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Trois essais en Économie politique du Populisme

Comment les facteurs et politiques économiques expliquent-ils le populisme ?

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Three essays on Political Economy of Populism

How do economic factors and policies explain populism ?

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The danger to democracies today is not some comprehensive ideology that systematically denies democratic ideals. The danger is populism — a degraded form of democracy that promises to make good on democracy's highest ideals ("Let the people rule !"). The danger comes, in other words, from within the democratic world — the political actors posing the danger speak the language of democratic values.

Jan-Werner Müller, *What is populism?*, p.6

Trois essais en Économie politique du Populisme
Comment les facteurs et politiques économiques expliquent-ils le populisme ?

Abstract

This thesis seeks to empirically explain the rise of populism in advanced democracies. We focus our analysis on the demand of populism, materialised by populist vote, but also more generally by populist attitudes. The first chapter studies the link between income inequality and one aspect of populist attitudes, namely distrust of democracy. We find that greater income inequality corresponds to lower support for democracy and stronger support for alternative regimes (military, autocratic or technocratic). Furthermore, we highlight a partisan effect amplifying this relationship: at a given level of income inequality, as they are more sensitive to income inequality than right-wing partisans, left-wing partisans are also less supportive of democracy. The second chapter aims to test whether unemployment only explains populist vote in general or whether it also explains the distinction between right-wing and left-wing populist votes. By analysing the French presidential elections, we show that unemployment actually leads voters to choose any populist parties but that the choice between right-wing and left-wing populisms is exclusively determined by the voters' own explanation of unemployment. Finally, the third chapter examines the relationship between European funds and populist vote in EP elections since 2004. We provide major evidence of the negative link between EU funds and populist vote, regardless of the populist nature of the national/regional incumbent.

Keywords: Populism, Economic Vote, Democracy support, Unemployment, European funds, Inequality

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Three essays on Political Economy of Populism
How do economic factors and policies explain populism ?

Résumé

Cette thèse cherche à expliquer de façon empirique la montée du populisme dans les démocraties avancées. Plus particulièrement, nous nous intéressons à la demande de populisme matérialisée par le vote populiste mais aussi et plus largement par les attitudes populistes. Le premier chapitre analyse le lien entre les inégalités de revenus et une facette de l'attitude populiste qui est la défiance vis-à-vis de la démocratie. Nous trouvons que plus d'inégalités de revenus correspond à moins de soutien à la démocratie et plus de soutien à des régimes alternatifs (militaire, autocratique ou technocratique). Par ailleurs, nous mettons en évidence un effet partisan amplificateur sur cette relation : pour un même niveau d'inégalités, les répondants à gauche du spectre politique sont plus sensibles aux inégalités de revenus et donc soutiennent moins la démocratie. Le deuxième chapitre a pour objectif de vérifier si le chômage explique le vote populiste en général mais aussi son clivage gauche/droite. En analysant les élections présidentielles françaises, nous montrons que le chômage amène les électeurs à voter pour n'importe quel parti populiste, de droite comme de gauche. Le choix entre ces deux populismes réside exclusivement dans l'explication de chômage donnée par les électeurs. Enfin, le troisième chapitre explicite la relation des fonds européens avec le vote populiste lors des élections européennes depuis 2004. Nous apportons une preuve conséquente du lien négatif entre les fonds européens et le vote populiste, et ce quelle que soit l'idéologie politique du gouvernement national/régional en place (populiste ou non populiste).

Mots clés : Populisme, Économie du vote, Soutien à la démocratie, Chômage, Fonds européens, Inégalités

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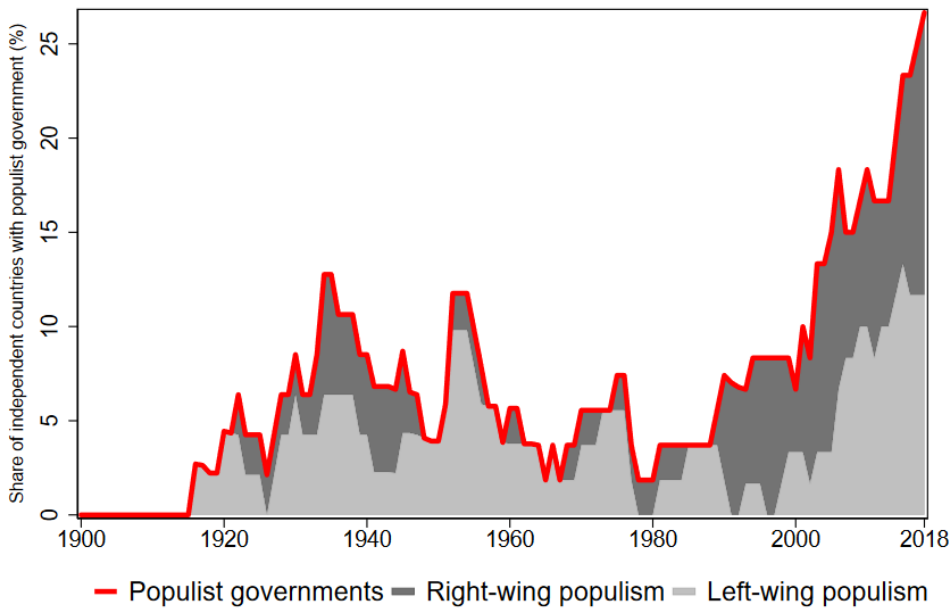
General introduction

Since the 1930s, Latin America has first experienced populism with Getúlio Vargas in Brazil and then with Juan Perón in Argentina. Forty years later, it is the turn of advanced democracies in Europe and in the USA with the rise of populist vote in national elections and the coming to power of populist leaders such as Hungarian Prime Minister Viktor Orbán in 2010 and American President Donald Trump in 2016. Figure 1 illustrates the evolution of populism from 1900 to 2018. More precisely, it shows the share of countries ruled by populists (i.e., president, prime minister or equivalent) in a 60-country sample representing over 90 % of global GDP. While they were in power in only 2.5 % of these 60 countries in 1980, populists reached a peak of 25 % of the same sample in 2018, with 16 countries ruled by populists[1] (Funke, Schularick, and Trebesch, 2020).

This thesis is part of the growing research in the political economy of populism which aims to explain the rise of populism as well as to analyse the economic consequences of populist governance. Further understanding of populism is necessary because as

[1]These 16 countries are: Bolivia with Evo Morales, Bulgaria with Boyko Borisov, Greece with Aléxis Tsípras, Hungary with Viktor Orbán, India with Narendra Modī, Indonesia with Joko Widodo, Israel with Benjamin Netanyahu, Italy with the Lega/M5S government, Mexico with Andrés Manuel López Obrador, the Philippines with Rodrigo Duterte, Poland with the PiS government, Slovakia with Robert Fico, South Africa with Jacob Zuma, Turkey with Recep Tayyip Erdoğan, the United States with Donald Trump and Venezuela with Nicolás Maduro.

Figure 1: The rise of populism in 60 independent countries (Funke, Schularick, and Trebesch, 2020)



argued by Müller (2016): "The danger to democracies today is [...] populism". Not only does populism endanger democratic values by establishing a "degraded form of democracy" but it also jeopardises the economy through short-termist economic policies (Müller, 2016).

This general introduction starts with the definition of populism according to economists. Then, we expose the main questions raised by the political economy of populism. Finally, we present the three chapters of this thesis, as well as their respective contributions to the literature.

What is populism?

This thesis relies on the consensual definition of current populism made by Mudde. According to the author, the populist ideology, grounded in morals, views the nation in two antagonistic parts: on the one hand, the "pure" people who respect every moral

principle; on the other hand, a minority of citizens considered by populist leaders as the "impure" people. This minority, seen by populists as corrupt is thus a real moral threat for the "pure" people. Indeed, in the populist ideology, the "impure" minority perverts the moral purity of the "people" (Mudde, 2004).

Therefore, based on this definition, economists show the existence of two sides of populism today, especially in Europe: on the one hand, we find right-wing populist parties such as Rassemblement National in France, Alternative für Deutschland (AfD) in Germany, Freiheitliche Partei Österreichs (FPÖ) in Austria or UK Independence Party (UKIP) in the UK. These parties defend identity values and are firmly opposed to immigration. On the other hand, we have left-wing populist parties such as Syriza in Greece, Podemos in Spain or France Insoumise in France. These parties clearly point to wealthy people as profiteers who do not participate in the national economic effort.

In their Manichean distinction of society between the "impure" and the "pure people", populist leaders denounce the corrupt elites who conspire against the "people". More intrinsically, they question the existing democratic system, i.e. fundamental freedoms, media and political institutions. Donald Trump embodies the figure of the anti-elite and anti-system populist leader. Indeed, this billionaire businessman, TV host in the famous reality show "The Apprentice", was inaugurated as the 45th President of the United States of America in 2017. During his whole election campaign, he blamed political elites for not understanding the "people"; through tweets in social media, he also attacked the traditional media by calling all their criticism "fake news". Besides, by hammering home "Make America Great Again" to poor workers from the Rust Belt,

Donald Trump's campaign slogan echoes Latin-American populism which promotes the emancipation of the poor classes through an anti-imperialist and nationalist ideology (Laclau, 1979; Laclau, 2005).

The main questions raised by the political economy of populism

Since the 1980s, economists have studied three main aspects of populism: first, the supply of populism through populist parties and leaders; then, the demand of populism, mainly materialised by the vote; and finally, the economic and political consequences of the coming to power of a populist party[2].

Supply of populism: why does a party signal itself as populist? Theoretically, populist parties in developing and poor countries should propose left-wing populist policies. Indeed, in those countries, there is a high level of corruption that signals to voters that the rich elite is not "fair"; these voters thus react by moving to the left (Di Tella and MacCulloch, 2009). As a result, even moderate right-wing politicians can be perceived by voters as influenced, or even corrupted, by the rich elites. This is what Acemoglu, Egorov, and Sonin (2013) call the "right-wing bias". Thus, in order to be re-elected, right-wing parties must blur the "right-wing bias" by proposing populist policies that are to the left of the median voter (Acemoglu, Egorov, and Sonin, 2013). These policies offer short-term protection and use anti-elite rhetoric (Acemoglu, Egorov, and Sonin, 2013; Guiso et al., 2017). This proposition of left-wing populist policies by truly right-wing politicians (called the "populist bias of policy") is more important especially when the politicians' desire to be re-elected is stronger and when there is

[2]This thesis only deals with the demand of populism (see further below).

greater polarisation between the median voter's policy preferences and right-wing politicians (Acemoglu, Egorov, and Sonin, 2013).

Moreover, populist parties enter the political space when both left-wing and right-wing incumbents are unable to cope with a systemic economic insecurity crisis. The side of populist platforms (right-wing and left-wing) depends on the relative entry space. The response of non-populist parties consists in reducing the distance between their platforms and those of new populist entrants. The traditional political system with the economic left-right dimension is therefore replaced by a new cultural left-right conflict dimension called GALTAN (Green-Alternative-Libertarian versus Traditional-Authoritarian-Nationalist) (Marks et al., 2021). Besides, the political competition also lies in the distinction between old and new parties (Hutter, Kriesi, and Vidal, 2018) and in the opposition between pro and anti-EU (Hooghe and Marks, 2018; Vries, 2018; Hix, Noury, and Roland, 2019). Therefore, with mainstream parties in direct competition with new populist entrants, the supply of populism is further amplified by the narrowing distance between their platforms (Guiso et al., 2017; Haegel and Mayer, 2018, Hooghe and Marks, 2018; Abou-Chadi and Krause, 2020).

What are the main drivers of the demand of populism? The demand of populism is mainly materialised by the vote. Note that the demand of populism can also be measured by "populist attitudes" that gather a set of beliefs about the distinction between "the people" and "the elites" (Akkerman, Mudde, and Zaslove, 2014; Spruyt, Keppens, and Van Droogenbroeck, 2016; Van Hauwaert and Van Kessel, 2018). These attitudes are to be differentiated from the populist vote even if the stronger the voter's

populist attitude, the higher his probability to vote for a populist party (Van Hauwaert and Van Kessel, 2018; Hawkins, Rovira Kaltwasser, and Andreadis, 2020).

By studying electoral votes at the national, regional or individual level through survey data, economists identify several economic explanations for the demand of populism. They also find a cultural explanation given by the concept of "cultural backlash", introduced by Norris and Inglehart (2019).

First, globalisation can explain the rise of populism, insofar as it has contributed in part to the recent deindustrialisation in Western Europe and the United States. For example, the Eurosceptic/Europhobic vote in 2019 European elections was higher in constituencies that had undergone industrial decline (Dijkstra, Poelman, and Rodríguez-Pose, 2020). In addition to deindustrialisation, globalisation has intensified international competition. This globalisation has been driven in particular by China, whose national exports accounted for 12 % of world exports in 2015, compared to 1 % in 1985. The imprint of this "China shock" is very present in the United States and explains the increase of pro-Republican votes in 2008 and 2016 (Autor, Dorn, and Hanson, 2013; Autor, Dorn, Hanson, and Majlesi, 2020). Chinese imports have also affected Europe, contributing to an increasing vote for nationalist, far right and Eurosceptic/europhobic parties, as well as pro-Brexit vote (Malgouyres, 2017; Colantone and Stanig, 2018a; Colantone and Stanig, 2018b; Barone and Kreuter, 2021; Dippel et al., 2022).

Second, the rise of populism can also be explained by technological progress, in particular through the automation of low-skilled jobs. Automation corresponds to the partial or total substitution of people by machines. More specifically, economists show

that low-skilled workers, who are most vulnerable to automation, are more likely to vote for a populist party. Automation as well as the threat of automation can be drivers in the increasing vote for the radical right (C. B. Frey, Berger, and C. Chen, 2018; Im et al., 2019).

Third, more recently, economists have also highlighted the role of social networks and new communication technologies in the rise of populism. In particular, they demonstrate that the expansion of 3G mobile networks increases the vote share for populist parties (both left-wing and right-wing) and that the 2016 political campaign on Facebook via micro-targeted ads has benefited the Trump vote over the Clinton vote (Liberini et al., 2020; Guriev, Melnikov, and Zhuravskaya, 2021).

Fourth, populism thrives in bad economic situations, such as financial crises or poor economic indicators (growth, unemployment, etc.). For example, the 2008 financial crisis plays a role in the rise of populism (Funke, Schularick, and Trebesch, 2016; Guriev and Papaioannou, 2020). More broadly, the economic fragility of the country measured by a high unemployment rate can be a key determinant of populist vote (Algan et al., 2017; Becker, Fetzer, and Novy, 2017; Gomez and Ramiro, 2019; S. Chen, 2020).

Fifth, immigration has an impact on the populist vote, especially the right-wing populist vote. Indeed, right-wing populism considers immigrants as the nation's scapegoats: immigrants/foreigners would take the natives' jobs in addition to receiving generous welfare benefits. Although they largely demonstrate that immigration, by increasing potential growth[3], is an economic opportunity for the country, economists

[3]For more information, see the note from the Oxford University Migration Observatory (https://migrationobservatory.ox.ac.uk/resources/briefings/the-labour-market-effects-of-immigration/) and that of Sciences Po Paris (https://www.

also show that higher immigration leads to a higher vote share for right-wing populist parties (e.g. Becker and Fetzer, 2016; Brunner and A. Kuhn, 2018; Dustmann, Vasiljeva, and Damm, 2019; Edo et al., 2019).

Sixth, it has been shown that populist voters share particular features: they would be male, less educated and with low income (e.g. Becker, Fetzer, and Novy, 2017; Guiso et al., 2017; Norris and Inglehart, 2019). But what deeply characterises populist voters is their economic distress. Besides, the structural and cyclical economic phenomena presented above (globalisation, automation, economic crises, immigration) lead to an increase in voters' economic insecurity. As a consequence, this growing economic insecurity is one of the driving forces behind the demand of populism via the populist vote (Guiso et al., 2017; Bossert et al., 2019; Fetzer, Sen, and Souza, 2019).

Finally, as mentioned earlier, economists also highlight that populism can be explained by a cultural reason. This refers to the "cultural backlash" theory of Norris and Inglehart (2019). According to these authors, in developed countries, there is a backlash among conservatives towards progressive values spreading since the 1970s, namely gender equality, sexual minority rights and cultural diversity. These conservatives react by adopting authoritarian values and voting for right-wing populist parties that share and promote these values through nationalist, anti-immigration, anti-globalisation and anti-abortion policies. According to Norris and Inglehart, economic and cultural factors reinforce each other: recent economic shocks have increased citizens' dissatisfaction with their government and more generally with the political *status quo*, leading them to

sciencespo.fr/research/cogito/home/migration-wages-and-unemployment/?lang=en as well as the recent work of Albert (2021) on the American labour market.

support identity policies rather than moderate and inclusive ones.

Populism in power: what are the economic and political consequences? We have seen that populist parties achieve electoral success when the economic context is particularly bad. This success can even bring them to power. Therefore, economists have considered the economic and political consequences of populist governance, notably in Latin America, in Eastern Europe and in the United States. They conclude that the economic policies pursued by populists are very similar to those pursued by traditional parties (Doerr, Potrafke, and Roesel, 2021).

Although they strongly criticise elites in their rhetoric, populists, once in power, maintain very close links with them (Öniş and Kutlay, 2020). For example, President Putin has close ties with Russian oligarchs, i.e. business elites (Lamberova and Sonin, 2018). Similarly, in Turkey, President Erdoğan has created his own state capitalism, generating new economic elites in the construction, energy and media sectors (Öniş, 2019). As for the populist US president Trump, he is a perfect example of the strong links between populist leaders and the elite. While he was elected mostly by the poor, Donald Trump, as a pure product of US economic elites, has pursued policies in favour of these rich elites (Graham, 2018).

Moreover, populists in power do not radically change neoliberal economic policy[4]. For example, when he came to power in 2019, the Brazilian populist Bolsonaro called on Paulo Guedes, a neoliberal economist of the Chicago school. The latter has become Brazil's new strongman in charge of several ministries, including the Ministry of Econo-

[4]The only exception was President Lula's policy in Brazil which aimed to drastically reduce income inequality with *Bolsa Familia* (Pereira, 2015; Saad-Filho and Morais, 2017).

my and Finance (Doering, Morgan, and Gomes, 2018). We can also note the example of Donald Trump who has continued to cut taxes for the rich without cutting them for the poor, thereby increasing income inequality (Corden and Garnaut, 2018). In addition, he contested Obamacare, a mechanism that provides universal health insurance at the federal level (Valli, 2018). These examples are in line with the conclusions of Öniş and Kutlay (2020) that there is no tangible evidence that right-wing populist governments have been more effective than their predecessors in reducing inequality.

Yet, the economic performance of populist governments in Turkey, Poland and India is not considered bad by economists: with continuous high growth during their mandates and a generous welfare system, the AKP in Turkey, the Law and Justice Party (PiS) in Poland and the BJP in India have had electoral successes in their re-elections.

Despite an economic neoliberal agenda, there are however significant differences between populist and non-populist incumbents regarding the economic policy (Stankov, 2021). First, populists have a short-termist vision. Indeed, populist expansionary fiscal policy and government spending worsen public finances (Dalio et al., 2017). As a result, the state prints money through a discretionary and expansive monetary policy (Sachs, 1990; Dornbusch and Edwards, 1991). This generates *de facto* what Rodrik calls the "surprise inflation" without any output or employment gains (Rodrik, 2018a). As Dornbusch and Edwards (1990) summarise: "macroeconomic populism is an approach to economics that emphasizes growth and income distribution and deemphasizes the risks of inflation and deficit finance, external constraints and the reaction of economic agents to aggressive non-market policies" (Dornbusch and Edwards, 1990, p.247).

Second, the Brexit is a good example of bad economic outcome: even if it had only a small impact on the UK unemployment rate (Papyrakis, Pellegrini, and Tasciotti, 2022), the Brexit vote significantly decreased the UK GDP per capita in 2017 and 2018 (Born et al., 2017; Fetzer and Wang, 2020; Portes, 2022). Fetzer and Wang (2020) also point out that districts that strongly supported Leave in 2016, districts whose regional economies are heavily dependent on the manufacturing sector and districts with a relatively higher share of low-skilled workers are more exposed to the GDP cost. In addition, the Brexit has significantly decreased net EU migration and at the same time it has increased non-EU migration (Portes, 2022). These changes in migration have a significant negative impact on UK GDP per capita (Portes and Forte, 2017).

Third, right-wing populists who are climate-change sceptics attack environmental policies. For example, as soon as he arrived in the White House, Donald Trump announced US withdrawal from the Paris Agreement and implemented in 2017 the *American First Energy Plan*, expanding fossil fuel production like shale gas (Valli, 2018).

Finally, populist incumbents pursue a very aggressive foreign policy, notably to distract their citizens from domestic problems (Dornbusch and Edwards, 1991). Indeed, populists emphasise the national interest in foreign trade policies. We all remember the "America First" hammered out by Donald Trump. Populists rather appear to be more like "selective globalists" in that they take advantage of the positive effects of globalisation while refusing to be bound by its constraints at home (e.g. Kurlantzick, 2016; Bremmer, 2010; Plagemann and Destradi, 2019; Öniş and Kutlay, 2020). As Rodrik (2018) shows, Donald Trump raised tariffs on Chinese imports and renegotiated

NAFTA (in particular with Mexico), without questioning international trade, especially on shale gas.

In their domestic policies, populists stress identity issues (Akerlof and Kranton, 2000; Besley and Persson, 2019; Collier, 2020; Shayo, 2020). Indeed, as immigration is their priority issue, right-wing populists promote a very restrictive migration policy. The contruction of defensive border walls as in Hungary or between the United States and Mexico is a striking embodiment of this anti-immigration policy (Rodrik, 2018b).

But the most worrying aspect of the populists' rise to power concerns civil liberties and democratic institutions. Indeed, populist governments are illiberal and authoritarian, like Viktor Orbán's. They seek to destroy any institution that might interfere with the direct link between the populist leader and "his people". In fact, right-wing populists undermine democracy through small incremental steps (Kendall-Taylor, Lindstaedt, and Frantz, 2019). In particular, they have undermined the judicial system, whether in Hungary, Poland, the Czech Republic or Russia (Evans, 2011; Sakwa, 2011; Batory, 2016; de la Torre and Ortiz Lemos, 2016; Matthes, 2016; Pehe, 2018). Analysing 33 developed and developing countries, Rode and Revuelta (2015) conclude that populist incumbents in general "erode legal security, reduce freedom to trade, and tighten economic regulation" (p.73). Similarly, Benczes (2022) highlights three major consequences of populist governance: first, the "inclination of populists to embark on redistributive policies favouring "our" people against "others"" (identity policy); second, "the populists' critical attitude toward autonomous organizations, professionals, and institutions" (anti-democratic policy); and finally, "the antagonistic relationship with

the competitive market mechanism as a 'blind' allocational mechanism" (selective globalist policy) (Benczes, 2022).

To conclude, populist incumbents continue the neoliberal economic policy of their predecessors and even worsen it with a short-termist vision and anti-environmental policies. The impact of populist governance is not only economic but also political as populists in power develop identity and anti-democratic policies.

Presentation of thesis chapters and their contributions

This thesis contributes to the political economy of populism through the analysis of the demand of populism. On the one hand, populist attitudes are analysed in the first chapter through the support for democracy and its alternative regimes. On the other hand, the populist vote is considered in the second and third chapters: the former analyses the economic factors that explain the populist vote, while the latter tackles public policies that successfully combat populism.

Chapter 1: Income inequality and democracy support (co-authors: Abel François and Quentin David)

Context and research question In advanced democracies, democracy support, usually measured by the satisfaction with democracy, is less and less shared. This democracy support which is nevertheless essential for the stability of democracy (Bernhard, Nordstrom, and Reenock, 2001; Mainwaring, 2006) is an efficient shield against populism.

In this chapter, we analyse the link between income inequality and democracy support. We are motivated by the fact that the empirical literature does not validate the theoretical literature on this issue. On the one hand, theoretical papers find a positive relationship between income inequality and democracy support: in a country with high income inequality, most citizens expect democracy to provide a more favourable redistribution mechanism for them, greater social mobility and better economic opportunities (Boix, 2003; Dalton, 2004; Acemoglu and Robinson, 2006). That is why, the economic theory stipulates that greater income inequality generates the desire for democratisation and economic redistribution, and consequently increases democracy support.

On the other hand, empirical papers conversely show a negative relationship between income inequality and democracy support, i.e. greater income inequality corresponds to lower democracy support (Andersen, 2012; Schäfer, 2013; Soci, Maccagnan, and Mantovani, 2014; Kang, 2015; Wu and Chang, 2019). As they consider democracy unable to reduce income inequality, citizens therefore are less supportive of this regime

when income inequality increases.

As a consequence, how to reconcile the theoretical positive relationship of income inequality with democracy support and the empirical negative one? In other words, what are the mechanisms that link income inequality and democracy support?

Method We are inspired by the proposal of Krieckhaus et al. (2014) which confronts the sociotropic/egotropic distinction with the retrospective/prospective one regarding the link between income inequality and support for democracy. However, we differ from Krieckhaus et al. (2014) on two ways: on the one hand, we add the distinction between national and local income inequality; on the other hand, we also consider the distinction between effective and visible income inequality.

Using the 3rd and 4th European Value Surveys (EVS), we therefore test four different measures of income inequality : the Gini index (sociotropic effective income inequality), unemployment rate (sociotropic visible income inequality), household income (egotropic effective income inequality) and unemployed status (egotropic visible income inequality).

We analyse democracy support at two geographical levels: the international level and the national level focused on one country, France. At the international level, we analyse income inequality at country level while at the French level, we analyse it at department level in the 4th EVS only.

We first measure democracy support by the traditional variable of satisfaction with democracy. In a second part, we propose support for alternative political systems to democracy (autocratic, technocratic or military) as an alternative proxy for democracy

support. We estimate a Hierarchical Linear Model (HLM) (also called multilevel model) with random effects using democracy support (satisfaction with democracy or support for alternative political systems) in 4 items and the four different measures of income inequality as interest variables.

Finally, we go further in the analysis by studying the individual expectation of democracy. We argue that the effect of income inequality depends on the individual's vision of democracy. Individuals can consider an extensive vision of democracy, i.e. democracy must achieve a more egalitarian society. For individuals holding that vision, greater income inequality means that the system has not reached its goal. In such case, they may call for either more democracy (positive theoretical effect) or for less democracy (negative empirical effect) (Roth and Wohlfart, 2018). Individuals can conversely share a restrictive vision of democracy, i.e. the democratic system must ensure a "fair competition" through equal opportunities. In that vision, the increase of "fair" income inequality does not affect democracy support. We believe that the extensive vision fits better with a left-wing view of democracy while the restrictive vision better corresponds to the right-wing perception of democracy. This scope of democracy can be measured by partisanship (left-wing with the extensive vision versus right-wing with the restrictive vision of democracy) or by household income (the rich with the restriction vision versus the poor with the extensive vision of democracy). We test these two proxies in order to better understand the individual mechanisms that link income inequality and democracy support.

Results At international and French levels, we observe that sociotropic income inequality (effective and visible) measured by the Gini index and unemployment rate at country/department level has no significant effect on democracy support.

On the contrary, greater egotropic income inequality (being personally unemployed or poor) leads to both lower satisfaction with democracy and stronger support for alternative political systems to democracy (autocratic, technocratic or military).

By analysing the income inequality conditional effect by the individual's vision of democracy, we find that both egotropic and sociotropic income inequality effects on satisfaction with democracy are significantly conditioned by partisanship. At a given level of income inequality, as they are more sensitive to income inequality than right-wing partisans, left-wing partisans share a significant lower satisfaction with democracy. We do not find such significant conditional effect of income inequality on satisfaction with democracy through household income.

Contribution This chapter brings empirical evidence of the direct negative relationship between income inequality and democracy support, suggested in the empirical literature (Andersen, 2012; Schäfer, 2013; Soci, Maccagnan, and Mantovani, 2014; Kang, 2015; Wu and Chang, 2019). In addition, we contribute to the literature by arguing that greater income inequality is not only linked with a lower democracy support but also with a stronger support for alternative political systems to democracy (autocratic, technocratic or military). This echoes what Di Tella and Rotemberg (2016) have found, i.e. voters support populism because of their betrayal aversion: they would rather vote for a populist leader delivering worse material outcomes than for mainstream parties

that are more competent but might betray their confidence.

Moreover, we reconcile the theoretical and empirical literature with the study of the conditional effect of income inequality on democracy support by partisanship. We find that right-wing partisans are more supportive of democracy than left-wing partisans, at a given level of income inequality. This corresponds to the theoretical positive effect of income inequality on democracy support (Boix, 2003; Dalton, 2004; Acemoglu and Robinson, 2006). Nevertheless, it only concerns right-wing partisans who have a restrictive vision of democracy: according to them, the democratic system ensures a "fair competition", even if income inequality is high. Conversely, left-wing partisans effectively share an extensive vision of democracy. They think that greater income inequality reflects the failure of the democratic system to reduce income inequality. That is why, the effect of income inequality on democracy support is negative for left-wing partisans (Roth and Wohlfart, 2018). Consequently, this chapter paves the way for a convergence of empirical and theoretical literature by analysing at the individual level the scope of democracy. Other theoretical explanations might emerge from our work, such as the reasons why those who benefit most from democracy (the poor, the unemployed, left-wing partisans, etc.) are less supportive of it.

Finally, we highlight that populist attitudes are linked with greater income inequality, confirming recent findings in the literature (Abadi et al., 2020; Pástor and Veronesi, 2021; Steiner, 2022).

Chapter 2: Unemployment: a root of populism? Evidence from French presidential elections

Context and research question Since the 1990s, populist vote in national elections has been on the rise in advanced democracies, culminating in electoral successes such as Trump's election and Brexit in 2016. Two sides of populism indeed co-exist, especially in France: right-wing populism with Rassemblement National (RN) and left-wing populism with France Insoumise, Communist Party and other far left parties.

In this chapter, we analyse one particular economic factor to explain populist vote in national elections: unemployment. The literature assesses that unemployment, as well as GDP growth and inflation, are the main explanations for the economic vote (Whiteley, 1980; Fiorina, 1981; Hibbs, Fassbender, and Rivers, 1981; Nannestad and Paldam, 1994; Lewis-Beck and Stegmaier, 2013).

More recently, the economic populist vote literature has also highlighted that unemployment explains populist vote. On the one hand, higher unemployment is linked to a higher vote share for populist parties in Europe but also in the USA (Algan et al., 2017; Gomez and Ramiro, 2019; S. Chen, 2020). In addition, the key drivers of Leave vote in the 2016 Brexit referendum are high unemployment, low education and low income (Becker, Fetzer, and Novy, 2017). On the other hand, the risk of unemployment is another contributing factor to populist vote as it relies heavily on the risk of automation (Goerres, Spies, and Kumlin, 2018; Anelli, Colantone, and Stanig, 2019; Im et al., 2019).

As far as we know, the economic populist vote literature does not consider simultaneously right-wing and left-wing populist vote in the same election. Besides, it argues

that right-wing and left-wing populist economic drivers are similar. However, the economic vote literature stipulates that the political side of the incumbent can interfere in the relationship between high unemployment and the incumbent vote; especially, in case of high unemployment, a left-wing incumbent can be preferred by voters to a right-wing incumbent (Rattinger, 1981; Rattinger, 1991). Hence, we would like to raise these questions: does unemployment explain both right-wing and left-wing populist votes? Does unemployment also distinguish between right-wing and left-wing populist votes?

Method We propose to analyse French presidential elections from 2002 to 2017. In fact, France was the first country in the world to experience an increase in vote shares for both right-wing and left-wing populist parties in the same election. Indeed, in the 2017 French presidential election, Marine Le Pen (Front National), the right-wing populist leader and Jean-Luc Mélenchon (France insoumise), the left-wing populist leader gathered each about 20 % of the votes. This score was the result of a long evolution of French populist parties since 2002 when the Front National candidate (Jean-Marie Le Pen) reached for the first time the second round of the French presidential election against Jacques Chirac, the UMP candidate (right-wing mainstream party).

That is why, to analyse the link between unemployment and right-wing and left-wing populist votes in national election, we use French presidential Election Studies (FES) from 2002 to 2017. This data helps us to lead a long cross-sectional study of the link between unemployment and populist vote whatever the political side of the incumbent (right-wing or left-wing).

Moreover, we take into account the entire political space (i.e. with the incumbent and the mainstream opposition votes) and its influence on populist votes. We argue that populist parties have gained voters because all mainstream parties have failed to curb unemployment during their mandates. Therefore, considering the entire political space corrects the information bias regarding the vote for a populist party. Indeed, voting for a populist party is not a binary choice as it was presented in the literature with binary models (e.g. Algan et al., 2017; Guiso et al., 2017; Bossert et al., 2019; Im et al., 2019). We argue that this vote is a multinomial choice among various candidates. We reduce the political space to four different parties: the incumbent, the mainstream opposition (that has been in power before), the right-wing populist party and the left-wing populist party. Therefore, to consider the entire political space, we use two econometric methods: multinomial logit and nested logit estimations; the latter better tackles the influence of the entire political space on the populist vote.

We also propose to analyse several aspects of unemployment: egotropic and sociotropic unemployment, current and accumulated unemployment, and the voters' own explanation of unemployment. Our goal is to deal with the unemployment rate in the voter's neighbourhood and with the voter's own experience of unemployment (i.e. being personally unemployed) at the same time. As the voter also assesses the past performance of the mainstream opposition, we consider accumulated unemployment as a populist vote factor: we suppose that higher accumulated unemployment (measured by long-term unemployment rate and the risk of being personally unemployed) leads to a lower probability to vote for the mainstream opposition and consequently to a higher

probability to vote for a populist party (right-wing or left-wing). Finally, we suppose that the explanation of unemployment given by voters is the factor that distinguishes the two sides of populist vote: if the voter considers that current and accumulated unemployment is due to immigration, he will be more prone to vote for a right-wing populist party than for a left-wing populist party.

Results We find a positive link between unemployment and both right-wing and left-wing populist votes: egotropic current unemployment (i.e. being unemployed) and egotropic and sociotropic accumulated unemployment (i.e. the personal risk of unemployment and department long-term unemployment rate) discourage voters to vote for mainstream parties and encourage them to opt for populist parties.

The distinction between right-wing and left-wing populist votes effectively lies on the voters' own explanation of unemployment: if voters consider that unemployment is mostly due to immigration, they will be more prone to vote for a right-wing populist party rather than a left-wing populist party. We also find that left-wing populist voters rather explain their experience of unemployment by the lack of state intervention in the economy.

Contribution The contribution of this chapter is twofold. On the one hand, we confirm that unemployment (in different simultaneous aspects) has a direct positive link with populist vote in general, whatever the political side (right-wing or left-wing). However, by taking into account the distinction between right-wing and left-wing

populist votes, we add to Algan et al. (2017)[5] that the distinction between the two sides of populism only lies on the voters' own explanation of unemployment: immigration for right-wing populist voters and the lack of state intervention in the economy for left-wing populist voters. As a consequence, we assess that unemployment is an important driver of populist vote in general and one of the keys to distinguish between the two sides of populist vote (right-wing and left-wing).

On the other hand, this chapter contributes to the literature by taking into account the entire political space. More especially, we argue that populist parties have gained voters due to the failure of mainstream parties to effectively reduce unemployment during their mandates. As a consequence, not considering the entire political space may create an information bias regarding the populist vote explanations. Therefore, we tackle this information bias by using both multinomial logit and nested logit estimations that take into account all parties in the political space and their interaction with populist parties. Thanks to nested logit estimations, we find that populist vote is nested with the incumbent and mainstream parties votes. In addition to the literature that highlights the direct causal effect of unemployment on populist vote (Algan et al., 2017; Gomez and Ramiro, 2019; S. Chen, 2020), we emphasise an indirect effect of unemployment on populist vote via the mainstream parties channel: in the case of high unemployment, the electoral failure of the mainstream parties indirectly increases the populist vote. Consequently, this chapter stresses the necessity to take into account the entire political space when analysing the populist vote.

[5]Algan et al. (2017) find a positive link between unemployment and populist vote, whatever the political side (right-wing and left-wing).

Chapter 3: European funds: a shield against populism? Evidence from EP elections

Context and research question In December 2020, the European Commission applied the Rule of Law Conditionality Mechanism: any EU member state that does not respect the rule of law principles can be deprived of EU funds. This mechanism targeted the Hungarian and Polish populist incumbents which tended to become illiberal and autocratic regimes. However, the withholding of EU funds is costly for these populist countries as it corresponds to a substantial loss of money: in Hungary for example, EU funds represent more than 80 % of its public investment. Nevertheless, despite the adoption of the Rule of Law Conditionality Regulation targeting Viktor Orbán, Hungarians still decided to elect him for a fourth term. This raises the question of the potential link between the political success of populist parties in Europe and European funds.

In this chapter, we analyse in particular the relationship between EU funds and populist vote in EP election. We are motivated by the fact that in the empirical literature, this relationship is still challenged. On the one hand, higher EU funds correspond to higher populist vote share because EU funds are politicised by ethnonationalists as a promotion of minorities (Los et al., 2017; Willett et al., 2019; Hlatky, 2020). On the other hand, another strand of the literature shows that higher EU funds can lead to a lower populist vote share as EU funds are a "buffer" against eurosceptic sentiment and a signal of potential economic outcomes (Garry and Tilley, 2009; Bachtrögler and Oberhofer, 2018; Albanese, Barone, and de Blasio, 2022). Besides, in the case of Brexit, no stable link has been found between Leave vote and EU funds (Fidrmuc, Hulényi, and

Tunali, 2016; Becker, Fetzer, and Novy, 2017; Huggins, 2018; Crescenzi, Di Cataldo, and Giua, 2020).

Moreover, we note that the populist vote remains high in Hungary and Poland whereas these two countries greatly benefit from European funds. That is why, we would like to test for the first time the conditioned effect of EU funds on populist vote by the populist nature of national and regional incumbents. In other words, we investigate whether the negative link between EU funds and populist vote remains even if the national or regional incumbent is populist.

In this chapter, we ask two main questions: what is the link between populist vote in EP elections and EU Funds? Does this relationship change when the national or regional incumbent is itself populist?

Method We analyse European Parliament elections from the great enlargement in 2004 to the last EP election in 2019. We use in particular the 2004, 2009, 2014 and 2019 European Election Studies (EES) and the "Historic EU payments - regionalised and modelled" database made by the European Commission - DG Regional.

We consider the total amount per capita of all EU funds allocated to the voter's region over the last MEP mandate, i.e. 2000-2004, 2005-2009, 2010-2014 or 2015-2018 mandate[6]. We study seven EU funds: Cohesion Fund (CF), European Agricultural Fund for Rural Development (EAFRD), European Maritime and Fisheries Fund (EMFF)[7], European Regional Development Fund (ERDF), European Social Fund (ESF), Fund for

[6]Due to data availability, we do not have any information about EU funds distributed after 2018.

[7]The amounts of EMFF, FEAD and YEI are available in our database only for the 2014 and 2019 EP elections.

European Aid to the most Deprived (FEAD)[7] and Youth Employment Initiative (YEI)[7]. As we analyse the individual probability to vote for a populist party in EP election, we count EU funds per capita at NUTS2 level (the finest level given by all EES).

We test two hypotheses. We suppose that the direct relationship between EU funds and populist vote in EP election is negative (H1): a higher amount of EU funds per capita at NUTS2 level reduces the individual probability to vote for a populist party in EP election. To test this first hypothesis, we estimate a Hierarchical Linear Model (HLM) (also called multilevel model) with random effects of NUTS2. The second hypothesis H2 deals with the conditioned effect of EU funds on populist vote by the populist nature of the national/regional incumbent: when the voter's national or regional incumbent is populist, we expect an increase in his probability to vote for a populist party in EP election. To test this second hypothesis, we also estimate a Hierarchical Linear Model (HLM) with random effects of NUTS2 with an interaction term (EU funds with a dummy equal to 1 if the national/regional incumbent is led at least by one populist party).

As the dependent variable is a dummy equal to 1 if the respondent votes for a populist party in EP election, we also estimate the baseline model by probit/logit models as robustness checks.

Results We find that one-percentage-point increase in EU Funds per capita at NUTS2 level during the last mandate *ceteris paribus* is associated with a lower individual probability to vote for a populist party during EP election by around 2 % (H1 validated).

Nevertheless, we do not find any empirical evidence regarding a distinguished effect of EU Funds between populist and non-populist incumbents: whatever the nature of

the incumbent (populist or non-populist), EU funds always have a negative link with populist vote in EP election, at voter level (H2 not validated).

In the discussion section, we investigate whether the direct negative effect of EU funds is heterogeneous, regarding the level of NUTS2 development (measured by GDP per capita, unemployment rate and Cohesion Fund eligibility at NUTS2 level) and the voters' economic characteristics (i.e. their unemployed status and their household standard of living). Our results do not provide empirical evidence of a differentiated effect of EU funds on the individual probability to vote for a populist party in EP election according to the level of NUTS2 development. Neither do we find any strong empirical evidence of a higher negative effect of EU funds on populist vote for the voters most targeted by these funds (i.e. unemployed and poor voters).

Contribution We bring two main contributions to the literature. As a first contribution, by cross-sectionally analysing for the first time four EP elections simultaneously, we bring an important additional evidence on the negative link between EU Funds and populist vote, confirming the results of Garry and Tilley (2009), Bachtrögler and Oberhofer (2018) and Albanese, Barone, and de Blasio (2022). So far, the economic vote literature has not yet found a clear relationship between EU Funds and populist vote: the puzzling case of Brexit is a good example of non-significant effect of EU Funds on "Leave" vote shares (Becker, Fetzer, and Novy, 2017).

Nevertheless, this paper only considers the economic effect of EU funds on populist vote. Due to the lack of suitable proxy variables, we were not able to test how voters perceive EU funding, i.e. from a purely economic perspective or from a more politicised

perspective. Indeed, EU funds can be politicised to the point of generating a negative perception of EU funding, which can lead to a populist or anti-EU vote (Hlatky, 2020). In further research, it might be interesting to identify which voters are more likely to perceive EU funds from an economic perspective (i.e. positively) and which ones are more likely to perceive them from a politicised perspective (i.e. negatively).

As a second contribution to the literature, we test for the first time whether the negative relationship of EU Funds with populist vote remains even when the national or regional incumbent is already populist. This is in line with the economic vote literature regarding the increase of incumbent popularity/vote in good economic conditions (Mueller, 1970; Goodhart and Bhansali, 1970; Kramer, 1971; Kinder and Kiewiet, 1981; Lewis-Beck, 1988). Besides, it directly echoes the paper of B. S. Frey and Schneider (1978) arguing that the incumbent can modify his popularity function by increasing current government expenditures. As EU funds can increase GDP growth and employment (Percoco, 2017; Bachtrögler, Fratesi, and Perucca, 2020; Crescenzi and Giua, 2020; Fattorini, Ghodsi, and Rungi, 2020), the populist incumbent can use EU funds in such way as to increase votes for its party in EP election. So far, the literature has not been able to test this conditional relationship because populists came to power too recently: for example, the Hungarian Viktor Orbán in 2010 and the Polish Andrzej Duda in 2015. Nevertheless, through the analysis of the last EP election in 2019, we are able to measure this conditional relationship between EU funds and the populist vote, without unfortunately providing empirical evidence of its existence.

Chapter 1

Income inequality and satisfaction with democracy

1.1 Introduction

In advanced democracies, democracy support, usually measured by the satisfaction with democracy, is less and less shared. The literature has already shown that economic factors influence democracy support in democracies. For example, economic growth and more generally good economic health increase individual satisfaction with democracy (e.g. Polavieja, 2013; Christmann, 2018). However, the relationship between income inequality and satisfaction with democracy is challenged in the literature. On the one hand, theoretical papers find a positive relationship: as greater income inequality generates the desire for democratisation and economic redistribution, it consequently increases democracy support (Boix, 2003; Dalton, 2004; Acemoglu and Robinson, 2006). On the other hand, empirical papers conversely show a negative link between

income inequality and democracy support, i.e. greater income inequality corresponds to lower democracy support (e.g. Andersen, 2012; Schäfer, 2013; Wu and Chang, 2019). The point is nevertheless fundamental in political economy because greater income inequality makes the issue of redistribution more salient during elections (Tavits and Potter, 2015). In addition, the effect of income inequality on satisfaction with democracy is crucial because democracy support can have an effect on the stability of democracy (Bernhard, Nordstrom, and Reenock, 2001; Mainwaring, 2006).

