-wing orientation	0.0917	0.0162	0.000		
	Generalized trust	0.0828	0.0238	0.001		
	Political trust	0.0550	0.0198	0.006		
	ISEI	0.0064	0.0020	0.002		
	Age	-0.0024	0.0024	0.323		
	Gender (Ref. Male)	-0.0660	0.0836	0.430		

(continued)

Country/Region	Intercept/Variable	Coef	SE	<i>p</i> -value	<i>n</i>	R ²	Predictors of fossil fuel taxation attitudes
Lithuania	Intercept	2.3227	0.1681	0.000	1,260	0.0366	
	Left-wing orientation	0.0264	0.0196	0.178			
	Generalized trust	0.0307	0.0244	0.210			
	Political trust	0.0580	0.0210	0.006			
	ISEI	0.0054	0.0022	0.014			
	Age	-0.0072	0.0030	0.015			
Poland	Gender (Ref. Male)	-0.1467	0.0846	0.083	1,180	0.0078	
	Intercept	2.3035	0.1123	0.000			
	Left-wing orientation	0.0002	0.0136	0.988			
	Generalized trust	-0.0111	0.0178	0.533			
	Political trust	0.0135	0.0163	0.408			
	ISEI	0.0035	0.0014	0.015			
Post-East Germany	Age	0.0003	0.0018	0.870	836	0.1470	
	Gender (Ref. Male)	0.0813	0.0612	0.184			
	Intercept	1.5076	0.1639	0.000			
	Left-wing orientation	0.0658	0.0217	0.003			
	Generalized trust	0.0862	0.0255	0.001			
	Political trust	0.1017	0.0225	0.000			
Russia	ISEI	0.0065	0.0021	0.002	1,217	0.0124	
	Age	-0.0104	0.0024	0.000			
	Gender (Ref. Male)	0.0412	0.0824	0.617			
	Intercept	2.4369	0.2029	0.000			
	Left-wing orientation	-0.0005	0.0244	0.983			
	Generalized trust	0.0162	0.0273	0.554			
Slovenia	Political trust	0.0052	0.0216	0.809	907	0.0558	
	ISEI	0.0017	0.0022	0.438			
	Age	-0.0018	0.0028	0.512			
	Gender (Ref. Male)	0.2080	0.0931	0.026			
	Intercept	1.9454	0.1608	0.000			
	Left-wing orientation	0.0469	0.0191	0.014			
	Generalized trust	0.0429	0.0254	0.092			
	Political trust	0.0785	0.0240	0.001			
	ISEI	0.0053	0.0021	0.011			
	Age	-0.0045	0.0024	0.064			
	Gender (Ref. Male)	0.1423	0.0830	0.087			

Table A2.

Country/Region	Intercept/variable	Coef	SE	<i>p</i> -value	<i>n</i>	R ²	Predictors of fossil fuel taxation attitudes
Austria	Intercept	1.6986	0.1352	0.000	1,689	0.1023	
	Left-wing orientation	0.0823	0.0190	0.000			
	Generalized trust	0.0539	0.0216	0.013			
	Political trust	0.0957	0.0188	0.000			
	ISEI	0.0042	0.0020	0.034			
	Age	-0.0072	0.0021	0.001			
Belgium	Gender (Ref. Male)	0.0647	0.0714	0.365	1,518	0.0967	
	Intercept	2.0022	0.1404	0.000			
	Left-wing orientation	0.0436	0.0167	0.009			
	Generalized trust	0.0050	0.0212	0.815			
	Political trust	0.1182	0.0166	0.000			
	ISEI	0.0088	0.0014	0.000			
	Age	-0.0094	0.0018	0.000			
	Gender (Ref. Male)	0.0257	0.0606	0.671			

(continued)