In order to reconcile the theoretical and empirical literature, this paper aims at exploring the mechanisms that link income inequality and democracy support. We perform the analysis with three main oppositions. The first opposition is geographical. We explore the relationship between income inequality and satisfaction with democracy at two geographical levels: at the international level and at a finer level focusing on one country, France. The second opposition is between effective and visible income inequality. As Quaranta and Martini (2016) argue that the perception of economy has a greater effect on satisfaction with democracy than the economy itself, we propose to study both effective inequality (measured by the Gini index and household income) and visible inequality (measured by unemployment). The third and last opposition is between egotropic and sociotropic income inequality. Therefore, using the 3rd and 4th European Value Surveys (EVS), we test four types of income inequality in this paper: sociotropic effective income inequality measured by the Gini index, sociotropic visible income inequality measured by unemployment rate, egotropic effective income inequality measured by household income and egotropic visible income inequality

measured by the individual's unemployed status. We estimate a multilevel model with random effects using democracy support in two ways: with the traditional variable of satisfaction with democracy and by extension with the support for alternative political systems to democracy (autocratic, technocratic or military).

We find that, at international and French levels, sociotropic income inequality (effective and visible) has no significant effect on democracy support. On the contrary, greater effective and visible egotropic income inequality leads to both lower satisfaction with democracy and stronger support for alternative political systems to democracy.

We go further in this analysis by stipulating that the effect of income inequality on democracy support depends on the individual's vision of democracy. This echoes the two normative visions of democracy reported in political studies, namely the extensive and the restrictive visions. In the extensive vision, the democracy must achieve a more egalitarian society. In the restrictive vision, the democratic system must ensure a "fair competition", i.e. equal opportunities and not necessarily the reduction of income inequality if it is perceived to be "fair". Individuals with an extensive vision of democracy are therefore more sensitive to income inequality than those with a restrictive vision. We measure this dichotomy between extensive and restrictive visions of democracy by partisanship (left-wing versus right-wing) and by household income (rich versus poor). Therefore, we find that both egotropic and sociotropic income inequality effects on satisfaction with democracy are significantly conditioned by partisanship. We do not find significant conditional effect of income inequality on satisfaction with democracy through household income.

This paper is organised as follows. Section 1.2 presents the literature review of democracy support and its challenged relationship with income inequality. Section 1.3 describes data and estimation strategy. Sections 1.4 and 1.5 show results respectively at the international level and at the French level. Section 1.6 discusses the partisan effect on the relationship between income inequality and democracy support while Section 1.7 discusses the conditional income effect. The analysis of the link between income inequality and support for three alternative political systems (autocratic, technocratic and military) is presented in Section 1.8, which is directly followed by the conclusion in Section 1.9.

1.2 Literature review of democracy support and its challenged relationship with income inequality

We present the literature review in three parts. After defining what democracy support is (subsection 1.2.1), we show its economic explanations (subsection 1.2.2). Finally, we focus on the challenged link between democracy support and income inequality (subsection 1.2.3).

1.2.1 How to define democracy support?

There exist different types of democracy support. Easton (1965) makes the theoretical distinction between "diffuse" and "specific support" for any political regime. "Diffuse support" refers to support for the most abstract institution of a state, i.e. the political

regime itself. On the contrary, "specific support" deals with the "perceived outputs and performance of the political authorities" (Easton, 1975, p. 437). Therefore, in the case of a democratic regime, diffuse support for democracy concerns the democratic principles/values, while specific support for democracy corresponds to democratic practices.

Later, Klingemann (1999) goes further by proposing a continuum of four levels of democracy support between diffuse and specific support; these elements are measured in the World Values Survey (WVS) by several items which are displayed in Table 1.1. The most general level of support is the "identification with the political community". It refers to Easton's diffuse support. In the WVS, it is measured by two items: citizenship pride and willingness to fight for the country. The second level refers to "support for democracy as an ideal form of government"; this support catches democratic regime attractiveness, assuming that citizens can distinguish between the democratic regime as a legitimate mode of governance and its empirical performance. This support is essential to ensure a stable democracy (Schäfer, 2013) and it is overwhelmingly shared by citizens from Western and Eastern Europe (Fuchs, Guidorossi, and Svensson, 1995). In the WVS, it is measured by two items: thinking that having a democratic system is a good way of governing the country and thinking that democracy is better than any other form of government. The third level of democracy support corresponds to "regime performance" or "satisfaction with the way democracy actually functions". This level taps the evaluation of democracy in practice, i.e. Easton's "specific support". As citizens are more critical of democracy performance than democracy as a legitimate mode of

Table 1.1: Four levels of democracy support and their respective items in the World Values Survey (WVS) (Klingemann, 1999)

Levels of support	**Measurement in the World Values Survey**
Identification with the Political Community	- "How proud are you to be a [citizen of this country]?" in four categories ("Very proud", "Quite proud", "Not very proud" and "Not at all proud") - "Of course we all hope that there will not be another war, but if it were to come to that, would you be willing to fight for your country?" in two categories ("Yes" and "No")
Support for democracy as an ideal form of government	- "I am going to describe various types of political systems and ask what you think about each as a way of governing this country. For each would you say it is a very good, a fairly good, a fairly bad, or a very bad way of governing this country? - Having a democratic system" in four categories (quoted in the item) - "I am going to read off some things that people sometimes say about a democratic system. Could you please tell me if you agree strongly, agree, disagree, or disagree strongly, after I read each of them? - Democracy may have many problems but it's better than any other form of government" in four categories (quoted in the item)
Regime performance	- "People have different views about the system for governing this country. Here is a scale for rating how well things are going: (1) means very bad and (10) means very good. Where on this scale would you put the political system as it is today?" in ten categories (quoted in the item) - "How satisfied are you with how the people now in national office are handling the country's affairs? Would you say you are very satisfied, fairly satisfied, fairly dissatisfied, or very dissatisfied?" in four categories (quoted in the item) - For the Western European and the Latin American surveys: "On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the way democracy works (in your country)?" in four categories (quoted in the item) - For the Central and Eastern European surveys: "On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the way democracy is developing in (your country)?" in four categories (quoted in the item)
Regime institutions	"I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence, or none at all? - The Parliament - The Government - Political parties - The police - The courts" in four categories (quoted in the item)

governance, this third level is less supported by citizens than the second level, i.e. "support for democracy as an ideal form of government" (Gabriel, 2008). In the WVS, it is measured by three items: opinion on the system for governing the country, satisfaction with the management of the country's affairs and satisfaction with democracy. The fourth level "regime institutions" concerns the executive, legislative and judicial powers of democracy. This level has suffered an impressive loss of credibility since the 1990s (Putnam, Pharr, and Dalton, 2000). In the WVS, it is measured by one item: confidence in the parliament, the government, political parties, the police and the courts.

A fifth level of democracy support is added by Dalton (2004): it directly concerns "political actors" themselves. In the WVS, it is measured by one item: satisfaction with the people in national office[1]. This most restricted level of democracy support also decreases because of the declining support of citizens for their politicians.

In the literature, economists prefer using the variable "Satisfaction with Democracy" (hereafter SWD) because it is the most widely used measure in global surveys (WVS, EVS, ESS, etc.). As a reminder, this variable corresponds to the question "On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the way democracy works in your country?". Those who answer "Very satisfied" or "Fairly satisfied" are considered as supporting the performance of the current democratic regime.

However, the relevance of the SWD variable to measure support for the democratic regime is questioned. On the one hand, SWD is highly sensitive to different institutional

[1]Especially, it refers to the question "How satisfied are you with the way the people now in national office are handling the country's affairs? Would you say you are very satisfied, fairly satisfied, fairly dissatisfied or very dissatisfied?" in four categories (quoted in the item).

contexts. Analysing 11 European democracies in 1990, Anderson and Guillory (1997) stipulate that SWD is linked with the type of democracy in which individuals live, i.e. a consensual or a majoritarian democracy. The authors demonstrate that "winners" of democratic elections (i.e. citizens who have voted for the party in the current government) are more satisfied with the way democracy works in their country than "losers" of democratic elections (i.e. citizens who have voted for a party which lost the election). Besides, they stress that the gap of satisfaction between winners and losers depends on the institutions: when the democratic regime is majoritarian (i.e. the "winner takes it all" regime), the gap is larger than when the democratic regime is more consensual (i.e. with a proportional political representation including minority parties) (Anderson and Guillory, 1997). Linde and Ekman (2003) who extend the analysis to Eastern European countries by using Central and Eastern Eurobarometer 8 in 1997 come to the same conclusions regarding the "satisfaction gap" between winners and losers. On the other hand, Canache, Mondak, and Seligson (2001) analyse the 1997 Latinbarometer and original surveys conducted in 1999 in Romania and El Salvador. They find that the SWD item captures several dimensions of political support and the mix of those dimensions varies across both individuals and nations. For example, SWD in Peru is only linked with the political institutions support (specific support) while SWD in Brazil is related with both support for political institutions and for democracy as an ideal form of government (diffuse support); at individual level, the diffuse support for democracy is correlated with SWD only among respondents with high political knowledge. As a consequence, it seems difficult to make international comparisons

about SWD.

We have seen that SWD can refer to both diffuse and specific democracy support. However, as advanced democracies have the same level of diffuse support but a different level of specific support, SWD measures therefore only the specific democracy support in these countries. That is why economists prefer to analyse SWD in advanced democracies to explain democracy support.

1.2.2 Economic explanations of satisfaction with democracy

Economists point out that good economic situation boosts the individual democracy support with SWD.

First of all, economic growth increases the individual SWD. For example, by studying the third round of 2005 Afrobarometer, Guldbrandtsen and Skaaning (2010) show that economic growth as well as respect for the rule of law are positively associated with SWD.

Reversely, economic crises lead to lower SWD. On the one hand, Polavieja (2013) analyses 19 European countries using the 2004 and 2010 European Social Survey. He finds that the decrease in GDP growth between 2004 and 2010 (i.e. during the 2008 financial crisis) is highly correlated with lower SWD. On the other hand, Ruiz-Rufino and Alonso (2017) analyse Eurobarometer surveys from 2002 to 2014 and use a two-step difference-in-difference model that combines individual and macro data. They find that the 2009 economic crisis in Europe erodes citizens' SWD but this effect is amplified when the country takes bail-out decisions with the "Troika": these decisions signal to

citizens the fragility of their national institutions to respond effectively to economic shocks.

More generally, it is the economic health of the country that influences SWD. Khramov and J. R. Lee (2013) create the Economic Performance Index (EPI) combining four different economic indicators: GDP growth, unemployment, inflation and government budget deficit. Considering this index, Quaranta and Martini (2017) analyse 108 surveys in four southern European countries (Greece, Italy, Portugal and Spain) from Eurobarometer between 1985 and 2013. Using multilevel models, they conclude that low economic performance (measured by EPI) corresponds to lower SWD and this link is significant and robust over time. Moreover, Christmann (2018) also concludes that increasing economic performance (i.e. EPI) leads to increasing SWD within 61 democratic countries over time, from 1980 to 2014. He also demonstrates that the effect of EPI on SWD and the quality of democracy in the country are together conditioned; this echoes the literature finding that economic development and democracy mutually reinforce each other (Norris, 1999). Besides, for Kestilä-Kekkonen and Söderlund (2017), the positive effect of economic performance on SWD must be nuanced. Analysing 31 countries via the European Social Survey from 2002 to 2013, the authors conclude that the effect of economic performance on SWD is amplified in countries with a single-party government: the less fractionalised the government is (i.e. single-party government rather than coalition government), the stronger the positive effect of economic performance on SWD is. In addition, the negative effect of bad economic performance on SWD is greater in countries with a single-party government than with a coalition

government. This amplified effect in single-party government can be explained by the analysis of Tang and Huhe (2020) on AmericasBarometer between 2006 and 2012: the more involved the government is in the economy, the more likely citizens are to attribute economic success or failure to that government.

Besides, another part of the literature even argues that the citizens' perception of the economy has a greater effect on SWD than the economic performance itself. Indeed, Quaranta and Martini (2016) show that economic performance as well as subjective evaluations of the economy play an important role on SWD. Using Bayesian cross-nested logistic mixed models to treat the endogeneity between macro economic indicators and subjective individual evaluation of the economy, they study cross-sectional data (Eurobarometer) from 28 European countries between 1973 and 2013. Analysing in particular the 2008 financial crisis effect, the authors conclude that "citizens' perceptions of insecurity during periods of financial distress seem to matter more than real economic conditions". Other papers also argue that individual economic perceptions are significantly and positively correlated with SWD. For example, Armingeon and Guthmann (2014) who analyse 26 European countries between 2007 and 2011 find that citizens evaluate both national and international economic health when they evaluate their support for democracy (i.e. their SWD). They point out that subjective evaluations of national economic performance are one of the main explanations of support for national democracy: if the respondent evaluates the national economy favourably, his SWD increases by about 25 percentage points. Cordero and Simón (2016) also argue that individual perceptions of the state of the economy are affected by short-term economic

shocks, such as bailouts: using the 6th wave of ESS (September 2012 - April 2013), they find that citizens' SWD drops significantly more in European countries that suffered from the 2008 financial crisis to the point of Troika intervention than in those that were not bailed out. As for Christmann and Torcal (2017), they analyse both Eurobarometer and Latinobarómetro from 1986 to 2014 and CIUPANEL, an individual-level panel data created by Torcal, Martini, and Serani (2016) and composed of six online waves between 2014 and 2016 in Spain. They also conclude that changes in individuals' economic evaluations explain a sizeable share of the variation in SWD.

Finally, some papers stress that economic factors other than performance can influence SWD. On the one hand, using the 2008-2009 European Social Survey from 24 countries, Lühiste (2014) reveals that lower rates of poverty and social exclusion are associated with higher SWD. Sirovátka, Guzi, and Saxonberg (2019) go further by studying the special module on democracy from the 2012 European Social Survey. They conclude that social policies that effectively reduce poverty are positively linked with citizens' SWD. On the other hand, Guthmann and Fill (2020) analyse for the first time the effect of liberalisation on national SWD in 25 European democracies between 1985 and 2014, thanks to Eurobarometer surveys. They conclude that liberalisation *per se* (i.e. without distinction between policy fields) does not have a significant effect on SWD. Meanwhile, in two policy fields (Employment Protection Legislation (EPL) and industrial relations), they demonstrate that liberalisation processes have a significantly negative link with SWD. The authors explain this significant effect by the high political salience of these two policy fields: thanks to trade unions and political parties, the nega-

tive impact of liberalisation is more visible for citizens in EPL and industrial relations than in other policy fields such as finance, pension systems or education policy.

1.2.3 Income inequality and democracy support: a challenged relationship

There is no consensus between theoretical and empirical literature on the relationship between income inequality and democracy support.

On the one hand, theoretical papers find a positive relationship between income inequality and democracy support. In other words, greater income inequality corresponds to stronger democracy support. Using theoretical models to explain democratisation, Acemoglu and Robinson (2006) and Boix (2003) explain that greater income inequality leads non-wealthy citizens to support democratic regimes. This stronger democracy support "gives them a chance to establish redistributive mechanisms to their advantage" (Boix, 2003, p.171). Besides, when highly unequal societies democratise themselves, the median voter expects a future large-scale redistribution, which strengthens his democracy support (Acemoglu and Robinson, 2006, p.171). Moreover, in advanced democracies, high income inequality can mean future social mobility and economic opportunities for citizens (Dalton, 2004, pp. 85-86). Once again, this reinforces citizens' democracy support. Another theoretical paper stipulates that, since the 1980s, due to greater income inequality, more citizens benefit from redistribution through social security for example. Therefore the share of voters favouring taxes to finance redistribution increases. In short, greater income inequality increases the share of

redistributed income (also called the size of government) and thus democratic support (Meltzer and Richard, 1981). In conclusion, the economic theory stipulates that greater income inequality increases the desire of democratisation and economic distribution, and consequently increases democracy support.

On the other hand, empirical papers show conversely a negative relationship between income inequality and democracy support. In other words, greater income inequality corresponds to lower democracy support. Some papers focus their analysis on a specific country. For example, Soci, Maccagnan, and Mantovani (2014) analyse the UK while Kang (2015) focuses on South Korea. In the first paper, the analysis considers a single country (UK) in a long-term perspective. Using Eurobarometer data from 1974 to 2009, the authors study the effect of increasing economic inequality on the quality of a democracy measured by three indicators: the level of satisfaction with democracy, the frequency of political discussion and the participation in election. They propose different indicators for income inequality: the Gini index, the Foster-Wolfson polarisation index, the interdecile ratios P90/P10 and P90/P50 and the shares of top and bottom 1 %, 5 % and 10 % income. The authors find that, whatever the income inequality indicator, higher level of income inequality corresponds to lower satisfaction with democracy but also to increased political action such as political discussion and voting (Soci, Maccagnan, and Mantovani, 2014). In the second paper, Kang (2015) analyses the case of South Korea, one of the most successful consolidated democracies in East Asia. Yet this democratic consolidation has been coupled with a substantial erosion of citizens' satisfaction with democracy. By analysing 1023 Korean citizens'

concerns about income inequality in the 2006 Asian Barometer (AB), Kang (2015) measures the relationship between income inequality and satisfaction with democracy, first by probit model. Then, he uses a two-step probit by taking the dissatisfaction with the welfare system as an endogeneous variable. He finds a significant positive relationship between inequality worry (i.e. negative perception of income inequality) and dissatisfaction with democracy. Moreover, other papers extend the analysis to several countries simultaneously. For example, by using the second and third wave of the ESS (2004 and 2006), Schäfer (2013) analyses 25 European countries and finds that a higher Gini index (i.e. greater income inequality) corresponds to lower satisfaction with democracy. Using the 2001 World Values Survey, Andersen (2012) focuses his analysis in 35 modern democracies all over the world (Europe, North America and Australia). By studying the relationship between economic and political conditions and support for democracy, he finds that income inequality, measured by the Gini index matters much more than only economic development or economic growth. Even for citizens of a wealthy country, greater income inequality corresponds to lower support for democracy. More recently, Wu and Chang (2019) study 28 democracies in East Asia and Latin America from 2013 to 2015 with the 4th wave Asian Barometer (ABS IV) and the 2013 Latinobarómetro Survey. They include not only objective measures of income inequality such as the Gini index, the Theil index and the 90/10 ratio but also a subjective measure of income inequality based on the individual perception of unfairness regarding income distribution. The authors find that greater income inequality (in both objective and subjective ways) corresponds to lower satisfaction with

Table 1.2: Four hypotheses to test the effect of greater income inequality on democracy support (Krieckhaus et al., 2014)

	Prospective	Retrospective
Sociotropic	H_1: All citizens support **more**	H_3: All citizens support **less**
Egotropic	H_2: Poor citizens support **more** and rich citizens support **less**	H_4: Poor citizens support **less** and rich citizens support **more**

democracy. However, the authors argue that in East Asian countries, the perception of unfair income distribution has a stronger effect on satisfaction with democracy than the Gini index (objective measure of inequality) .

How to reconcile the theoretical positive relationship of income inequality with democracy support and the empirical negative one? Krieckhaus et al. (2014) try to answer this issue by distinguishing several different effects that occur simultaneously: prospective versus retrospective effect and egotropic versus sociotropic effect. They test four different hypotheses linked with these two opposed effects by using the 3rd, 4th and 5th waves of the World Values Survey in 40 democracies. These hypotheses are presented in Table 1.2.

Using multilevel modelling (MLM) and especially random-coefficient models, they find a global negative relationship between income inequality (Gini index) and satisfaction with democracy. They conclude that citizens adopt a retrospective sociotropic point of view towards income inequality. Nevertheless, they also find evidence to validate the hypothesis of a prospective egotropic income inequality effect: in highly unequal democracies, the decrease in satisfaction with democracy is lower among the poor than among the rich.

To conclude, the literature review shows that the consensus between theory and empirics on the link between income inequality and democracy support is not completely established yet. That is why, we argue, in line with Krieckhaus et al. (2014), that this relationship depends on the prospective/retrospective and sociotropic/egotropic points of view. This confirms what Magalhães (2016) says: "Economic evaluations matter, but they do not matter in the same way in all contexts for all people".

1.3 Data and estimation strategy

In this paper, we use two samples at two geographical levels: we use the 3rd and 4th waves of European Values Survey (EVS), especially from 1999 to 2009 at the international level; at the French level, we only use the 4th wave of EVS, from May to September 2008[2].

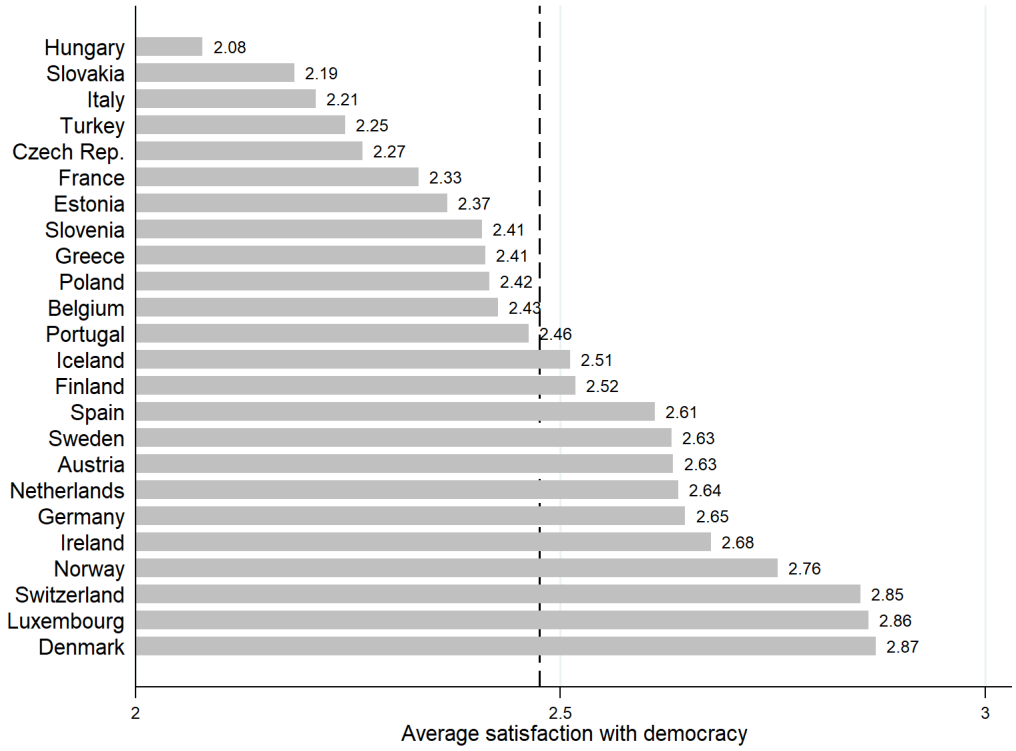
1.3.1 Measuring support for democracy through satisfaction with democracy

To measure democracy support, we use a variable usually exploited in the literature, that is the satisfaction with democracy (SWD) (e.g. Guthmann and Fill, 2020; Ruiz-Rufino and Alonso, 2017). This variable is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?".

In this paper, we use the original categorical variable in 4 items. The variable takes

[2]For a detailed description of samples used in this paper, see in appendix section 1.D.

Figure 1.1: Satisfaction with democracy by studied nations



Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The dashed line indicates the average SWD at the international level. The sample matches with the one studied in the international estimations.

the following values: 1 for "not at all satisfied", 2 for "not very satisfied", 3 for "rather satisfied" and 4 for "very satisfied". Figure 1.1 represents the average SWD by countries in both EVS waves (the 3rd and the 4th). Indeed, in appendix (Table 1.A7), we see that the average standard deviation including the two waves is below 1 (0.76 on average), which means that the level of SWD is quite stable between the two waves. At the international level, with an average SWD of 2.48 out of 4, the lowest national SWD is found in Hungary (2.08 out of 4) and the highest in Luxembourg (2.86 out of 4). We notice that Northern European countries are more satisfied with their democracy than Southern European countries.

For robustness checks, we recode SWD into a dummy variable, i.e. equal to 1 if the individual is either "very satisfied" or "rather satisfied", 0 otherwise.

1.3.2 Measuring income inequality

We perform the analysis with 3 main oppositions: geographical opposition (international versus French level), effective/visible opposition and egotropic/sociotropic opposition.

The first opposition concerns the geographical scale. We perform the analysis at two geographical levels. First, we study the relationship between national income inequality and SWD at the international level. We have 59 745 observations from 24 countries and two waves (3rd and 4th EVS waves). The income inequality is measured at the country level. This international analysis provides the advantage of studying the global relationship between income inequality and democracy support. Second, we focus our analysis on France. Here, we study the relationship between department income inequality and SWD at the national French level. We have 3034 observations from 86 French departments and we analyse only one wave, the 4th EVS wave from May to September 2008. The income inequality is measured at the department level. This analysis at a finer geographical scale has two main interests. First, it allows to discard several confounding factors, especially institutional and cultural ones, so that all individuals evaluate the same democratic regime through SWD. To rule out contextual effects, we focus the analysis on a single year, i.e. 2008. Second, we observe income inequality at the level of the department in which the respondents live. Department

income inequality better reflects the inequality situation experienced by respondents. In other words, respondents are more concerned with department income inequality that affects them personally than with national income inequality that is too far from them[3].

The second opposition is the distinction between effective and visible income inequality. The Gini index is the most widely used variable in the literature to objectively measure economic inequality. However, effective and visible income inequality may have a different effect on SWD. Indeed, Nishi et al. (2015) lead experimental research on the effect of inequality when it is visible/invisible. The authors conclude: "in initially more unequal situations, wealth visibility leads to greater inequality than when wealth is invisible". That is why, some papers propose to measure visible income inequality by conspicuous consumption (e.g. Undurraga et al., 2016; Hwang and J. Lee, 2017; Roychowdhury, 2017). In our paper, we propose another indicator of visible income inequality: unemployment. As unemployment corresponds to a loss of wages, the unemployment variable measures citizens' perception of poverty and by extension their perception of income inequality (e.g. Takayama, 1979).

The third and last opposition is the distinction between egotropic and sociotropic income inequality. Indeed, the egotropic point of view (also called "pocketbook" point of view) concerns the respondents' own economic experience, in particular at household level (Nannestad and Paldam, 1995). In contrast, the sociotropic point of view is based on the respondents' overall perception of the economy. Therefore,

[3]This echoes the debate about the analysis of macro variables in VP-functions at a finer geographical level (see for example Lewis-Beck and Stegmaier, 2013 and David, Pilet, and Van Hamme, 2018).

we measure sociotropic effective income inequality by the Gini index while egotropic effective income inequality is measured by household income. Furthermore, we measure sociotropic visible income inequality by the unemployment rate while egotropic visible income inequality is measured by being personally unemployed.

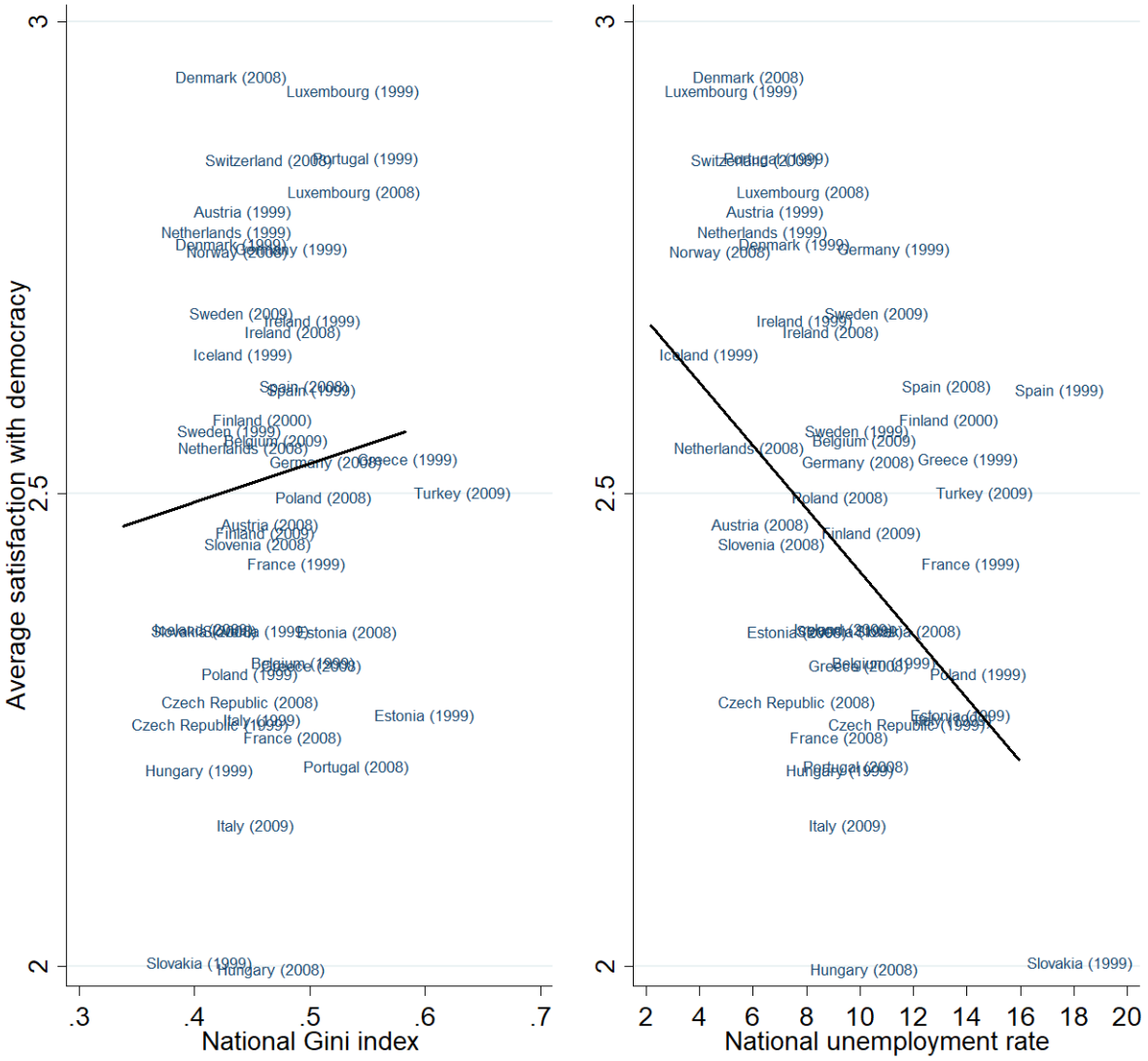
1.3.3 A first insight of the relationship between income inequality and satisfaction with democracy

This subsection presents a first insight of the relationship between SWD and income inequality at the international level through both the egotropic/sociotropic and the effective/visible income inequality oppositions.

On the one hand, Figure 1.2 shows the link between SWD and sociotropic income inequality. On the left side, the relationship between SWD and the Gini index (i.e. effective income inequality) seems positive. The higher the Gini index, the stronger the SWD at country level. On the right side, the relationship between SWD and the national unemployment rate (i.e. visible income inequality) seems negative. The higher the unemployment rate, the lower the SWD at country level.

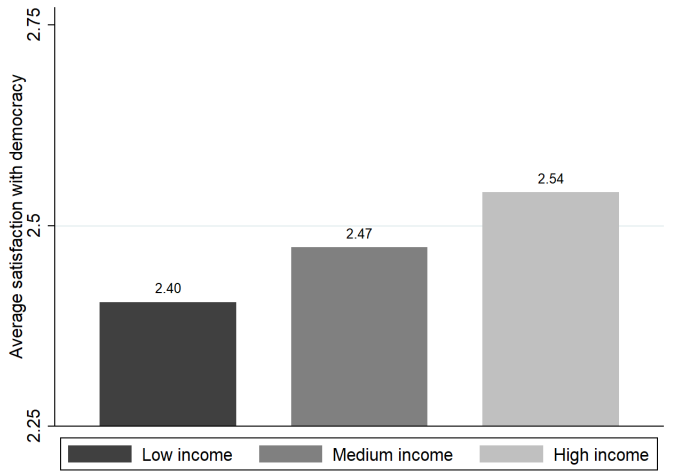
On the other hand, Figures 1.3 and 1.4 display the link between SWD and egotropic income inequality. In Figure 1.3, the relationship between SWD and the household income level (i.e. effective income inequality) seems positive. The higher the household income, the stronger the average SWD. Therefore, egotropic effective income inequality and SWD are negatively linked: suffering from effective income inequality (i.e. being poor) seems to be associated with lower SWD.

Figure 1.2: Satisfaction with democracy and sociotropic effective/visible income inequality at the aggregated international level



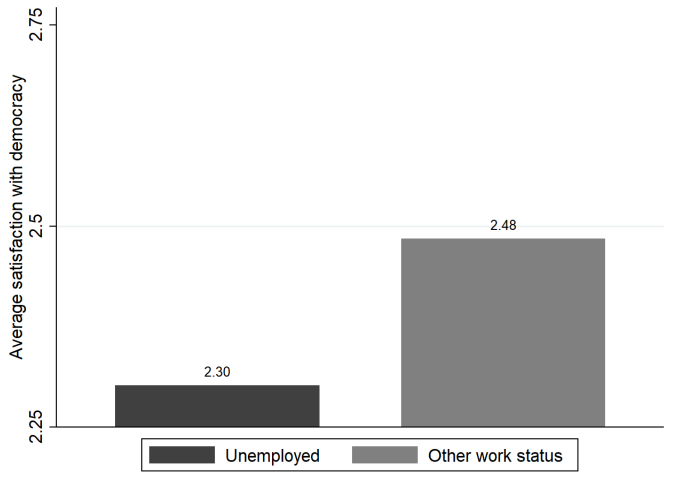
Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The line is the fitted line. We exclude Turkey 2001 from the sample because it is an outlier that leverages the fitting to the southwest of the graph (for more information, see section 1.D in appendix). The sample consists of 24 countries and 2 EVS waves.

Figure 1.3: Satisfaction with democracy and egotropic effective income inequality at the international level



Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The sample consists of 59 745 respondents from 24 countries in 2 EVS waves.

Figure 1.4: Satisfaction with democracy and egotropic visible income inequality at the international level



Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The sample consists of 59 745 respondents from 24 countries in 2 EVS waves.

In Figure 1.4, the relationship between SWD and the unemployed status (i.e. visible income inequality) seems negative. Compared to other work statuses, being unemployed seems to considerably reduce the average SWD. Therefore, egotropic visible income inequality and SWD are negatively linked: suffering from visible income inequality (i.e. being unemployed) seems to correspond to lower SWD.

As a first insight, we find that the relationship between income inequality and SWD takes different directions, depending on the type of income inequality we consider. Egotropic effective/visible income inequality seems negatively linked with SWD. Sociotropic visible income inequality seems negatively related with SWD while the relationship between sociotropic effective income inequality and SWD seems positive. This first insight shows that different types of income inequality need to be considered thereafter.

1.3.4 Empirical model

In order to study the complex relationship between income inequality and SWD according to the three oppositions presented in subsection 1.3.2, we estimate SWD in 4 items using as baseline estimation a Hierarchical Linear Model (HLM) (also called multilevel model) with random effects. Indeed, the political science literature uses these models because they take into account context-specific effects (e.g. Bojar and Vlandas, 2021). Regarding SWD or democracy support, individuals may be influenced by their geographical context. Thus, by considering the country (at the international level) or the department (at the French level) as a group level, HLM allows us to take into

account both the homogeneity of national/department citizens and the heterogeneity of citizens within the same country/department. For example, a Spanish respondent shares the same country Gini index as any other Spanish respondent (homogeneity of Spanish citizens) but two Spanish respondents may not have the same household income (heterogeneity of Spanish citizens within the same country, Spain)[4].

For both geographical levels (international and French), we estimate SWD by this baseline model:

$$SWD_{i,r,t} = \gamma_{00} + \gamma_{01}X_{r,t} + \gamma_{10}X_{i,t} + \eta_t + \delta_{0,r,t} + \epsilon_{i,r,t}$$

where i is the individual, r is the country at the international level or the department at the French level and t the EVS wave.

Therefore, $X_{r,t}$ gathers level-2 variables, i.e. the Gini index, the unemployment rate and the GDP per capita at the country level for the international analysis and at the department level for the French analysis. $X_{i,t}$ gathers level-1 variables, i.e. individual variables: political position[5], work status, household income, political interest, gender, living with someone, school leaving age, age, number of children and religion. Both macro and individual controls are presented in appendix section 1.E. We add year fixed effects η_t only at the international level because there two different EVS waves[6]. γ_{00}

[4]For more information about multilevel model of HLM, see Simonoff, Scott, and Marx, 2013, pp3-20 and Luke, 2020.

[5]Political position is considered as a control variable in baseline international and French estimations in sections 1.4 and 1.5. Later, in section 1.6, we use this variable in order to check whether there is a partisan effect on the relationship between income inequality and SWD.

[6]We do not add year fixed effects in French estimations because we only analyse the 4th EVS wave at the French level.

corresponds to the average SWD for all individuals and countries/departments. The level-1 error term $\epsilon_{i,r,t}$ measures the individual's SWD deviation from the average SWD (γ_{00}) in the country/department in which he lives. The level-2 error term $\delta_{0,r,t}$ measures the country/department SWD deviation from the average SWD (γ_{00}).

1.4 Estimations at the international level

Table 1.3 summarises the relationship between income inequality and SWD at the international level[7]. We notice that both Gini index and unemployment rate are not significant. Thus, sociotropic income inequality (effective and visible) are not significant.

On the contrary, both egotropic variables of income inequality are significant. On the one hand, Figure 1.5 presents the predicted SWD according to egotropic effective income inequality, i.e. respondent's household income. Compared to respondents with low household income, those with high household income are significantly more prone to be satisfied with democracy. In detail, the predicted SWD for high household income is equal to 2.56 out of 4 while the predicted SWD for low household income is equal to 2.45 out of 4. In short, the higher the household income, the stronger the predicted SWD.

On the other hand, Figure 1.6 presents the predicted SWD according to egotropic visible income inequality, i.e. the unemployed status. Compared to working respon-

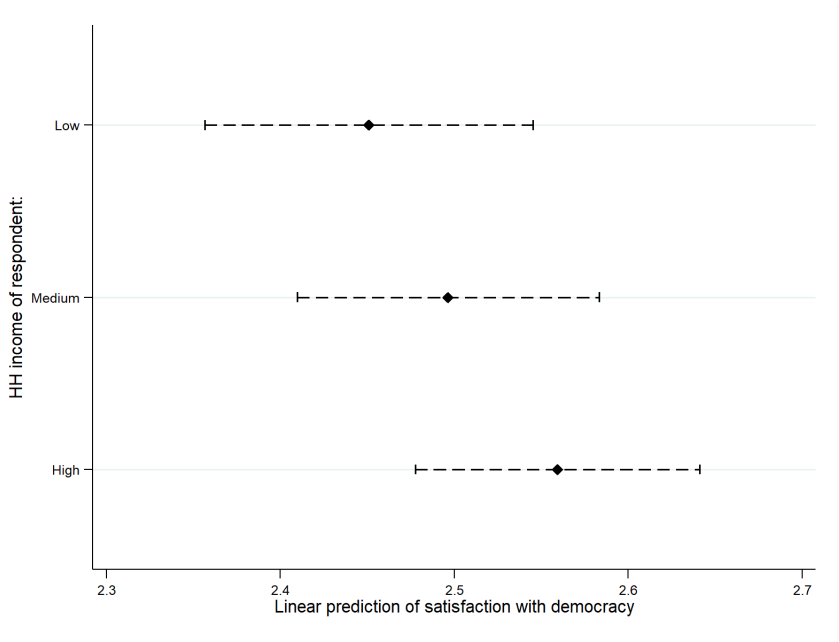
[7]The complete estimations table is in appendix (Table 1.A12). Note that individual controls show the same results as in the literature regarding democracy support (e.g. Norris, 1999; Quaranta and Martini, 2017; Ruiz-Rufino and Alonso, 2017; Sirovátka, Guzi, and Saxonberg, 2019): living with someone, being a housewife or a student, or earning high income increases SWD. Being unemployed, being not at all interested in politics, being less educated or having more than 3 children decreases SWD. Compared to young people, 30-59 year-old people are less satisfied with democracy. Finally, in comparison with Christians, Atheists have lower SWD while Muslims have stronger SWD.

Table 1.3: International estimations of satisfaction with democracy

	A Coef./(se)	B Coef./(se)	C Coef./(se)	D Coef./(se)
Gini index	-1.29		-1.34	-1.35
	(1.73)		(1.73)	(1.74)
Unemployment rate		-0.0093	-0.010	-0.0094
		(0.021)	(0.020)	(0.022)
GDP per capita				-0.00000093
				(0.0000037)
Political position ("Centre" as reference):				
Left-wing	-0.085***	-0.085***	-0.085***	-0.085***
	(0.021)	(0.022)	(0.022)	(0.021)
Right-wing	0.082***	0.082***	0.082***	0.082***
	(0.025)	(0.025)	(0.025)	(0.025)
Without	-0.087***	-0.085***	-0.087***	-0.087***
	(0.016)	(0.017)	(0.016)	(0.016)
Work status ("Working" as reference):				
Retired	-0.0033	-0.0021	-0.0039	-0.0040
	(0.016)	(0.017)	(0.016)	(0.016)
Housework	0.057***	0.057***	0.056***	0.056***
	(0.019)	(0.019)	(0.020)	(0.020)
Student	0.062***	0.062***	0.063***	0.063***
	(0.015)	(0.014)	(0.014)	(0.015)
Unemployed	-0.10***	-0.098***	-0.098***	-0.099***
	(0.033)	(0.032)	(0.032)	(0.031)
Other	-0.033	-0.034	-0.033	-0.032
	(0.021)	(0.022)	(0.022)	(0.022)
DK Refuse	-0.036	-0.041	-0.039	-0.039
	(0.056)	(0.060)	(0.058)	(0.058)
Household income ("Low" as reference):				
Medium	0.045***	0.047***	0.046***	0.046***
	(0.011)	(0.011)	(0.011)	(0.011)
High	0.11***	0.11***	0.11***	0.11***
	(0.020)	(0.019)	(0.019)	(0.019)
DK Refuse	0.042**	0.041***	0.042**	0.041***
	(0.017)	(0.016)	(0.016)	(0.016)
Constant	3.08***	2.60***	3.17***	3.21***
	(0.73)	(0.14)	(0.72)	(0.75)
Standard deviation (Random intercept)	0.2045411	0.1952719	0.193801	0.2083483
EVS wave FE	yes	yes	yes	yes
Log Pseudo-likelihood	-64606.06	-64620.27	-64592.57	-64591.28
AIC	129284.1	129312.5	129259.1	129258.6
BIC	129608	129636.5	129636.5	129600.5
Observations	59,745	59,745	59,745	59,745

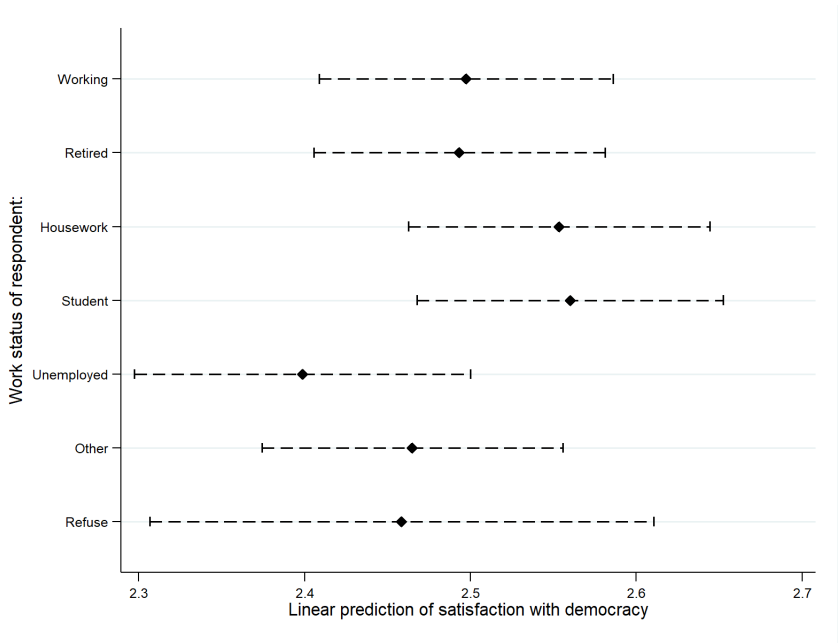
Notes. The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$. The dependent variable is the satisfaction with democracy in 4 items. The method estimation is MLE with random effects of country.

Figure 1.5: Predicted satisfaction with democracy according to respondent's household income at the international level with 95 % confidence interval



Notes. The prediction is made with the model D presented in Table 1.3.

Figure 1.6: Predicted satisfaction with democracy according to respondent's work status at the international level with 95 % confidence interval



Notes. The prediction is made with the model D presented in Table 1.3.

dents, unemployed ones are significantly less prone to be satisfied with democracy. In detail, the predicted SWD for unemployed people is the lowest and equal to 2.40 out of 4 while those with another work status (working, retired, housework and student) present a predicted SWD above 2.50 out of 4.

To support our results, we perform several robustness checks. First, we test whether these results do not depend on the construction of the dependent variable in 4 items. Therefore, we run the same regression by changing the dependent variable into a dummy variable and by estimating a multilevel mixed-effect logit with random effects of country. In this case, we code 1 if the respondent answers "rather satisfied" and "very satisfied" to the same question: "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". We code 0 if the respondent answers "not at all satisfied" and "not very satisfied". Results, shown in Table 1.A16 in appendix, are the same: first, the higher the household income, the more satisfied the respondent (egotropic effective income inequality effect); second, being unemployed corresponds to lower SWD (egotropic visible income inequality effect). However, sociotropic income inequality (effective and visible) seems to be also significantly linked with SWD. Indeed, higher Gini index (sociotropic effective income inequality) and higher unemployment rate (sociotropic visible income inequality) reduce the respondent's SWD.

Second, we check whether the baseline results are not dependent on the estimation method. We estimate the baseline model with multilevel ordered logit estimations

because SWD in 4 items is an ordinal qualitative variable. Results are shown in Table 1.A17 in appendix. Taking into account the order of SWD modalities, we also assert the same results: egotropic effective and visible income inequality effects are still negatively significant. With this estimation method, sociotropic effective income inequality (measured by the Gini index) is now negatively significant with SWD.

Third, we would like to test whether the baseline results are the same when we change the method that takes into account country effects. Instead of estimating country effect by multilevel models with random effects, we propose OLS with country fixed effects as an alternative estimation method. Results, shown in Table 1.A18 in appendix, do not change compared to our baseline estimations: there are no significant sociotropic effects but only significantly negative egotropic effective and visible income inequality effects.

Fourth, the non-significant effect of sociotropic effective income inequality may be related to the variable measuring this income inequality. In appendix, Table 1.A19, we replace the Gini index by the interdecile ratio. In that case, the effect of sociotropic effective income inequality is positive but not always significant[8]. On the contrary, egotropic effective and visible income inequality effects are still significantly negative.

To conclude, at the international level, only egotropic (effective and visible) income inequality is negatively related to SWD: greater egotropic income inequality (i.e. having a lower household income or becoming unemployed) is correlated with lower SWD. This

[8]The interdecile ratio is significantly positive only if the unemployment rate and the GDP per capita are simultaneously included in the estimation. When we estimate the interdecile ratio alone or with the unemployment rate, the significance is removed.

echoes the empirical literature that points to the negative link between egotropic income inequality and SWD (Andersen, 2012; Schäfer, 2013; Wu and Chang, 2019). Besides, as we suppose that sociotropic income inequality is non-significant because it is measured at the national level, we propose to measure both Gini index and unemployment rate at a finer geographical level. In particular, in French estimations (presented in section 1.5), we measure sociotropic income inequality at department level.

1.5 Estimation at a finer level: the French case

As we have said in sub-section 1.3.4, we analyse the relationship between income inequality and SWD at a finer geographical level, focusing on a single country, France. Although it is a standard approach in the literature, we believe that performing an analysis at the international level is likely to affect the quality of the estimation, especially because of the aggregation issue of country-specific factors such as institutional and cultural factors. Therefore, focusing the analysis on a single country allows us to discard several confounding factors ; it also allows us to consider department sociotropic income inequality, which better reflects the inequality situation experienced by respondents.

Therefore, we perform the same baseline estimations as in the previous section, this time focusing on the French case in the 4th EVS wave only, from May to September 2008. In our sample, 86 out of 96 French departments are represented, which implies a large diversity of observations. Even when we focus on one country, we note variations of sociotropic income inequality between departments. For example, the department

Table 1.4: French estimations of satisfaction with democracy

	A Coef./(se)	B Coef./(se)	C Coef./(se)	D Coef./(se)
Gini index of HH income in department	0.95*		1.23**	-0.52
	(0.51)		(0.50)	(0.68)
Unemployment rate in department		-0.011	-0.018*	0.0078
		(0.0091)	(0.0096)	(0.011)
Average HH income in department				0.000013***
				(0.0000047)
Political position ("Centre" as reference):				
Left-wing	-0.26***	-0.26***	-0.26***	-0.26***
	(0.037)	(0.037)	(0.037)	(0.037)
Right-wing	0.25***	0.25***	0.25***	0.25***
	(0.043)	(0.043)	(0.043)	(0.043)
Without	-0.096**	-0.098**	-0.097**	-0.092*
	(0.048)	(0.048)	(0.048)	(0.047)
Work status ("Working" as reference):				
Retired	0.038	0.040	0.043	0.044
	(0.068)	(0.068)	(0.068)	(0.068)
Housework	0.076	0.081	0.082	0.081
	(0.066)	(0.066)	(0.066)	(0.066)
Student	0.16***	0.16***	0.16***	0.16***
	(0.056)	(0.056)	(0.056)	(0.055)
Unemployed	-0.048	-0.045	-0.046	-0.049
	(0.066)	(0.066)	(0.066)	(0.066)
Other	-0.093	-0.093	-0.090	-0.089
	(0.10)	(0.10)	(0.10)	(0.10)
Household income ("< 1000 €" as reference):				
[1000 – 2000] €	-0.024	-0.024	-0.023	-0.019
	(0.042)	(0.042)	(0.042)	(0.042)
[2000 – 3000] €	-0.024	-0.025	-0.025	-0.026
	(0.042)	(0.043)	(0.043)	(0.043)
> 3000 €	0.094*	0.094*	0.088*	0.076
	(0.050)	(0.050)	(0.051)	(0.052)
DK Refuse	-0.035	-0.036	-0.034	-0.029
	(0.050)	(0.050)	(0.050)	(0.050)
Constant	-0.32***	-0.32***	-0.32***	-0.32***
	(0.013)	(0.013)	(0.013)	(0.013)
Standard deviation (Random intercept)	0.0661931	0.070166	0.0593777	0.0368785
Log Pseudo-likelihood	-3344.091	-3344.848	-3342.613	-3338.112
AIC	129284.1	129312.5	129259.1	129258.6
BIC	129608	129636.5	129636.5	129600.5
Observations	3,034	3,034	3,034	3,034

Notes. The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$. The dependent variable is the satisfaction with democracy in 4 items. The method estimation is MLE with random effects of department.

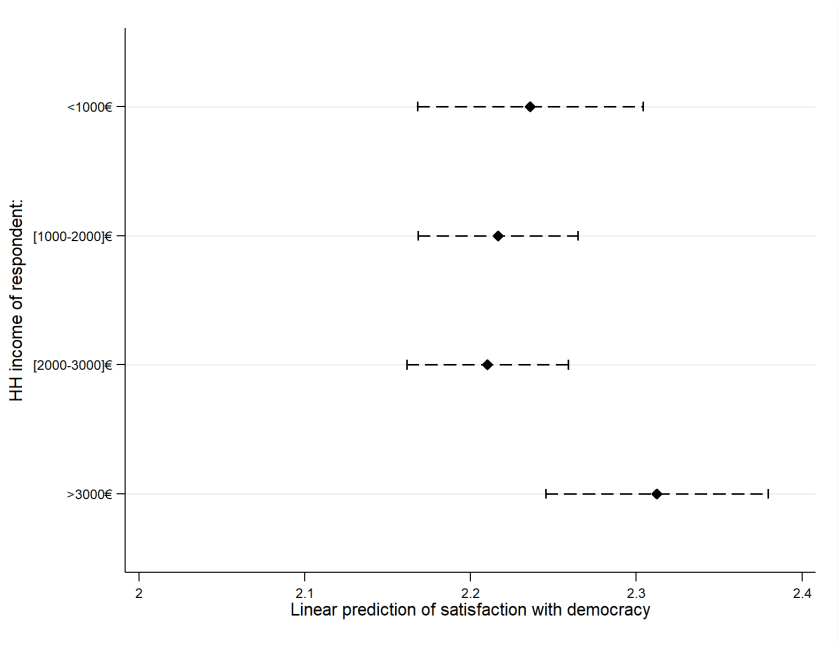
Gini index varies between 0.36 and 0.52[9].

Table 1.4 presents these results and the complete estimations table is in appendix (Table 1.A14). Contextual control variables (Gini index, unemployment rate and fixed effect) are set at the department level. Note that GDP per capita is replaced by the average household income in the department. We conclude that both sociotropic and egotropic income inequality effects are non-significant. We cannot state any conclusion about the relationship of SWD with on the one hand sociotropic effective income inequality (measured by the Gini index of household income in the department) and on the other hand with egotropic effective income inequality (measured by household income): the significance is removed when we add the average household income in the department. This might mean that the department Gini index captures the department wealth.

To compare with the international estimations, we measure the predicted SWD according to egotropic effective and visible income inequality at the French level. On the one hand, Figure 1.7 presents the predicted SWD according to egotropic effective income inequality, i.e. respondent's household income. In contrast to the international case, it is not clear here that the predicted SWD increases linearly with higher household income. Nevertheless, we note that the SWD of the richest respondents (i.e. with a household income above 3000€) is equal to 2.30 out of 4 while the others have a SWD of about 2.20 out of 4. The difference is only significant between household income above 3000€ and household income between 1000 and 3000€, with 90 % confidence interval.

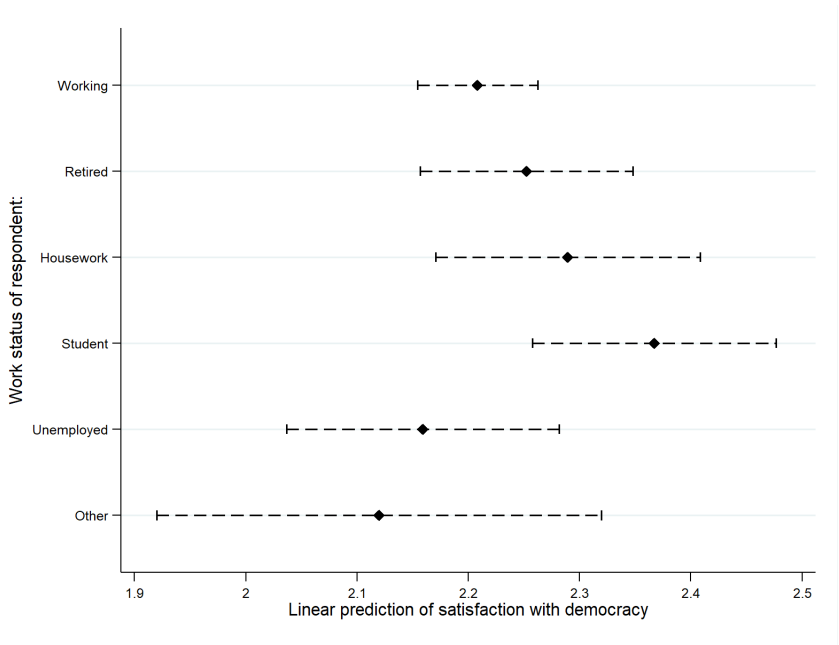
[9]Notice that the department Gini index gap is less important than the national Gini index gap, the national Gini index ranging from 0.34 to 0.62.

Figure 1.7: Predicted satisfaction with democracy according to respondent's household income at the French level with 95 % confidence interval



Notes. The prediction is made with the model D presented in Table 1.4.

Figure 1.8: Predicted satisfaction with democracy according to respondent's work status at the French level with 95 % confidence interval



Notes. The prediction is made with the model D presented in Table 1.4.

On the other hand, Figure 1.8 shows the predicted SWD according to egotropic visible income inequality, i.e. the unemployed status. Compared to working respondents, unemployed ones present lower SWD: while their SWD is equal to 2.16 out of 4, that of other work status (working, retired, housework and student) exceeds 2.20 out of 4. However, only the difference between unemployed and student is significant, with 90 % confidence interval.

As in the international case, we conduct the same robustness checks at the French level. Table 1.A20 presents estimations with the change of the dependent variable into a dummy variable by a multilevel mixed-effect logit with random effect of department. Tables 1.A21 and 1.A22 switch the estimation method to show respectively ordered logit estimations and OLS estimations with country fixed effects. Table 1.A23 displays estimations that replace the Gini index by the interdecile ratio. All these tables are available in appendix. Both sociotropic income inequality and egotropic income inequality are not robustly significant.

To conclude, as at the international level, sociotropic income inequality is not significant at the French level either. However, contrary to international results, egotropic income inequality (effective and visible) is no longer significant at the French level.

1.6 Discussion 1: Is there a partisan effect on the relationship between income inequality and satisfaction with democracy?

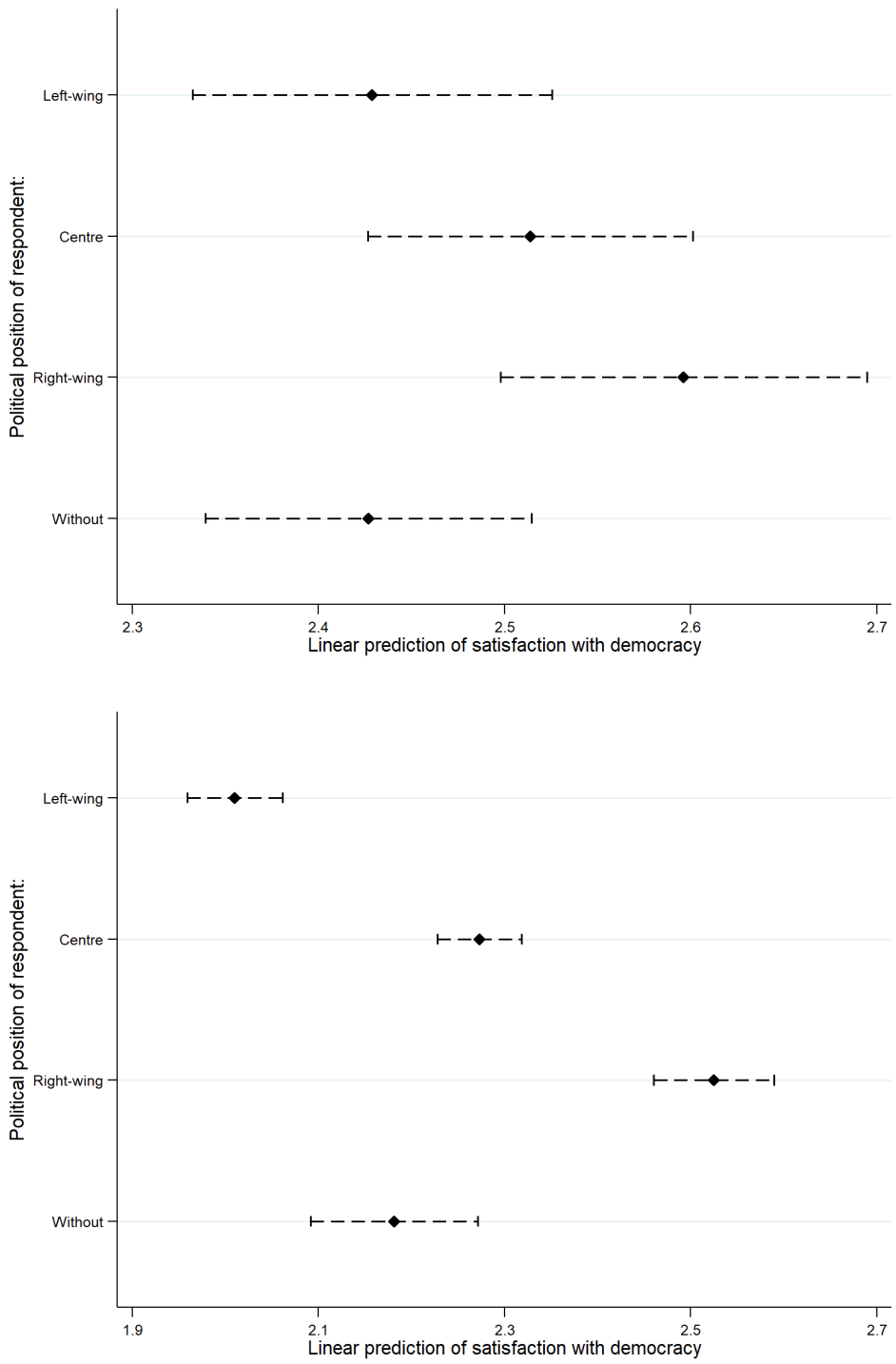
Both estimations at the international and French levels show a significant relationship between political position and SWD (Tables 1.3 and 1.4). Figure 1.9 presents the predicted SWD according to the respondent's political position at both levels of estimations. Left-wing respondents are significantly less satisfied with democracy than right-wing respondents at both levels[10]: at the international level, the left-wing respondents' SWD is predicted at 2.43 out of 4 while the right-wing respondents' SWD is predicted at 2.60 out of 4. At the French level, the left-wing respondents' SWD is predicted at 2.01 out of 4 while the right-wing respondents' SWD is predicted at 2.53 out of 4.

As Krieckhaus et al. (2014) show empirically, there exist different individual satisfactions with democracy. We can explain these different partisan satisfactions with democracy by the different partisan expectations of democracy. We argue that these expectations are linked with political position. Therefore, the relationship between income inequality and SWD may be conditioned by the respondent's political position for the reasons presented below.

First, in line with the incumbent evaluation theory, the evaluation of democracy is likely to vary with the individual's political position. It is well-established that

[10]The difference between left-wing and right-wing respondents is significant with 90 % confidence interval at the international level and with 95 % confidence interval at the French level.

Figure 1.9: Predicted satisfaction with democracy according to respondent's political position at both international and French levels with 95 % confidence interval



Notes. The prediction in the diagram above is made at the international level with the model D presented in Table 1.3. The prediction in the diagram below is made at the French level with the model D presented in Table 1.4.

left-wing voters are mainly sensitive to fluctuations in unemployment, which may be linked to income inequality (e.g. Alt et al., 2022; T. Kuhn, Nicoli, and Vandenbroucke, 2020; Rehm, 2011). Right-wing voters tend to evaluate the incumbent on the basis of his performance in inflation control and economic growth (e.g. Bachmann et al., 2021; Erlandsson, 2004). As a consequence, we suppose that similar processes may be involved when an individual is asked to evaluate democracy: compared to right-wing voters, left-wing voters tend to be more sensitive to the capacity of democracy to reduce income inequality.

Second, when a respondent answers the question about the satisfaction with democracy, he is influenced by his expectations of democracy. This echoes the two normative visions of democracy reported in political studies, namely the extensive and the restrictive visions. In the extensive vision, the democracy must achieve a more egalitarian society. For individuals holding that vision, greater income inequality means that the system has not reached its goal. In such case, they may call for either more democracy (believing that income inequality results from a lack of democracy) or for less democracy (considering that income inequality results from democracy failure) (Roth and Wohlfart, 2018). In the restrictive vision, the democratic system must ensure a "fair competition", i.e. equal opportunities and not necessarily the reduction of income inequality if it is perceived to be "fair". For those individuals, greater income inequality can generate more or less support for democracy, depending on whether inequality is considered "fair" or not. We believe that the extensive vision fits better with a left-wing view of democracy while the restrictive vision corresponds better to the right-wing

perception of democracy.

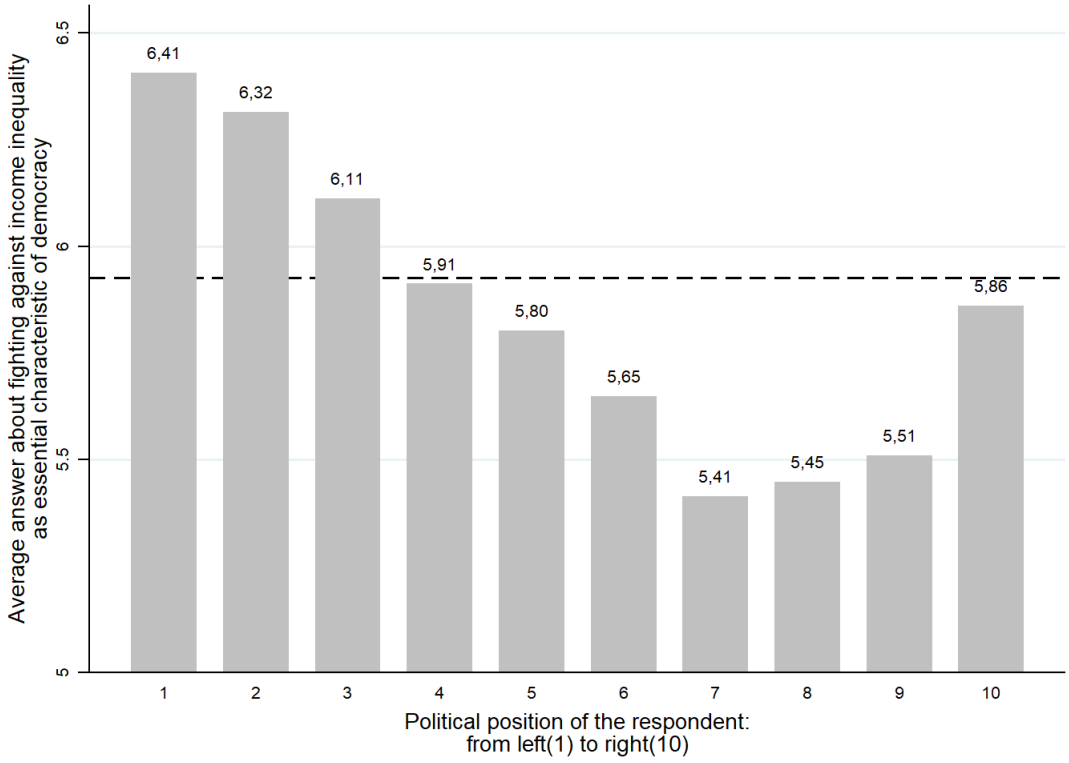
As a consequence, the sign of relationship between income inequality and satisfaction with democracy can be explained by the scope of democracy, or by what democracy is. The vision of democracy can depend on partisanship (left-wing partisans versus right-wing partisans) and more widely on partisan expectations of democracy (restrictive versus extensive vision). In short, for left-wing partisans, democracy evaluation takes into account income inequality, for right-wing ones it does not.

After showing that the restrictive and extensive visions of democracy depend on political position in subsection 1.6.1, we test in subsection 1.6.2 the conditioned relationship between sociotropic income inequality and SWD according to political position. Finally, in subsection 1.6.3, we test the link of egotropic income inequality with SWD according to political position.

1.6.1 Is there a partisan expectation of democracy?

In the EVS 2017 wave, there is a set of questions dealing with the essential characteristics of democracy as perceived by the respondents. Among the characteristics submitted to respondents' evaluation, one refers to income equality. The precise wording of the considered question is "How essential do you think this is as a characteristic of democracy?" and one of the proposed items is "The state makes people's incomes equal". Respondents are asked to answer from 1 ("Not at all an essential characteristic of democracy") to 10 ("An essential characteristic of democracy"). Thanks to this question, we are able to distinguish between respondents with a restrictive vision of

Figure 1.10: Average respondents' perception of fighting against income inequality as an essential characteristic of democracy according to their political position at the international level (EVS 2017)



Notes. The characteristic of democracy is measured with the question "How essential do you think this is as a characteristic of democracy? - The state makes people's incomes equal". Respondents may give an answer from (1) "Not at all an essential characteristic of democracy" to (10) "An essential characteristic of democracy". We calculate the average answer for each political position. The data source is from the 2017 EVS wave and is composed of 40 782 respondents. The dashed line indicates the mean (equal to 5.93).

democracy (considering income inequality as "fair") and those with an extensive vision of democracy (with redistributive preferences).

To demonstrate empirically the use of political position as a proxy of the two normative visions of democracy, we cross this 2017 EVS question with respondents' political position at the international level[11]. Results are summarised in Figure 1.10. Left-wing respondents (from (1) to (3) on the x-axis scale) are more likely to agree that

[11]Note that we find the same results at French level.

fighting against income inequality is an essential characteristic of democracy with an average score of at least 6 out of 10. On the contrary, right-wing respondents (from (7) to (10) on the x-axis scale) are less likely to consider as an essential characteristic of democracy the fight against income inequality with an average score of less than 6 out of 10[12].

As a consequence, we observe that the perception of what is the essential characteristic of democracy changes depending on the respondent's political position. Left-wing partisans do not share the same expectations of democracy as right-wing partisans, especially with regard to income equality. Consequently, we argue that the relationship between income inequality and SWD may be altered by political position.

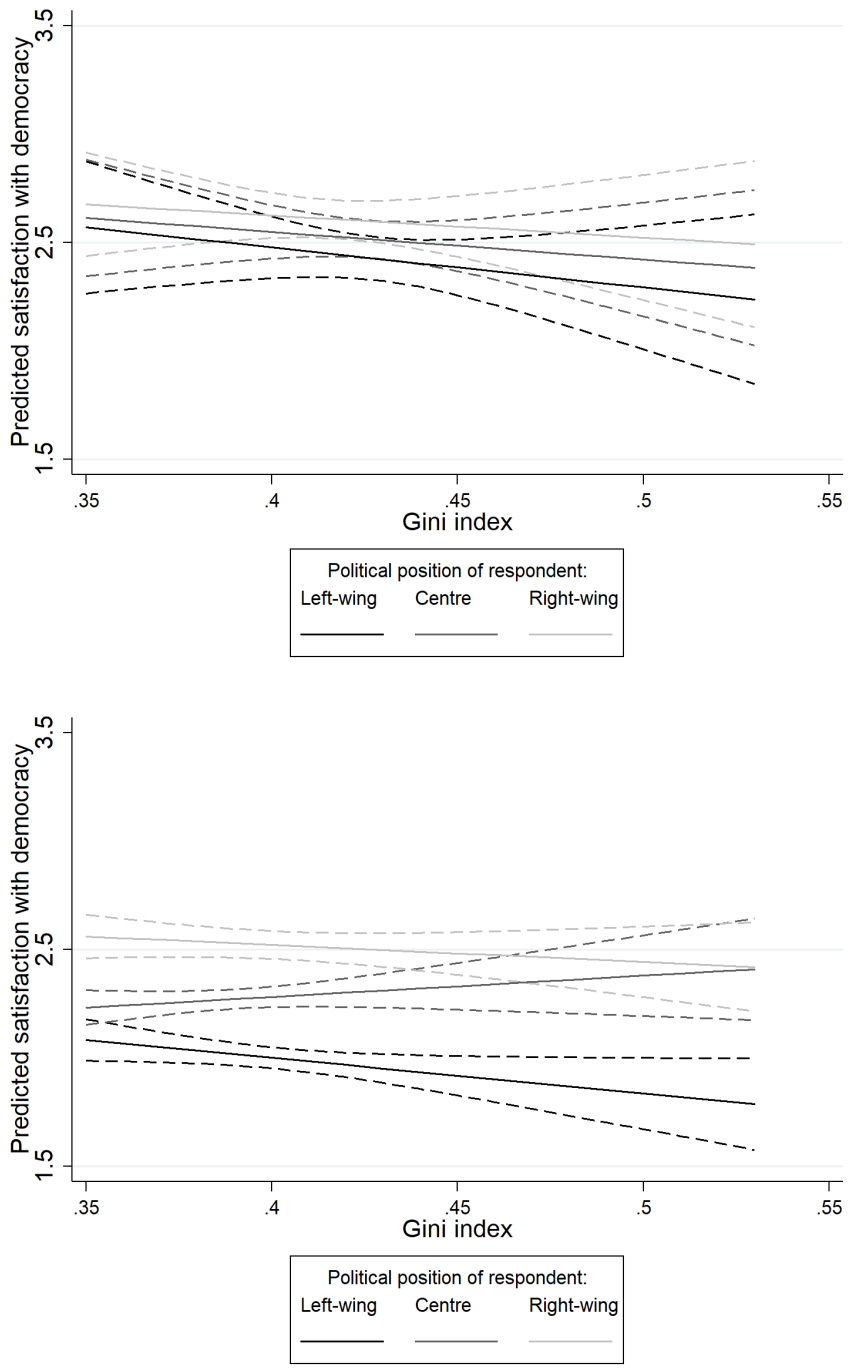
1.6.2 Are the sociotropic variables conditioned by political position?

We test the relationship between sociotropic income inequality (effective and visible) and the SWD conditioned by political position at both international and French levels.

Figure 1.11 presents the conditioned predicted effect of the Gini index (i.e. sociotropic effective income inequality) on SWD at both international and French levels. At the international level, there is no significant difference between left-wing partisans and right-wing partisans concerning the conditioned predicted effect of the Gini index on SWD. On the contrary, at the French level, we note a significant distinction between left-wing partisans on the one hand and right-wing and centre partisans on the other, with 95 % confidence interval: the higher the Gini index, the significantly lower the

[12] In Figure 1.10, far-right(10) seems to be an outlier. Removing observations with a political position equal to 10 does not strongly affect the global average score for the perception of fighting against income inequality as an essential characteristic of democracy (still equal to 5.93).

Figure 1.11: Conditioned predicted effect of the Gini index on SWD by respondent's political position at the international and French levels with 95 % confidence interval



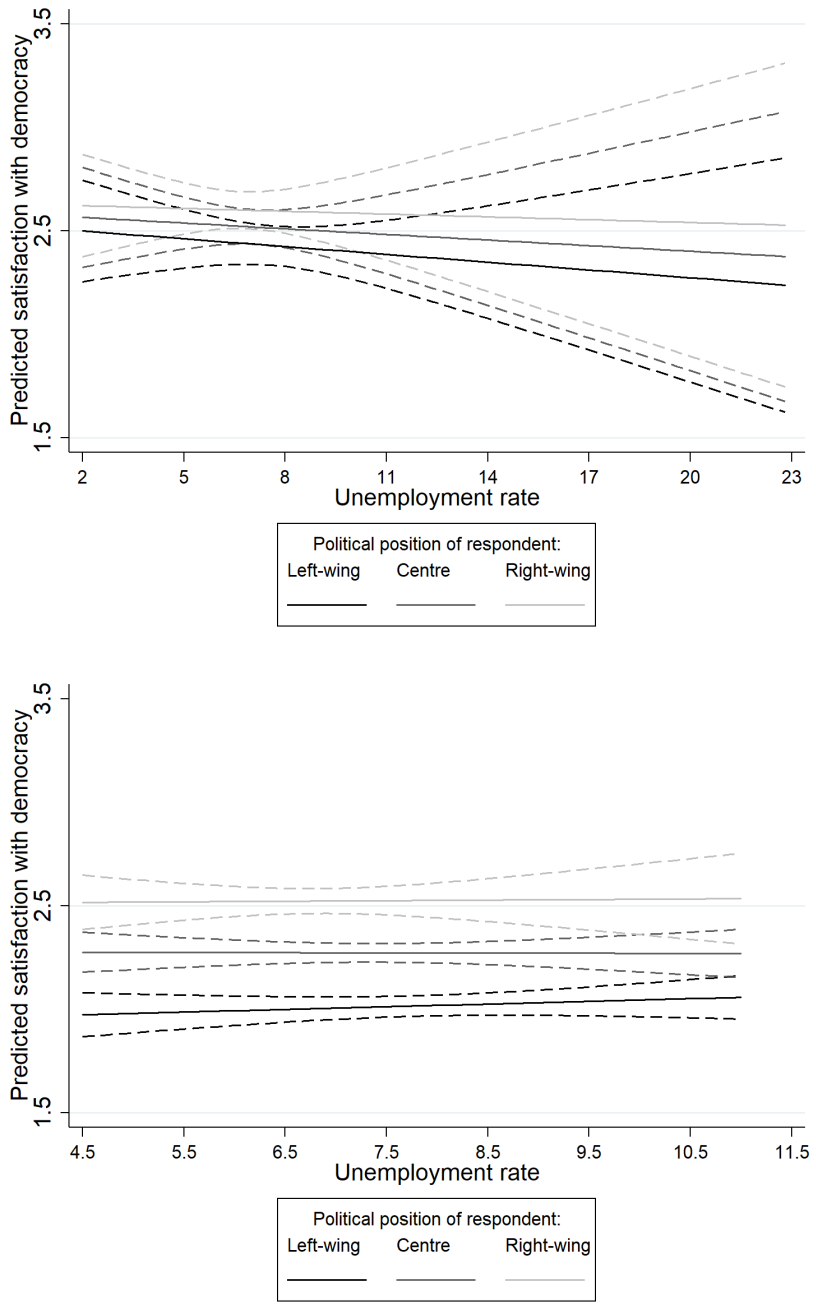
Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A24 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A28 at the French level.

left-wing partisans' SWD. As for right-wing and centre partisans, their SWD converges to a higher level when the Gini index is very high. For example, at the highest Gini index level (0.53), the left-wing partisans' predicted SWD is equal to 1.79 out of 4 while it is equal to 2.42 out of 4 for both right-wing and centre partisans. This supports the hypothesis that left-wing partisans share an extensive vision of democracy (with redistributive preferences) while both centre and right-wing partisans have a restrictive vision of democracy (considering income inequality as "fair").

Figure 1.12 shows the conditioned predicted effect of unemployment rate (i.e. sociotropic visible income inequality) at both international and French levels. Just as with the Gini index, there is no significant difference at the international level between left-wing partisans and right-wing partisans concerning the conditioned predicted effect of unemployment rate on SWD. At the French level, there is a significant interaction effect between unemployment rate and respondent's political position, with 90 % confidence interval. For example, at the highest unemployment rate (11 %), the left-wing partisans' predicted SWD is equal to 2.05 out of 4, that of centre partisans to 2.27 out of 4 and that of right-wing partisans to 2.54 out of 4. Here again, this supports the hypothesis that left-wing partisans share an extensive vision of democracy (with redistributive preferences) while both centre and right-wing partisans have a restrictive vision of democracy (considering income inequality as "fair").

Therefore, at the French level but not at the international level, the effect of sociotropic effective and visible income inequality (respectively measured by the Gini index and unemployment rate) on SWD is indeed significantly conditioned by political posi-

Figure 1.12: Conditioned predicted effect of unemployment rate on SWD by respondent's political position at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A25 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A29 at the French level.

tion.

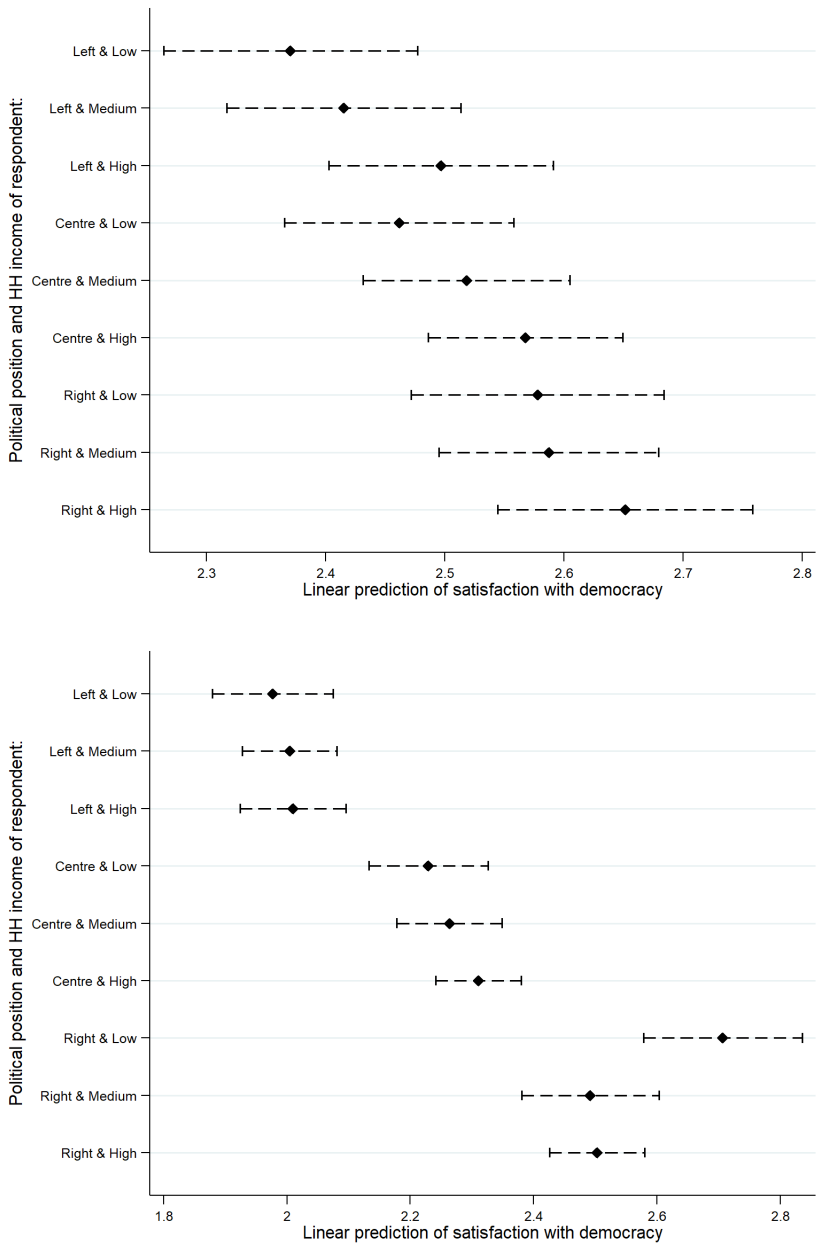
1.6.3 Are the egotropic variables conditioned by political position?

We test the relationship between egotropic income inequality (effective and visible) and SWD conditioned by political position at both international and French levels.

Figure 1.13 displays the conditioned predicted effect of egotropic effective income inequality measured by household income on SWD at both international and French levels. At the international level, at the same low level of income, left-wing partisans are significantly more dissatisfied with democracy than right-wing partisans, with 90 % confidence interval. The predicted SWD is equal to 2.37 out of 4 for left-wing partisans with low income and to 2.58 out of 4 for right-wing partisans with low income. At the French level, at each household income level, the conditioned effect of political position is significant. In other words, at the same level of household income, right-wing partisans are more satisfied with democracy than left-wing partisans, with 95 % confidence interval. For example, the predicted SWD for left-wing partisans with low income is equal to 1.98 out of 4 while it is equal to 2.71 out of 4 for right-wing partisans with low income. Political position therefore conditions the effect of egotropic effective income inequality on SWD.

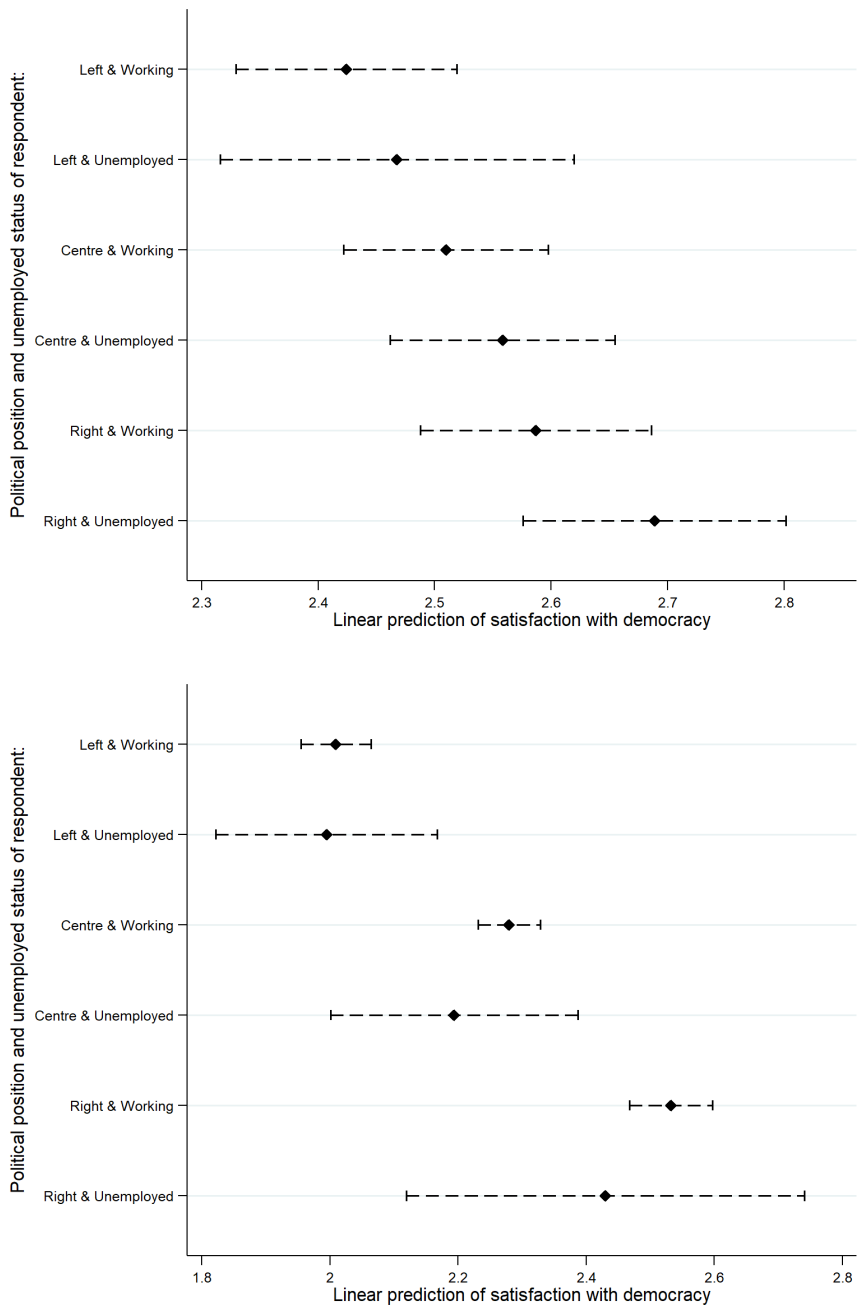
Figure 1.14 presents the conditioned predicted effect of respondent's unemployed status (i.e. egotropic visible income inequality) on SWD at both international and French levels. At the international level, suffering from egotropic visible income inequality (i.e. being unemployed) is conditioned by political position, with 90 % confidence interval.

Figure 1.13: Conditioned predicted effect of household income on SWD by respondent's political position at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A26 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A30 at the French level. To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Figure 1.14: Conditioned predicted effect of unemployed status on SWD by respondent's political position at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A27 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A31 at the French level.

Unemployed left-wing partisans have a predicted SWD equal to 2.47 out of 4 while unemployed right-wing partisans have a predicted SWD equal to 2.69 out of 4. At the French level, there is not only a significant interaction effect between being unemployed and respondent's political position but also a significant interaction effect between not being unemployed and political position. The more right-wing his political position is, the more satisfied the employed respondent is, with 95 % confidence interval: employed left-wing partisans' predicted SWD is equal to 2.01 out of 4, that of employed centre partisans to 2.19 out of 4 and that of employed right-wing partisans to 2.53 out of 4. Also, the unemployed left-wing partisans' predicted SWD (1.99 out of 4) is significantly lower than the unemployed right-wing partisans' predicted SWD (2.43 out of 4), with 90 % confidence interval. The effect of egotropic visible income inequality on SWD is also conditioned by the respondent's political position.

As for sociotropic income inequality, the effect of egotropic effective and visible income inequality (respectively measured by household income and the unemployed status) on SWD is conditioned by political position, at both international and French levels.

To conclude this discussion, sociotropic income inequality (effective and visible) is conditioned by political position at the French level only. Moreover, egotropic income inequality (effective and visible) is also conditioned by political position at both international and French levels. This confirms the existence of a partisan effect on the relationship between income inequality and satisfaction with democracy: at a given level of income inequality, as they are more sensitive to income inequality than

right-wing partisans, left-wing partisans share a significant lower satisfaction with democracy.