Country/Region	Intercept/variable	Coef	SE	<i>p</i> -value	<i>n</i>	<i>R</i> ²
Finland	Intercept	2.4285	0.1399	0.000	1716	0.0722
	Left-wing orientation	0.0687	0.0136	0.000		
	Generalized trust	0.0279	0.0204	0.171		
	Political trust	0.0898	0.0155	0.000		
	ISEI	0.0070	0.0011	0.000		
	Age	-0.0006	0.0014	0.696		
France	Gender (Ref. Male)	0.0599	0.0522	0.251	1751	0.0720
	Intercept	1.9707	0.1321	0.000		
	Left-wing orientation	0.0175	0.0133	0.188		
	Generalized trust	0.0433	0.0245	0.077		
	Political trust	0.1054	0.0202	0.000		
	ISEI	0.0066	0.0016	0.000		
Great Britain	Age	-0.0084	0.0018	0.000	1,590	0.0753
	Gender (Ref. Male)	-0.0829	0.0646	0.200		
	Intercept	1.8938	0.1631	0.000		
	Left-wing orientation	0.0732	0.0191	0.000		
	Generalized trust	0.0576	0.0217	0.008		
	Political trust	0.0812	0.0205	0.000		
Iceland	ISEI	0.0036	0.0015	0.018	788	0.1131
	Age	-0.0102	0.0020	0.000		
	Gender (Ref. Male)	0.0558	0.0656	0.395		
	Intercept	2.0812	0.2231	0.000		
	Left-wing orientation	0.1408	0.0203	0.000		
	Generalized trust	0.0041	0.0329	0.902		
Ireland	Political trust	0.0803	0.0255	0.002	1975	0.1155
	ISEI	0.0075	0.0019	0.000		
	Age	-0.0001	0.0024	0.978		
	Gender (Ref. Male)	0.1685	0.0853	0.049		
	Intercept	1.8400	0.1363	0.000		
	Left-wing orientation	0.0377	0.0164	0.022		
Italy	Generalized trust	0.0503	0.0189	0.008	1,289	0.0365
	Political trust	0.1217	0.0163	0.000		
	ISEI	0.0102	0.0014	0.000		
	Age	-0.0100	0.0019	0.000		
	Gender (Ref. Male)	-0.1636	0.0615	0.008		
	Intercept	2.2529	0.1187	0.000		
The Netherlands	Left-wing orientation	0.0287	0.0151	0.057	1,477	0.1158
	Generalized trust	0.0054	0.0215	0.803		
	Political trust	0.0503	0.0176	0.004		
	ISEI	0.0073	0.0018	0.000		
	Age	-0.0033	0.0020	0.095		
	Gender (Ref. Male)	0.0963	0.0719	0.180		
The Netherlands	Intercept	1.5407	0.1819	0.000	1,477	0.1158
	Left-wing orientation	0.0803	0.0190	0.000		
	Generalized trust	0.0410	0.0302	0.175		
	Political trust	0.1540	0.0245	0.000		
	ISEI	0.0082	0.0017	0.000		
	Age	-0.0029	0.0021	0.177		
	Gender (Ref. Male)	0.0171	0.0718	0.811		

Table A3.

(continued)