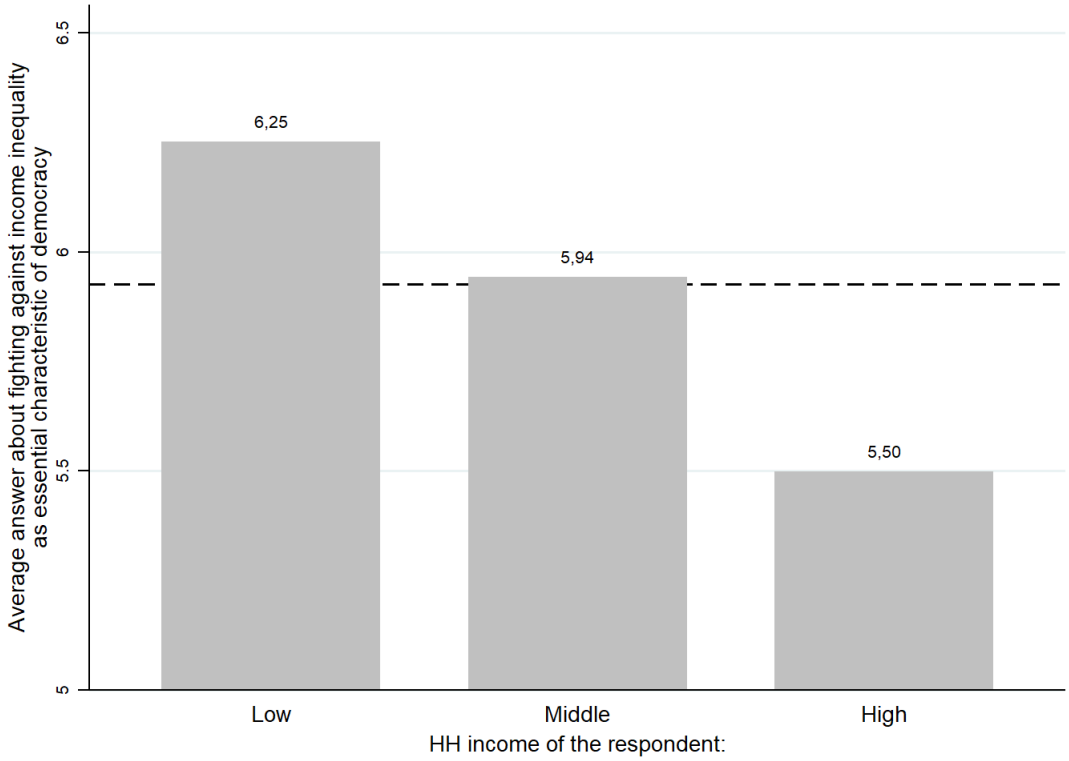
1.7 Discussion 2: Is there an income effect on the relationship between income inequality and satisfaction with democracy?

In this second discussion section, we investigate whether the respondent's economic situation affects the relationship between income inequality and SWD. In other words, we would like to analyse whether the restrictive/extensive vision of democracy is driven by household income. This relies on the argument in the literature that wealthy citizens are more satisfied with democracy than poor citizens (e.g. Bratton and Mattes, 2001; Welzel and Inglehart, 2008). Moreover, Nadeau, Daoust, and Arel-Bundock (2020) explain that for people with low income, redistribution issues matter much more in their evaluation of democratic institutions than for wealthy people.

As in subsection 1.6.1, we cross the 2017 EVS question about the respondents' perception of fighting against income inequality as an essential characteristic of democracy with respondents' household income at the international level in Figure 1.15[13]. Respondents with low income are more likely to agree that fighting against income inequality is an essential characteristic of democracy with an average score of at least 6 out of 10. On the contrary, respondents with high income are less likely to consider as an essential

[13]Note that, here again, we find the same results at French level.

Figure 1.15: Average respondents' perception of fighting against income inequality as an essential characteristic of democracy according to their household income at the international level (EVS 2017)

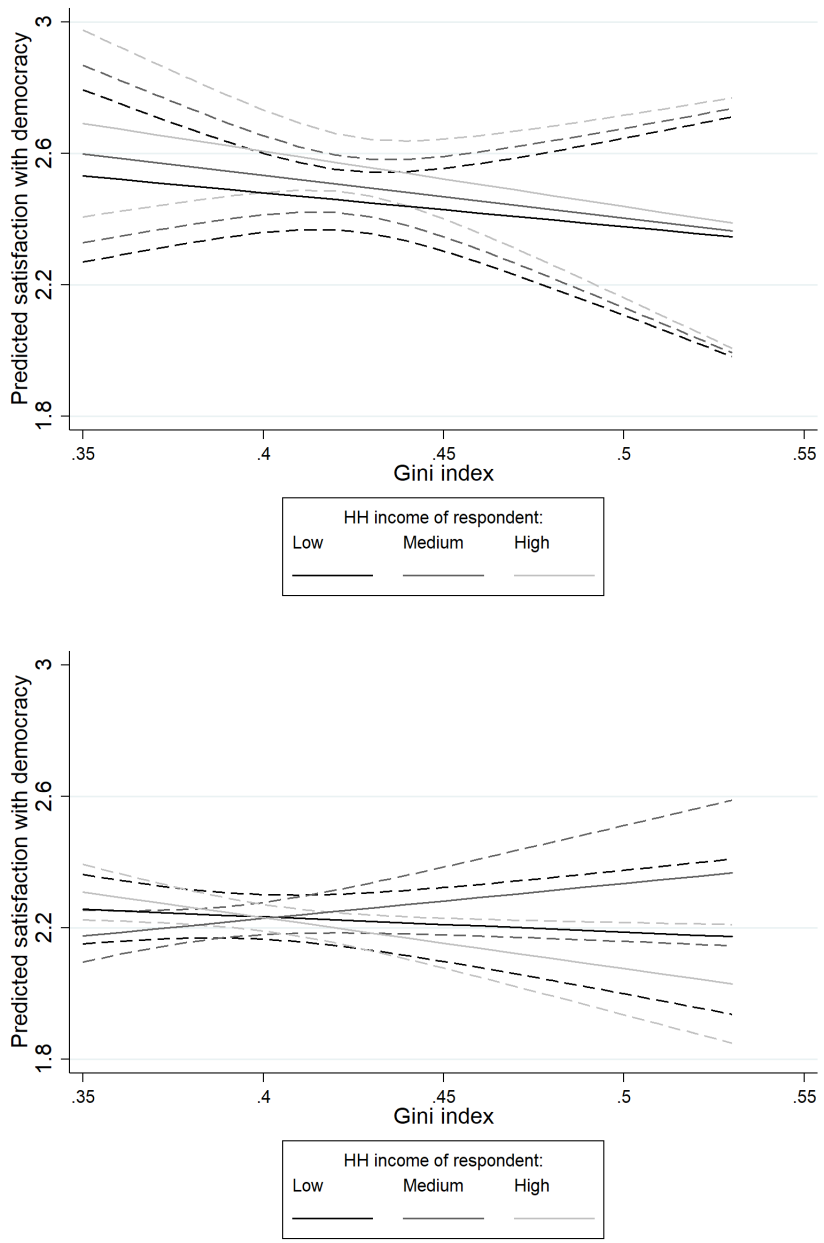


Notes. The characteristic of democracy is measured with the question "How essential do you think this is as a characteristic of democracy? - The state makes people's incomes equal". Respondents may give an answer from (1) "Not at all an essential characteristic of democracy" to (10) "An essential characteristic of democracy". We calculate the average answer for each level of household income. The data source is from the 2017 EVS wave and is composed of 40 782 respondents. The dashed line indicates the mean (equal to 5.93).

characteristic of democracy the fight against income inequality with an average score of 5.50 out of 10: they are more prone to have a restrictive vision of democracy. This can be explained by the fact that rich respondents do not suffer from income inequality, for example by not experiencing poverty; on the contrary, poor respondents personally experience income inequality (through poverty for example) and thus are more likely to share an extensive vision of democracy.

As a consequence, we propose to interact with household income sociotropic effective

Figure 1.16: Conditioned predicted effect of the Gini index on SWD by respondent's household income at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A32 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A35 at the French level. To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

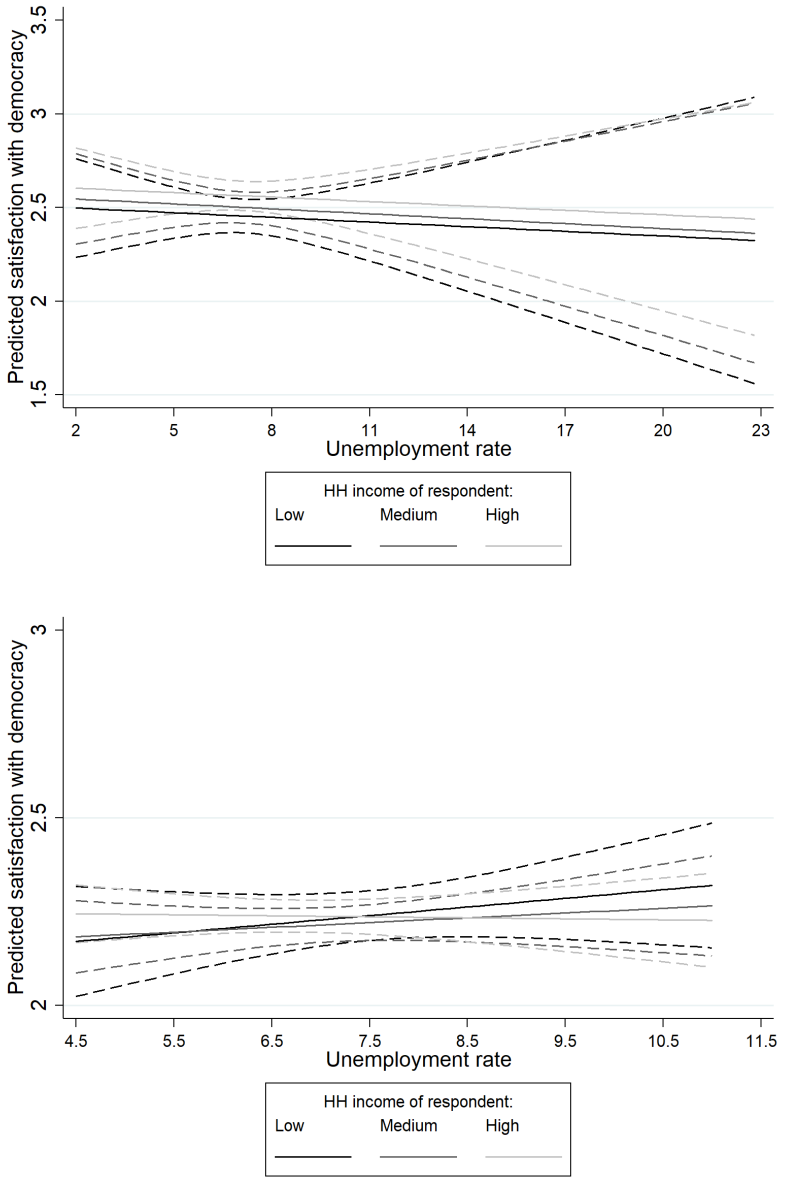
income inequality (Gini index), sociotropic visible income inequality (unemployment rate) and egotropic visible income inequality (unemployed status). Here, in order to better compare conditioned predicted effects by respondent's household income at both international and French levels, we recode French household income into the international level items: low, medium, high and DK refuse.

Figure 1.16 displays the conditioned predicted effect of the Gini index (i.e. sociotropic effective income inequality) on SWD at both international and French levels. There are no significant differences between the levels of respondent's household income regarding the effect of the Gini index on SWD, at both geographical levels, with 95 % confidence interval. In other words, whatever the income level (low, medium or high), the effect of the Gini index on SWD is the same.

The predicted unemployment rate (i.e. sociotropic visible income inequality) effect on SWD conditioned by respondent's household income is presented in Figure 1.17. Once again, there are no significant differences between the levels of respondents' household income regarding the effect of unemployment rate on SWD, at both geographical levels, with 95 % confidence interval. In other words, whatever the income level (low, medium or high), the effect of unemployment rate on SWD is the same.

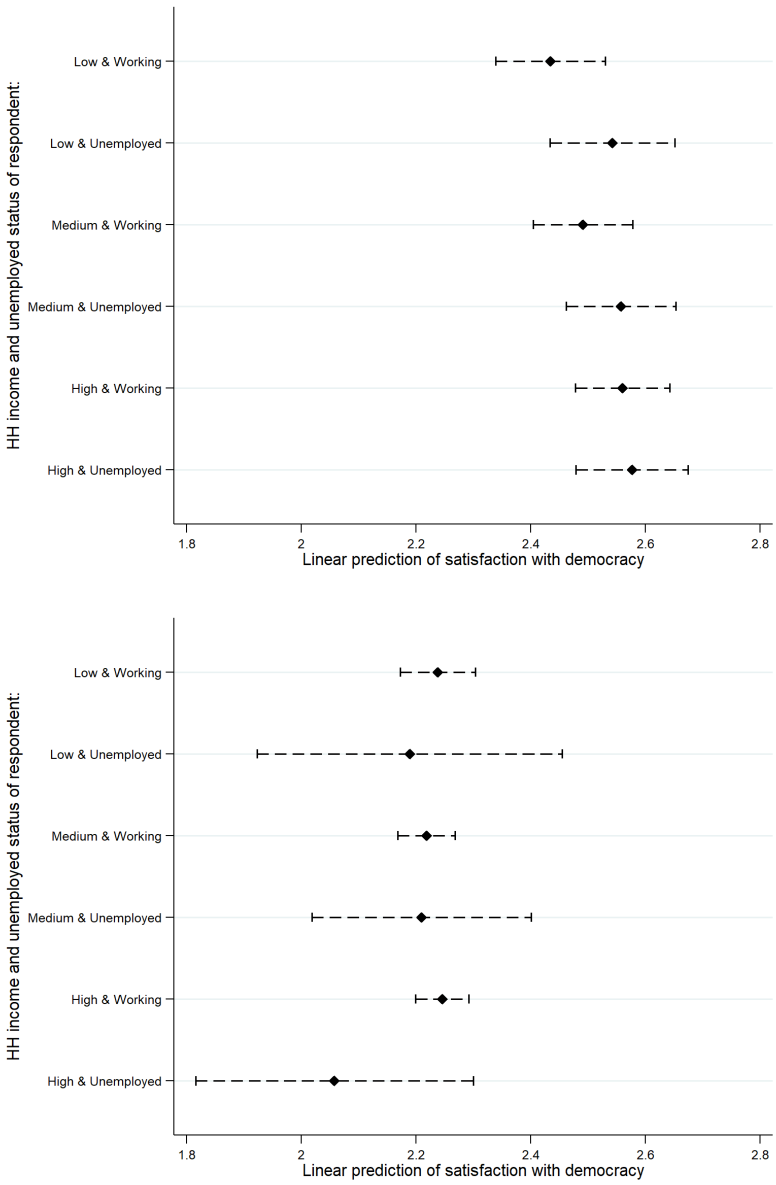
Finally, Figure 1.18 shows the conditioned predicted effect of egotropic visible income inequality (measured by the respondent's unemployed status) on SWD at both international and French levels. As with the effect of sociotropic effective income inequality and that of sociotropic visible income inequality, the effect of unemployed status on SWD is not conditioned by the respondent's household income, with 95 %

Figure 1.17: Conditioned predicted effect of unemployment rate on SWD by respondent's household income at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A33 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A36 at the French level. To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Figure 1.18: Conditioned predicted effect of unemployed status on SWD by respondent's household income at the international and French levels with 95 % confidence interval



Notes. The prediction of the diagram above is made with the interaction model displayed in Table 1.A34 at the international level. The prediction of the diagram below is made with the interaction model displayed in Table 1.A37 at the French level. To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

confidence interval. In other words, whatever the income level (low, medium or high), the effect of egotropic visible income inequality on SWD is the same.

To conclude this discussion, unlike the respondent's political position, his household income does not impact the effect of sociotropic and egotropic income inequality on SWD: no matter whether the respondent is rich or poor, the effects of the Gini index, unemployment rate and the unemployed status on his SWD are the same. Therefore, we argue that there is no income effect on the relationship between income inequality and satisfaction with democracy. Only the partisan effect conditions this link.

1.8 Extension: Does income inequality lead to support for alternative political systems?

Directly asking about democracy in a survey is likely to generate a social desirability bias. This bias encourages respondents who are not satisfied with democracy to finally declare themselves satisfied with democracy in order to be perceived favourably by others. To avoid such bias, it can be useful to indirectly assess their individual democracy support. We argue that it is easier to choose an alternative system to democracy than to reject democracy directly. Therefore, support for alternative political systems can be a proxy of dissatisfaction with democracy.

In this section, we analyse the relationship between income inequality and indirect dissatisfaction with democracy through support for alternative political systems to democracy. Instead of using SWD as the dependent variable, we use the following set of

less biased questions: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having a strong leader who does not have to bother with parliament and elections', 'Having experts, not government, make decisions according to what they think is best for the country' and 'Having the army rule the country'?". For each sub-question, we score the given answers: 4 for "Very good", 3 for "Fairly good", 2 for "Fairly bad" and 1 for "Very bad".

We use these questions to test three alternative political systems: autocratic political system through support for a strong leader, technocratic political system through support for expert policy-making and military political system through support for the army rule. At the international level, the average answer for the support for a strong leader is equal to 1.88 out of 4 with a standard deviation of 0.95; the average answer for the support for expert policy-making is equal to 2.54 out of 4 with a standard deviation of 0.93; and the average answer for the support for army rule is equal to 1.36 out of 4 with a standard deviation of 0.64[14]. Our final goal is to answer the following question: does income inequality lead to support for autocratic, technocratic or military political systems?

We run the same estimations as for SWD by replacing the SWD dependent variable with the support for an alternative political system (strong leader, experts and army rule). Table 1.5 presents results at the international level and Table 1.6 results at the

[14]As a reminder, the average answer for the support for democracy (through SWD) is equal to 2.48 out of 4 with a standard deviation of 0.76.

Table 1.5: International estimations of support for alternative political systems

	Strong leader		Experts		Army rule	
	Coef	(se)	Coef	(se)	Coef	(se)
Gini index	0.69	(0.88)	-1.35*	(0.79)	-0.074	(0.57)
Unemployment rate	0.017*	(0.0094)	0.011	(0.013)	0.018**	(0.0074)
GDP per capita	-0.0000042**	(0.0000018)	-0.0000011	(0.0000024)	-0.0000040**	(0.0000016)
Work status ("Working" as reference):						
Retired	0.023	(0.016)	0.015	(0.016)	0.0067	(0.0067)
Housework	0.016	(0.016)	-0.049**	(0.020)	0.012	(0.017)
Student	-0.058***	(0.021)	0.011	(0.019)	0.024	(0.018)
Unemployed	0.053*	(0.027)	0.015	(0.017)	0.032**	(0.013)
Other	0.029	(0.036)	0.049	(0.035)	0.015	(0.022)
DK Refuse	-0.030	(0.058)	-0.053	(0.062)	0.041	(0.039)
Household income ("Low" as reference):						
Medium	-0.065***	(0.012)	-0.013	(0.014)	-0.038***	(0.0083)
High	-0.12***	(0.018)	-0.045***	(0.017)	-0.073***	(0.013)
DK Refuse	-0.073***	(0.020)	-0.085***	(0.022)	-0.057***	(0.017)
Constant	1.77***	(0.41)	3.03***	(0.37)	1.59***	(0.27)
Standard deviation (Random intercept)	0.2697685		0.3109824		0.1514558	
EVS wave FE	yes		yes		yes	
Log Pseudo-likelihood	-74758.87		-71503.92		-53362.32	
AIC	149593.7		143083.8		106800.6	
BIC	149934.3		143423.5		107142	
Observations	57,647		56,343		58,915	

Notes. The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$. The dependent variable is support for an alternative political system (strong leader, experts or army rule) in 4 items. The method estimation is MLE with random effects of country. The complete estimations table is in appendix (Table 1.A13).

Table 1.6: French estimations of support for alternative political systems

	Strong leader		Experts		Army rule	
	Coef	(se)	Coef	(se)	Coef	(se)
Gini index of HH income in department	-0.23	(1.48)	0.013	(0.91)	-0.89	(0.61)
Unemployment rate in department	0.063***	(0.023)	0.033**	(0.017)	0.028**	(0.012)
Average HH income in department	0.0000028	(0.0000090)	-0.0000056	(0.0000080)	0.0000026	(0.0000039)
Work status ("Working" as reference):						
Retired	0.027	(0.073)	-0.017	(0.073)	0.090*	(0.048)
Housework	0.13*	(0.078)	0.082	(0.060)	0.094*	(0.048)
Student	0.15**	(0.073)	0.19**	(0.086)	0.21***	(0.074)
Unemployed	0.0086	(0.072)	0.11	(0.067)	0.097*	(0.054)
Other	0.092	(0.098)	0.077	(0.10)	0.047	(0.071)
Household income ("< 1000 €" as reference):						
[1000 – 2000] €	0.047	(0.044)	-0.0064	(0.049)	0.081**	(0.033)
[2000 – 3000] €	-0.0067	(0.042)	-0.050	(0.046)	0.052	(0.036)
> 3000 €	-0.013	(0.053)	-0.032	(0.057)	0.026	(0.038)
DK Refuse	0.065	(0.059)	-0.031	(0.063)	0.019	(0.042)
Constant	1.37***	(0.37)	2.10***	(0.26)	1.38***	(0.15)
Standard deviation (Random intercept)	0.1806784		0.12467		0.0481591	
Log Pseudo-likelihood	-3870.649		-3744.903		-2750.275	
AIC	7815.298		7563.805		7563.805	
BIC	8037.521		7785.632		5797.421	
Observations	2,999		2,967		3,052	

Notes. The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$. The dependent variable is support for an alternative political system (strong leader, experts or army rule) in 4 items. The method estimation is MLE with random effects of department. The complete estimations table is in appendix (Table 1.A15).

French level. We display the effect of the four types of income inequality: sociotropic effective income inequality with the Gini index, sociotropic visible income inequality with unemployment rate, egotropic effective income inequality with household income and egotropic visible income inequality with the unemployed status.

Higher Gini index does not significantly lead to stronger support for alternative political systems at both international and French levels. Sociotropic effective income inequality has no significant effect on either SWD or support for alternative political systems.

Higher unemployment rate corresponds to a greater support for all alternative political systems (autocratic, technocratic and military) at the French level. At the international level, the effect of unemployment rate on support for alternative political systems is only significant for autocratic and military regimes. This echoes the social desirability bias presented above: we find that sociotropic visible income inequality is not significant on SWD but it becomes significant when respondents express dissatisfaction with democracy through stronger support for autocratic, technocratic or military political systems.

Egotropic effective income inequality measured by household income is only significant at the international level: the richer the respondent, the lower his support for autocratic, technocratic and military political systems. This corresponds to what we have also found for SWD: greater egotropic effective income inequality (i.e. poverty) leads to lower SWD and greater support for alternative political systems.

Being personally unemployed, i.e. suffering from egotropic visible income inequality

increases support for autocratic and military political systems at the international level while it only significantly increases support for army rule at the French level. Here again, greater egotropic visible income inequality induces both dissatisfaction with democracy and support for alternative political systems, excluding technocratic political systems.

Regarding controls, women are less incline to support an autocratic political system but more incline to support a technocratic or military system. Educated respondents are less supportive of alternative political systems, perhaps because they are more satisfied with democracy. The less interested the respondent is in politics, the lower his SWD and the greater his support for alternative political systems. Old respondents are less prone to support alternative political systems at the international level. At the French level, this negative effect of age is only significant on support for army rule. Compared to Christians, Atheists share both lower SWD and lower support for autocratic political system (at both international and French levels) and lower support for military political system (only at the international level). On the contrary, at the international level, Muslims have simultaneously stronger SWD and greater support for technocratic and military political systems.

To conclude, we find that the Gini index has no significant impact on SWD and support for alternative political systems. Because it is not significant for SWD but positively significant for support for alternative political systems, sociotropic visible income inequality measured by unemployment rate does deal with the social desirability bias. Finally, egotropic income inequality (effective and visible) confirms that its negative effect on SWD corresponds to a positive effect on support for alternative

political systems. Thanks to this analysis, we argue, in particular for sociotropic visible income inequality, that greater income inequality also leads to hidden dissatisfaction with democracy expressed by strong support for alternative political systems (autocratic, technocratic and military).

1.9 Conclusion

The paper contributes to reconciling the theoretical literature with the empirical one by exploring the mechanisms that link income inequality and democracy support measured by SWD. Using the 3rd and 4th EVS waves, we propose four different measures of income inequality: the Gini index (sociotropic effective income inequality), unemployment rate (sociotropic visible income inequality), household income (egotropic effective income inequality) and unemployed status (egotropic visible income inequality). We measure sociotropic income inequality at two levels: at the country level in the international analysis and at the department level in the French analysis.

We find that greater egotropic income inequality (effective and visible) leads to lower support for democracy, i.e. both to lower SWD and to stronger support for alternative political systems to democracy (autocratic, technocratic or military). This validates the negative effect of income inequality on democracy support found in the empirical literature (e.g. Andersen, 2012; Schäfer, 2013; Wu and Chang, 2019).

On the contrary, sociotropic income inequality does not have a significant impact on SWD. We find two main reasons for this non-significant effect. On the one hand, there is a partisan effect that conditions the relationship between sociotropic income inequality

and SWD. We discover that both egotropic and sociotropic income inequality effects on SWD are conditioned by respondents' political position: higher income inequality leads to lower left-wing partisans' SWD and to stronger centre and right-wing partisans' SWD. This echoes the extensive vision of democracy rather shared by left-wing partisans and the restrictive vision of democracy rather shared by right-wing partisans. In the extensive vision of democracy, democracy must reach a more egalitarian society while in the restrictive vision of democracy, greater income inequality is accepted if it is considered "fair". The restrictive vision of democracy echoes the positive effect of income inequality on democracy support found in the theoretical literature (Boix, 2003; Dalton, 2004; Acemoglu and Robinson, 2006). However, we do not find such a conditional effect of income inequality on SWD by household income. On the other hand, the non-significant effect of sociotropic income inequality can be explained by the social desirability bias: this bias encourages respondents who are not satisfied with democracy to finally declare themselves satisfied with it in order to be positively perceived by others. To avoid such bias, we propose support for alternative political systems as a proxy of dissatisfaction with democracy. Indeed, we argue that it is easier to choose an alternative system to democracy than to reject democracy directly. We find that only sociotropic visible income inequality measured by unemployment rate does deal with the social desirability bias: it is not significant for SWD but positively significant for support for alternative political systems.

To conclude, the relationship between income inequality and satisfaction with democracy is in general negative, confirming what the empirical literature has already

found. Nevertheless, this effect is not homogenous among respondents because of the partisan conditional effect and the social desirability bias. As we find a positive link between income inequality and support for alternative political systems to democracy, it might be interesting in further researches to explore whether support for autocratic or military political systems can lead to a vote for a party that defends these political systems, such as a right-wing populist party.

Appendix

1.A Measuring support for democracy through satisfaction with democracy - Descriptive statistics

To measure democracy support, we use a question previously exploited in the literature, that is satisfaction with democracy (SWD) (e.g. Guthmann and Fill, 2020; Ruiz-Rufino and Alonso, 2017). This question is asked in the 3rd and 4th waves of EVS in these terms: "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". Figure 1.A19 shows the distribution by country of respondents who answered that question. All countries are present in both EVS waves, except Norway and Switzerland.

We use two scales for SWD: in 4 items and as a dummy variable. In baseline estimations, we use the original categorical variable in 4 items. The variable takes the following values: 1 for "not at all satisfied", 2 for "not very satisfied", 3 for "rather satisfied" and 4 for "very satisfied". Table 1.A7 displays the summary statistics of SWD, i.e. the average SWD and its standard deviation. The mean ranges from 2.08 in Hungary to 2.86 in Luxembourg. The standard deviation varies from 0.52 in Norway to 0.96 in Turkey.

In one of robustness checks estimations, we recode SWD as a dummy variable that is equal to 1 if the individual is either "very satisfied" or "rather satisfied", 0 otherwise.

Figure 1.A19: Distribution of respondents for international estimations

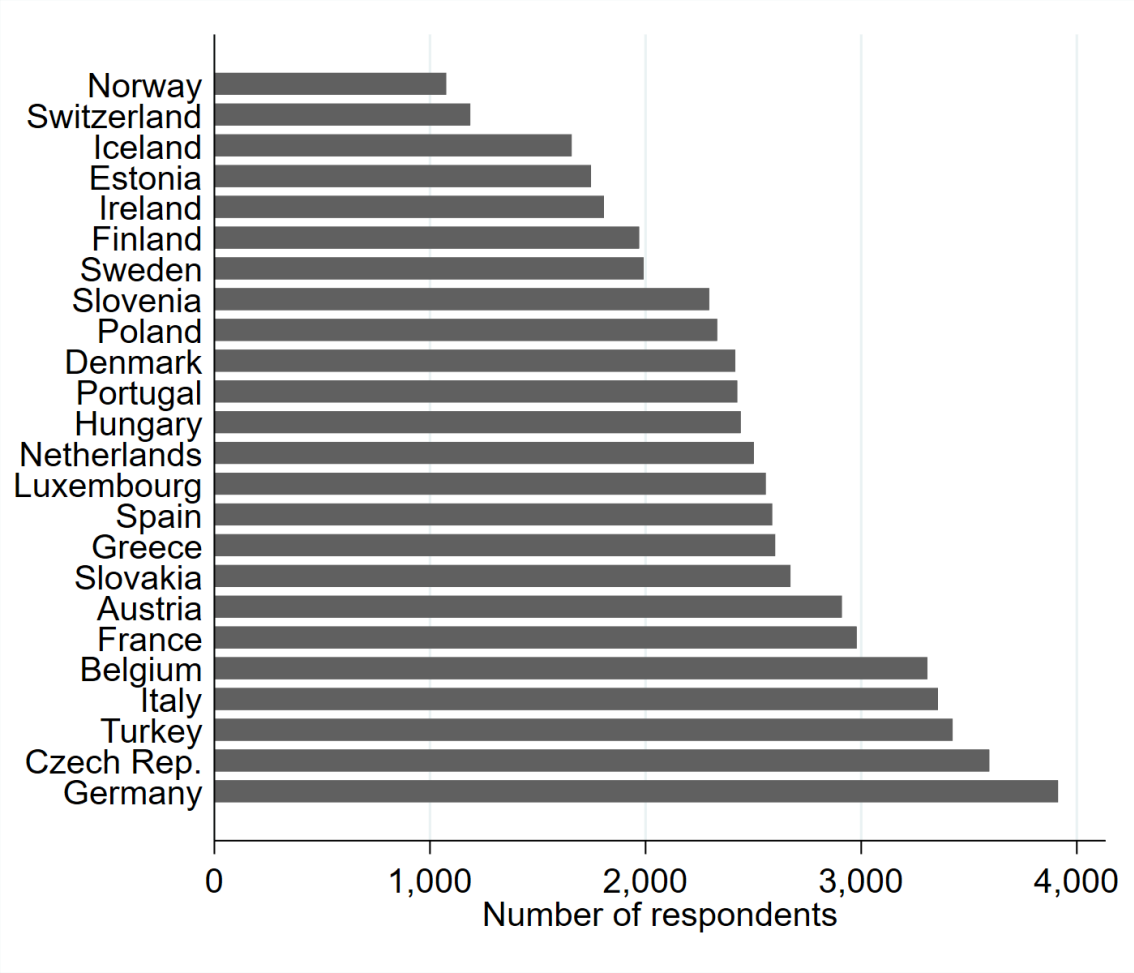


Table 1.A7: Mean and standard deviation of satisfaction with democracy by country

Country	**Mean**	**Standard deviation**
Austria	2.63	0.71
Belgium	2.43	0.74
Czech Republic	2.27	0.71
Denmark	2.87	0.71
Estonia	2.37	0.72
Finland	2.52	0.68
France	2.33	0.76
Germany	2.65	0.71
Greece	2.41	0.84
Hungary	2.08	0.68
Iceland	2.51	0.69
Ireland	2,68	0.74
Italy	2.21	0.70
Luxembourg	2.86	0.65
Netherlands	2.64	0.62
Norway	2.76	0.59
Poland	2.42	0.72
Portugal	2.46	0.79
Slovakia	2.19	0.72
Slovenia	2.41	0.66
Spain	2.61	0.75
Sweden	2.63	0.66
Switzerland	2.85	0.63
Turkey	2.25	0.96
Total	**2.48**	**0.76**

1.B Measures of sociotropic effective income inequality

In this paper, we use four different measures of sociotropic effective income inequality.

For the international analysis, we use the Gini index from the World Inequality Database (WID). It is calculated at the country level. For French estimations, we use the Gini index from the Localised Social and Fiscal File (FiLoSoFi) from INSEE. It is here computed at the department level.

As robustness checks, to measure sociotropic effective income inequality, we use the interdecile ratio instead of the Gini index. At the international level, the interdecile ratio comes from the same database as the Gini index, i.e. the World Inequality Database (WID) and it is measured at country level. At the French level, the interdecile ratio also comes from the Localised Social and Fiscal File (FiLoSoFi) from INSEE and it is measured at department level. It corresponds to the ratio between the 9th household income decile and the 1st household income decile.

The description of all sociotropic effective income inequality measures is presented in Table 1.A8.

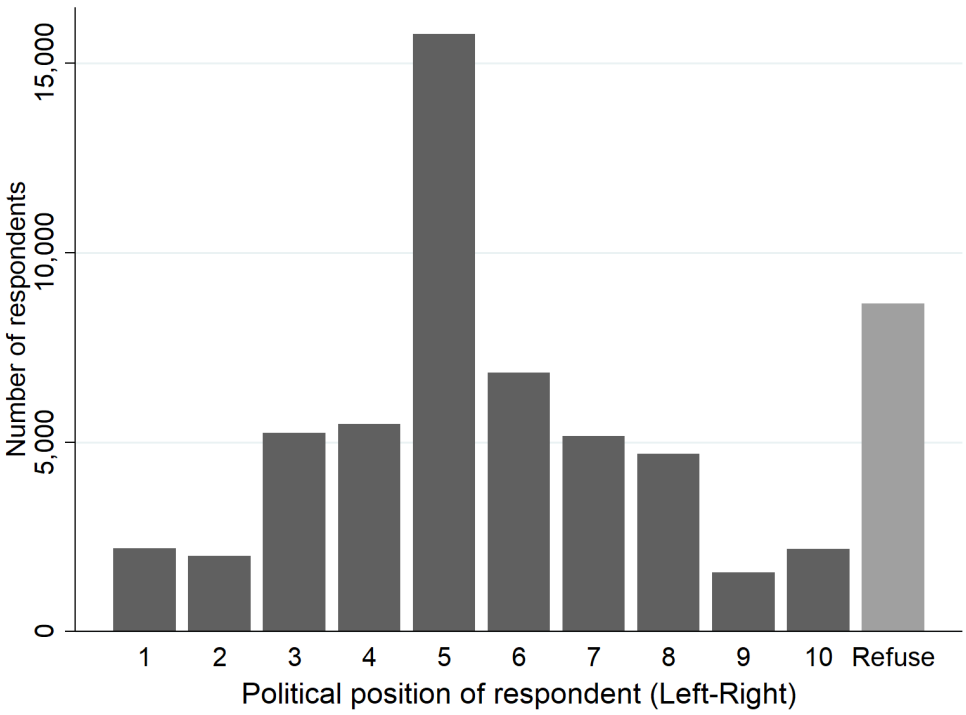
Table 1.A8: Measures of income inequality at international and French levels

Variable	**Source**	**Description**
International level		
Gini index	World Inequality Database (WID)	Gini index of pre-tax national income for adults, including elderly (20 and over), equal-split adults at country level
Interdecile ratio	World Inequality Database (WID)	Interdecile ratio of pre-tax national income for adults, including elderly (20 and over), equal-split adults at country level
French level		
Gini index	Localised Social and Fiscal File (FiLoSoFi) from INSEE	Gini index of household income in department
Interdecile ratio	Localised Social and Fiscal File (FiLoSoFi) from INSEE	Interdecile ratio ($D9/D1$) of household income in department

1.C Measuring partisanship - Descriptive statistics

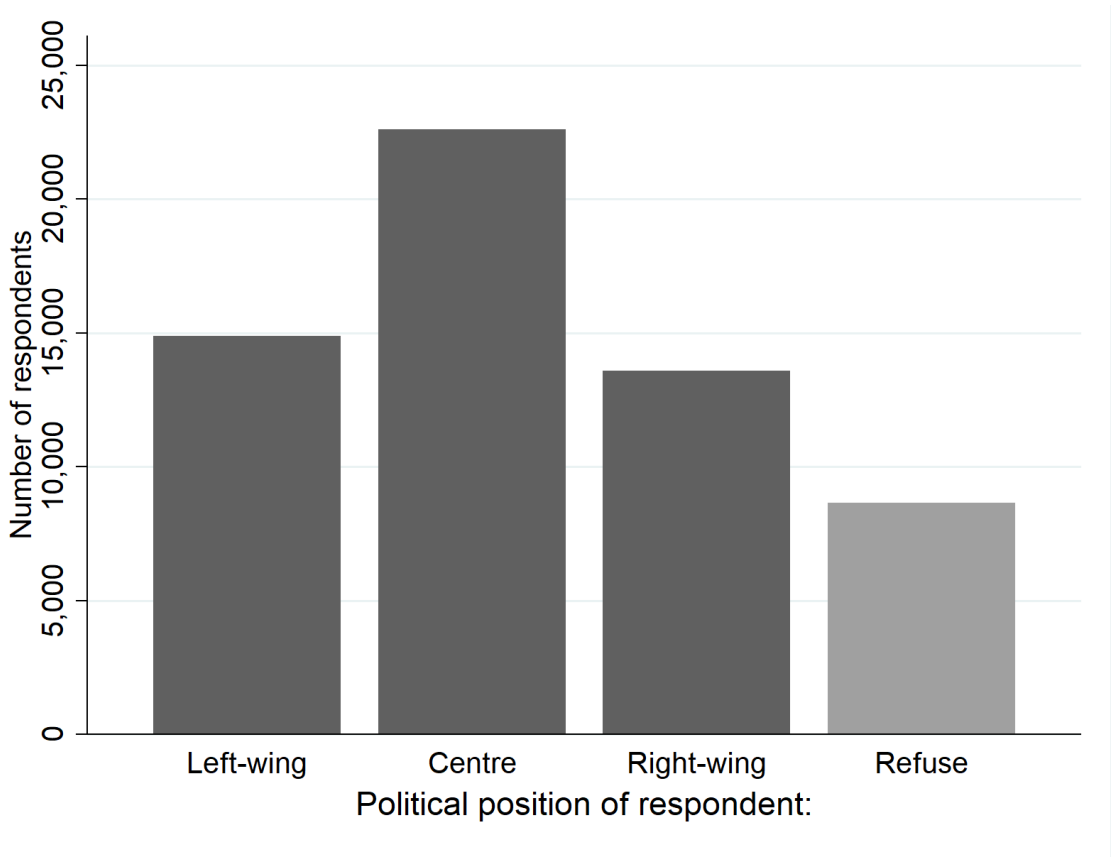
The measure of respondent's political position relies on the following question present in both EVS waves: "In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?". The original political scale has ten levels, ranging from far left (1) to far right (10). Figure 1.A20 shows the distribution of respondents according to their political position in 11 categories. In addition to the initial ten categories, we create an 11th one which includes respondents who "refuse to answer". We can see that a lot of respondents are close to 5, the centre of the political space.

Figure 1.A20: Distribution of respondents according to their political position in 11 items at the international level



In this paper, we use an alternative measure of political position reduced to 4 items: "left" that aggregates initial values from 1 to 4, "centre" that aggregates initial values 5 and 6, "right" that aggregates initial values from 7 to 10 and the 4th item with respondents who refused to answer. Figure 1.A21 shows the distribution of respondents according to their political position in 4 items. We see that the four items are normally distributed.

Figure 1.A21: Distribution of respondents according to their political position in 4 items at the international level



1.D Samples description

In this analysis, we use three different samples: one for aggregated international analysis, one for international analysis and one for French analysis.

The first sample for aggregated international analysis is used in section 1.3.3 (page 49). It consists of 24 countries and 2 EVS waves (3rd and 4th). Only Norway and Switzerland are measured once, in 2008. Table 1.A9 displays the average and standard deviation of SWD, the Gini index and unemployment rate per observation in the aggregated international sample.

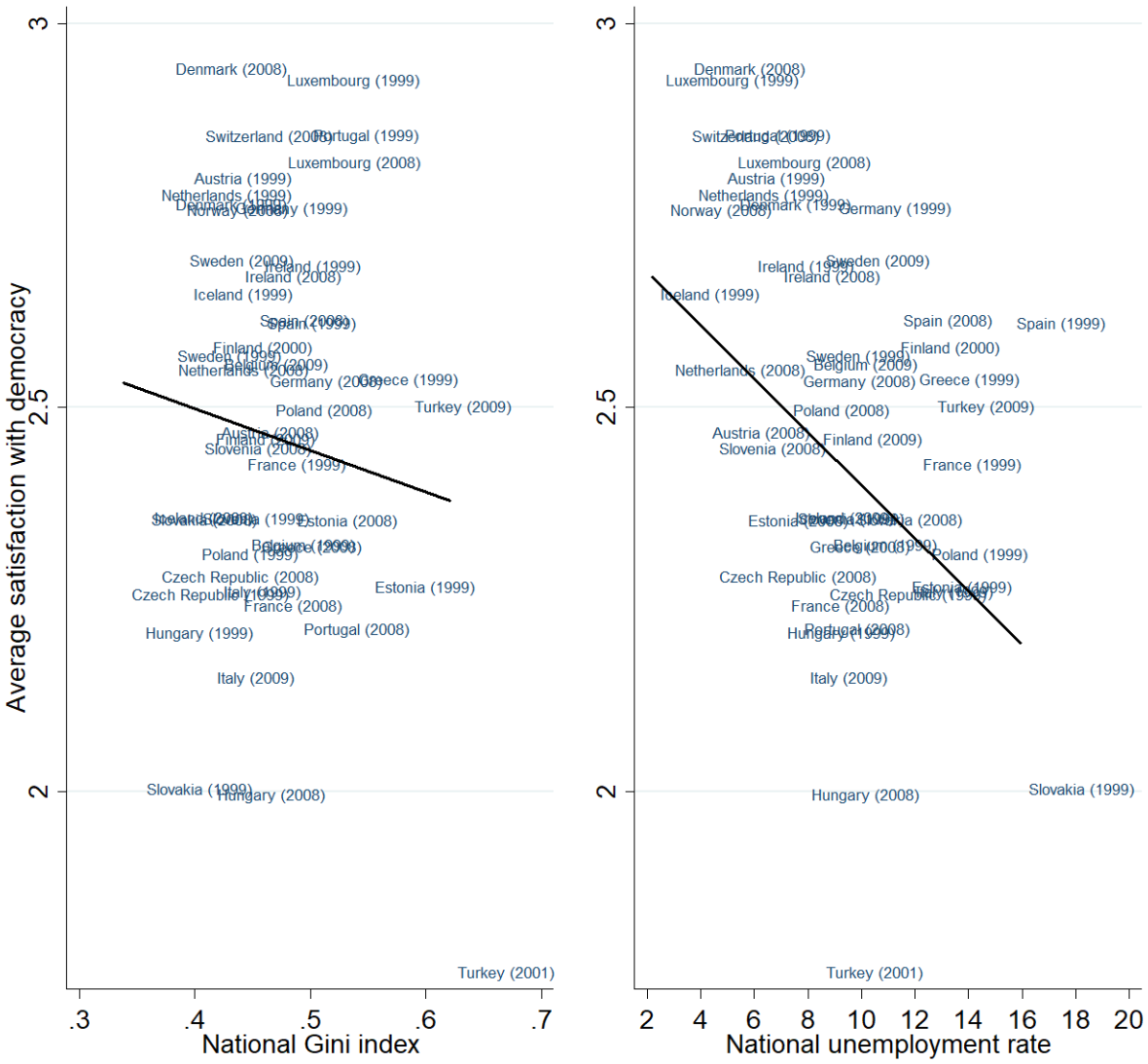
In Figure 1.2 (page 50), we exclude Turkey in 2001 because this observation has a high leverage effect. Indeed, the observation Turkey in 2001 is an outlier as it presents the lowest average SWD and the highest Gini index. Unlike Figure 1.2, the alternative Figure 1.A22 includes this outlier. The relationship between the Gini index and the average SWD is now reversed at the aggregated international level. Due to the inclusion of the outlier Turkey in 2001, higher national Gini index corresponds now to lower national average SWD. To solve this outlier issue, we exclude Turkey in 2001 from Figure 1.2 which shows the correlation between satisfaction with democracy and sociotropic income inequality at the aggregated international level. However, we do not exclude Turkey in 2001 in the aggregated analysis of the relationship between satisfaction with democracy and egotropic income inequality (Figures 1.3 and 1.4, page 51) because it does not significantly change results.