Country/Region	Intercept/variable	Coef	SE	<i>p</i> -value	<i>n</i>	<i>R</i> ²
Norway	Intercept	1.5204	0.1781	0.000	1,433	0.1514
	Left-wing orientation	0.1332	0.0156	0.000		
	Generalized trust	0.0281	0.0252	0.265		
	Political trust	0.1344	0.0215	0.000		
	ISEI	0.0086	0.0015	0.000		
	Age	0.0003	0.0018	0.869		
Portugal	Gender (Ref. Male)	0.2588	0.0658	0.000	1,051	0.0520
	Intercept	2.4291	0.1776	0.000		
	Left-wing orientation	-0.0196	0.0199	0.325		
	Generalized trust	-0.0134	0.0287	0.640		
	Political trust	0.0766	0.0236	0.001		
	ISEI	0.0103	0.0023	0.000		
Post-West Germany	Age	-0.0020	0.0027	0.468	1,702	0.0517
	Gender (Ref. Male)	0.1192	0.0978	0.223		
	Intercept	2.3104	0.1356	0.000		
	Left-wing orientation	0.0785	0.0184	0.000		
	Generalized trust	0.0173	0.0215	0.421		
	Political trust	0.0594	0.0177	0.001		
Spain	ISEI	0.0044	0.0015	0.004	1,399	0.0777
	Age	-0.0046	0.0017	0.006		
	Gender (Ref. Male)	0.0304	0.0589	0.606		
	Intercept	1.4998	0.1290	0.000		
	Left-wing orientation	0.0669	0.0155	0.000		
	Generalized trust	0.0813	0.0208	0.000		
Sweden	Political trust	0.0870	0.0165	0.000	1,380	0.1339
	ISEI	0.0069	0.0016	0.000		
	Age	-0.0065	0.0021	0.002		
	Gender (Ref. Male)	-0.0308	-0.0308	0.638		
	Intercept	2.2740	0.2021	0.000		
	Left-wing orientation	0.0854	0.0172	0.000		
Switzerland	Generalized trust	0.0105	0.0308	0.734	1,270	0.1298
	Political trust	0.1233	0.0232	0.000		
	ISEI	0.0070	0.0019	0.000		
	Age	-0.0073	0.0021	0.001		
	Gender (Ref. Male)	0.3433	0.0772	0.000		
	Intercept	1.6632	0.1572	0.000		
	Left-wing orientation	0.1506	0.0143	0.000		
	Generalized trust	0.0560	0.0209	0.008		
	Political trust	0.0961	0.0194	0.000		
	ISEI	0.0065	0.0015	0.000		
	Age	-0.0024	0.0017	0.165		
	Gender (Ref. Male)	-0.0103	0.0622	0.868		

Predictors of fossil fuel taxation attitudes

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Table A3.

Figure A1.
Fossil fuel taxation attitudes by countries of the post-communist Europe and other Europe. Dashed vertical line presents mean of the total data. 95% CIs

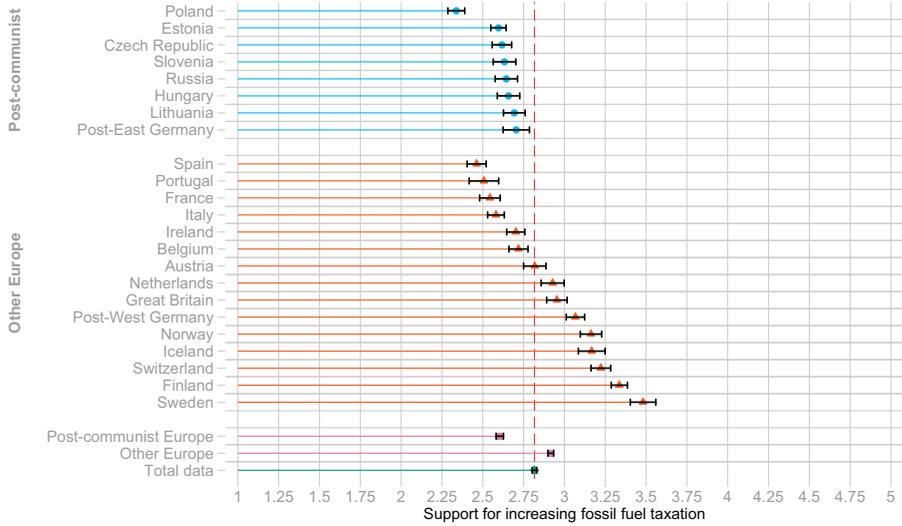
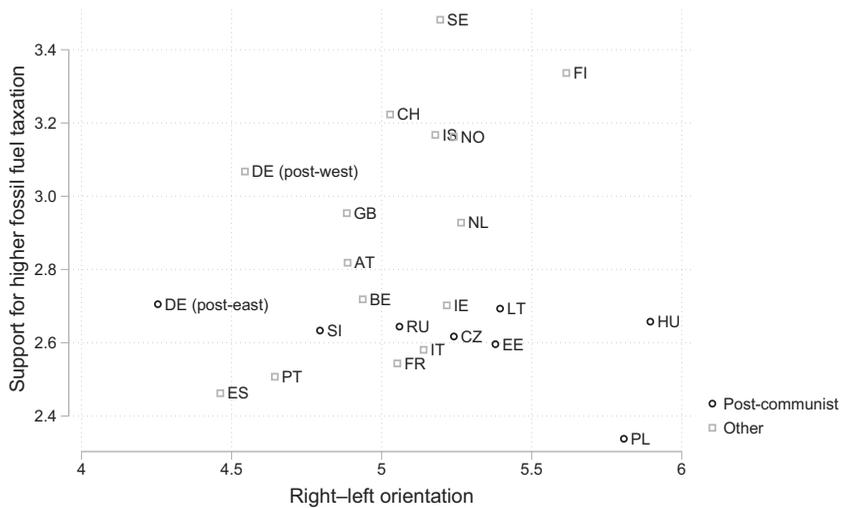