The second sample is used for international analysis presented in section 1.4

Table 1.A9: Descriptive statistics of macro interest variables per observation in the aggregated international sample

Observations	Mean of SWD	Sd of SWD	Gini index	Unemployment rate
Austria (1999)	2.80	0.63	0.392	4.70
Austria (2008)	2.47	0.74	0.416	4.13
Belgium (1999)	2.32	0.78	0.441	8.65
Belgium (2009)	2.56	0.67	0.418	7.91
Czech Republic (1999)	2.26	0.68	0.338	8.49
Czech Republic (2008)	2.28	0.74	0.364	4.39
Denmark (1999)	2.76	0.70	0.376	5.14
Denmark (2008)	2.94	0.72	0.376	3.43
Estonia (1999)	2.27	0.69	0.548	11.57
Estonia (2008)	2.35	0.74	0.482	5.46
Finland (2000)	2.58	0.64	0.408	11.13
Finland (2009)	2.46	0.70	0.411	8.25
France (1999)	2.43	0.75	0.438	11.98
France (2008)	2.24	0.76	0.435	7.06
Germany (1999)	2.76	0.69	0.428	8.86
Germany (2008)	2.53	0.70	0.458	7.52
Greece (1999)	2.54	0.76	0.534	11.85
Greece (2008)	2.32	0.88	0.451	7.76
Hungary (1999)	2.21	0.67	0.350	6.93
Hungary (2008)	2.00	0.67	0.412	7.82
Iceland (1999)	2.65	0.63	0.392	2.18
Iceland (2009)	2.36	0.73	0.358	7.22
Ireland (1999)	2,68	0.74	0.453	5.80
Ireland (2008)	2,67	0.74	0.436	6.77
Italy (1999)	2.26	0.67	0.417	11.69
Italy (2009)	2.15	0.74	0.411	7.75
Luxembourg (1999)	2.93	0.59	0.473	2.39
Luxembourg (2008)	2.82	0.69	0.473	5.06
Netherlands (1999)	2.78	0.57	0.364	3.62
Netherlands (2008)	2.55	0.63	0.378	2.75
Norway (2008)	2.76	0.59	0.386	2.55
Poland (1999)	2.31	0.74	0.399	12.29
Poland (2008)	2.50	0.69	0.463	7.12
Portugal (1999)	2.85	0.62	0.495	4.58
Portugal (2008)	2.21	0.79	0.487	7.55
Slovakia (1999)	2.00	0.70	0.351	15.95
Slovakia (2008)	2.35	0.68	0.355	9.51
Slovenia (1999)	2.35	0.68	0.400	7.32
Slovenia (2008)	2.45	0.64	0.401	4.37
Spain (1999)	2.61	0.70	0.456	15.48
Spain (2008)	2.61	0.79	0.449	11.25
Sweden (1999)	2.57	0.65	0.377	7.61
Sweden (2009)	2.69	0.65	0.389	8.35
Switzerland (2008)	2.85	0.63	0.402	3.35
Turkey (2001)	1.76	0.88	0.621	8.38
Turkey (2009)	2.50	0.90	0.583	12.55
Total	**2.48**	**0.70**	**0.427**	**7.53**

Figure 1.A22: Satisfaction with democracy and sociotropic effective/visible income inequality at the aggregated international level - Including Turkey in 2001

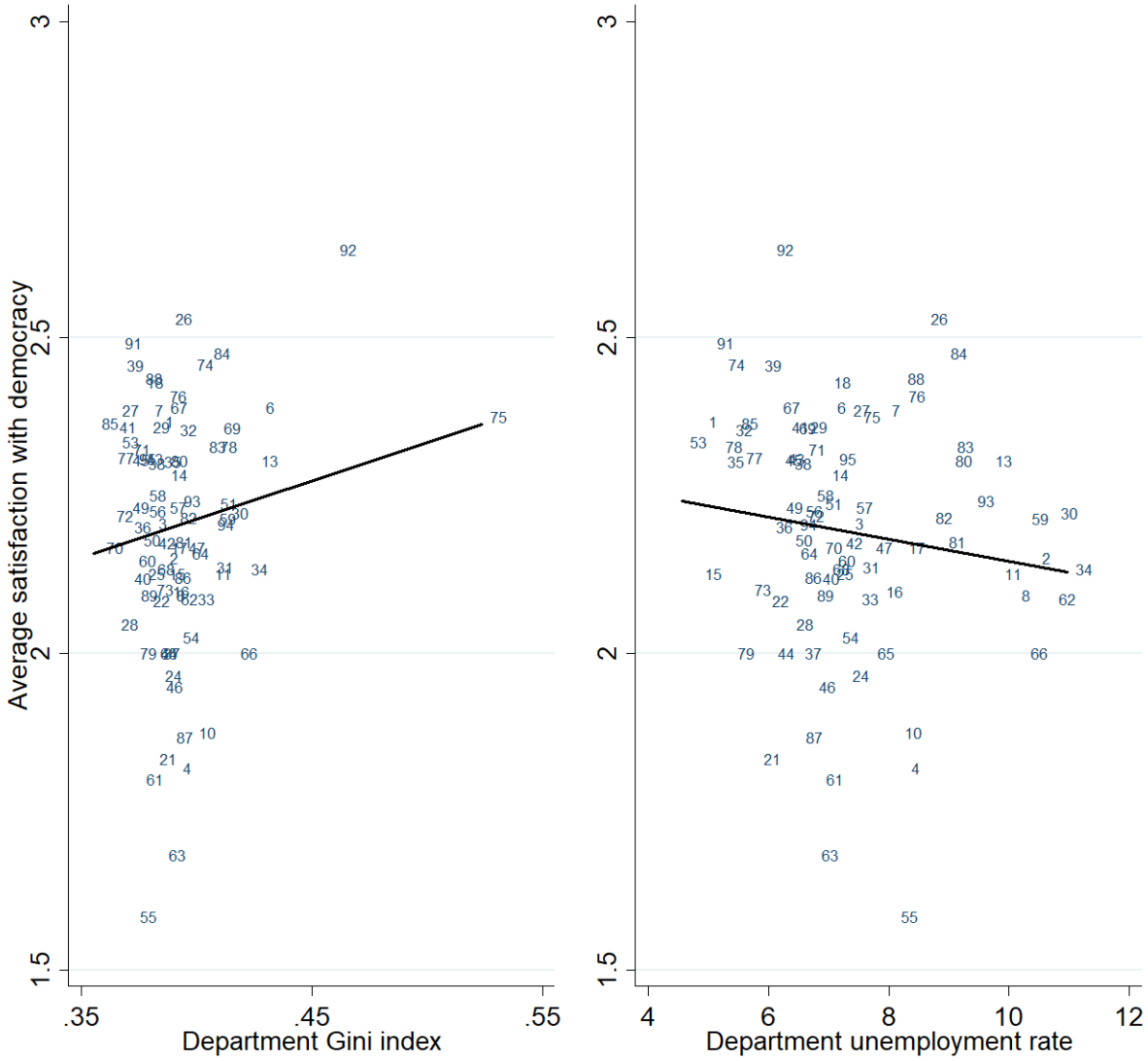


Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The line is the fitted line. The sample consists of 24 countries and 2 EVS waves.

(page 54). Contrary to the aggregated international sample, we include Turkey in 2001 in this sample. Here, observations are individuals living in the 24 countries in the 3rd and 4th EVS waves presented before in the first sample. We select individuals who both answered the SWD question and for whom all income inequality variables are available: the Gini index and unemployment rate at country level and household income and work status at individual level. We gather 59 745 individuals altogether: 26 480 for the 3rd EVS wave and 33 265 for the 4th EVS wave. The sample size difference between the two waves can be attributed to the absence of Norway and Switzerland in the 3rd EVS wave.

The last sample is used for French analysis presented in section 1.5 (page 59). We reduce the international second sample to one country (France) and one wave (2008). The French sample is thus composed of 3034 individuals from 86 departments in 2008. We focus our analysis only on metropolitan France, excluding Corsica. As we did in section 1.3.3 (page 49), we propose to have a first insight of the relationship between SWD and department sociotropic income inequality. We therefore aggregate the French sample by department. Figure 1.A23 presents respectively the link between department household income Gini index and SWD and the link between department unemployment rate and SWD at the aggregated department level. As in the first insight at the international level, we observe a positive relationship between department household income Gini index and SWD and also a negative relationship between department unemployment rate and SWD. However, we see that Paris department (number 75) is at the north-east of the left diagram. In order to test whether this French

Figure 1.A23: Satisfaction with democracy and sociotropic effective/visible income inequality at the aggregated French level



Notes. Satisfaction with democracy is measured by the question "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?". The line is the fitted line. The sample consists to 86 French departments in 2008.

department is an outlier or not, we remove it from Figure 1.A23. The same relationships (between SWD and both sociotropic effective/visible income inequality) hold even if we remove Paris department (number 75) from the sample. This is why we do not consider it as an outlier.

1.E Variables description

Table 1.A10 details the variables included in estimations at the international level and Table 1.A11 does the same for the variables included in estimations at the French level.

Table 1.A10: Variables used at the international level

Variable	Description	Source	Mean	Standard deviation	Min	Max
Macro variables						
Gini index	Gini index of pre-tax national income for adults, including elderly (20 and over), equal-split adults at country level	World Inequality Database (WID)	0.43	0.06	0.34	0.62
GDP per capita	National GDP per capita (current US dollar)	World Development Indicators (WDI)	32,183	23,214	3,120	114,294
Unemployment rate	National unemployment rate in percent of total labor force (modeled ILO)	World Development Indicators (WDI)	7.67	3.29	2.18	15.95
Interdecile ratio	Interdecile ratio of pre-tax national income for adults, including elderly (20 and over), equal-split adults at country level	World Inequality Database (WID)	7.97	5.20	3.20	40.55
Individual variables						
Satisfaction with democracy	4-level scale of values built with the question: "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?": "Not at all satisfied" (value 1), "Not very satisfied" (value 2), "Rather satisfied" (value 3) and "Very satisfied" (value 4)	3rd and 4th waves of European Values Survey (EVS)	2.48	0.76	1	4
Strong leader	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having a strong leader who does not have to bother with parliament and election'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	3rd and 4th waves of European Values Survey (EVS)	1.88	0.95	1	4

Variable	Description	Source	Mean	Standard deviation	Min	Max
Experts	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having experts, not government, make decisions according to what they think is best for the country'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	3rd and 4th waves of European Values Survey (EVS)	2.54	0.93	1	4
Army rule	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having the army rule the country'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	3rd and 4th waves of European Values Survey (EVS)	1.36	0.64	1	4
Political position	Four levels built with the question: "In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?": "Left-wing" (1-4), "Centre" (5-6), "Right-wing" (7-10) and "Without" (11)	3rd and 4th waves of European Values Survey (EVS)	2.27	0.99	1	4
Political interest	Five levels built with the question: "How interested would you say you are in politics?": "Very" (for very interested), "Somewhat" (for somewhat interested), "Not very" (for not very interested), "Not at all" (for not at all interested) and "DK refuse"	3rd and 4th waves of European Values Survey (EVS)	2.80	1.13	1	5
1 if woman	Equal to 1 if the respondent is a woman	3rd and 4th waves of European Values Survey (EVS)	0.53	0.50	0	1

Variable	Description	Source	Mean	Standard deviation	Min	Max
1 if lives with someone	Equal to 1 if the respondent answers "Married" or "Registered partnership" at the question: "What is your current legal marital status?"; 0 otherwise	3rd and 4th waves of European Values Survey (EVS)	0.57	0.50	0	1
Work status	Seven levels built with the question: "Are you yourself gainfully employed at the moment or not? Please select from the card the employment status that applies to you": "Working" (for full time, part time and self employed), "Retired", "Housework", "Student", "Unemployed", "Other" and "DK Refuse"	3rd and 4th waves of European Values Survey (EVS)	Categorical variable			
School leaving age	Four levels built with the question: "At what age did you (or will you) complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships": "Under 14 y.", "15 - 17 y.", "18 - 20 y." and "Over 20 y."	3rd and 4th waves of European Values Survey (EVS)	2.61	1.11	1	4
Household income	Four levels built with the question: "Here is a list of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, after taxes and other deductions": "Low", "Medium", "High" and "DK Refuse"	3rd and 4th waves of European Values Survey (EVS)	2.53	1.37	1	5
Age	Four levels for the age of respondent: "18 - 29 y.", "30 - 44 y.", "45 - 59 y." and "60 y. and over"	3rd and 4th waves of European Values Survey (EVS)	2.58	1.08	1	4
Number of children	Five levels built with the question: "How many children do you have?": "None", "One", "Two", "Three" and "Four and more"	3rd and 4th waves of European Values Survey (EVS)	1.55	1.27	0	4
Religion	Four levels built with these two questions: "Do you belong to a religious denomination?" and if yes "Which one?": "Christian", "Atheist", "Muslim" and "Other"	3rd and 4th waves of European Values Survey (EVS)	Categorical variable			

Variable	Description	Source	Mean	Standard deviation	Min	Max
1 if unemployed	Equal to 1 if the respondent is "Unemployed" in the variable *Workstatus*	3rd and 4th waves of European Values Survey (EVS)	0.09	0.29	0	1

Table 1.A11: Variables used at the French level

Variable	Description	Source	Mean	Standard deviation	Min	Max
Macro variables						
Gini index of HH income in department	Gini index of household income in department in 2008	Localised Social and Fiscal File (FiLoSoFi) from INSEE	0.39	0.03	0.36	0.52
Average HH income in department	Average household income in department in 2008	Localised Social and Fiscal File (FiLoSoFi) from INSEE	34,481	5,560	27,343	51,226
Unemployment rate in department	Department unemployment rate for A, B and C categories registered at Pôle Emploi in second quarter of 2008	Pôle emploi - DARES, Statistique mensuelle sur le marché du travail (STMT)	7.32	1.60	4.56	10.97
Interdecile ratio	Interdecile ratio ($D9/D1$) of household income in department	Localised Social and Fiscal File (FiLoSoFi) from INSEE	6.39	1.22	4.74	11.23
Individual variables						
Satisfaction with democracy	4-level scale of values built with the question: "On the whole are you very satisfied, rather satisfied, not very satisfied or not at all satisfied with the way democracy is developing in our country?": "Not at all satisfied" (value 1), "Not very satisfied" (value 2), "Rather satisfied" (value 3) and "Very satisfied" (value 4)	4th wave of European Values Survey (EVS 2008)	2.23	0.78	1	4
Strong leader	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having a strong leader who does not have to bother with parliament and election'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	4th wave of European Values Survey (EVS 2008)	1.91	0.94	1	4

Variable	Description	Source	Mean	Standard deviation	Min	Max
Experts	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having experts, not government, make decisions according to what they think is best for the country'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	4th wave of European Values Survey (EVS 2008)	2.40	0.88	1	4
Army rule	4-level scale of values built with the question: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country: 'Having the army rule the country'?": "Very good" (value 4), "Fairly good" (value 3), "Fairly bad" (value 2) and "Very bad" (value 1)	4th wave of European Values Survey (EVS 2008)	1.33	0.62	1	4
Political position	Four levels built with the question: "In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?": "Left-wing" (1-4), "Centre" (5-6), "Right-wing" (7-10) and "Without" (11)	4th wave of European Values Survey (EVS 2008)	2.03	0.94	1	4
Political interest	Five levels built with the question: "How interested would you say you are in politics?": "Very" (for very interested), "Somewhat" (for somewhat interested), "Not very" (for not very interested), "Not at all" (for not at all interested) and "DK refuse"	4th wave of European Values Survey (EVS 2008)	2.65	0.98	1	5
1 if woman	Equal to 1 if the respondent is a woman	4th wave of European Values Survey (EVS 2008)	0.54	0.50	0	1

Variable	Description	Source	Mean	Standard deviation	Min	Max
1 if lives with someone	Equal to 1 if the respondent answers "Married" or "Registered partnership" at the question: "What is your current legal marital status?"; 0 otherwise	4th wave of European Values Survey (EVS 2008)	0.46	0.50	0	1
Work status	Six levels built with the question: "Are you yourself gainfully employed at the moment or not? Please select from the card the employment status that applies to you": "Working" (for full time, part time and self employed), "Retired", "Housework", "Student", "Unemployed" and "Other"	4th wave of European Values Survey (EVS 2008)	Categorical variable			
School leaving age	Four levels built with the question: "At what age did you (or will you) complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships": "Under 14 y.", "15 - 17 y.", "18 - 20 y." and "Over 20 y."	4th wave of European Values Survey (EVS 2008)	2.49	1.23	1	4
Household income	Five levels built with the question: "Here is a list of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, after taxes and other deductions": "< 1000 €", "[1000 – 2000] €", "[2000 – 3000] €", "> 3000 €" and "DK Refuse" To better compare with international interaction estimates, we reduce this variable to four levels: "Low" (< 1000 €), "Medium" ([1000–2000] €and [2000 – 3000] €), "High" (> 3000 €) and "DK Refuse"	4th wave of European Values Survey (EVS 2008)	2.61	1.22	1	5
Age	Four levels for the age of respondent: "18 - 29 y.", "30 - 44 y.", "45 - 59 y." and "60 y. and over"	4th wave of European Values Survey (EVS 2008)	2.65	1.10	1	4
Number of children	Five levels built with the question: "How many children do you have?": "None", "One", "Two", "Three" and "Four and more"	4th wave of European Values Survey (EVS 2008)	1.66	1.32	0	4

Variable	Description	Source	Mean	Standard deviation	Min	Max
Religion	Four levels built with these two questions: "Do you belong to a religious denomination?" and if yes "Which one?": "Christian", "Atheist", "Muslim" and "Other"	4th wave of European Values Survey (EVS 2008)	Categorical variable			
1 if unemployed	Equal to 1 if the respondent is "Unemployed" in the variable *Work status*	4th wave of European Values Survey (EVS 2008)	0.06	0.23	0	1

1.F Complete estimations tables

1.F.1 For international estimations

Table 1.A12: International estimations of satisfaction with democracy

	A Coef./(se)	B Coef./(se)	C Coef./(se)	D Coef./(se)
Gini index	-1.29		-1.34	-1.35
	(1.73)		(1.73)	(1.74)
Unemployment rate		-0.0093	-0.010	-0.0094
		(0.021)	(0.020)	(0.022)
GDP per capita				-0.00000093
				(0.0000037)
Political position ("Centre" as reference):				
Left-wing	-0.085***	-0.085***	-0.085***	-0.085***
	(0.021)	(0.022)	(0.022)	(0.021)
Right-wing	0.082***	0.082***	0.082***	0.082***
	(0.025)	(0.025)	(0.025)	(0.025)
Without	-0.087***	-0.085***	-0.087***	-0.087***
	(0.016)	(0.017)	(0.016)	(0.016)
Work status ("Working" as reference):				
Retired	-0.0033	-0.0021	-0.0039	-0.0040
	(0.016)	(0.017)	(0.016)	(0.016)
Housework	0.057***	0.057***	0.056***	0.056***
	(0.019)	(0.019)	(0.020)	(0.020)
Student	0.062***	0.062***	0.063***	0.063***
	(0.015)	(0.014)	(0.014)	(0.015)
Unemployed	-0.10***	-0.098***	-0.098***	-0.099***
	(0.033)	(0.032)	(0.032)	(0.031)
Other	-0.033	-0.034	-0.033	-0.032
	(0.021)	(0.022)	(0.022)	(0.022)
DK Refuse	-0.036	-0.041	-0.039	-0.039
	(0.056)	(0.060)	(0.058)	(0.058)
Household income ("Low" as reference):				
Medium	0.045***	0.047***	0.046***	0.046***
	(0.011)	(0.011)	(0.011)	(0.011)
High	0.11***	0.11***	0.11***	0.11***
	(0.020)	(0.019)	(0.019)	(0.019)
DK Refuse	0.042**	0.041***	0.042**	0.041***
	(0.017)	(0.016)	(0.016)	(0.016)
Political interest ("Very" as reference):				
Somewhat	0.034**	0.032**	0.033**	0.033**
	(0.014)	(0.013)	(0.014)	(0.014)
Not very	-0.0057	-0.0099	-0.0063	-0.0063
	(0.022)	(0.022)	(0.022)	(0.022)
Not at all	-0.13***	-0.13***	-0.13***	-0.13***
	(0.027)	(0.026)	(0.026)	(0.026)
DK Refuse	-0.33**	-0.35**	-0.34**	-0.33**
	(0.15)	(0.16)	(0.15)	(0.14)
1 if woman	-0.0018	-0.0016	-0.0020	-0.0019
	(0.011)	(0.011)	(0.011)	(0.011)
1 if lives with someone	0.025***	0.026***	0.026***	0.026***
	(0.0096)	(0.0100)	(0.0098)	(0.0099)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.055***	-0.055***	-0.054***	-0.054***
	(0.017)	(0.018)	(0.018)	(0.017)
18 - 20 y.	-0.011	-0.013	-0.011	-0.010
	(0.018)	(0.019)	(0.018)	(0.017)
Over 20 y.	0.027	0.024	0.027	0.028*
	(0.017)	(0.020)	(0.018)	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.033**	-0.032**	-0.033**	-0.034**
	(0.014)	(0.015)	(0.015)	(0.014)
45 - 59 y.	-0.070***	-0.071***	-0.071***	-0.072***
	(0.017)	(0.018)	(0.018)	(0.017)
60 y. and over	-0.0098	-0.0100	-0.010	-0.010
	(0.019)	(0.020)	(0.019)	(0.019)
Number of children ("None" as reference):				
One	-0.026**	-0.024*	-0.026**	-0.026**
	(0.012)	(0.012)	(0.012)	(0.012)
Two	-0.020	-0.018	-0.020	-0.020
	(0.015)	(0.015)	(0.015)	(0.015)
Three	-0.049***	-0.048***	-0.049***	-0.048***
	(0.017)	(0.017)	(0.017)	(0.017)
Four and more	-0.045**	-0.045**	-0.046**	-0.045**
	(0.021)	(0.021)	(0.021)	(0.022)
Religion ("Christian" as reference):				
Atheist	-0.089***	-0.089***	-0.089***	-0.089***
	(0.027)	(0.027)	(0.028)	(0.028)
Muslim	0.23***	0.22***	0.22***	0.23***
	(0.030)	(0.030)	(0.031)	(0.031)
Other	-0.022	-0.026	-0.026	-0.026
	(0.025)	(0.027)	(0.027)	(0.027)
Constant	3.08***	2.60***	3.17***	3.21***
	(0.73)	(0.14)	(0.72)	(0.75)
Standard deviation (Random intercept)	0.2045411	0.1952719	0.193801	0.2083483
EVS wave FE	yes	yes	yes	yes
Log Pseudo-likelihood	-64606.06	-64620.27	-64592.57	-64591.28
AIC	129284.1	129312.5	129259.1	129258.6
BIC	129608	129636.5	129636.5	129600.5
Observations	59,745	59,745	59,745	59,745

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is MLE with random effects of country.

Table 1.A13: International estimations of support for alternative political systems

	Strong leader		Experts		Army rule	
	Coef	(se)	Coef	(se)	Coef	(se)
Gini index	0.69	(0.88)	-1.35*	(0.79)	-0.074	(0.57)
Unemployment rate	0.017*	(0.0094)	0.011	(0.013)	0.018**	(0.0074)
GDP per capita	-0.0000042**	(0.0000018)	-0.0000011	(0.0000024)	-0.0000040**	(0.0000016)
Political position ("Centre" as reference):						
Left-wing	-0.13***	(0.024)	-0.057**	(0.024)	-0.072***	(0.017)
Right-wing	0.072**	(0.035)	0.041***	(0.015)	0.020	(0.024)
Without	-0.023	(0.025)	-0.021	(0.017)	-0.0073	(0.014)
Work status ("Working" as reference):						
Retired	0.023	(0.016)	0.015	(0.016)	0.0067	(0.0067)
Housework	0.016	(0.016)	-0.049**	(0.020)	0.012	(0.017)
Student	-0.058***	(0.021)	0.011	(0.019)	0.024	(0.018)
Unemployed	0.053*	(0.027)	0.015	(0.017)	0.032**	(0.013)
Other	0.029	(0.036)	0.049	(0.035)	0.015	(0.022)
DK Refuse	-0.030	(0.058)	-0.053	(0.062)	0.041	(0.039)
Household income ("Low" as reference):						
Medium	-0.065***	(0.012)	-0.013	(0.014)	-0.038***	(0.0083)
High	-0.12***	(0.018)	-0.045***	(0.017)	-0.073***	(0.013)
DK Refuse	-0.073***	(0.020)	-0.085***	(0.022)	-0.057***	(0.017)
Political interest ("Very" as reference):						
Somewhat	0.11***	(0.021)	0.13***	(0.023)	0.038**	(0.016)
Not very	0.19***	(0.021)	0.19***	(0.028)	0.070***	(0.018)
Not at all	0.26***	(0.027)	0.21***	(0.035)	0.092***	(0.027)
DK Refuse	0.30***	(0.078)	0.33***	(0.077)	0.14***	(0.054)
1 if woman	-0.037***	(0.014)	0.031**	(0.013)	0.025**	(0.010)
1 if lives with someone	0.0020	(0.011)	-0.011	(0.011)	0.0025	(0.0086)
School leaving age ("Under 14 y." as reference):						
15 - 17 y.	0.0029	(0.019)	-0.026	(0.019)	-0.034**	(0.014)
18 - 20 y.	-0.10***	(0.018)	-0.032	(0.025)	-0.070***	(0.011)
Over 20 y.	-0.25***	(0.022)	-0.086***	(0.023)	-0.14***	(0.017)
Age ("18 - 29 y." as reference):						
30 - 44 y.	-0.044***	(0.015)	-0.026***	(0.0088)	-0.061***	(0.014)
45 - 59 y.	-0.038**	(0.016)	-0.041**	(0.019)	-0.079***	(0.018)
60 y. and over	-0.015	(0.022)	-0.056**	(0.027)	-0.093***	(0.020)
Number of children ("None" as reference):						
One	-0.025	(0.017)	-0.013	(0.013)	-0.020**	(0.010)
Two	-0.037**	(0.016)	-0.0052	(0.013)	-0.030**	(0.014)
Three	-0.029	(0.022)	-0.030*	(0.017)	-0.031**	(0.014)
Four and more	0.022	(0.019)	-0.030	(0.021)	-0.0019	(0.011)
Religion ("Christian" as reference):						
Atheist	-0.050***	(0.017)	0.017	(0.019)	-0.017**	(0.0079)
Muslim	0.079	(0.057)	0.076**	(0.036)	0.13***	(0.039)
Other	-0.10***	(0.025)	0.027	(0.035)	-0.039**	(0.020)
Constant	1.77***	(0.41)	3.03***	(0.37)	1.59***	(0.27)
Standard deviation (Random intercept)	0.2697685		0.3109824		0.1514558	
EVS wave FE	yes		yes		yes	
Log Pseudo-likelihood	-74758.87		-71503.92		-53362.32	
AIC	149593.7		143083.8		106800.6	
BIC	149934.3		143423.5		107142	
Observations	57,647		56,343		58,915	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is support for an alternative political system (strong leader, experts or army rule) in 4 items.
The method estimation is MLE with random effects of country.

1.F.2 For French estimations

Table 1.A14: French estimations of satisfaction with democracy

	A Coef./(se)	B Coef./(se)	C Coef./(se)	D Coef./(se)
Gini index of HH income in department	0.95*		1.23**	-0.52
	(0.51)		(0.50)	(0.68)
Unemployment rate in department		-0.011	-0.018*	0.0078
		(0.0091)	(0.0096)	(0.011)
Average HH income in department				0.000013***
				(0.0000047)
Political position ("Centre" as reference):				
Left-wing	-0.26***	-0.26***	-0.26***	-0.26***
	(0.037)	(0.037)	(0.037)	(0.037)
Right-wing	0.25***	0.25***	0.25***	0.25***
	(0.043)	(0.043)	(0.043)	(0.043)
Without	-0.096**	-0.098**	-0.097**	-0.092*
	(0.048)	(0.048)	(0.048)	(0.047)
Work status ("Working" as reference):				
Retired	0.038	0.040	0.043	0.044
	(0.068)	(0.068)	(0.068)	(0.068)
Housework	0.076	0.081	0.082	0.081
	(0.066)	(0.066)	(0.066)	(0.066)
Student	0.16***	0.16***	0.16***	0.16***
	(0.056)	(0.056)	(0.056)	(0.055)
Unemployed	-0.048	-0.045	-0.046	-0.049
	(0.066)	(0.066)	(0.066)	(0.066)
Other	-0.093	-0.093	-0.090	-0.089
	(0.10)	(0.10)	(0.10)	(0.10)
Household income ("< 1000 €" as reference):				
[1000 – 2000] €	-0.024	-0.024	-0.023	-0.019
	(0.042)	(0.042)	(0.042)	(0.042)
[2000 – 3000] €	-0.024	-0.025	-0.025	-0.026
	(0.042)	(0.043)	(0.043)	(0.043)
> 3000 €	0.094*	0.094*	0.088*	0.076
	(0.050)	(0.050)	(0.051)	(0.052)
DK Refuse	-0.035	-0.036	-0.034	-0.029
	(0.050)	(0.050)	(0.050)	(0.050)
Political interest ("Very" as reference):				
Somewhat	0.24***	0.24***	0.25***	0.25***
	(0.038)	(0.037)	(0.039)	(0.039)
Not very	0.23***	0.22***	0.23***	0.22***
	(0.041)	(0.040)	(0.041)	(0.042)
Not at all	0.070	0.065	0.073	0.073
	(0.048)	(0.045)	(0.048)	(0.048)
DK Refuse	0.56	0.55	0.56	0.63
	(0.97)	(0.99)	(0.99)	(0.94)
1 if woman	-0.034	-0.033	-0.034	-0.034
	(0.028)	(0.028)	(0.028)	(0.028)
1 if lives with someone	0.079***	0.078***	0.079***	0.078***
	(0.030)	(0.029)	(0.030)	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.043	-0.041	-0.041	-0.042
	(0.038)	(0.039)	(0.038)	(0.039)
18 - 20 y.	-0.040	-0.036	-0.036	-0.030
	(0.044)	(0.044)	(0.044)	(0.044)
Over 20 y.	0.039	0.045	0.040	0.042
	(0.039)	(0.041)	(0.039)	(0.040)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.0028	-0.0013	-0.0033	-0.0012
	(0.044)	(0.044)	(0.045)	(0.044)
45 - 59 y.	0.033	0.035	0.033	0.037
	(0.052)	(0.052)	(0.052)	(0.051)
60 y. and over	0.086	0.088	0.083	0.087
	(0.075)	(0.075)	(0.075)	(0.075)
Number of children ("None" as reference):				
One	-0.11***	-0.11***	-0.11**	-0.11**
	(0.042)	(0.041)	(0.042)	(0.042)
Two	-0.098**	-0.099**	-0.095*	-0.097*
	(0.050)	(0.049)	(0.050)	(0.050)
Three	-0.091	-0.094*	-0.090	-0.088
	(0.056)	(0.054)	(0.056)	(0.056)
Four and more	-0.045	-0.047	-0.041	-0.041
	(0.058)	(0.058)	(0.059)	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.092***	-0.092***	-0.092***	-0.091***
	(0.031)	(0.031)	(0.031)	(0.031)
Muslim	0.20**	0.21**	0.21**	0.19**
	(0.097)	(0.097)	(0.097)	(0.097)
Other	-0.027	-0.020	-0.029	-0.037
	(0.098)	(0.095)	(0.097)	(0.096)
Constant	1.78***	2.23***	1.79***	1.84***
	(0.21)	(0.10)	(0.19)	(0.16)
Standard deviation (Random intercept)	0.0661931	0.070166	0.0593777	0.0368785
Log Pseudo-likelihood	-3344.091	-3344.848	-3342.613	-3338.112
AIC	129284.1	129312.5	129259.1	129258.6
BIC	129608	129636.5	129636.5	129600.5
Observations	3,034	3,034	3,034	3,034

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is MLE with random effects of department.

Table 1.A15: French estimations of support for alternative political systems

	Strong leader		Experts		Army rule	
	Coef	(se)	Coef	(se)	Coef	(se)
Gini index of HH income in department	-0.23	(1.48)	0.013	(0.91)	-0.89	(0.61)
Unemployment rate in department	0.063***	(0.023)	0.033**	(0.017)	0.028**	(0.012)
Average HH income in department	0.0000028	(0.0000090)	-0.0000056	(0.0000080)	0.0000026	(0.0000039)
Political position ("Centre" as reference):						
Left-wing	-0.20***	(0.044)	-0.083**	(0.038)	-0.095***	(0.027)
Right-wing	0.27***	(0.044)	0.030	(0.045)	0.097***	(0.036)
Without	-0.081	(0.060)	-0.12**	(0.057)	-0.11*	(0.057)
Work status ("Working" as reference):						
Retired	0.027	(0.073)	-0.017	(0.073)	0.090*	(0.048)
Housework	0.13*	(0.078)	0.082	(0.060)	0.094*	(0.048)
Student	0.15**	(0.073)	0.19**	(0.086)	0.21***	(0.074)
Unemployed	0.0086	(0.072)	0.11	(0.067)	0.097*	(0.054)
Other	0.092	(0.098)	0.077	(0.10)	0.047	(0.071)
Household income ("< 1000 €" as reference):						
[1000 – 2000] €	0.047	(0.044)	-0.0064	(0.049)	0.081**	(0.033)
[2000 – 3000] €	-0.0067	(0.042)	-0.050	(0.046)	0.052	(0.036)
> 3000 €	-0.013	(0.053)	-0.032	(0.057)	0.026	(0.038)
DK Refuse	0.065	(0.059)	-0.031	(0.063)	0.019	(0.042)
Political interest ("Very" as reference):						
Somewhat	0.14**	(0.062)	0.21***	(0.048)	0.047	(0.031)
Not very	0.29***	(0.063)	0.39***	(0.048)	0.11***	(0.034)
Not at all	0.36***	(0.071)	0.34***	(0.067)	0.18***	(0.042)
DK Refuse	2.23***	(0.098)	0.29	(0.42)	0.31	(0.38)
1 if woman	-0.080**	(0.033)	0.069**	(0.032)	0.091***	(0.022)
1 if lives with someone	0.0077	(0.044)	0.024	(0.038)	-0.027	(0.022)
School leaving age ("Under 14 y." as reference):						
15 - 17 y.	0.034	(0.043)	0.015	(0.045)	0.029	(0.033)
18 - 20 y.	-0.081	(0.058)	-0.038	(0.052)	0.017	(0.039)
Over 20 y.	-0.23***	(0.050)	-0.091**	(0.045)	-0.12***	(0.034)
Age ("18 - 29 y." as reference):						
30 - 44 y.	-0.084	(0.061)	0.051	(0.052)	-0.12***	(0.043)
45 - 59 y.	-0.11*	(0.064)	0.038	(0.060)	-0.23***	(0.044)
60 y. and over	-0.096	(0.083)	-0.046	(0.093)	-0.27***	(0.061)
Number of children ("None" as reference):						
One	0.15***	(0.056)	0.043	(0.056)	0.0014	(0.031)
Two	0.046	(0.060)	-0.0082	(0.054)	-0.024	(0.034)
Three	0.15**	(0.064)	-0.049	(0.058)	0.024	(0.037)
Four and more	0.14**	(0.070)	-0.078	(0.071)	0.077	(0.049)
Religion ("Christian" as reference):						
Atheist	-0.12***	(0.036)	-0.0019	(0.032)	-0.00020	(0.025)
Muslim	0.031	(0.12)	0.014	(0.13)	0.031	(0.088)
Other	0.023	(0.14)	-0.091	(0.14)	-0.0061	(0.10)
Constant	1.37***	(0.37)	2.10***	(0.26)	1.38***	(0.15)
Standard deviation (Random intercept)	0.1806784		0.12467		0.0481591	
Log Pseudo-likelihood	-3870.649		-3744.903		-2750.275	
AIC	7815.298		7563.805		7563.805	
BIC	8037.521		7785.632		5797.421	
Observations	2,999		2,967		3,052	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is support for an alternative political system (strong leader, experts or army rule) in 4 items.
The method estimation is MLE with random effects of department.

1.G Robustness for international estimations

Table 1.A16: International estimations of satisfaction with democracy: binary definition of satisfaction with democracy

	Coef.	(se)
Gini index	-3.05***	(0.53)
Unemployment rate	-0.048***	(0.0058)
GDP per capita	-0.0000038**	(0.0000019)
Political position ("Centre" as reference):		
Left-wing	-0.21***	(0.023)
Right-wing	0.24***	(0.024)
Without	-0.23***	(0.028)
Work status ("Working" as reference):		
Retired	-0.019	(0.034)
Housework	0.17***	(0.036)
Student	0.20***	(0.043)
Unemployed	-0.25***	(0.039)
Other	-0.052	(0.058)
DK Refuse	-0.25**	(0.12)
Household income ("Low" as reference):		
Medium	0.11***	(0.024)
High	0.29***	(0.027)
DK Refuse	0.12***	(0.028)
Political interest ("Very" as reference):		
Somewhat	0.13***	(0.030)
Not very	0.0037	(0.032)
Not at all	-0.25***	(0.036)
DK Refuse	-0.82***	(0.053)
1 if woman	-0.034*	(0.019)
1 if lives with someone	0.065***	(0.022)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.18***	(0.028)
18 - 20 y.	-0.037	(0.029)
Over 20 y.	0.069**	(0.030)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.089***	(0.031)
45 - 59 y.	-0.21***	(0.033)
60 y. and over	-0.057	(0.041)
Number of children ("None" as reference):		
One	-0.068**	(0.031)
Two	-0.068**	(0.029)
Three	-0.14***	(0.035)
Four and more	-0.14***	(0.040)
Religion ("Christian" as reference):		
Atheist	-0.28***	(0.022)
Muslim	0.55***	(0.10)
Other	-0.026	(0.071)
Constant	-0.53***	(0.16)
Standard deviation (Random intercept)	0.5881189	
EVS wave FE	yes	
Log Pseudo-likelihood	-38103.98	
AIC	76281.96	
BIC	76614.88	
Observations	59,745	

$***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in binary variable.

The method estimation is Multilevel mixed-effects logistic regression with random effects of country.

Table 1.A17: International estimations of satisfaction with democracy: multilevel ordered logit estimation

	Coef.	(se)
Gini index	-2.70***	(0.89)
Unemployment rate	-0.037	(0.028)
GDP per capita	0.0000047**	(0.0000020)
Political position ("Centre" as reference):		
Left-wing	-0.23***	(0.065)
Right-wing	0.23***	(0.066)
Without	-0.23***	(0.044)
Work status ("Working" as reference):		
Retired	-0.0049	(0.057)
Housework	0.18***	(0.058)
Student	0.18***	(0.049)
Unemployed	-0.27***	(0.090)
Other	-0.076	(0.060)
DK Refuse	-0.14	(0.16)
Household income ("Low" as reference):		
Medium	0.13***	(0.029)
High	0.30***	(0.052)
DK Refuse	0.13***	(0.048)
Political interest ("Very" as reference):		
Somewhat	0.069*	(0.039)
Not very	-0.038	(0.056)
Not at all	-0.34***	(0.060)
DK Refuse	-0.92***	(0.28)
1 if woman	-0.020	(0.028)
1 if lives with someone	0.068***	(0.026)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.16***	(0.041)
18 - 20 y.	-0.044	(0.049)
Over 20 y.	0.055	(0.062)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.089*	(0.049)
45 - 59 y.	-0.20***	(0.059)
60 y. and over	-0.045	(0.061)
Number of children ("None" as reference):		
One	-0.069*	(0.040)
Two	-0.060	(0.045)
Three	-0.13**	(0.060)
Four and more	-0.13**	(0.064)
Religion ("Christian" as reference):		
Atheist	-0.26***	(0.090)
Muslim	0.95***	(0.16)
Other	-0.057	(0.081)
μ_1	-3.56***	(0.11)
μ_2	-1.40***	(0.11)
μ_3	1.80***	(0.11)
Variance (Random intercept)	3.17e+08	
EVS wave FE	yes	
Log Pseudo-likelihood	-63544.23	
AIC	127134.5	
BIC	127341.4	
Observations	59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is multilevel ordered logit.

Table 1.A18: International estimations of satisfaction with democracy: OLS estimation with country fixed effects

	Coef.	(se)
Gini index	-1.37	(1.82)
Unemployment rate	-0.0085	(0.023)
GDP per capita	-0.0000016	(0.0000043)
Political position ("Centre" as reference):		
Left-wing	-0.085***	(0.021)
Right-wing	0.083***	(0.025)
Without	-0.087***	(0.016)
Work status ("Working" as reference):		
Retired	-0.0038	(0.016)
Housework	0.056***	(0.020)
Student	0.063***	(0.015)
Unemployed	-0.099***	(0.031)
Other	-0.032	(0.022)
DK Refuse	-0.038	(0.058)
Household income ("Low" as reference):		
Medium	0.046***	(0.011)
High	0.11***	(0.019)
DK Refuse	0.040**	(0.016)
Political interest ("Very" as reference):		
Somewhat	0.033**	(0.014)
Not very	-0.0061	(0.022)
Not at all	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)
1 if woman	-0.0019	(0.011)
1 if lives with someone	0.026**	(0.0099)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.054***	(0.018)
18 - 20 y.	-0.0100	(0.017)
Over 20 y.	0.028*	(0.016)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.034**	(0.014)
45 - 59 y.	-0.072***	(0.017)
60 y. and over	-0.011	(0.019)
Number of children ("None" as reference):		
One	-0.025**	(0.012)
Two	-0.019	(0.015)
Three	-0.048***	(0.017)
Four and more	-0.045*	(0.022)
Religion ("Christian" as reference):		
Atheist	-0.089***	(0.028)
Muslim	0.23***	(0.034)
Other	-0.026	(0.027)
Constant	3.44***	(0.85)
EVS wave FE	yes	
Country FE	yes	
R squared	0.1174	
Log likelihood	-64514.8	
AIC	129075.6	
BIC	129282.5	
Observations	59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is OLS with country fixed effects.

Table 1.A19: International estimations of satisfaction with democracy: Interdecile ratio as sociotropic effective income inequality

	Coef.	(se)
Interdecile ratio	0.0059*	(0.0033)
Unemployment rate	-0.011	(0.023)
GDP per capita	-0.0000012	(0.0000036)
Political position ("Centre" as reference):		
Left-wing	-0.085***	(0.022)
Right-wing	0.082***	(0.026)
Without	-0.084***	(0.017)
Work status ("Working" as reference):		
Retired	-0.00089	(0.017)
Housework	0.059***	(0.019)
Student	0.063***	(0.014)
Unemployed	-0.098***	(0.032)
Other	-0.035	(0.022)
DK Refuse	-0.043	(0.061)
Household income ("Low" as reference):		
Medium	0.047***	(0.011)
High	0.11***	(0.019)
DK Refuse	0.039**	(0.016)
Political interest ("Very" as reference):		
Somewhat	0.031**	(0.014)
Not very	-0.013	(0.022)
Not at all	-0.14***	(0.027)
DK Refuse	-0.34**	(0.14)
1 if woman	-0.0020	(0.011)
1 if lives with someone	0.027***	(0.010)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.056***	(0.017)
18 - 20 y.	-0.015	(0.017)
Over 20 y.	0.020	(0.017)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.032**	(0.014)
45 - 59 y.	-0.071***	(0.017)
60 y. and over	-0.010	(0.019)
Number of children ("None" as reference):		
One	-0.023*	(0.012)
Two	-0.017	(0.015)
Three	-0.047***	(0.017)
Four and more	-0.045**	(0.021)
Religion ("Christian" as reference):		
Atheist	-0.090***	(0.027)
Muslim	0.22***	(0.031)
Other	-0.029	(0.027)
Constant	2.62***	(0.087)
Standard deviation (Random intercept)	0.2195141	
EVS wave FE	yes	
Log Pseudo-likelihood	-64600.07	
AIC	129276.1	
BIC	129618.1	
Observations	59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

1.H Robustness for French estimations

Table 1.A20: French estimations of satisfaction with democracy: binary definition of satisfaction with democracy

	Coef.	(se)
Gini index of HH income in department	-0.69	(2.09)
Unemployment rate in department	-0.017	(0.035)
Average HH income in department	0.000026**	(0.000012)
Political position ("Centre" as reference):		
Left-wing	-0.75***	(0.099)
Right-wing	0.75***	(0.11)
Without	-0.19	(0.16)
Work status ("Working" as reference):		
Retired	0.17	(0.17)
Housework	0.22	(0.17)
Student	0.31	(0.21)
Unemployed	-0.089	(0.18)
Other	0.00060	(0.25)
Household income ("< 1000 €" as reference):		
[1000 – 2000] €	-0.12	(0.11)
[2000 – 3000] €	-0.074	(0.12)
> 3000 €	0.21	(0.16)
DK Refuse	0.053	(0.15)
Political interest ("Very" as reference):		
Somewhat	0.52***	(0.14)
Not very	0.46***	(0.14)
Not at all	0.12	(0.15)
DK Refuse	1.27	(1.46)
1 if woman	-0.18**	(0.084)
1 if lives with someone	0.22**	(0.093)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.031	(0.11)
18 - 20 y.	-0.11	(0.14)
Over 20 y.	0.028	(0.12)
Age ("18 - 29 y." as reference):		
30 - 44 y.	0.017	(0.15)
45 - 59 y.	0.11	(0.16)
60 y. and over	0.23	(0.21)
Number of children ("None" as reference):		
One	-0.30**	(0.14)
Two	-0.19	(0.14)
Three	-0.21	(0.15)
Four and more	0.014	(0.17)
Religion ("Christian" as reference):		
Atheist	-0.27***	(0.088)
Muslim	0.52**	(0.22)
Other	0.25	(0.31)
Constant	-1.09*	(0.58)
Standard deviation (Random intercept)	0.5881189	
Log Pseudo-likelihood	-1857.312	
AIC	3786.624	
BIC	4003.259	
Observations	3,034	

$***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in binary variable.

The method estimation is Multilevel mixed-effects logistic regression with random effects of department.

Table 1.A21: French estimations of satisfaction with democracy: multilevel ordered logit estimation

	Coef.	(se)
Gini index of HH income in department	-1.30	(1.72)
Unemployment rate in department	0.017	(0.027)
Average HH income in department	0.000034***	(0.000012)
Political position ("Centre" as reference):		
Left-wing	-0.69***	(0.095)
Right-wing	0.70***	(0.12)
Without	-0.26**	(0.12)
Work status ("Working" as reference):		
Retired	0.11	(0.18)
Housework	0.21	(0.17)
Student	0.41***	(0.14)
Unemployed	-0.14	(0.17)
Other	-0.27	(0.28)
Household income ("< 1000 €" as reference):		
[1000 – 2000] €	-0.026	(0.11)
[2000 – 3000] €	-0.044	(0.11)
> 3000 €	0.22	(0.14)
DK Refuse	-0.061	(0.13)
Political interest ("Very" as reference):		
Somewhat	0.63***	(0.11)
Not very	0.59***	(0.11)
Not at all	0.19	(0.13)
DK Refuse	2.16	(8.04)
1 if woman	-0.10	(0.072)
1 if lives with someone	0.20**	(0.078)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.12	(0.10)
18 - 20 y.	-0.086	(0.12)
Over 20 y.	0.098	(0.10)
Age ("18 - 29 y." as reference):		
30 - 44 y.	0.00055	(0.11)
45 - 59 y.	0.099	(0.13)
60 y. and over	0.25	(0.20)
Number of children ("None" as reference):		
One	-0.26**	(0.12)
Two	-0.23*	(0.13)
Three	-0.23	(0.15)
Four and more	-0.081	(0.16)
Religion ("Christian" as reference):		
Atheist	-0.23***	(0.078)
Muslim	0.49*	(0.27)
Other	0.012	(0.26)
μ_1	-0.59	(0.42)
μ_2	1.49***	(0.42)
μ_3	5.01***	(0.43)
Variance (Random intercept)	0.0062294	
Log Pseudo-likelihood	-3243.436	
AIC	6562.872	
BIC	6791.542	
Observations	3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is multilevel ordered logit.

Table 1.A22: French estimations of satisfaction with democracy: OLS estimation with department fixed effects

	Coef.	(se)
Gini index of HH income in department	3.27***	(0.89)
Unemployment rate in department	-0.048*	(0.027)
Average HH income in department	0.0000032	(0.000011)
Political position ("Centre" as reference):		
Left-wing	-0.26***	(0.039)
Right-wing	0.25***	(0.044)
Without	-0.11**	(0.050)
Work status ("Working" as reference):		
Retired	0.026	(0.070)
Housework	0.087	(0.069)
Student	0.17***	(0.059)
Unemployed	-0.054	(0.068)
Other	-0.094	(0.10)
Household income ("< 1000 €" as reference):		
[1000 – 2000] €	-0.030	(0.043)
[2000 – 3000] €	-0.034	(0.042)
> 3000 €	0.067	(0.053)
DK Refuse	-0.051	(0.052)
Political interest ("Very" as reference):		
Somewhat	0.25***	(0.039)
Not very	0.24***	(0.043)
Not at all	0.093*	(0.048)
DK Refuse	0.53	(1.06)
1 if woman	-0.038	(0.029)
1 if lives with someone	0.082***	(0.030)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.049	(0.039)
18 - 20 y.	-0.031	(0.045)
Over 20 y.	0.034	(0.039)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.0054	(0.047)
45 - 59 y.	0.033	(0.054)
60 y. and over	0.094	(0.078)
Number of children ("None" as reference):		
One	-0.091**	(0.043)
Two	-0.091*	(0.051)
Three	-0.083	(0.057)
Four and more	-0.037	(0.061)
Religion ("Christian" as reference):		
Atheist	-0.091***	(0.032)
Muslim	0.17*	(0.10)
Other	-0.039	(0.10)
Constant	1.13*	(0.67)
Department FE	yes	
R squared	0.1479	
Log likelihood	-3292.198	
AIC	6654.396	
BIC	6865.014	
Observations	3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is OLS with department fixed effects.

Table 1.A23: French estimations of satisfaction with democracy: Interdecile ratio as sociotropic effective income inequality

	Coef.	(se)
Interdecile ratio	-0.015	(0.017)
Unemployment rate	0.010	(0.012)
GDP per capita	0.000013***	(0.0000044)
Political position ("Centre" as reference):		
Left-wing	-0.26***	(0.037)
Right-wing	0.25***	(0.043)
Without	-0.092*	(0.047)
Work status ("Working" as reference):		
Retired	0.043	(0.068)
Housework	0.080	(0.066)
Student	0.16***	(0.055)
Unemployed	-0.049	(0.066)
Other	-0.089	(0.10)
Household income ("< 1000 €" as reference):		
[1000 – 2000] €	-0.019	(0.042)
[2000 – 3000] €	-0.025	(0.043)
> 3000 €	0.076	(0.052)
DK Refuse	-0.029	(0.050)
1 if woman	-0.034	(0.028)
1 if lives with someone	0.078***	(0.029)
School leaving age ("Under 14 y." as reference):		
15 - 17 y.	-0.042	(0.039)
18 - 20 y.	-0.030	(0.044)
Over 20 y.	0.042	(0.040)
Age ("18 - 29 y." as reference):		
30 - 44 y.	-0.00091	(0.044)
45 - 59 y.	0.037	(0.051)
60 y. and over	0.088	(0.075)
Number of children ("None" as reference):		
One	-0.11**	(0.042)
Two	-0.097*	(0.050)
Three	-0.089	(0.056)
Four and more	-0.042	(0.059)
Religion ("Christian" as reference):		
Atheist	-0.091***	(0.031)
Muslim	0.20**	(0.098)
Other	-0.035	(0.096)
Constant	1.71***	(0.16)
Standard deviation (Random intercept)	0.0360224	
Log Pseudo-likelihood	-3338.012	
AIC	6750.023	
BIC	6972.676	
Observations	3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

1.I Discussion 1: Complete estimations tables

1.I.1 For international estimations

Table 1.A24: International estimations of satisfaction with democracy with interaction between the Gini index and respondent's political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Gini index	-1.35	(1.74)	-1.28	(1.71)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	0.15	(0.17)
Right-wing	0.082***	(0.025)	-0.026	(0.15)
Without	-0.087***	(0.016)	-0.13	(0.096)
Left-wing X Gini index			-0.57	(0.41)
Right-wing X Gini index			0.26	(0.33)
Without X Gini index			0.10	(0.21)
Unemployment rate	-0.0094	(0.022)	-0.0095	(0.022)
GDP per capita	-0.00000093	(0.0000037)	-0.00000086	(0.0000037)
Work status ("Working" as reference):				
Retired	-0.0040	(0.016)	-0.0036	(0.016)
Housework	0.056***	(0.020)	0.054***	(0.019)
Student	0.063***	(0.015)	0.063***	(0.015)
Unemployed	-0.099***	(0.031)	-0.097***	(0.032)
Other	-0.032	(0.022)	-0.032	(0.022)
DK Refuse	-0.039	(0.058)	-0.038	(0.058)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	0.046***	(0.011)
High	0.11***	(0.019)	0.11***	(0.019)
DK Refuse	0.041***	(0.016)	0.041***	(0.016)
Political interest ("Very" as reference):				
Somewhat	0.033**	(0.014)	0.033**	(0.014)
Not very	-0.0063	(0.022)	-0.0065	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.34**	(0.14)
1 if woman	-0.0019	(0.011)	-0.0021	(0.011)
1 if lives with someone	0.026***	(0.0099)	0.026***	(0.0098)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.054***	(0.017)	-0.052***	(0.016)
18 - 20 y.	-0.010	(0.017)	-0.0096	(0.016)
Over 20 y.	0.028*	(0.016)	0.029*	(0.015)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.034**	(0.014)	-0.034**	(0.014)
45 - 59 y.	-0.072***	(0.017)	-0.073***	(0.017)
60 y. and over	-0.010	(0.019)	-0.011	(0.019)
Number of children ("None" as reference):				
One	-0.026**	(0.012)	-0.026**	(0.012)
Two	-0.020	(0.015)	-0.020	(0.015)
Three	-0.048***	(0.017)	-0.049***	(0.017)
Four and more	-0.045**	(0.022)	-0.046**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.089***	(0.028)	-0.090***	(0.027)
Muslim	0.23***	(0.031)	0.22***	(0.029)
Other	-0.026	(0.027)	-0.026	(0.026)
Constant	3.21***	(0.75)	3.18***	(0.74)
Standard deviation (Random intercept)	0.2083481		0.2070733	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64591.28		-64573.94	
AIC	129258.6		129229.9	
BIC	129600.5		129598.8	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is MLE with random effects of country.

Table 1.A25: International estimations of satisfaction with democracy with interaction between unemployment rate and respondent's political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Unemployment rate	-0.0094	(0.022)	-0.0091	(0.023)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.058	(0.051)
Right-wing	0.082***	(0.025)	0.048	(0.060)
Without	-0.087***	(0.016)	-0.055	(0.039)
Left-wing X Unemployment rate			-0.0035	(0.0070)
Right-wing X Unemployment rate			0.0046	(0.0068)
Without X Unemployment rate			-0.0039	(0.0040)
Gini index	-1.35	(1.74)	-1.35	(1.74)
GDP per capita	-0.00000093	(0.0000037)	-0.00000086	(0.0000037)
Work status ("Working" as reference):				
Retired	-0.0040	(0.016)	-0.0037	(0.016)
Housework	0.056***	(0.020)	0.056***	(0.020)
Student	0.063***	(0.015)	0.063***	(0.014)
Unemployed	-0.099***	(0.031)	-0.098***	(0.032)
Other	-0.032	(0.022)	-0.033	(0.022)
DK Refuse	-0.039	(0.058)	-0.039	(0.058)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	0.046***	(0.011)
High	0.11***	(0.019)	0.11***	(0.019)
DK Refuse	0.041***	(0.016)	0.041***	(0.016)
Political interest ("Very" as reference):				
Somewhat	0.033**	(0.014)	0.033**	(0.014)
Not very	-0.0063	(0.022)	-0.0070	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.34**	(0.14)
1 if woman	-0.0019	(0.011)	-0.0023	(0.011)
1 if lives with someone	0.026***	(0.0099)	0.026***	(0.0098)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.054***	(0.017)	-0.053***	(0.017)
18 - 20 y.	-0.010	(0.017)	-0.010	(0.017)
Over 20 y.	0.028*	(0.016)	0.028*	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.034**	(0.014)	-0.034**	(0.014)
45 - 59 y.	-0.072***	(0.017)	-0.072***	(0.017)
60 y. and over	-0.010	(0.019)	-0.011	(0.019)
Number of children ("None" as reference):				
One	-0.026**	(0.012)	-0.026**	(0.012)
Two	-0.020	(0.015)	-0.020	(0.015)
Three	-0.048***	(0.017)	-0.048***	(0.017)
Four and more	-0.045**	(0.022)	-0.045**	(0.022)
Religion ("Christian" as reference):				
Atheist	-0.089***	(0.028)	-0.090***	(0.027)
Muslim	0.23***	(0.031)	0.22***	(0.029)
Other	-0.026	(0.027)	-0.026	(0.027)
Constant	3.21***	(0.75)	3.20***	(0.75)
Standard deviation (Random intercept)	0.2083483		0.2072676	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64591.28		-64585.24	
AIC	129258.6		129252.5	
BIC	129600.5		129621.4	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

Table 1.A26: International estimations of satisfaction with democracy with interaction between respondent's household income and political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	0.056***	(0.015)
High	0.11***	(0.019)	0.11***	(0.021)
DK Refuse	0.041***	(0.016)	0.049***	(0.018)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.091***	(0.029)
Right-wing	0.082***	(0.025)	0.12***	(0.024)
Without	-0.087***	(0.016)	-0.095***	(0.020)
Left-wing X Medium HH income			-0.012	(0.017)
Left-wing X High HH income			0.020	(0.022)
Left-wing X DK Refuse			0.032	(0.021)
Right-wing X Medium HH income			-0.047**	(0.023)
Right-wing X High HH income			-0.032	(0.027)
Right-wing X DK Refuse			-0.061	(0.039)
Without X Medium HH income			0.017	(0.020)
Without X High HH income			0.038	(0.025)
Without X DK Refuse			-0.0066	(0.022)
Gini index	-1.35	(1.74)	-1.34	(1.74)
Unemployment rate	-0.0094	(0.022)	-0.0093	(0.022)
GDP per capita	-0.00000093	(0.0000037)	-0.00000092	(0.0000037)
Work status ("Working" as reference):				
Retired	-0.0040	(0.016)	-0.0042	(0.016)
Housework	0.056***	(0.020)	0.057***	(0.020)
Student	0.063***	(0.015)	0.062***	(0.014)
Unemployed	-0.099***	(0.031)	-0.098***	(0.031)
Other	-0.032	(0.022)	-0.032	(0.022)
DK Refuse	-0.039	(0.058)	-0.037	(0.058)
Political interest ("Very" as reference):				
Somewhat	0.033**	(0.014)	0.033**	(0.014)
Not very	-0.0063	(0.022)	-0.0068	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.33**	(0.14)
1 if woman	-0.0019	(0.011)	-0.0025	(0.011)
1 if lives with someone	0.026***	(0.0099)	0.025**	(0.0100)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.054***	(0.017)	-0.053***	(0.017)
18 - 20 y.	-0.010	(0.017)	-0.010	(0.017)
Over 20 y.	0.028*	(0.016)	0.029*	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.034**	(0.014)	-0.033**	(0.014)
45 - 59 y.	-0.072***	(0.017)	-0.072***	(0.017)
60 y. and over	-0.010	(0.019)	-0.010	(0.019)
Number of children ("None" as reference):				
One	-0.026**	(0.012)	-0.025**	(0.012)
Two	-0.020	(0.015)	-0.019	(0.015)
Three	-0.048***	(0.017)	-0.048***	(0.017)
Four and more	-0.045**	(0.022)	-0.045**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.089***	(0.028)	-0.090***	(0.027)
Muslim	0.23***	(0.031)	0.23***	(0.031)
Other	-0.026	(0.027)	-0.026	(0.027)
Constant	3.21***	(0.75)	3.20***	(0.75)
Standard deviation (Random intercept)	0.2083483		0.2081372	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64591.28		-64581.03	
AIC	129258.6		129256.1	
BIC	129600.5		129679	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

Table 1.A27: International estimations of satisfaction with democracy with interaction between the respondent's unemployed status and political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
1 if unemployed	0.066***	(0.018)	0.048**	(0.023)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.085***	(0.020)
Right-wing	0.082***	(0.025)	0.077***	(0.027)
Without	-0.088***	(0.016)	-0.092***	(0.017)
Left-wing X Unemployed			-0.0051	(0.052)
Right-wing X Unemployed			0.053	(0.033)
Without X Unemployed			0.033	(0.027)
Gini index	-1.34	(1.74)	-1.34	(1.74)
Unemployment rate	-0.0097	(0.022)	-0.0097	(0.022)
GDP per capita	-0.00000090	(0.0000037)	-0.00000091	(0.0000037)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	*omitted*	
High	0.11***	(0.019)	*omitted*	
DK Refuse	0.041***	(0.016)	*omitted*	
Political interest ("Very" as reference):				
Somewhat	0.034**	(0.014)	0.034**	(0.014)
Not very	-0.0063	(0.022)	-0.0065	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.33**	(0.14)
1 if woman	-0.0015	(0.011)	-0.0017	(0.011)
1 if lives with someone	0.024**	(0.010)	0.024**	(0.010)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.057***	(0.017)	-0.057***	(0.017)
18 - 20 y.	-0.011	(0.017)	-0.011	(0.017)
Over 20 y.	0.035**	(0.016)	0.035**	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.046***	(0.014)	-0.046***	(0.014)
45 - 59 y.	-0.085***	(0.018)	-0.085***	(0.018)
60 y. and over	-0.017	(0.021)	-0.018	(0.021)
Number of children ("None" as reference):				
One	-0.031**	(0.013)	-0.030**	(0.013)
Two	-0.022	(0.016)	-0.022	(0.016)
Three	-0.051***	(0.017)	-0.051***	(0.017)
Four and more	-0.049**	(0.021)	-0.049**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.028)	-0.091***	(0.028)
Muslim	0.22***	(0.033)	0.22***	(0.033)
Other	-0.028	(0.027)	-0.028	(0.027)
Constant	3.21***	(0.75)	3.21***	(0.75)
Standard deviation (Random intercept)	0.2086117		0.2086891	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64635.43		-64632.81	
AIC	129336.9		129337.6	
BIC	129633.8		129661.5	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

Household income is omitted in the interaction estimation because of collinearity.

1.I.2 For French estimations

Table 1.A28: French estimations of satisfaction with democracy with interaction between the Gini index and respondent's political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Gini index of HH income in department	-0.52	(0.68)	0.98	(0.84)
Political position ("Centre" as reference):				
Left-wing	-0.26***	(0.037)	0.77**	(0.37)
Right-wing	0.25***	(0.043)	0.95***	(0.31)
Without	-0.092*	(0.047)	-0.64	(0.72)
Left-wing X Gini index			-2.63***	(0.95)
Right-wing X Gini index			-1.77**	(0.77)
Without X Gini index			1.44	(1.84)
Unemployment rate in department	0.0078	(0.011)	0.0060	(0.011)
Average HH income in department	0.000013***	(0.0000047)	0.000013***	(0.0000047)
Work status ("Working" as reference):				
Retired	0.044	(0.068)	0.044	(0.068)
Housework	0.081	(0.066)	0.078	(0.066)
Student	0.16***	(0.055)	0.16***	(0.055)
Unemployed	-0.049	(0.066)	-0.050	(0.066)
Other	-0.089	(0.10)	-0.093	(0.10)
Household income ("< 1000 €" as reference):				
[1000 – 2000] €	-0.019	(0.042)	-0.018	(0.042)
[2000 – 3000] €	-0.026	(0.043)	-0.025	(0.043)
> 3000 €	0.076	(0.052)	0.080	(0.051)
DK Refuse	-0.029	(0.050)	-0.030	(0.050)
Political interest ("Very" as reference):				
Somewhat	0.25***	(0.039)	0.25***	(0.040)
Not very	0.22***	(0.042)	0.23***	(0.042)
Not at all	0.073	(0.048)	0.072	(0.049)
DK Refuse	0.63	(0.94)	0.61	(0.95)
1 if woman	-0.034	(0.028)	-0.032	(0.028)
1 if lives with someone	0.078***	(0.029)	0.079***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.042	(0.039)	-0.043	(0.039)
18 - 20 y.	-0.030	(0.044)	-0.032	(0.044)
Over 20 y.	0.042	(0.040)	0.038	(0.039)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.0012	(0.044)	-0.0037	(0.044)
45 - 59 y.	0.037	(0.051)	0.032	(0.052)
60 y. and over	0.087	(0.075)	0.080	(0.075)
Number of children ("None" as reference):				
One	-0.11**	(0.042)	-0.11***	(0.041)
Two	-0.097*	(0.050)	-0.096*	(0.050)
Three	-0.088	(0.056)	-0.084	(0.057)
Four and more	-0.041	(0.059)	-0.040	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.031)	-0.088***	(0.030)
Muslim	0.19**	(0.097)	0.20**	(0.098)
Other	-0.037	(0.096)	-0.039	(0.096)
Constant	1.84***	(0.16)	1.27***	(0.29)
Standard deviation (Random intercept)	0.0368785		0.0351731	
Log Pseudo-likelihood	-3338.112		-3334.189	
AIC	6750.224		6748.377	
BIC	6972.876		6989.083	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

Table 1.A29: French estimations of satisfaction with democracy with interaction between unemployment rate and respondent's political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Unemployment rate in department	0.0078	(0.011)	-0.00089	(0.015)
Political position ("Centre" as reference):				
Left-wing	-0.26***	(0.037)	-0.36**	(0.15)
Right-wing	0.25***	(0.043)	0.23	(0.20)
Without	-0.092*	(0.047)	-0.34*	(0.18)
Left-wing X Unemployment rate			0.014	(0.020)
Right-wing X Unemployment rate			0.0036	(0.029)
Without X Unemployment rate			0.033	(0.022)
Gini index of HH income in department	-0.52	(0.68)	-0.49	(0.69)
Average HH income in department	0.000013***	(0.0000047)	0.000013***	(0.0000048)
Work status ("Working" as reference):				
Retired	0.044	(0.068)	0.044	(0.068)
Housework	0.081	(0.066)	0.080	(0.066)
Student	0.16***	(0.055)	0.16***	(0.055)
Unemployed	-0.049	(0.066)	-0.050	(0.066)
Other	-0.089	(0.10)	-0.090	(0.10)
Household income ("< 1000 €" as reference):				
[1000 – 2000] €	-0.019	(0.042)	-0.020	(0.042)
[2000 – 3000] €	-0.026	(0.043)	-0.025	(0.043)
> 3000 €	0.076	(0.052)	0.075	(0.051)
DK Refuse	-0.029	(0.050)	-0.028	(0.050)
Political interest ("Very" as reference):				
Somewhat	0.25***	(0.039)	0.25***	(0.039)
Not very	0.22***	(0.042)	0.22***	(0.042)
Not at all	0.073	(0.048)	0.072	(0.048)
DK Refuse	0.63	(0.94)	0.63	(0.94)
1 if woman	-0.034	(0.028)	-0.035	(0.028)
1 if lives with someone	0.078***	(0.029)	0.079***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.042	(0.039)	-0.042	(0.039)
18 - 20 y.	-0.030	(0.044)	-0.030	(0.045)
Over 20 y.	0.042	(0.040)	0.042	(0.040)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.0012	(0.044)	-0.0020	(0.044)
45 - 59 y.	0.037	(0.051)	0.036	(0.051)
60 y. and over	0.087	(0.075)	0.087	(0.075)
Number of children ("None" as reference):				
One	-0.11**	(0.042)	-0.11**	(0.042)
Two	-0.097*	(0.050)	-0.096*	(0.050)
Three	-0.088	(0.056)	-0.087	(0.056)
Four and more	-0.041	(0.059)	-0.041	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.031)	-0.091***	(0.031)
Muslim	0.19**	(0.097)	0.19**	(0.097)
Other	-0.037	(0.096)	-0.031	(0.096)
Constant	1.84***	(0.16)	1.90***	(0.18)
Standard deviation (Random intercept)	0.0368785		0.0374121	
Log Pseudo-likelihood	-3338.112		-3337.422	
AIC	6750.224		6754.843	
BIC	6972.876		6995.549	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

Table 1.A30: French estimations of satisfaction with democracy with interaction between respondent's household income and political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Household income ("Low" as reference):				
Medium	-0.017	(0.042)	0.034	(0.069)
High	0.0024	(0.042)	0.081	(0.064)
DK Refuse	-0.027	(0.050)	0.026	(0.078)
Political position ("Centre" as reference):				
Left-wing	-0.26***	(0.037)	-0.25***	(0.064)
Right-wing	0.26***	(0.044)	0.48***	(0.080)
Without	-0.094**	(0.047)	-0.039	(0.15)
Left-wing X Medium HH income			-0.0064	(0.085)
Left-wing X High HH income			-0.048	(0.089)
Left-wing X DK Refuse			0.11	(0.12)
Right-wing X Medium HH income			-0.25**	(0.11)
Right-wing X High HH income			-0.28***	(0.099)
Right-wing X DK Refuse			-0.26**	(0.11)
Without X Medium HH income			-0.0083	(0.17)
Without X High HH income			-0.029	(0.18)
Without X DK Refuse			-0.18	(0.19)
Gini index of HH income in department	-0.54	(0.68)	-0.52	(0.68)
Unemployment rate in department	0.0078	(0.011)	0.0076	(0.011)
Average HH income in department	0.000014***	(0.0000047)	0.000014***	(0.0000047)
Work status ("Working" as reference):				
Retired	0.039	(0.068)	0.042	(0.067)
Housework	0.080	(0.066)	0.086	(0.066)
Student	0.16***	(0.055)	0.16***	(0.053)
Unemployed	-0.051	(0.066)	-0.049	(0.066)
Other	-0.090	(0.10)	-0.082	(0.100)
Political interest ("Very" as reference):				
Somewhat	0.24***	(0.039)	0.25***	(0.038)
Not very	0.22***	(0.042)	0.22***	(0.043)
Not at all	0.068	(0.048)	0.071	(0.048)
DK Refuse	0.63	(0.94)	0.68	(0.94)
1 if woman	-0.036	(0.027)	-0.038	(0.028)
1 if lives with someone	0.082***	(0.029)	0.080***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.044	(0.038)	-0.039	(0.038)
18 - 20 y.	-0.028	(0.044)	-0.026	(0.045)
Over 20 y.	0.055	(0.039)	0.062	(0.040)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.00011	(0.044)	0.0018	(0.044)
45 - 59 y.	0.042	(0.051)	0.044	(0.050)
60 y. and over	0.095	(0.075)	0.097	(0.074)
Number of children ("None" as reference):				
One	-0.11**	(0.042)	-0.10**	(0.042)
Two	-0.093*	(0.050)	-0.093*	(0.050)
Three	-0.086	(0.055)	-0.090	(0.055)
Four and more	-0.041	(0.059)	-0.041	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.030)	-0.087***	(0.030)
Muslim	0.19**	(0.097)	0.19**	(0.098)
Other	-0.033	(0.098)	-0.021	(0.099)
Constant	1.81***	(0.16)	1.74***	(0.17)
Standard deviation (Random intercept)	0.038749		0.036207	
Log Pseudo-likelihood	-3340.239		-3333.176	
AIC	6752.478		6756.352	
BIC	6969.113		7027.146	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Table 1.A31: French estimations of satisfaction with democracy with interaction between the respondent's unemployed status and political position

	Overall		Interaction	
	Coef	(se)	Coef	(se)
1 if unemployed	-0.069	(0.065)	-0.086	(0.11)
Political position ("Centre" as reference):				
Left-wing	-0.27***	(0.037)	-0.27***	(0.040)
Right-wing	0.25***	(0.043)	0.25***	(0.044)
Without	-0.096**	(0.048)	-0.092*	(0.050)
Left-wing X Unemployed			0.071	(0.14)
Right-wing X Unemployed			-0.017	(0.19)
Without X Unemployed			-0.033	(0.16)
Gini index of HH income in department	-0.55	(0.68)	-0.55	(0.68)
Unemployment rate in department	0.0089	(0.011)	0.0090	(0.011)
Average HH income in department	0.000013***	(0.0000047)	0.000013***	(0.0000047)
Household income ("< 1000 €" as reference):				
[1000 – 2000] €	-0.021	(0.042)	-0.020	(0.042)
[2000 – 3000] €	-0.027	(0.043)	-0.027	(0.043)
> 3000 €	0.074	(0.052)	0.075	(0.052)
DK Refuse	-0.017	(0.051)	-0.017	(0.051)
Political interest ("Very" as reference):				
Somewhat	0.25***	(0.039)	0.25***	(0.039)
Not very	0.23***	(0.042)	0.23***	(0.042)
Not at all	0.072	(0.048)	0.073	(0.048)
DK Refuse	0.61	(0.96)	0.61	(0.96)
1 if woman	-0.028	(0.026)	-0.028	(0.026)
1 if lives with someone	0.079***	(0.029)	0.079***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.044	(0.039)	-0.043	(0.039)
18 - 20 y.	-0.032	(0.045)	-0.033	(0.045)
Over 20 y.	0.052	(0.039)	0.053	(0.040)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.040	(0.044)	-0.041	(0.044)
45 - 59 y.	-0.0011	(0.050)	-0.0024	(0.050)
60 y. and over	0.085*	(0.050)	0.084*	(0.050)
Number of children ("None" as reference):				
One	-0.11***	(0.042)	-0.11***	(0.042)
Two	-0.096*	(0.049)	-0.095*	(0.049)
Three	-0.085	(0.056)	-0.084	(0.056)
Four and more	-0.034	(0.057)	-0.033	(0.058)
Religion ("Christian" as reference):				
Atheist	-0.088***	(0.030)	-0.088***	(0.030)
Muslim	0.20**	(0.094)	0.20**	(0.094)
Other	-0.034	(0.098)	-0.035	(0.098)
Constant	1.87***	(0.16)	1.88***	(0.16)
Standard deviation (Random intercept)	0.034397		0.0335905	
Log Pseudo-likelihood	-3342.37		-3342.136	
AIC	6750.739		6756.272	
BIC	6949.321		6972.907	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

1.J Discussion 2: Complete estimations tables

1.J.1 For international estimations

Table 1.A32: International estimations of satisfaction with democracy with interaction between the Gini index and respondent's household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Gini index	-1.35	(1.74)	-1.03	(1.70)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	0.16**	(0.074)
High	0.11***	(0.019)	0.39***	(0.13)
DK Refuse	0.041***	(0.016)	0.18*	(0.10)
Medium HH income X Gini index			-0.27	(0.17)
High HH income X Gini index			-0.65**	(0.31)
DK Refuse HH income X Gini index			-0.32	(0.24)
Unemployment rate	-0.0094	(0.022)	-0.0088	(0.023)
GDP per capita	-0.00000093	(0.0000037)	-0.0000010	(0.0000038)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.084***	(0.021)
Right-wing	0.082***	(0.025)	0.082***	(0.025)
Without	-0.087***	(0.016)	-0.087***	(0.016)
Work status ("Working" as reference):				
Retired	-0.0040	(0.016)	-0.00089	(0.017)
Housework	0.056***	(0.020)	0.056***	(0.020)
Student	0.063***	(0.015)	0.064***	(0.015)
Unemployed	-0.099***	(0.031)	-0.10***	(0.031)
Other	-0.032	(0.022)	-0.030	(0.021)
DK Refuse	-0.039	(0.058)	-0.038	(0.058)
Political interest ("Very" as reference):				
Somewhat	0.033**	(0.014)	0.033**	(0.014)
Not very	-0.0063	(0.022)	-0.0061	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.33**	(0.14)
1 if woman	-0.0019	(0.011)	-0.0015	(0.011)
1 if lives with someone	0.026***	(0.0099)	0.024**	(0.010)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.054***	(0.017)	-0.050***	(0.017)
18 - 20 y.	-0.010	(0.017)	-0.0081	(0.017)
Over 20 y.	0.028*	(0.016)	0.031*	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.034**	(0.014)	-0.033**	(0.014)
45 - 59 y.	-0.072***	(0.017)	-0.071***	(0.018)
60 y. and over	-0.010	(0.019)	-0.0092	(0.020)
Number of children ("None" as reference):				
One	-0.026**	(0.012)	-0.026**	(0.012)
Two	-0.020	(0.015)	-0.020	(0.015)
Three	-0.048***	(0.017)	-0.049***	(0.017)
Four and more	-0.045**	(0.022)	-0.048**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.089***	(0.028)	-0.090***	(0.028)
Muslim	0.23***	(0.031)	0.22***	(0.030)
Other	-0.026	(0.027)	-0.025	(0.027)
Constant	3.21***	(0.75)	3.07***	(0.73)
Standard deviation (Random intercept)	0.2083483		0.2100923	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64591.28		-64579.03	
AIC	129258.6		129240.1	
BIC	129600.5		129609	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$
The dependent variable is the satisfaction with democracy in 4 items.
The method estimation is MLE with random effects of country.

Table 1.A33: International estimations of satisfaction with democracy with interaction between unemployment rate and respondent's household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Unemployment rate	-0.0094	(0.022)	-0.0083	(0.025)
Household income ("Low" as reference):				
Medium	0.046***	(0.011)	0.049	(0.030)
High	0.11***	(0.019)	0.11**	(0.051)
DK Refuse	0.041***	(0.016)	0.097**	(0.048)
Medium HH income X Gini index			-0.00048	(0.0040)
High HH income X Gini index			0.00041	(0.0068)
DK Refuse HH income X Gini index			-0.0075	(0.0064)
Gini index	-1.35	(1.74)	-1.33	(1.74)
GDP per capita	-0.00000093	(0.0000037)	-0.00000077	(0.0000038)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.085***	(0.021)
Right-wing	0.082***	(0.025)	0.082***	(0.025)
Without	-0.087***	(0.016)	-0.086***	(0.016)
Work status ("Working" as reference):				
Retired	-0.0040	(0.016)	-0.0042	(0.016)
Housework	0.056***	(0.020)	0.056***	(0.020)
Student	0.063***	(0.015)	0.062***	(0.015)
Unemployed	-0.099***	(0.031)	-0.099***	(0.031)
Other	-0.032	(0.022)	-0.032	(0.021)
DK Refuse	-0.039	(0.058)	-0.041	(0.057)
Political interest ("Very" as reference):				
Somewhat	0.033**	(0.014)	0.033**	(0.014)
Not very	-0.0063	(0.022)	-0.0066	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.34**	(0.14)
1 if woman	-0.0019	(0.011)	-0.0020	(0.011)
1 if lives with someone	0.026***	(0.0099)	0.026**	(0.010)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.054***	(0.017)	-0.053***	(0.017)
18 - 20 y.	-0.010	(0.017)	-0.010	(0.017)
Over 20 y.	0.028*	(0.016)	0.028*	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.054***	(0.017)	-0.053***	(0.017)
45 - 59 y.	-0.010	(0.017)	-0.010	(0.017)
60 y. and over	0.028*	(0.016)	0.028*	(0.016)
Number of children ("None" as reference):				
One	-0.026**	(0.012)	-0.025**	(0.012)
Two	-0.020	(0.015)	-0.020	(0.015)
Three	-0.048***	(0.017)	-0.048***	(0.017)
Four and more	-0.045**	(0.022)	-0.045**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.089***	(0.028)	-0.089***	(0.028)
Muslim	0.23***	(0.031)	0.23***	(0.031)
Other	-0.026	(0.027)	-0.027	(0.027)
Constant	3.21***	(0.75)	3.18***	(0.74)
Standard deviation (Random intercept)	0.2083483		0.2053941	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64591.28		-64586.32	
AIC	129258.6		129254.6	
BIC	129600.5		129623.6	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

Table 1.A34: International estimations of satisfaction with democracy with interaction between the respondent's unemployed status and household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
1 if unemployed	0.066***	(0.018)	0.11***	(0.040)
Household income ("Low" as reference):				
Medium	0.052***	(0.012)	0.057***	(0.013)
High	0.13***	(0.020)		
DK Refuse	0.048***	(0.017)	0.055***	(0.017)
Medium HH income X Unemployed			-0.041	(0.040)
High HH income X Unemployed			-0.092*	(0.048)
DK Refuse HH income X Unemployed			-0.061	(0.044)
Gini index	-1.34	(1.74)	-1.35	(1.75)
Unemployment rate	-0.0097	(0.022)	-0.0095	(0.022)
GDP per capita	-0.00000090	(0.0000037)	-0.00000093	(0.0000038)
Political position ("Centre" as reference):				
Left-wing	-0.085***	(0.021)	-0.085***	(0.021)
Right-wing	0.082***	(0.025)	0.082***	(0.025)
Without	-0.088***	(0.016)	-0.089***	(0.016)
Political interest ("Very" as reference):				
Somewhat	0.034**	(0.014)	0.034**	(0.014)
Not very	-0.0063	(0.022)	-0.0062	(0.022)
Not at all	-0.13***	(0.026)	-0.13***	(0.026)
DK Refuse	-0.33**	(0.14)	-0.34**	(0.14)
1 if woman	-0.0015	(0.011)	-0.0013	(0.011)
1 if lives with someone	0.024**	(0.010)	0.024**	(0.010)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.057***	(0.017)	-0.056***	(0.017)
18 - 20 y.	-0.011	(0.017)	-0.011	(0.017)
Over 20 y.	0.035**	(0.016)	0.035**	(0.016)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.046***	(0.014)	-0.046***	(0.014)
45 - 59 y.	-0.085***	(0.018)	-0.084***	(0.018)
60 y. and over	-0.017	(0.021)	-0.017	(0.022)
Number of children ("None" as reference):				
One	-0.031**	(0.013)	-0.031**	(0.013)
Two	-0.022	(0.016)	-0.022	(0.016)
Three	-0.051***	(0.017)	-0.051***	(0.017)
Four and more	-0.049**	(0.021)	-0.049**	(0.021)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.028)	-0.091***	(0.028)
Muslim	0.22***	(0.033)	0.22***	(0.033)
Other	-0.028	(0.027)	-0.028	(0.027)
Constant	3.21***	(0.75)	3.21***	(0.75)
Standard deviation (Random intercept)	0.2086113		0.209273	
EVS wave FE	yes		yes	
Log Pseudo-likelihood	-64635.43		-64630.47	
AIC	129336.9		129332.9	
BIC	129633.8		129656.9	
Observations	59,745		59,745	

The s.e. are clustered at country level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of country.

1.J.2 For French estimations

Table 1.A35: French estimations of satisfaction with democracy with interaction between the Gini index and respondent's household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Gini index of HH income in department	-0.54	(0.68)	-0.46	(0.87)
Household income ("Low" as reference):				
Medium	-0.017	(0.042)	-0.62*	(0.37)
High	0.0024	(0.042)	0.43	(0.28)
DK Refuse	-0.027	(0.050)	-0.68	(0.53)
Medium HH income X Gini index			1.53	(0.93)
High HH income X Gini index			-1.09	(0.68)
DK Refuse HH income X Gini index			1.67	(1.32)
Unemployment rate in department	0.0078	(0.011)	0.0051	(0.011)
Average HH income in department	0.000014***	(0.0000047)	0.000014***	(0.0000047)
Political position ("Centre" as reference):				
Left-wing	-0.26***	(0.037)	-0.26***	(0.037)
Right-wing	0.26***	(0.044)	0.26***	(0.044)
Without	-0.094**	(0.047)	-0.095**	(0.047)
Work status ("Working" as reference):				
Retired	0.039	(0.068)	0.040	(0.068)
Housework	0.080	(0.066)	0.086	(0.066)
Student	0.16***	(0.055)	0.16***	(0.054)
Unemployed	-0.051	(0.066)	-0.047	(0.066)
Other	-0.090	(0.10)	-0.084	(0.10)
Political interest ("Very" as reference):				
Somewhat	0.24***	(0.039)	0.24***	(0.038)
Not very	0.22***	(0.042)	0.22***	(0.043)
Not at all	0.068	(0.048)	0.066	(0.048)
DK Refuse	0.63	(0.94)	0.63	(0.95)
1 if woman	-0.036	(0.027)	-0.038	(0.028)
1 if lives with someone	0.082***	(0.029)	0.081***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.044	(0.038)	-0.045	(0.038)
18 - 20 y.	-0.028	(0.044)	-0.032	(0.044)
Over 20 y.	0.055	(0.039)	0.054	(0.039)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.00011	(0.044)	-0.0012	(0.045)
45 - 59 y.	0.042	(0.051)	0.042	(0.051)
60 y. and over	0.095	(0.075)	0.094	(0.074)
Number of children ("None" as reference):				
One	-0.11**	(0.042)	-0.10**	(0.042)
Two	-0.093*	(0.050)	-0.093*	(0.050)
Three	-0.086	(0.055)	-0.083	(0.057)
Four and more	-0.041	(0.059)	-0.042	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.030)	-0.093***	(0.030)
Muslim	0.19**	(0.097)	0.18*	(0.095)
Other	-0.033	(0.098)	-0.042	(0.10)
Constant	1.81***	(0.16)	1.82***	(0.27)
Standard deviation (Random intercept)	0.038749		0.0424809	
Log Pseudo-likelihood	-3340.239		-3336.714	
AIC	6752.478		6751.428	
BIC	6969.113		6986.116	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Table 1.A36: French estimations of satisfaction with democracy with interaction between unemployment rate and respondent's household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
Unemployment rate in department	0.0078	(0.011)	0.023	(0.022)
Household income ("Low" as reference):				
Medium	-0.017	(0.042)	0.059	(0.21)
High	0.0024	(0.042)	0.19	(0.17)
DK Refuse	-0.027	(0.050)	0.19	(0.20)
Medium HH income X Unemployment rate			-0.010	(0.029)
High HH income X Unemployment rate			-0.026	(0.023)
DK Refuse HH income X Unemployment rate			-0.030	(0.024)
Gini index of HH income in department	-0.54	(0.68)	-0.50	(0.68)
Average HH income in department	0.000014***	(0.0000047)	0.000014***	(0.0000047)
Political position ("Centre" as reference):				
Left-wing	-0.26***	(0.037)	-0.26***	(0.037)
Right-wing	0.26***	(0.044)	0.26***	(0.044)
Without	-0.094**	(0.047)	-0.096**	(0.046)
Work status ("Working" as reference):				
Retired	0.039	(0.068)	0.041	(0.068)
Housework	0.080	(0.066)	0.081	(0.065)
Student	0.16***	(0.055)	0.16***	(0.055)
Unemployed	-0.051	(0.066)	-0.051	(0.065)
Other	-0.090	(0.10)	-0.090	(0.10)
Political interest ("Very" as reference):				
Somewhat	0.24***	(0.039)	0.24***	(0.039)
Not very	0.22***	(0.042)	0.22***	(0.042)
Not at all	0.068	(0.048)	0.067	(0.049)
DK Refuse	0.63	(0.94)	0.64	(0.92)
1 if woman	-0.036	(0.027)	-0.037	(0.028)
1 if lives with someone	0.082***	(0.029)	0.083***	(0.029)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.044	(0.038)	-0.044	(0.038)
18 - 20 y.	-0.028	(0.044)	-0.028	(0.044)
Over 20 y.	0.055	(0.039)	0.055	(0.039)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.00011	(0.044)	-0.00040	(0.044)
45 - 59 y.	0.042	(0.051)	0.041	(0.051)
60 y. and over	0.095	(0.075)	0.093	(0.074)
Number of children ("None" as reference):				
One	-0.11**	(0.042)	-0.11**	(0.042)
Two	-0.093*	(0.050)	-0.092*	(0.050)
Three	-0.086	(0.055)	-0.085	(0.055)
Four and more	-0.041	(0.059)	-0.042	(0.059)
Religion ("Christian" as reference):				
Atheist	-0.091***	(0.030)	-0.090***	(0.031)
Muslim	0.19**	(0.097)	0.19**	(0.096)
Other	-0.033	(0.098)	-0.033	(0.098)
Constant	1.81***	(0.16)	1.69***	(0.22)
Standard deviation (Random intercept)	0.038749		0.0377983	
Log Pseudo-likelihood	-3340.239		-3339.408	
AIC	6752.478		6756.817	
BIC	6969.113		6991.504	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Table 1.A37: French estimations of satisfaction with democracy with interaction between the respondent's unemployed status and household income

	Overall		Interaction	
	Coef	(se)	Coef	(se)
1 if unemployed	-0.070	(0.065)	-0.049	(0.13)
Household income ("Low" as reference):				
Medium	-0.019	(0.042)	-0.020	(0.039)
High	0.0011	(0.042)	0.0076	(0.041)
DK Refuse	-0.015	(0.051)	-0.015	(0.051)
Medium HH income X Unemployed			0.041	(0.17)
High HH income X Unemployed			-0.14	(0.20)
DK Refuse X Unemployed			0.020	(0.26)
Gini index of HH income in department	-0.56	(0.68)	-0.57	(0.67)
Unemployment rate in department	0.0089	(0.011)	0.0091	(0.011)
Average HH income in department	0.000014***	(0.0000047)	0.000014***	(0.0000046)
Political position ("Centre" as reference):				
Left-wing	-0.27***	(0.037)	-0.27***	(0.037)
Right-wing	0.26***	(0.044)	0.26***	(0.044)
Without	-0.098**	(0.047)	-0.098**	(0.047)
Political interest ("Very" as reference):				
Somewhat	0.24***	(0.039)	0.24***	(0.039)
Not very	0.22***	(0.042)	0.22***	(0.042)
Not at all	0.068	(0.048)	0.066	(0.048)
DK Refuse	0.61	(0.96)	0.61	(0.96)
1 if woman	-0.030	(0.026)	-0.029	(0.026)
1 if lives with someone	0.083***	(0.028)	0.084***	(0.028)
School leaving age ("Under 14 y." as reference):				
15 - 17 y.	-0.046	(0.038)	-0.047	(0.038)
18 - 20 y.	-0.030	(0.045)	-0.031	(0.044)
Over 20 y.	0.065*	(0.039)	0.065*	(0.039)
Age ("18 - 29 y." as reference):				
30 - 44 y.	-0.038	(0.044)	-0.039	(0.044)
45 - 59 y.	0.0043	(0.050)	0.0039	(0.050)
60 y. and over	0.089*	(0.050)	0.089*	(0.050)
Number of children ("None" as reference):				
One	-0.11***	(0.042)	-0.11***	(0.042)
Two	-0.093*	(0.049)	-0.095*	(0.049)
Three	-0.083	(0.055)	-0.085	(0.056)
Four and more	-0.033	(0.057)	-0.033	(0.058)
Religion ("Christian" as reference):				
Atheist	-0.088***	(0.030)	-0.090***	(0.030)
Muslim	0.20**	(0.094)	0.20**	(0.094)
Other	-0.030	(0.100)	-0.029	(0.10)
Constant	1.85***	(0.16)	1.85***	(0.16)
Standard deviation (Random intercept)	0.0362101		0.0349123	
Log Pseudo-likelihood	-3344.46		-3343.692	
AIC	6752.919		6757.384	
BIC	6945.483		6968.001	
Observations	3,034		3,034	

The s.e. are clustered at department level. $***p < 0.01, **p < 0.05, *p < 0.1$

The dependent variable is the satisfaction with democracy in 4 items.