Figure A2.
Country level averages of right-left orientation and fossil fuel taxation attitudes. Right = 0 - Left = 10



Pearson correlation coefficient between X and Y variables (country averages): 0.0618

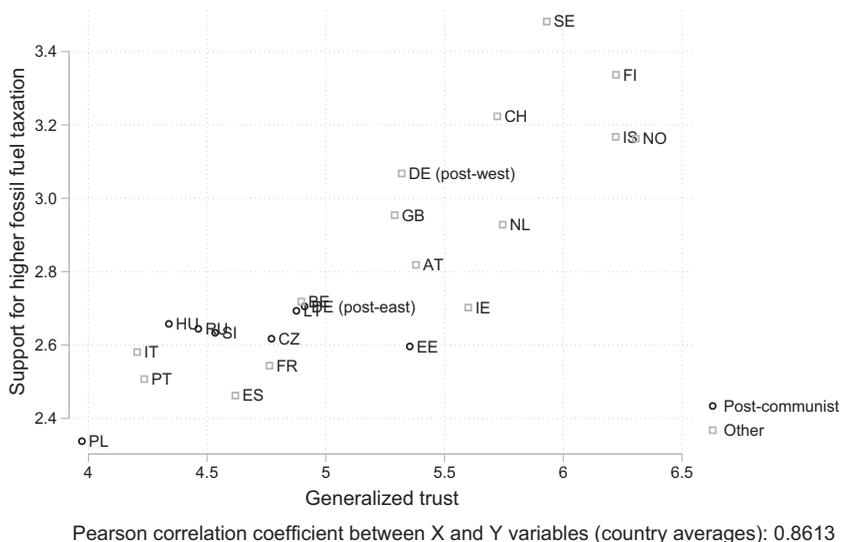


Figure A3. Country level averages of generalized trust and fossil fuel taxation attitudes

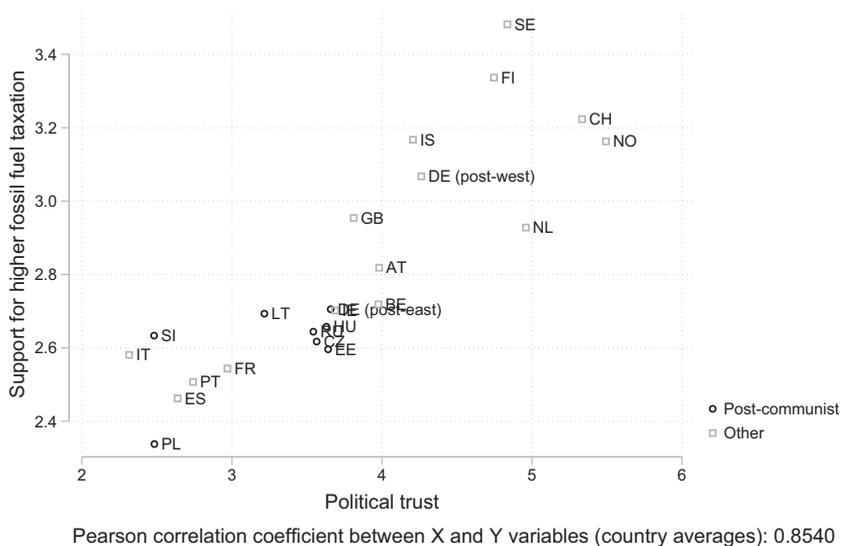


Figure A4. Country level averages of political trust and fossil fuel taxation attitudes

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