The method estimation is MLE with random effects of department.

To better compare with international interaction estimates, we recode French HH income in 4 items: Low (< 1000 €), Medium ([1000 – 2000] €), High (> 2000 €) and DK Refuse.

Chapter 2

Unemployment: a root of populism? Evidence from French presidential elections

2.1 Introduction

Since the 1990s, populism has been spreading over Europe and the USA. This rise in power was revealed in the increase of populist vote in national elections in advanced democracies and led, for example, to Trump's election and Brexit in 2016. Two sides of populism indeed co-exist, especially in Europe: on the one hand, there are right-wing populist parties such as Rassemblement National in France, Alternative für Deutschland (AfD) in Germany, Freiheitliche Partei Österreichs (FPÖ) in Austria or UK Independence Party (UKIP) in the UK. These parties defend identity values and are firmly opposed to immigration. On the other hand, there are left-wing populist parties in Europe such

as Syriza in Greece, Podemos in Spain or France Insoumise in France. These parties clearly point to the wealthy people as profiteers who do not participate in the national economic effort.

The rise in Europe of both sides of populism challenges economists who try to explain this new phenomenon by economic factors. This paper aims to analyse the two sides of populism and prove that both populisms can be explained by common economic factors. We test especially whether higher unemployment is related to higher right-wing and left-wing populism. We focus on some aspects of unemployment: egotropic/sociotropic unemployment, current/accumulated unemployment as well as voters' own explanation of unemployment.

To determine the link between unemployment and populist vote, we decide to study French presidential elections from 2002 to 2017: during that period, the two populist sides (right-wing and left-wing) existed and even had some electoral success, albeit limited; hence, we can study the incumbent's impact on populist vote whatever the political side of the incumbent (right-wing or left-wing). By using French presidential Election Studies (FES) from 2002 to 2017, we find that higher unemployment is related to higher populism (right and left-wing). Nevertheless, the choice between right-wing and left-wing populism only depends on voters' own explanation of unemployment.

As a consequence, our paper brings to the existing literature (presented in section 2.2) two main contributions. On the one hand, we conclude that higher unemployment (in simultaneous aspects) corresponds to an increase of populism, whatever the side (right-wing or left-wing). However, we add to Algan et al. (2017)[1] that the distinction

[1]Algan et al. (2017) find a positive link between unemployment and populist vote, whatever the

between the two sides of populism only occurs in the voters' own explanation of unemployment: when voters think that immigration is the main cause of unemployment, they will be more prone to vote for a right-wing populist party. On the other side, when voters consider that unemployment is mostly due to the lack of state intervention in the economy, they will be more prone to vote for a left-wing populist party. Thus, in this paper, we consider that unemployment has a direct link on populism in general while the political side of populism (right or left-wing) rather depends on voters' own explanation of unemployment. On the other hand, we also contribute to the literature by taking into account the entire political space to explain populist vote. As far as we know, it has never been considered before in the literature. Indeed, we argue that populist parties have gained voters because of the failure of all mainstream parties to curb unemployment during their mandate. Therefore, considering the entire political space corrects the information bias on the reasons why voters choose a populist party rather than a mainstream party. To resolve this information bias, we use both multinomial logit and nested logit estimations that are able to take into account all parties in the political space as well as their interaction with populist parties.

Our paper is organised as follows. The next section presents the literature review. In section 3, we detail the conceptual framework that first analyses the link between unemployment and both sides of populism and then the link between unemployment and either side of populism (right-wing or left-wing). In section 4, we display our estimation strategy and data. Then, results are reported in section 5. Finally, the last section discusses these results by proposing robustness checks.

political side (right-wing and left-wing).

2.2 Literature review

Our paper is related to three strands of the literature as detailed in the following sub-sections. First, our paper tackles the economic vote literature, i.e. vote is explained by three main economic variables: unemployment, GDP growth and inflation (sub-section 2.2.1). The second strand of the literature analyses specifically economic populist vote. Indeed, there are various explanations for populist vote: not only economic variables but also cultural variables explain populist vote (sub-section 2.2.2). Finally, the most specific strand of the literature deals with the causal role of unemployment on the rise of populism (sub-section 2.2.3).

2.2.1 Economic vote: unemployment, GDP growth and inflation are the main explanations

In this subsection, we rely on literature reviews written by Nannestad and Paldam (1994) and Lewis-Beck and Stegmaier (2013).

The economic vote literature starts in the early 1970s with the study of what we call "VP-functions": "V" corresponds to the vote and "F" corresponds to the popularity polls.

The three main pioneering papers in the VP-functions literature are Mueller (1970), Goodhart and Bhansali (1970) and Kramer (1971). First, Mueller (1970) analyses about 300 monthly polls on the US President popularity, from 1945 with the beginning of the Truman administration to 1969 and the end of the Johnson administration. The main

question of interest was: "Do you approve or disapprove of the way (the incumbent) is handling his job as President?". On the one hand, the author finds that political facts can have an impact on the US President popularity such as the "coalition of minorities" or the "Rally-Around-the-Flag" effect when a foreign policy crisis occurs. On the other hand, he shows that economic variables can also explain the US President popularity and especially unemployment: he concludes that a one-percentage point increase in unemployment rate reduces the US President popularity by three percentage points.

Second, Goodhart and Bhansali (1970) try to answer this question: "How far were swings in political popularity affected by economic circumstances?". They analyse monthly popularity polls on the UK Prime Minister and the leader of the opponent party from 1947 to 1968. They conclude that not only the unemployment rate and its evolution from four to six months, but also the inflation rate do influence political popularity significantly. Finally, Kramer (1971) focuses his analysis on vote, analysing 31 elections to the US House of Representatives between 1896 and 1964. He tests different measures which could have an impact on vote: monetary income in current dollars, consumer cost-of-living index, real income and unemployment. He concludes that economic growth (measured by the change in real per capita income) has a great impact on the probability to vote for the incumbent, unlike unemployment and inflation which are non-significant. As a consequence, these three main pioneering papers together demonstrate that unemployment, inflation and economic growth are the main economic variables explaining VP functions.

From these three founding works, economists have tested the three different eco-

nomic variables to explain VP-functions in other countries. Indeed, the second wave of papers about VP-functions starts with researchers from Zurich who test different economic aspects of VP-functions not only in the UK and the US but also in other countries such as Germany, Switzerland, Sweden and Australia. Their main contribution is to study the combination of the VP-functions and the policy reaction functions. For example, as B. S. Frey and Schneider (1978) explain, the incumbent can modify his popularity function by increasing current government expenditures, government transfers to households or the number of civilians. Nevertheless, by using monthly US popularity polls from 1953 to 1970, they confirm that unemployment, inflation, and the growth of consumption have a significant correlation with presidential popularity. Moreover, Hibbs, a researcher from Harvard, revolutionises the way VP-functions are measured: as the VP-function cannot be a linear function, the most suitable estimates are non-linear such as probit, logit or maximum likelihood estimates. Then, using quarterly observations of political support from the 1950s to the 1970s in the US, the UK and Germany, Hibbs, Rivers, and Vasilatos (1982) conclude that inflation and unemployment have a significant impact on vote. Other studies cover longer time periods and more countries such as Japan, France, Denmark, Italy, Spain or Uruguay. These studies are presented in Whiteley (1980) and in Hibbs, Fassbender, and Rivers (1981), which confirms the robustness of the results about unemployment and inflation in VP-functions.

Another part of the literature studies micro VP-functions, i.e. VP-functions at voter level. Economists distinguish two levels of unemployment and inflation effects.

First, the egotropic effect (also called "pocketbook" effect) concerns the voter's own economic experiences, more precisely at his household level (Nannestad and Paldam, 1995). Secondly, the sociotropic effect is based on the voter's overall perception of the economy. The egotropic and sociotropic effects can be considered in a prospective point of view (i.e. what voters expect for the future state of the economy) or in a retrospective point of view (i.e. how voters evaluate the past state of the economy). Fiorina (1981) in his book concludes that, contrary to voters' prospective evaluation, only their retrospective evaluation has a significant impact on their vote for the incumbent in the US. Voters' significant retrospective evaluations precisely concern the chance of war, personal financial situation, presidential performance rating and government economic performance. Based on the work of Fiorina (1981), Kinder and Kiewiet (1981) test the retrospective effect of unemployment on the vote against government by distinguishing the sociotropic and the egotropic effects. They measure on the one hand the economic sociotropic effect by the voters' evaluation of the government performance on inflation and unemployment; on the other hand, they measure the economic egotropic effect by voters' dissatisfaction with income, their unemployment experiences and their personal economic problems. By using the 1972, 1974 and 1976 CPS National Election, they conclude that only economic sociotropic effect is significant on the vote against the incumbent. Lewis-Beck (1988) continues the analysis of Kinder and Kiewiet (1981) by studying not only the US but also other European countries like Britain, Germany, France, Italy and Spain. Using Eurobarometer surveys in 1983 and 1984, he demonstrates that both sociotropic effect and egotropic effect are significant on the

national incumbent vote. Nevertheless, economic egotropic effects are always smaller than economic sociotropic effects. On the contrary, Nannestad and Paldam (1995) stress that the egotropic effect is higher than the sociotropic effect. They analyse eight waves of 600 interviews in Denmark, conducted twice yearly between 1990 and 1993. They measure government support by three main interest variables: the first one is the economic situation of the household and the second is the unemployment situation of the household. These both variables tackle the egotropic effect. The third variable concerns the citizen's expectation of the country economic development. This variable tackles the sociotropic effect. They conclude that the economic situation of the household is strongly significant, the unemployment situation mostly significant while the citizen's expectation of the country economic development is not significant. That is why they conclude that egotropic effect is more important than sociotropic effect to explain VP-functions. Later, other contradictory studies, using the same dataset as Nannestad and Paldam (1995), show that in the Danish case, in the end, egotropic effects are weak while sociotropic ones are strong (Borre, 1997 and Lewis-Beck, Stubager, and Nadeau, 2013). In the same vain, larger surveys have been studied and authors conclude that sociotropic retrospective effects are indeed significant on vote. This is the case for example of Duch and Stevenson (2008) who examine 165 surveys from 19 countries over a 20-year time period; more recently, Nadeau, Lewis-Beck, and Bélanger (2013) investigate a balanced pooled survey of 40 000 observations from 10 European nations conducted four times for the 1988–2004 period; they come to the same conclusions. As a consequence, the economic vote is better explained by sociotropic effects than by

egotropic effects.

Moreover, all papers cited above had an incumbent-oriented view, that is to say that higher unemployment hurts the incumbent's popularity or vote share (i.e. "responsibility hypothesis"). Meanwhile, Rattinger proposes an alternative hypothesis called the "clientele hypothesis": voters who are hit by economic grievances will go closer to the party that deals most with these economic grievances. By analysing elections in Germany firstly between 1972 and 1976 (Rattinger, 1981) and secondly between 1953 and 1987 (Rattinger, 1991), he finds that higher unemployment benefits the left (SPD), even if it is the incumbent. On the contrary, inflation benefits right-wing incumbents (CDU/CSU).

Finally, although unemployment, GDP growth and inflation are the main explanations for vote, the recent economic vote literature prefers to put unemployment as the main macroeconomic proxy in VP-functions. Indeed, unlike inflation and economic growth, unemployment rate is best estimated by voters. For example, Conover, Feldman, and Knight (1986) ask US voters in 1982-1983 to estimate the trend of both unemployment rate and inflation (same, higher or lower). The authors find that voters have a greater accuracy of unemployment trend, compared to inflation.

As a conclusion, our paper contributes to the economic vote literature by studying the effect of unemployment on populist vote.

2.2.2 Populist vote: various economic and cultural explanations

The second strand of the literature covered by our paper analyses especially populist vote. In this subsection, we rely on recent literature reviews done by Guriev and Papaioannou (2020) and Rodrik (2021).

First of all, economists consensually use Mudde's definition of populism, i.e. the ideology considering the nation into two antagonistic parts, the "pure" people and a minority called the "impure" people. On the one hand, the "pure" people respect every moral principle; on the other hand, the "impure" people are considered by populists as immoral and thus as a real moral threat for the "pure" people. Indeed, according to the populist ideology, the "impure" minority perverts the moral purity of the "people" (Mudde, 2004). By using this consensual definition, populism can be explained through various economic and cultural aspects.

First, globalisation which has contributed to the recent deindustrialisation of advanced democracies can explain the rise of populism. Indeed, Dijkstra, Poelman, and Rodríguez-Pose (2020) show that the anti-EU vote in the 2019 European Parliament elections was higher in the electoral districts that had suffered industrial decline. More precisely, globalisation with higher trade intensity and competition can explain the rise of populism. This globalisation has been driven in particular by China whose national exports represented 12 % of world exports in 2015 whereas they represented only 1 % in 1985. The "China shock" is very present in the United States: as Autor, Dorn, and Hanson (2013) explain, the share of US imports from low-wage producing countries almost doubled between 2000 (15 %) and 2007 (28 %), with China accounting

for 89 % of this growth. Autor, Dorn, Hanson, and Majlesi (2020) analyse the impact of "China shock" on the Republican vote change between the 2000 US presidential election (George W. Bush versus Al Gore) and the two last presidential elections: first the 2008 election (Barack Obama versus John McCain) and second, the 2016 election (Donald Trump versus Hillary Clinton). They conclude that higher import competition from China significantly increases Republican vote shares, i.e. Mc Cain's vote share in 2008 and Trump's vote share in 2016. They also estimate that, for there to be a majority of Democrats allowing Hillary Clinton's victory in 2016, the China trade shock should have been halved between 2000 and 2014 in the key states of Pennsylvania, Wisconsin and Michigan. Moreover, Chinese imports can also have an effect on vote in Europe. For example, studying 198 NUTS-2 regions across 15 Western European countries between 1988 and 2007, Colantone and Stanig (2018) find that exposure to Chinese imports increases vote for nationalist, far-right and anti-EU parties. Finally, specific country studies have been made in Europe in order to analyse the impact of Chinese imports on populist vote at regional and national levels: authors come to the same conclusions in the UK with the Leave vote share (e.g. Colantone and Stanig, 2018a), in Germany (Dippel et al., 2022), in Italy (e.g. Barone and Kreuter, 2021) and in France (Malgouyres, 2017). Therefore, higher trade competition can explain the rise of populism.

Second, technological progress has changed working conditions, especially through automation and this can also explain the rise of populism. Indeed, economists show that low-skilled workers who suffer most from automation are more prone to vote for a populist party. For example, Im et al. (2019) analyse the 6th, 7th and 8th European

Social Surveys (2012-2016) in 11 Western European countries. They argue that individuals more threatened by automation are more likely to vote for the radical right. The authors therefore assert that automation threat (rather than automation *per se*) better explains the increasing vote for the radical right. In a macro analysis, C. B. Frey, Berger, and C. Chen (2018) analyse the variation in robot exposure with the variation in the Republican vote in US counties between the 2012 and 2016 presidential elections. They conclude that a one-standard-deviation (5-percentage-point) increase in the share of jobs vulnerable to robotisation is associated with a 0.2-standard-deviation increase in the vote share for Donald Trump. As a consequence, higher automation and automation threat are linked to the rise of populism.

Third, the 2008 financial crisis can also play a part in the rise of populism. For example, Funke, Schularick, and Trebesch (2016) analyse 20 developed countries from 1870 to 2014 and find that at the country level, financial crises increase far-right vote shares by 30 percent; in contrast, the authors do not find the same significant effect for far-left vote shares.

Fourth, immigration accounts for a large part of the increase in right-wing populist vote. For example, in Austria, Halla, Wagner, and Zweimüller (2017), by using IV approach, conclude that between 1979 and 2013, when the immigrant percentage in a community increases by one percentage-point, the community FPÖ vote share goes up by about 0.16 percentage points. In the UK, Becker and Fetzer (2016) show that the Eastern European migrants' arrival to the UK post 2004 enlargement significantly increases UKIP vote share in the 2009 and 2014 EP elections. Moreover, the increase

of immigrants from 12 recent EU accession countries corresponds to a higher vote share for "Leave" in 2016 Brexit referendum (Becker, Fetzer, and Novy, 2017). In Italy, Caselli, Fracasso, and Traverso (2020) demonstrate that Five Star Movement's vote share at municipality level goes up with the higher flows of migrants coming from countries of the Global South. The same conclusions on the effect of immigration on right-wing populist vote are reached in the case of Greece with Golden Dawn (e.g. Dinas et al., 2019 and Roupakias and Chletsos, 2020) and the case of Denmark with far-right parties (e.g. Dustmann, Vasiljeva, and Damm, 2019). In France, Edo et al. (2019) analyse the effect of immigration on far-right and far-left votes shares: using panel data on French presidential elections from 1988 to 2017, they conclude that immigration increases support for far-right parties whereas it slightly decreases support for far-left candidates. Finally, in Switzerland, between 1970 and 2010, Brunner and A. Kuhn (2018) go further by concluding that this is not so much the overall share of immigrants that increases Swiss People's Party vote share but the cultural distance between immigrants and natives. Indeed, using immigrant shares in local labour market as an instrument, the authors demonstrate that, at the municipality level, the share of culturally different immigrants[2] increases significantly anti-immigration votes (i.e. national vote against immigration topics in Swiss referendums) and also the Swiss People's Party vote. In short, the share of culturally different immigrants is a significant and sizable determinant of both anti-immigration votes and the Swiss People's Party

[2]The authors lie on the binary classification of immigrants from Inglehart and Baker (2000). By taking into account both the importance of traditional values and self-expression values from the postindustrial society, the authors consider as culturally different from Swiss natives immigrants coming from former Communist countries (e.g. former Yugoslavia) and from Africa, Asia or South America.

vote.

Fifth, globalisation, automation, immigrants' influx or financial crises can cause a significant economic distress in various segments of the population. Briefly, these phenomena lead to an increase of economic insecurity which is one of the drivers of populist demand, i.e. populist vote. Indeed, using individual level data from the seven waves of European Social Survey (ESS), Guiso et al. (2017) conclude that, in European countries, from 2002 to 2014, the economic insecurity (measured by both unemployment and income difficulties experience) increases populist vote in national elections. Moreover, using panel data, Bossert et al. (2019) analyse the relationship between economic insecurity (measured by a high variation of income) and the populist vote in the 2016 US presidential election and the 2016 Brexit referendum. They conclude that higher economic insecurity increases the individual probability to vote for Donald Trump and the individual probability to vote for "Leave".

Sixth, more recently, some authors tackle the link of social media and new communications technology with populism. On the one hand, Guriev, Melnikov, and Zhuravskaya (2021) study Gallup World Poll surveys carried among 840 537 individuals during 102 elections across 116 countries between 2008 and 2017. They analyse the correlation between the expansion of 3G mobile networks and the rise of populism. They conclude that, in Europe, as 3G mobile networks reveal actual government corruption (i.e. Panama Papers), their expansion leads to lower vote shares for incumbent parties and higher vote shares for both left-wing and right-wing populist parties. More precisely, the increase of 3G access in European subnational regions by 53 percentage

points (from 37 % in 2008 to 90 % in 2017) corresponds to a 4.6-percentage-point increase in right-wing populist vote share and to a 3.6-percentage-point increase in left-wing populist vote share. On the other hand, Liberini et al. (2020) focus their analysis on the role of social media during the 2016 US presidential election campaign. The authors use variations in advertising prices across political audiences on Facebook as a proxy for the intensity of Facebook political campaigning. Using the 2016 American National Election Study, they find that online political campaigns targeting Facebook users by gender, location and political allegiance has a significant effect on voting behaviour. Especially, micro-targeted ads reduce turnout among targeted Clinton supporters while they increase turnout and support for Trump among targeted moderates and less-informed voters. Facebook political campaigning via micro-targeted ads thus profits Trump vote rather than Clinton vote.

Seventh and last, cultural values are also significant predictors of populist vote. This refers to the cultural backlash theory of Norris and Inglehart (2019). According to the authors, in developed countries, there is a backlash among social conservatives towards the rise of progressive values since the 1970s concerning women, sexual minorities and people diversity. These social conservatives respond by adopting authoritarian values and by voting for populist parties which share and promote these values (e.g., nationalism, anti-immigration, anti-globalisation, pro-life). According to Norris and Inglehart, economic and cultural factors reinforce each other. For example, recent economic shocks have made people dissatisfied with their government and more generally with the political status quo; their political dissatisfaction leads them to desire identity

politics rather than moderate and inclusive politics.

To conclude, populist vote is considered as a specific vote with various economic explanations: structural economic shocks (e.g. globalisation, automation or expansion of social media), short-term economic shocks (e.g. immigration or financial crises) and personal economic insecurity. In addition, the "cultural backlash" is the main cultural explanation of the rise of populism in Europe and the USA.

2.2.3 The causal role of unemployment on the rise of populism

Our paper is in line with the last and most specific strand of the literature concerning the causal role of unemployment on the rise of populism.

Higher unemployment does have an impact on the rise of populism. Algan et al. (2017) show that in 26 European countries at regional level, from 2000 to 2017, higher unemployment during the Great Recession is linked to a higher vote share for populist parties. The same link is in evidence concerning the explanation of "Leave" vote share in the 2016 Brexit referendum. The authors conclude that crisis-driven economic insecurity such as unemployment is not only a major determinant of populism but also a significant factor of political distrust. Becker, Fetzer, and Novy (2017) analyse 380 British local authority areas during the 2016 Brexit referendum and they assert that low education, low income and also high unemployment are the key drivers of "Leave" vote. Using individual-level data for 56 elections from 1996 to 2016 in 15 European countries, Gomez and Ramiro (2019) note that unemployment has a positive effect on support for the radical left in national elections, regardless of the political

context. Finally, S. Chen (2020) analyses political attitudes and vote in the US elections between 2006 and 2016 using both General Social Survey (GSS) and American National Election Studies (ANES) 2016 Time Series Study. He demonstrates that an individual who lost his job during the Great Recession develops an anti-elite sentiment while an individual who was unemployed before the Great Recession does not. This anti-elite sentiment leads voters to support left-wing populism represented by Bernie Sanders. On the contrary, right-wing populism represented by Donald Trump is not coupled with economic insecurity (i.e. unemployment) but mostly with anti-immigrant sentiment, that confirms the cultural backlash theory (Norris and Inglehart, 2019).

In addition to unemployment experience, the risk of unemployment is another contributing factor for populism. For example, using online individual survey conducted in Germany in May 2016, Goerres, Spies, and Kumlin (2018) show that the voters' risk of unemployment increases their support for Alternative für Deutschland (AfD), a newly founded right-wing populist party. This risk of unemployment is strongly related to the risk of automation: Anelli, Colantone, and Stanig (2019) study the legislative election results in 14 Western European countries from 1993 to 2016 and the first seven waves of the European Social Survey during the period 1999-2015. They conclude that higher exposure to automation both at regional and individual levels increases support for nationalist and radical-right parties during legislative elections. Besides, Im et al. (2019) who use the 6th, 7th and 8th European Social Surveys in 11 Western European countries stress that individuals most threatened by automation (and not affected directly by automation) are most likely to vote for a radical right party. More

especially, they demonstrate that voters who are both threatened by automation and economically vulnerable are more prone to vote for the radical right.

To conclude, literature emphasises that unemployment has a causal effect on the rise of populism. It can be a direct causal effect with unemployment rate or individual unemployment experience but also an indirect causal effect with the risk of unemployment.

2.3 Conceptual framework

Our research aims to explain in detail the link between unemployment and both right-wing and left-wing populist votes. As said in section 2.2, unemployment plays a causal role on populist vote. Yet, considering that national governments are able to curb unemployment with increased national public spending for example, voters are fully aware that the national government is responsible for current unemployment.

It is worth noting that we do not want to focus on one single aspect of unemployment as it has been done in the literature (i.e. the effect of unemployment rate as in Becker, Fetzer, and Novy (2017) or the effect of personal risk of unemployment as in Im et al. (2019)). We prefer to test several aspects of unemployment simultaneously. Moreover, as we consider the entire political space, we assume that some aspects of unemployment may be linked to a particular political actor and that this may have an impact on populist vote.

As a consequence, to better analyse the link between unemployment and populist vote over the entire political space, we propose this framework. First, we assume that

rational voters choose the party that brings them personally the best expected utility in the next mandate, as stipulated by the Downsian framework (Downs, 1957). Second, we exclude abstention from our estimations. Although abstention can be considered as a protest vote, we assume that only the populist vote represents a tangible protest vote because it expresses a real political choice: by effectively voting for a populist party, voters explicitly claim a radical change in the political system. Unlike populist vote, abstention may also represent a signal of political disinterest: voters may abstain because they are not interested in politics and they do not want to participate actively in the election. Thus, as we do not know their motivation for abstaining (protest vote or signal of political disinterest), we exclude abstainers from our analysis. Third, we assume that the political offer is composed of four different political actors: the incumbent, the mainstream opposition, the right-wing populist and the left-wing populist. The two first political actors are both mainstream parties and have already ruled the country. On the contrary, we suppose that both populist parties have never ruled the country before. If the incumbent is right-wing, the mainstream opposition namely the incumbent's rival party will be left-wing and reversely.

In reality, vote is a one-off action, i.e. voters choose for a single candidate among a multitude of candidates. But this action is the result of a decision-making process that consists of choosing the best candidate. Our paper aims to better understand this vote decision-making process that leads to a populist vote either to the left or to the right. Therefore, we propose to decompose the vote decision-making process into three different steps. Each of them affects a particular political actor and is explained by a

particular aspect of unemployment. In the first step, we analyse current unemployment and its probable link with the vote for the incumbent (see subsection 2.3.1). In the second step, we analyse accumulated unemployment and its probable link with the vote for the mainstream opposition (see subsection 2.3.2). In the third and last step, we argue that voters' own explanation of unemployment conditions the choice between right-wing and left-wing populism (see subsection 2.3.3).

2.3.1 Incumbent referendum

The first step of our analysis is called the "incumbent referendum". As we have said in the literature review (section 2.2), at the time of an election, voters adopt a retrospective point of view: they review the economic performance of the last mandate to judge its success or failure (Fiorina, 1981). For example, the improvement of voters' economic situation is evidence of the incumbent's success during his mandate. In general, if voters consider that the incumbent leaves a good economic situation at the end of his mandate, they will reward him by voting for him. If not, they will blame him by not voting for him. Hence the concept of the "incumbent referendum".

Moreover, as voters can properly estimate unemployment rate (Nannestad and Paldam, 1994 and Lewis-Beck and Nadeau, 2009), they can objectively measure the economic performance of the incumbent through the unemployment level.

Besides, as we have seen in section 2.2, sociotropic effect is more relevant than egotropic effect to explain economic vote. However, we decide to test both effects to determine whether egotropic effect is truly non-significant compared to sociotropic effect.

Thus, in this case, being personally unemployed at the time of the election corresponds to the egotropic effect of current unemployment, whereas the sociotropic effect of current unemployment refers to unemployment observed in the voter's neighbourhood.

As a consequence, since unemployment damages voter's social position and his purchasing power (with a reduced income), we suppose that being personally unemployed or observing unemployment in one's neighbourhood generates economic dissatisfaction towards the incumbent. At the end of the incumbent's mandate, to express his dissatisfaction, the voter can vote against him as a "punishment vote". This leads us to these two sub-hypotheses:

Hypothesis 1a *When the voter experiences egotropic unemployment (i.e. by being personally unemployed), he will have a lower probability to vote for the incumbent (effect of egotropic current unemployment).*

Hypothesis 1b *When the voter experiences sociotropic unemployment (i.e. by observing unemployment in his neighbourhood), he will have a lower probability to vote for the incumbent (effect of sociotropic current unemployment).*

2.3.2 Mainstream opposition referendum

The second step of our analysis is called the "mainstream opposition referendum". As in the "incumbent referendum" (subsection 2.3.1), voters this time judge the economic success or failure of mainstream opposition parties. However, as the mainstream opposition did not rule during the last mandate (i.e. the incumbent's mandate), current unemployment cannot be attributed to mainstream opposition policies. That is why, we

argue that accumulated unemployment is a good proxy for measuring the accumulation of successes and failures of the mainstream opposition to fight against unemployment over decades. Therefore, in view of an overall positive economic performance (through low accumulated unemployment) in the past, voters will be more prone to reward the mainstream opposition *a posteriori* by voting for its candidate in the current election. On the contrary, if the overall economic performance in the past is negative (through high accumulated unemployment), voters could blame the mainstream opposition by not voting for its candidate in the current election. Hence the concept of the "mainstream opposition referendum".

As in the case of the "incumbent referendum", we tackle both egotropic and sociotropic effects. The sociotropic accumulated unemployment corresponds to long-term unemployment observed in the voter's neighbourhood. The egotropic accumulated unemployment measures the voter's difficulties in finding a secure job. Job insecurity not only refers to alternating periods of work and unemployment but also to personal long-term unemployment inducing labour market exclusion.

As a consequence, we argue that being personally confronted with job insecurity/exclusion or long-term unemployment in one's neighbourhood generates *a posteriori* economic dissatisfaction towards the mainstream opposition. This dissatisfaction is expressed by an *a posteriori* "punishment vote". This leads us to these two sub-hypotheses:

Hypothesis 2a *When the voter experiences egotropic accumulated unemployment (i.e. by suffering from job insecurity or job exclusion), he will have a lower probability to vote for the mainstream opposition (effect of egotropic accumulated unemployment).*

Hypothesis 2b *When the voter experiences sociotropic accumulated unemployment (i.e. by observing long-term unemployment in his neighbourhood), he will have a lower probability to vote for the mainstream opposition (effect of sociotropic accumulated unemployment).*

2.3.3 Populist vote

The validation of at least one of the H1 sub-hypotheses and one of the H2 sub-hypotheses means that the voter blames both the incumbent and the mainstream opposition due to high current and accumulated unemployment. He is therefore more likely to vote for the two remaining parties in the political space. Both are populist, namely right-wing populist party and left-wing populist party.

The four sub-hypotheses presented in the two previous subsections test the role of unemployment on the failure of mainstream parties and the consequent success of populist parties in general. This echoes the causal role of unemployment on the rise of populism presented in sub-section 2.2.3. Here, in this third and final step of analysis, we tackle the choice between a right-wing and a left-wing populist party. Again, unemployment plays a crucial role in this step: the voter will choose one or the other of the two populist parties according to the explanation he gives of his current and accumulated unemployment experience.

We suppose that right-wing populist voters consider their current and accumulated unemployment as a consequence of massive immigration which threatens or "steals" their jobs. If our former hypotheses are verified, populist voters suffering from both current and accumulated unemployment are very sensitive to competition in the labour

market . This refers to some empirical papers where populist vote (in particular right-wing populist vote) is linked with economic vulnerability (e.g. Dal Bó et al., 2019). Moreover, in their political rhetoric, right-wing populist parties point to foreigners or migrants, blaming them for the bad economic situation. In particular, right-wing populist leaders accuse migrants or foreigners of being responsible for high or rising unemployment in the country. According to them, curbing immigration will therefore reduce unemployment.

As a consequence, voters who consider that current and accumulated unemployment is due to high immigration will vote for a right-wing populist party; according to voters, voting for a right-wing populist party is the best option to curb unemployment as this party promotes a strong restriction on immigration. So we can stipulate this last hypothesis:

Hypothesis 3 *If the voter supposes that current and accumulated unemployment is due to immigration issues, he will be more prone to vote for a right-wing populist party than for a left-wing populist party (effect of immigration as voters' own explanation of unemployment).*

As it was mentioned in the literature review (sub-section 2.2.2), immigration issues concern right-wing populism alone. Therefore, if the voter does not think that immigration is the explanation of his current and accumulated unemployment experience, then he will be less prone to vote for a right-wing populist party; in other words, he will prefer voting for a left-wing populist party which does not point immigration as a cause of unemployment.

2.4 Estimation strategy

2.4.1 The choice of French presidential elections since 2002

We would like to focus on the French case to test our hypotheses. France indeed was the first country in the world to experience an increase in vote shares for both right-wing and left-wing populist parties in the same election. In the 2017 French presidential election, Marine Le Pen (Front National), the right-wing populist leader and Jean-Luc Mélenchon (France insoumise), the left-wing populist leader garnered each about 20 % of the votes. This score is the result of a long evolution of populist parties since 2002: in 2002, for the first time, the Front National candidate (Jean-Marie Le Pen) reached the second round of the French presidential election, against Jacques Chirac, the UMP candidate (right-wing mainstream party).

We focus our analysis on presidential elections because this election is the most important in France. Unlike other French elections (e.g. municipal, cantonal, departmental, regional and legislative elections) where voters choose either a pair or a list of candidates, presidential election is a two-round election where voters choose one candidate. The candidate who wins the majority of votes becomes the President of the French Republic for a five-year term. Presidential election is also the most mobilising election in France: more than 75 % of French citizens actually vote in each presidential election[3] whereas in legislative elections, the turnout has been below 65 % since 2002; worse, it fell to 48.7 % in 2017. Finally, the French President has the highest executive power: he

[3]Unlike in Belgium for example, voting is not mandatory in France.

chooses his Prime Minister (who leads interior policies); he is the head of the armies; he can dissolve the National Assembly and he can enact laws (called ordinances) without parliamentary approval in specific situations. For example, during his current mandate until May 2021, Emmanuel Macron has resorted to 275 ordinances[4], outperforming the 273 ordinances resorted to by the former French President, François Hollande, during his entire term. Consequently, much of the responsibility for unemployment in France lies with the President because he, together with his Prime Minister, has the greatest decision-making power over national policies.

These two arguments justify the use of the French Electoral Studies (FES) which tackle the 2002, 2007, 2012 and 2017 presidential elections in France. These studies are post-electoral face-to-face surveys (belonging to the Comparative Study of Electoral Systems (CSES)) conducted after the 2nd round of the presidential election and before the legislative election. These surveys cover French metropolitan territory (Corsica excepted) and select by quota method French registered voters aged 18 and over. The four-wave sample includes 8046 voters, blank or spoiled votes and abstainers excluded[5].

[4]Note that in 2020, 99 out of 125 ordinances were related to the Covid-19 pandemic. For more information, see https://www.lemonde.fr/les-decodeurs/article/2019/06/10/emmanuel-macron-champion-du-recours-aux-ordonnances-derriere-francois-hollande_5474289_4355770.html, https://fr.wikipedia.org/wiki/Ordonnances_sous_la_présidence_d'Emmanuel_Macron and https://www.legifrance.gouv.fr/contenu/Media/Files/autour-de-la-loi/legislatif-et-reglementaire/statistiques-de-la-norme/indicateurs-de-suivi-de-l-activite-normative-2021-format-pdf-4-2-mo.pdf.

[5]For more information about the dataset and methodology, see CEVIPOF and CIDSP, 2006, Sauger, 2007, Sauger, 2012 and Gougou and Sauger, 2017.

2.4.2 Categorisation of candidates

As we have already said in section 2.3, we focus exclusively on voters who have chosen a candidate and thus exclude abstainers and blank votes. Besides, we present in the conceptual framework the entire political space under four parties.

However, in French presidential elections, there are more than four parties in competition. That is why, in order to test our presented hypotheses, we have to categorise each candidate into one of the following four groups: incumbent, mainstream opposition, right-wing populist and left-wing populist. We set out this categorisation rule:

Incumbent: Candidates who are either the incumbent president or a member of the incumbent government or a person of the same political affiliation as the incumbent president.

Mainstream opposition: Candidates who are mainstream and at the opposite side of the incumbent party.

Right-wing populist: Candidates who promote both populist ideology (the "pure" people versus the minority of immorals) and the anti-immigrant sentiment.

Left-wing populist: Candidates who promote both populist ideology (the "pure" people versus the minority of immorals) and the anti-wealthy people sentiment[6].

Table 2.1 shows the categorisation of candidates under the rule presented above. Note that some candidates have mixed political position (both right and left or both

[6]Concerning the left-wing populist ideology, rich elites are considered as profiteers of the nation's wealth (Müller, 2016). The "impure" minority of the population here refers to the rich elites because they do not share the same egalitarian values as the "pure" people (e.g. through tax evasion).

Table 2.1: Categorisation of candidates in French presidential elections

Categorisation of candidates	2002	2007	2012	2017
Incumbent	Christine Boutin (FRS) Jacques Chirac (RPR) Alain Madelin (DL)	Nicolas Sarkozy (UMP)	Nicolas Sarkozy (UMP)	Benoît Hamon (PS)[7] Emmanuel Macron (EM)[6]
Mainstream opposition	François Bayrou (UDF) Jean-Pierre Chevénement (Pôle Républicain) Lionel Jospin (PS) Corinne Lepage (CAP21) Noël Mamère (Les Verts) Christiane Taubira (PRG)	François Bayrou (UDF) Ségolène Royal (PS) Dominique Voynet (Les Verts)	François Bayrou (MoDem) François Hollande (PS) Eva Joly (EELV)	François Fillon (LR) Jean Lassalle (Résistons)
Right-wing populist	Jean-Marie Le Pen (FN) Bruno Mégret (MNR)	Jean-Marie Le Pen (FN) Philippe de Villiers (MPF)	Nicolas Dupont-Aignan (DLF) Marine Le Pen (FN)	Nicolas Dupont-Aignan (DLF) Marine Le Pen (FN)
Left-wing populist	Olivier Besancenot (LCR) Daniel Glückstein (PT) Robert Hue (PCF) Arlette Laguillier (LO)	Olivier Besancenot (LCR) Marie-George Buffet (PCF) Arlette Laguillier (LO)	Nathalie Arthaud (LO) Philippe Poutou (NPA) Jean-Luc Mélenchon (FG)	Nathalie Arthaud (LO) Philippe Poutou (NPA) Jean-Luc Mélenchon (LFI)
Uncategorisable candidates	Jean Saint-Josse (CPNT)	José Bové (Sans étiquette) Frédéric Nihous (CPNT) Gérard Schivardi (CNRD)	Jacques Cheminade (S&P)	François Asselineau (UPR) Jacques Cheminade (SP)

[7]There is an issue regarding the categorisation of the incumbent in the 2017 presidential election. See the discussion in sub-section 2.6.3, page 197.

mainstream and populist). Thus, they could not be categorised; they are classified in "Uncategorisable candidates" in Table 2.1. As a consequence, following this categorisation rule, the baseline sample is composed of 7904 voters. Due to uncategorisable candidates, we only lose 1.7 % of voters from the initial sample ($N = 8046$).

So if we only consider categorised voters, our baseline sample contains 7904 individuals. Nevertheless, even if we change our sample by extending our regressions to voters who voted blank or spoiled and more broadly to the initial sample (including non-voters), the results are the same.

2.4.3 Multinomial logit estimation

We use two econometric estimation methods to test our hypotheses. The first and simpler estimation method is the multinomial logit (presented in this subsection) and the second one, more complex and also more rigid is the nested logit (presented in the next subsection, i.e. subsection 2.4.4).

Let us start by introducing the multinomial logit. Our hypotheses tackle the probability to vote for one candidate taking into account all political actors present in the political space. Using multinomial logit estimation method supposes that the alternatives of the dependent variable are Independent of Irrelevant Alternatives (IIA): this means for example that voting for the incumbent is independent from voting for the mainstream opposition. This IIA hypothesis is indeed relevant since the vote is a one-off and exclusive decision: the voter cannot vote for two candidates simultaneously but exclusively for one.

As a consequence, to explain the link between unemployment and populist vote, we consider the following baseline model:

$$\text{Vote}_{i,d,y} = \alpha_{i,d,y} + \beta_1 X_{1,i,y} + \beta_2 X_{2,d,y} + \eta_y + \gamma_d + \epsilon_{i,d,y} \tag{2.1}$$

where i is the voter, d is the department where the voter lives and y is the year of the election.

In the baseline model, we take into account two different effects of unemployment on vote: egotropic effect (i.e. being affected personally by unemployment) measured by $X_{1,i,y}$ and sociotropic effect (i.e. observing unemployment in the voter's neighbourhood) measured by $X_{2,d,y}$.

To test the link between current unemployment and incumbent vote (H1a and H1b), we use two main explanatory variables. On the one hand, the variable $Job\,category$ tackles the effect of egotropic current unemployment: it measures the employment status of the voter at the time of the election. By setting "employed" as the reference category, if H1a is verified, then being unemployed rather than being employed will decrease the probability to vote for the incumbent. On the other hand, to tackle the sociotropic effect of current unemployment, we use the variable $Unemployment\,rate$: it measures the unemployment rate in the voter's department three months before the election. Indeed, the literature uses macroeconomic variables measured three months before the election because these variables are best evaluated and easily remembered by voters. Therefore, $Unemployment\,rate$ is a relevant measure for the sociotropic effect

of current unemployment on the probability to vote for the incumbent. So if H1b is verified, then higher unemployment rate at department level will correspond to a lower probability to vote for the incumbent.

To test the link between accumulated unemployment and mainstream opposition vote (H2a and H2b), we also use two main explanatory variables. On the one hand, the variable *LT unemployment rate* tackles the sociotropic effect of accumulated unemployment: it corresponds to the long-term unemployment rate (period of unemployment for over one year) in the voter's department three months before the election. Thus, if H2b is verified, then higher long-term unemployment rate at department level will be associated with a lower probability to vote for the mainstream opposition. On the other hand, we choose the variable *PCS unemployment rate* as a proxy for the egotropic effect of accumulated unemployment. It refers to the voter's PCS[8] unemployment rate in his department one year before the election[9]. In other words, this variable measures the voter's individual probability of becoming unemployed, i.e. his risk of unemployment according to his professional status and his department. For example, the risk of unemployment for a Parisian blue-collar voter corresponds to the unemployment rate of blue collars in Paris department in the year preceding the election. In other words, if his PCS unemployment rate is high, the voter will have more chance to be himself

[8]In France, the "Professions et catégories socioprofessionnelles" (PCS) correspond to a classification of individuals according to their professional status. Since 1982, there have been eight PCS categories: Farmers, Craftsmen and entrepreneurs, Managers, Intermediate professions, Employees, Blue collars, Retired and People without professional activity.

[9]Unfortunately, due to data unavailability, we are unable to measure the PCS unemployment rate three months before the election. As it is measured at each five-yearly population census, we consider the 1999 PCS unemployment rate for the 2002 election, the 2006 PCS unemployment rate for the 2007 election, the 2011 PCS unemployment rate for the 2012 election and the 2016 PCS unemployment rate for the 2017 election.

unemployed; on the contrary, as a low PCS unemployment rate means a large number of jobs in this PCS, a voter with a low PCS unemployment rate will be less likely to be himself unemployed. In addition, we set the PCS unemployment rate of people without professional activity or retired to zero by default. Indeed, by definition, these people are outside the labour market either because they have never worked or because they have stopped working forever. Hence, they are not at risk of unemployment. As an alternative proxy for egotropic accumulated unemployment, we can directly measure the voters' long-term unemployment, i.e. personally unemployed for a year or more. Unfortunately, these data are only available for 2012 and 2017. Nevertheless, we will use the variable called *Job category* 2 in robustness checks presented in the discussion subsection 2.E (page 221). As a consequence, in the baseline estimations, if H2a is verified, then higher PCS unemployment rate will correspond to a lower probability to vote for the mainstream opposition.

Finally, to test the link between the effect of immigration as voters' own explanation of unemployment and populist vote (H3), we use the variable *Too many immigrants*: it measures the voter's agreement or disagreement with the fact that there are too many immigrants in France. This tackles the anti-immigrant sentiment, that is specific to right-wing populist parties (Edo et al., 2019). We agree that this variable is too general to capture the anti-immigrant sentiment resulting from high current and accumulated unemployment. Nevertheless, this variable is the only one available for all four waves[10].

[10]In the discussion subsection 2.E (page 221), we propose other variables that tackle the anti-immigrant sentiment specifically in the economy and the labour market. We also propose in the discussion subsection an observable and objective measure of immigration: the proportion of immigrants/foreigners in the department population.

As a consequence, in the baseline model, we use the proxy *Too many immigrants* to evaluate how voters perceive the effect of immigration on their current and accumulated unemployment. In particular, if H3 is verified, thinking that there are too many immigrants (versus not thinking that there are too many immigrants) in France will increase the probability to vote for a right-wing populist party and/or decrease the probability to vote for a left-wing populist party.

In addition to these interest independent variables, we put individual controls in the matrix $\alpha_{i,n,y}$ in equation 2.1: being a female, living with a partner, having children, the voter's age in seven items, his education level in five items and his income in six items. These controls are usually used in vote functions (Lewis-Beck and Stegmaier, 2013). Moreover, we add year fixed effect η_y and department fixed effect γ_d in equation 2.1. A description of these dependent and independent variables is presented with more details in Table 2.A7 in appendix (page 204).

Table 2.2 provides descriptive statistics. The four political groups of voters are all significantly represented: although they are in the minority, right-wing and left-wing populist voters represent respectively 13.69 % and 15.61 %; incumbent and mainstream opposition voters represent respectively 28.37 % and 42.33 %. The number of unemployed voters is significantly low for the incumbent. Conversely, voters with a high PCS unemployment rate are significantly over-represented in both right-wing and left-wing populist parties. Thinking that there are too many immigrants in France significantly differentiates right-wing populist voters from left-wing populist voters. Besides, socio-demographic controls significantly distinguish between the voters of the four different

Table 2.2: Descriptive statistics of independent variables per political categories[10]

Independent variables	**Incumbent vote**	**Mainstream opposition vote**	**Right-wing populist vote**	**Left-wing populist vote**	**Full sample**
Percentage of voters	28.37 %	42.33 %	13.69 %	15.61 %	100.00 %
Number of voters	2242	3346	1082	1234	7904
Macroeconomic variables					
Average department unemployment rate	14.26 %	13.55 %	15.70 %	15.36 %	14.33 %
Average department long-term unemployment rate	5.35 %	4.90 %	6.13 %	5.93 %	5.36 %
PCS unemployment rate	8.85 %	8.64 %	11.33 %	11.24 %	9.47 %
Individual variables					
Percentage of unemployed	4.01 %	5.65 %	8.04 %	6.40 %	5.63 %
Percentage of people thinking that there are too many immigrants in France	61.27 %	37.97 %	92.13 %	37.33 %	51.95 %
Percentage of female	58.43 %	54.90 %	51.29 %	54.21 %	55.30 %
Average age (2012 excluded from these statistics because age is already categorised)	53.27 (N = 1882)	48.39 (N = 2561)	48.39 (N = 788)	43.79 (N = 994)	49.13 (N = 6225)
Average education level (between 0 and 3)	1.57	1.79	1.19	1.61	1.62
Percentage of people living with a partner	64.79 %	64.32 %	67.50 %	62.82 %	64.66 %
Percentage of people having children	58.77 %	60.10 %	70.33 %	67.56 %	62.29 %
Average monthly income (between 0 and 4)	1.85 (N = 2130)	1.89 (N = 3186)	1.64 (N = 1054)	1.74 (N = 1204)	1.82 (N = 7574)

[10] Only categorised candidates are considered here.

political groups: women are significantly over-represented among the incumbent voters and under-represented among the right-wing populist voters. Contrasting with the significantly older incumbent voters, voters for the three other political groups are on average significantly younger, especially left-wing populist voters. Finally, right-wing populist voters are on average less educated and poorer than voters for the other political groups.

Note that there is a tremendous disparity between French departments regarding unemployment rates. For example, in 2007, the current unemployment rate in Haute-Savoie is equal to 7.19 % while it is equal to 16.01 % in Gard. Also, in 2017, the lowest long-term unemployment rate is equal to 4.82 % in Haute-Savoie while it is equal to 12.25 % in Pyrénées-Orientales. Moreover, the average department PCS unemployment rate, when it is measured (i.e. different from zero coded by definition) is between 7.98 % in Cantal and 18.73 % in Hérault.

Lastly, Spearman's rank correlation coefficients matrix, presented in Table 2.A8 in appendix (page 206) does confirm correlation between independent variables and votes.

2.4.4 Nested logit estimation

As we have said in the former subsection (i.e. subsection 2.4.3), we want to go further than the multinomial logit, notably by using a more complex econometric method, namely the nested logit. Unlike multinomial logit estimation method, nested logit models partly relax the IIA assumption. More precisely, in these models introduced by McFadden (1978)[11], decisions are considered as a succession of subsets called "nests".

[11] For further technical information about nested logit model, see subsection 2.B in appendix.

Within each nest, alternatives are IIA whereas between nests, IIA does not hold anymore because alternatives in different nests are linked together by the decision-making process. In that case, multinomial logit that considers all alternatives IIA is biased because IIA does not hold for some alternatives.

Besides, if we consider our hypotheses presented in section 2.3, we assume for example that voting for a populist party is partly related to voting for mainstream parties. Therefore, using nested logit estimations seem less biased than using multinomial logit estimations even if these models are less flexible. To be sure that the nested logit model is the most appropriate, we need to verify the value of the parameter λ_k which corresponds to the degree of independence in unobserved utility among the alternatives in nest k. If this parameter is equal to 1 for all k nests, this means there is a complete independence within all k nests, that is to say that IIA holds whatever the nest k. In that case, nested logit model is not appropriate as it can be reduced to a standard logit model (multinomial or ordered). On the contrary, if the parameter λ_k is different from 1 (i.e. there is a correlation within nest k), nested logit estimations are more relevant because they are less biased than multinomial logit estimations.

As a consequence, as nested logit models are in general presented in the form of decision trees, there exist different nested logit trees to explain vote. To analyse the link between unemployment and populist vote, we propose five different nested logit trees. For baseline estimations, we present the most complex nested logit tree composed of three levels[12].

The three-level nested logit tree, presented in Figure 2.1, is composed of three nested

[12]We present the four other alternative nested logit trees and estimations in discussion sub-section 2.6.2.

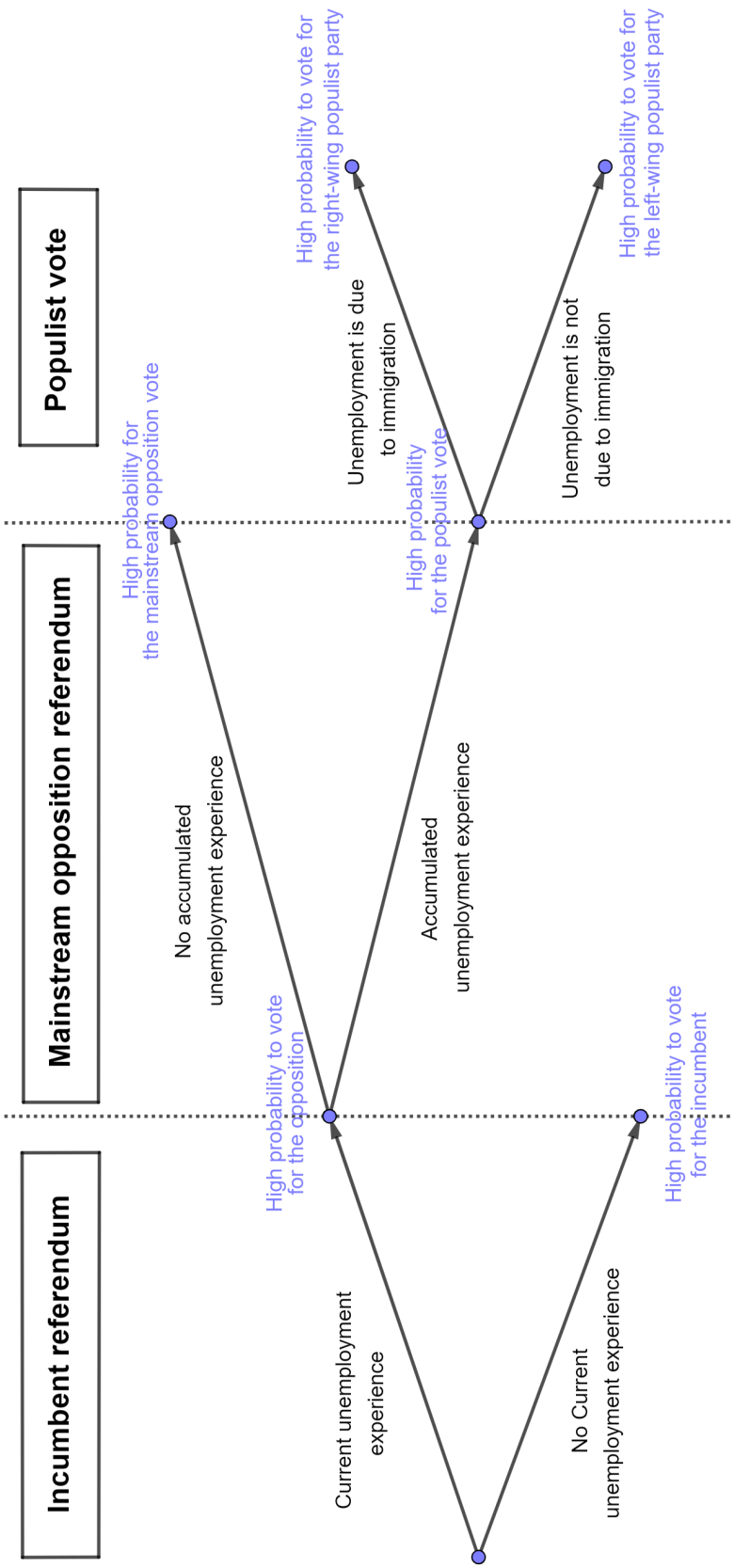


Figure 2.1: Nested logit tree explaining the link between unemployment and the two sides of populist votes (right-wing and left-wing)

steps: the first step called "incumbent referendum" deals with current unemployment and tests H1a and H1b; the second step called "mainstream opposition referendum" tackles accumulated unemployment and tests H2a and H2b; the last step called "populist vote" highlights voters' own explanation of unemployment allowing the distinction between right-wing and left-wing populism in testing H3.

Unlike multinomial logit estimations that gather all candidates into a single categorical dependent variable, nested logit model considers the four different candidates as four different dependent variables. More precisely, they correspond to the following vote dummy variables:

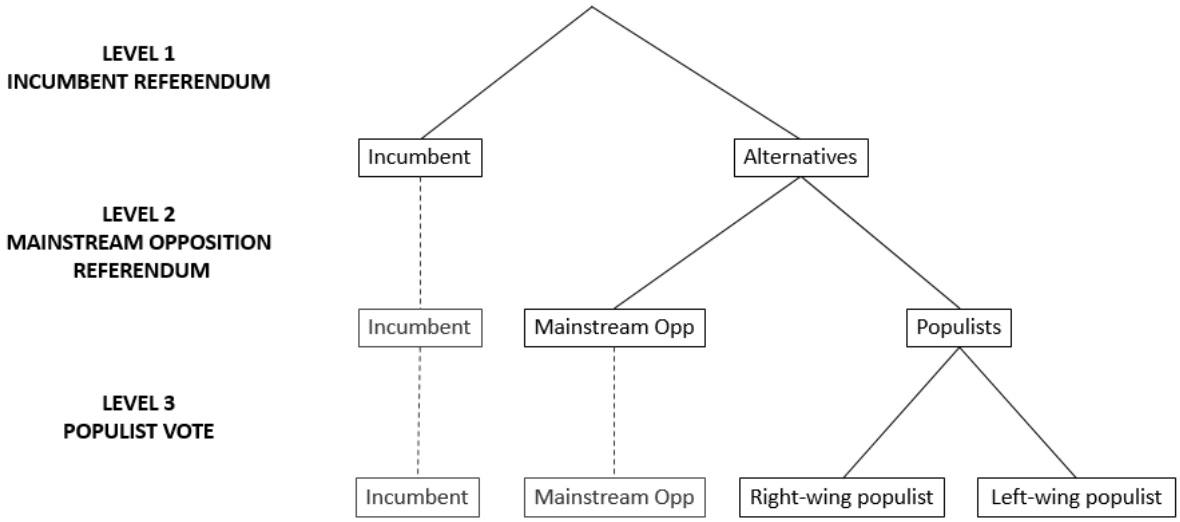
Incumbent vote: Equal to 1 if the voter chooses the incumbent (right or left) in the first round of the presidential election.

Mainstream opposition vote: Equal to 1 if the voter chooses the mainstream opposition which is at the opposite side of the incumbent (left or right) in the first round of the presidential election.

Right-wing populist vote: Equal to 1 if the voter chooses right-wing populist parties in the first round of the presidential election.

Left-wing populist vote: Equal to 1 if the voter chooses left-wing populist parties in the first round of the presidential election.

Figure 2.2: Estimated three-level nested logit tree



To explain the nested link between unemployment and populist vote, we build the three-level nested logit tree presented in Figure 2.2. We therefore consider the following baseline nested logit model:

$$\text{Vote}_{k,i,d,y} = \alpha_{3,i,d,y} + \beta_{k=1}X_{1,i,d,y} + \beta_{k=2}X_{2,i,d,y} + \beta_{k=3}X_{3,i,d,y} + \eta_y + \gamma_d + \epsilon_{k,i,d,y} \tag{2.2}$$

where k is the nested level (1 for the "Incumbent referendum", 2 for the "Mainstream opposition referendum" and 3 for the "Populist vote"), i is the voter, d is the department where the voter lives and y is the year of election.

As with multinomial logit estimation, we test the same hypotheses presented in section 2.3 by measuring both egotropic and sociotropic unemployment effects. We use the same variables as in multinomial logit estimation but interest variables are included into a specific nested level.

The first nested level called the "Incumbent referendum" tests both hypotheses H1a and H1b through the independent variable matrix $X_{1,i,n,y}$ in equation 2.2. We include in this matrix both $Job\,category$ and $Unemployment\,rate$ variables. If H1a and H1b are verified, higher current unemployment presents a lower probability to vote for the incumbent. As the first nest corresponds to a binary choice (vote or not vote for the incumbent), if H1a and H1b are verified, higher current unemployment also presents a higher probability to vote for incumbent's alternative parties. Therefore, by setting the incumbent as the candidate reference in the first nest, if H1a is verified, then being unemployed rather than being employed will increase the probability to vote for incumbent's alternative parties. If H1b is verified, then higher unemployment rate at department level will correspond to a higher probability to vote for incumbent's alternative parties.

The second nested level called the "Mainstream opposition referendum" tests both hypotheses H2a and H2b through the independent variable matrix $X_{2,i,n,y}$ in equation 2.2. We include in this matrix both $LT\,unemployment\,rate$ and $PCS\,unemployment\,rate$. As with the first nested level, the second nest corresponds to a binary choice: vote or not vote for the mainstream opposition. If H2a and H2b are verified, higher accumulated unemployment presents a lower probability to vote for the mainstream opposition and reversely a higher probability to vote for populist parties. By setting the mainstream opposition as the candidate reference in the second nest, if H2a is verified, then higher PCS unemployment rate will increase the probability to vote for populist parties. If H2b is verified, then higher long-term unemployment rate at department level will

correspond to a higher probability to vote for populist parties.

The third and last nested level is called the "Populist vote". It includes both the independent variable matrix $X_{3,i,n,y}$ testing the hypothesis H3 and the matrix of control variables $\alpha_{3,i,n,y}$ in equation 2.2. The matrix $\alpha_{3,i,n,y}$ includes the same control variables as in multinomial estimation: being a female, living with a partner, having children, the voter's age in seven items, his education level in five items and his income in six items. The matrix $X_{3,i,n,y}$ includes only one variable: $Too\,many\,immigrants$. By setting the left-wing populist as the candidate reference in the third nest, if H3 is verified, then thinking that there are too many immigrants (versus not thinking that there are too many immigrants) in France will increase the probability to vote for a right-wing populist party. Finally, as for multinomial logit estimation, we also add in this third nest year fixed effect η_y and region fixed effect γ_d[13] in equation 2.2.

2.5 Results

As presented in section 2.4, we propose two different econometric methods to explain the link between unemployment and populist vote. In the first instance, we show the results from multinomial logit model presented in subsection 2.4.3 and in the second instance, the results from nested logit model presented in subsection 2.4.4.

[13]Nested logit computation does not work with department fixed effects, owing to a large number of variables. Taking a larger geographical scale with 21 regions (instead of 91 departments) still allows us to take into account geographical fixed effects in nested logit estimation.

2.5.1 Multinomial logit results

Table 2.3 presents the results from multinomial logit model described in equation 2.1. As the table shows, the entire political space is represented in 4 columns, each of them illustrating the probability to vote for one candidate: column 1 corresponds to the probability to vote for the incumbent, column 2 to the probability to vote for the mainstream opposition, column 3 to the probability to vote for the right-wing populist party and column 4 to the probability to vote for the left-wing populist party.

Regarding the incumbent referendum, the rate of current unemployment is non significant. Thus, H1b which deals with the link between sociotropic current unemployment and the incumbent vote is not verified. Moreover, whether the voter is unemployed or not has no significant effect on the probability to vote for the incumbent. Nevertheless, being unemployed corresponds to a higher probability to vote for the mainstream opposition and a lower probability to vote for a left-wing populist party. As a consequence, H1a can be partly verified: admittedly, the egotropic current unemployment has no impact on the probability to vote for the incumbent; it is linked with a higher probability to vote for the rival of the incumbent (i.e. the mainstream opposition). Thanks to nested logit estimation, we will test in the next subsection the relationship between current unemployment and electoral success for incumbent's alternative candidates.

Regarding the mainstream opposition referendum, the rate of long-term unemployment is non significant. Thus, we cannot verify H2b which deals with the link between sociotropic accumulated unemployment and the probability to vote for the mainstream

Table 2.3: Link between unemployment and populist vote in the entire political space - Marginal effects of multinomial logit estimations

Vote for...	(1) Incumbent	(2) Mainstream Opp.	(3) R-W populist	(4) L-W populist
H1a and H1b test:				
Unemployment rate	-0.0084	-0.0042	-0.0016	0.014
	(0.016)	(0.015)	(0.0084)	(0.0098)
Job category		*Reference: Employed*		
Unemployed	-0.033	0.052**	0.015	-0.033**
	(0.023)	(0.022)	(0.014)	(0.016)
Retired	-0.013	-0.010	0.034**	-0.011
	(0.023)	(0.025)	(0.017)	(0.018)
Out of job market	-0.011	-0.018	0.033**	-0.0037
	(0.021)	(0.020)	(0.013)	(0.015)
H2a and H2b test:				
LT unemployment rate	0.014	0.0036	0.0040	-0.022
	(0.023)	(0.024)	(0.012)	(0.014)
PCS unemployment rate	-0.0016	-0.0017*	0.0015**	0.0018***
	(0.00099)	(0.00096)	(0.00060)	(0.00070)
H3 test:				
Too many immigrants		*Reference: Disagree*		
Agree	0.091***	-0.21***	0.23***	-0.11***
	(0.013)	(0.011)	(0.011)	(0.0079)
DK Refuse	0.014	-0.046	0.093***	-0.061**
	(0.039)	(0.039)	(0.028)	(0.027)
Controls:				
Female	0.037***	-0.0033	-0.031***	-0.0024
	(0.011)	(0.011)	(0.0079)	(0.0079)
Age		*Reference: 18-32*		
33-42	0.063***	-0.018	-0.016	-0.029**
	(0.019)	(0.018)	(0.013)	(0.014)
43-52	0.059***	0.018	-0.043***	-0.034**
	(0.019)	(0.020)	(0.013)	(0.013)
53-62	0.10***	0.0062	-0.062***	-0.045***
	(0.020)	(0.021)	(0.012)	(0.015)
63-73	0.17***	0.024	-0.11***	-0.085***
	(0.027)	(0.028)	(0.019)	(0.021)
74 and over	0.17***	0.079**	-0.13***	-0.13***
	(0.028)	(0.031)	(0.019)	(0.026)
DK Refuse	0.66***	0.75***	0.29***	-1.70***
	(0.11)	(0.16)	(0.11)	(0.079)
Education level		*Reference: None or Primary*		
Lower secondary - vocational (CAP-BEP)	-0.013	0.018	-0.0070	0.0018
	(0.017)	(0.016)	(0.0095)	(0.013)
Secondary	0.029*	0.031*	-0.043***	-0.018
	(0.016)	(0.016)	(0.011)	(0.014)
Tertiary	0.031**	0.080***	-0.063***	-0.048***
	(0.016)	(0.016)	(0.012)	(0.014)
DK Refuse	0.53***	0.88***	0.31***	-1.72***
	(0.073)	(0.091)	(0.073)	(0.055)
Partner		*Reference: Not living with a partner*		
Living with a partner	-0.0067	-0.0012	0.011	-0.0033
	(0.011)	(0.012)	(0.0084)	(0.0096)
DK Refuse	0.21	-0.32*	0.012	0.099
	(0.13)	(0.16)	(0.057)	(0.096)
Having children		*Reference: No child*		
At least one child	-0.0052	-0.010	0.0034	0.012
	(0.012)	(0.013)	(0.0084)	(0.0090)
DK Refuse	2.28***	-2.67***	-1.03***	1.42***
	(0.19)	(0.15)	(0.049)	(0.19)

Vote for...	(1) Incumbent	(2) Mainstream Opp.	(3) R-W populist	(4) L-W populist
Income		*Reference: 1st quintile*		
2nd quintile	-0.025	-0.0012	0.0065	0.019
	(0.015)	(0.017)	(0.011)	(0.014)
3rd quintile	-0.018	-0.0032	0.0092	0.011
	(0.015)	(0.017)	(0.011)	(0.013)
4th quintile	0.038**	-0.0052	-0.014	-0.018
	(0.017)	(0.019)	(0.013)	(0.015)
5th quintile	0.053**	0.028	-0.0051	-0.077***
	(0.021)	(0.024)	(0.015)	(0.017)
DK Refuse	0.049*	0.032	-0.038*	-0.043
	(0.025)	(0.030)	(0.021)	(0.028)
Observations		7904		
Pseudo R-squared		0.1536		
Controls		YES		
Year FE		YES		
Department FE		YES		

The method estimation is multinomial logit.
Clustered standard errors at year-department level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

opposition. Moreover, the link between the egotropic accumulated unemployment and the probability to vote for the mainstream opposition is significantly negative. Also, a higher PCS unemployment rate corresponds to a higher probability to vote for both populist parties (right-wing and left-wing). As a consequence, H2a is verified: when the voter experiences egotropic accumulated unemployment (i.e. by suffering from job insecurity), he will be less inclined to vote for the mainstream opposition.

As regards the populist vote, thinking that there are too many immigrants in France increases by 23 % the probability to vote for a right-wing populist party while it decreases by 11 % the probability to vote for a left-wing populist party. As a consequence, H3 which focuses on the relationship between the effect of immigration as voters' own explanation of unemployment and right-wing populist vote is verified. Notice that the variable *Too many immigrants* has also a positive link with the probability to vote for the incumbent and a negative link with the probability to vote for the mainstream opposition. We argue that these two significant links do not rely on the incumbent or

mainstream opposition status *per se* but on their political affiliation. Indeed, in three out of the four presidential elections, the incumbent is from the right and the mainstream opposition from the left. We know that right-wing parties are more sensitive and proactive to immigration issues than left-wing parties. In that case, voters who have an anti-immigrant sentiment will be more prone to vote for a right-wing party: the right-wing incumbent or the right-wing populist party. On the contrary, voters who do not share an anti-immigrant sentiment will be more prone to vote for a left-wing party: the left-wing mainstream opposition or the left-wing populist party.

Regarding control variables, women are more prone to vote for the incumbent and less prone to vote for a right-wing populist party. Second, the older the voter is, the more likely he is to vote for the incumbent and the less likely he is to vote for a populist party (right-wing or left-wing). Also, only voters aged 74 and over are more prone to vote for the mainstream opposition. Third, educated people (i.e. with a secondary and tertiary education level) tend to vote for a mainstream party (i.e. the incumbent or the mainstream opposition) and not to vote for a populist party (right-wing or left-wing). Fourth, the richest voters (5th quintile) prefer voting for the incumbent and not for the left-wing populist party. This can be explained by their affinity with right-wing values. Finally, living with a partner and having children have no effect on the probability to vote for a specific candidate. In conclusion, control variables confirm what has already been demonstrated in the literature, namely that populist voters are male, low educated and with low income (e.g. Norris and Inglehart, 2019, Becker, Fetzer, and Novy, 2017 and Guiso et al., 2017).

2.5.2 Nested logit results

In this section, we go further than the multinomial logit model by partly relaxing the IIA assumption. Unlike the multinomial logit model, we consider here that vote choices are not entirely independent. Hence, we run the nested logit model presented in equation 2.2, in subsection 2.4.4 (page 177). Results are presented in Table 2.4. Due to computation problems related to the construction of the three-level nested logit model, our results only include year fixed effect, excluding all types of geographical fixed effect (department, NUTS2 and NUTS1).

First, the Wald test that compares nested logit estimation with standard multinomial logit estimation is always significant: vote choices are thus linked together and consequently multinomial logit estimations presented before are biased. So, nested logit model is the most appropriate estimation strategy. Further evidence is provided by dissimilarity parameters, denoted λ. On the one hand, dissimilarity parameters are significantly different from 1, meaning that IIA does not hold: this implies that the different levels of the decision tree are not independent. On the other hand, dissimilarity parameters are most of the time greater than 1, meaning that the decision tree refers to backward induction reasoning explained by game theory: voting for one specific candidate among the four final nodes (i.e. the four candidates in the political space) results from a backward comparison of each candidate's expected utilities. Thus, the voter will choose the candidate with the highest expected utility afterwards.

Second, at the first nested level called the "Incumbent referendum", current department unemployment rate and being unemployed are both positive but not always

Table 2.4: Nested logit estimations analysing the link between unemployment and populist vote

Three-level nested logit	(1)	(2)	(3)	(4)	(5)	(6)
			Level 1: Incumbent referendum			
			Candidate reference: Incumbent			
Alternatives vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.025	0.13***				0.13***
	(0.035)	(0.036)				(0.036)
Job category			*Reference: Employed*			
Unemployed			0.18	0.19	0.18	0.23*
			(0.13)	(0.12)	(0.13)	(0.13)
Retired			0.074	0.045	0.074	-0.12
			(0.12)	(0.12)	(0.12)	(0.12)
Out of job market			0.057	-0.018	0.047	-0.16
			(0.11)	(0.10)	(0.11)	(0.11)
			Level 2: Mainstream opposition referendum			
			Candidate reference: Mainstream opposition			
Populist vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	0.21***	0.64***		0.21***	0.18**	0.64***
	(0.069)	(0.11)		(0.069)	(0.070)	(0.11)
PCS unemployment rate		0.029**	0.045***		0.038***	0.028**
		(0.012)	(0.012)		(0.012)	(0.012)
			Level 3: Populist vote			
			Candidate reference: Left-wing populist vote			
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Too many immigrants			*Reference: Disagree*			
Agree	2.15	5.59	2.05	2.14	1.97	5.57
	(3.75)	(18.3)	(3.63)	(3.79)	(3.74)	(18.6)
DK Refuse	0.87	2.42	0.83	0.86	0.80	2.42
	(1.53)	(7.75)	(1.48)	(1.54)	(1.52)	(7.91)
			Dissimilarity parameters (λ values)			
Level 1: Incumbent referendum						
Incumbent	1.01	1.02	1.01	1.01	0.98	1.01
Alternatives	3.41***	2.43***	3.48***	3.40***	3.38***	2.43***
Level 2: Mainstream opposition referendum						
Incumbent	1.00	1.00***	0.98	1.00	1.06**	1.18
Mainstream opposition	0.98***	0.79***	1.01	1.10**	0.44***	1.08***
Populists	0.71	1.89	0.67	0.70	0.65	1.88
Observations	7904	7904	7904	7904	7904	7904
Log-Pseudo likelihood	-8730.9876	-9002.3543	-8728.4705	-8730.0915	-8724.1625	8998.5763
Controls	YES	YES	YES	YES	YES	YES
Year FE	YES	NO	YES	YES	YES	NO
Department FE	NO	NO	NO	NO	NO	NO
Wald test	20790.47***	5652.80***	7276.03***	8195.48***	8352.21***	8704.70***

The method estimation is RUM-consistent nested logit.
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

significant for the probability to vote for the incumbent's alternatives (i.e. the mainstream opposition and right-wing and left-wing populists). Actually, both interest variables are significant only without year fixed effect, i.e. in estimations (2) and (6). As a consequence, H1a and H1b are partially verified. Meanwhile, if we consider multinomial logit results presented in the previous section, we can only validate H1a at this stage: being personally unemployed corresponds to a higher probability to vote for the incumbent's alternatives.

Third, at the second nested level called the "Mainstream opposition referendum", among voters who choose incumbent's alternatives at the first nested level, higher department long-term unemployment rate leads to a higher probability to vote for populist parties. Additionally, knowing that they choose incumbent's alternatives at the first nested level, voters with a high unemployment risk (measured by department PCS unemployment rate) are more prone to choose populist parties rather than the mainstream opposition at the second nested level. Thus, in the same way as multinomial logit results, nested logit estimates validate H2b too. On the contrary, H2a is validated only by nested logit results, i.e. long-term unemployment rate increases the probability to vote for populist parties. However, as nested logit is less biased than multinomial logit, we can conclude that both H2a and H2b are validated: voters who suffer from both sociotropic and egotropic accumulated unemployment are more likely to choose populist parties (right-wing or left-wing) rather than the mainstream opposition.

Fourth, at the third and last nested step called "Populist vote", among voters who choose populist parties at the second nested level, even if the coefficient is highly posi-

tive, there is no significant link between thinking that there are too many immigrants in France and right-wing populist vote. As a consequence, H3 cannot be validated by nested logit results but only by multinomial logit estimates. But if we add a variable that especially explains left-wing populist vote, the variable *Too many immigrants* becomes significant. This point is developed in the discussion section.

As for the controls[14], we obtain the same results as in subsection 2.5.1: women are more prone to vote for the incumbent; the older the voter, the more likely he is to vote for mainstream parties (i.e. the incumbent or the mainstream opposition); finally, highly educated voters (i.e. with secondary and tertiary education level) and high-income voters are more inclined to vote for the incumbent or for the mainstream opposition; conversely, having children has a negative impact on the probability to vote for the incumbent and for the mainstream opposition. Controls are not likely to have a significant effect on the probability to vote for a right-wing populist party but coefficients echo what we have found before in multinomial logit estimations.

Lastly, in order to better quantify the link between the different aspects of unemployment and populist vote, we have calculated predicted probabilities to vote that are summarised in Table 2.5. We define the baseline profile with the following individual reference categories: male, under 32 years of age, none or primary education level, single, without children, belonging to the 1st quintile of income, employed, having the average PCS unemployment rate (9.11 %) and disagreeing that there are too many immigrants in France. For the values of macro variables, we propose that our baseline profile lives in the department that is closest to the national average situation. That is

[14]Controls are not shown in Table 2.4 but in appendix in Table 2.A9.

Table 2.5: Conditional predicted probabilities from nested logit estimation

	Conditional probability at Level 1	**Baseline**	**(1) 1pt increase in Unemployment rate**	**(2) Job category = Unemployed**	**(1) + (2)**
Level 1: Incumbent referendum	Incumbent vote	14.05 %	12.56 % (−1.5 pt)	11.49 % (−2.5 pts)	10.23 % (−3.8 pts)
	Alternatives vote	85.95 %	87.44 % (+1.5 pt)	88.51 % (+2.5 pts)	89.77 % (+3.8 pts)
	Conditional probability at Level 2	**Baseline**	**(3) 1pt increase in LT Unemployment rate**	**(4) 1pt increase in PCS Unemployment rate**	**(3) + (4)**
Level 2: Mainstream opposition referendum	Mainstream vote	38.27 %	32.24 % (−6 pts)	37.99 % (−0.3 pt)	31.99 % (−6.3 pts)
	Populist vote	61.73 %	67.76 % (+6 pts)	62.01 % (+0.3 pt)	68.01 % (+6.3 pts)
	Conditional probability at Level 3	**Baseline**	**(5) Too many immigrants = Agree**		**(5)**
Level 3: Populist Vote	Right-wing populist vote	11.13 %	70.60 % (+59.5 pts)		70.60 % (+59.5 pts)
	Left-wing populist vote	88.87 %	29.40 % (−59.5 pts)		29.40 % (−59.5 pts)

The presented predicted probabilities are made with the estimation (6) in Table 2.4.
Baseline profile: Voter in the 2017 presidential election, living in Calvados (with unemployment rate equal to 18.87 % and LT unemployment rate equal to 8.18 %), employed, having the average PCS unemployment rate (9.11 %), disagreeing that there are too many immigrants in France, male, under 32 years old, none or primary education level, single, without children and belonging to the 1st quintile of income.
Reading key for conditional probability at Level 1: The probability of the baseline profile to vote for the incumbent is equal to 14.05 %; when the unemployment rate increases by one percentage point, that probability decreases by 1.5 percentage point.
Reading key for conditional probability at Level 2: Knowing that the baseline profile chooses incumbent's alternatives at the first nested level, his probability to vote for the mainstream opposition is equal to 38.27 %; when the long-term unemployment rate rises by one percentage point, that probability falls by 6 percentage points.
Reading key for conditional probability at Level 3: Knowing that the baseline profile chooses populist parties at the second nested level, his probability to vote for the right-wing populist party is equal to 11.13 %; when the voter agrees that there are too many immigrants in France, that probability raises by 59.5 percentage points.

why our baseline profile lives in Calvados because this French department is closest to both the national average rate of department unemployment and the national average rate of department long-term unemployment. We consider our baseline profile in the 2017 presidential election as this is the most recent election in our database.

Thanks to this baseline profile, we can predict the effect on vote after a change in a single independent variable, *ceteris paribus*. As a consequence, at the first nested level, if the current unemployment rate increases by 1 percentage point, the probability of the baseline profile to vote for the incumbent's alternatives increases by 1.5 percentage point; if the baseline profile becomes unemployed, this probability raises by 2.5 percentage points. At the second nested level, knowing that the baseline profile votes for alternative parties, a one percentage point increase in long-term unemployment rate rises the probability of the baseline profile to vote for populists by 6 percentage points; also, one percentage point increase in PCS unemployment rate raises this probability by 0.3 percentage point. At the third and last nested level, knowing that the baseline profile votes for populist parties, if he agrees that there are too many immigrants in France, his probability to vote for a right-wing populist party will increase by 59.5 percentage points.

In conclusion, considering both multinomial and nested logit results, we can validate H1a, H2a, H2b and H3: if the voter is personally unemployed (i.e. the effect of egotropic current unemployment), he will be less inclined to vote for the incumbent and consequently, he will be more inclined to vote for the incumbent's alternatives. In case he chooses alternatives, if the voter suffers from a high egotropic and/or a high

sociotropic accumulated unemployment (i.e. a personal high risk of unemployment in his PCS and/or a high department long-term unemployment), then he will tend to vote more for populist parties than for the mainstream opposition. As a consequence, both the effect of egotropic accumulated unemployment and the effect of sociotropic accumulated unemployment do explain the link between unemployment and populist vote. As for the choice between right-wing and left-wing populism, it is based on the voter's own explanation of unemployment: if the voter assimilates current and accumulated unemployment to the consequence of high immigration, then he will be more prone to vote for a right-wing populist party rather than a left-wing populist party.

2.6 Discussion

2.6.1 Is there an explanation of unemployment specific to left-wing populist voters?

As we have seen in subsection 2.5.2, unlike multinomial logit estimation, nested logit estimation with the single variable *Too many immigrants* does not validate H3. We argue that this interest variable at the third nested level is non-significant as it may reduce the left-wing populist vote to a default vote. The use of this single interest variable in nested logit model reduces the voters' own explanation of unemployment to the immigration issue alone. Immigration as the voters' own explanation of unemployment would determine alone the choice between right-wing and left-wing populism: voters

would choose the left-wing populist party because they do not agree that immigration is the explanation of their current and accumulated unemployment. This therefore restricts left-wing populist vote to a default vote in the sense that left-wing populist voters are reduced to agree or disagree with the explanation of unemployment provided by right-wing populism.

As a consequence, we propose to add at the third level of the nested logit model a new variable that can explain in particular left-wing populist vote. We use the variable $Income disparities reduction$ as a proxy for left-wing populist voters' own explanation of unemployment: it refers to the voter's agreement or disagreement with the fact that government should take measures in order to reduce income disparities. Left-wing populist ideology promotes the anti-wealthy people sentiment by denouncing rich elites as profiteers of the nation's wealth. According to left-wing populist leaders, in order to fight against these rich elites, government should intervene in the economy by making laws limiting economic abuses, restraining predatory capitalism and reducing income inequality (Ivaldi, 2018). They think that high current and accumulated unemployment is the consequence of the lack of state intervention in the economy. Therefore, to curb unemployment, they propose state intervention in the economy. We expect that the variable $Income disparities reduction$ has a positive effect on the probability to vote for the left-wing populist party: voters who agree that the government should take measures to reduce income disparities express in reality their general dissatisfaction with the current state intervention in the economy. Thus they associate the lack of state intervention in the economy with their experience of current and accumulated

unemployment.

As the variable *Income disparities reduction* is not available for 2007, the number of observations drops from 7904 in baseline estimations to 6166. In appendix, Table 2.A10 presents nested logit estimations with the introduction of the variable *Income disparities reduction*. Results confirm what we have already seen in the previous section: H1b, H2a and H2b are validated. Besides, as the effect of sociotropic current unemployment is not significant, once again H1b cannot be validated. Finally, both variables *Too many immigrants* and *Income disparities reduction* significantly explain the distinction between right-wing and left-wing populist votes: if the voter agrees that there are too many immigrants in France (implying that immigration can be the explanation for high current and accumulated unemployment), his probability to vote for a right-wing populist party increases by 50.5 percentage points. On the contrary, if the voter agrees that government should take measures in order to reduce income disparities (implying that state intervention in economy can curb high current and accumulated unemployment), his probability to vote for a left-wing populist party will raise by 28 percentage points[15].

In short, we prove that the left-wing populist vote cannot be reduced to a default vote, i.e. against or for immigration as the own voters' explanation of unemployment. We demonstrate that left-wing populist voters rather believe that high current and accumulated unemployment stems from the lack of state intervention in the economy. In the end, each wing of populism has its own explanation for current and accumulated

[15]Both probabilities are calculated in the same way as in Table 2.5. Table 2.A11 shows the conditional predicted probabilities to vote, calculated with estimations from Table 2.A10.

unemployment.

2.6.2 Does a better alternative nested logit model exist?

The three-level nested logit tree presented in Figure 2.2 (subsection 2.4.4, page 177) can be criticised. As vote is a one-off action, a different conceptual framework can be implemented: the three-level nested logit model can be transformed into a two-level nested logit model. We propose here four alternative nested logit trees.

The nested logit tree A shown in Figure 2.3 encompasses within the same level the "Incumbent referendum" and the "Mainstream opposition referendum"; thus, at the first level, the voter chooses between the incumbent, the mainstream opposition and the populists (right-wing and left-wing). If at the first step, the voter opts for populist parties, at the second one, he will choose between the right-wing populist party and the left-wing populist party. Results presented in Table 2.A12 in appendix validate H1a and H2a. Egotropic current unemployment (i.e. being personally unemployed) significantly increases the probability to vote for the mainstream opposition and partially

Figure 2.3: Alternative nested logit tree A

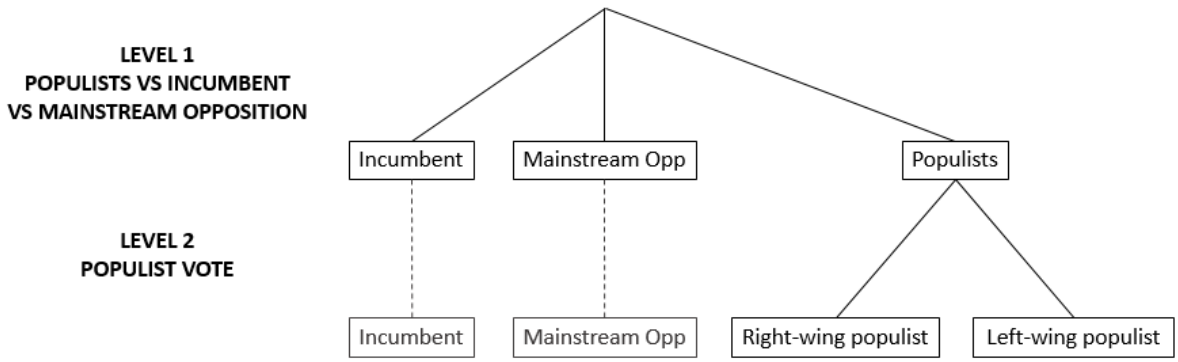
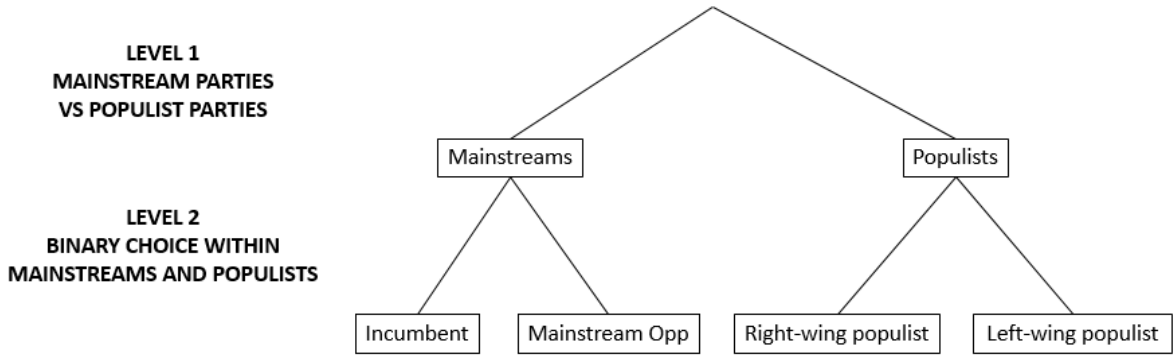


Figure 2.4: Alternative nested logit tree B

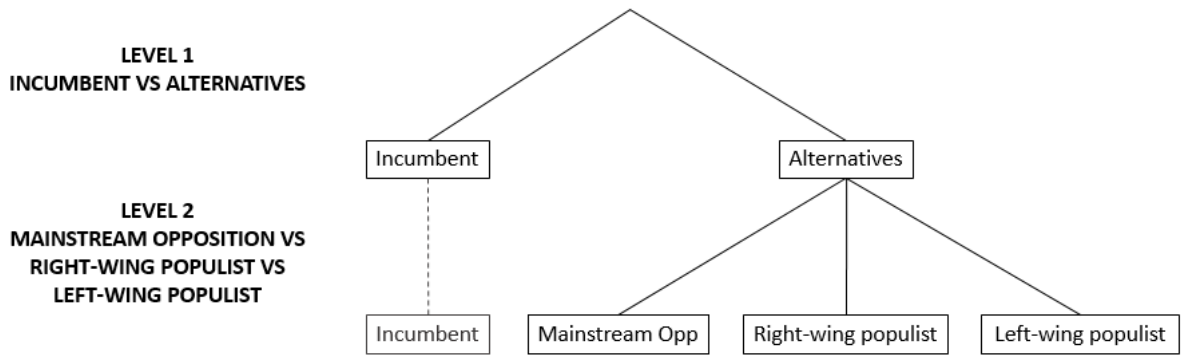


the probability to vote for populist parties. Egotropic accumulated unemployment measured by the variable *PCS unemployment rate* significantly raises the probability to vote for populist parties.

The nested logit tree B presented in Figure 2.4 opposes at the first level the choice between mainstream parties (the incumbent and the mainstream opposition) and populist parties (right-wing and left-wing). If the voter selects mainstream parties at the first level, he will vote for the incumbent or for the mainstream opposition at the second level; on the other side, if he opts for populist parties at the first level, he will vote for the right-wing populist party or the left-wing populist party at the second level. Results displayed in Table 2.A13 in appendix are not significant.

The nested logit tree C shown in Figure 2.5 includes in the same level the "Mainstream opposition referendum" and the "Populist vote"; thus, at the first level, the voter chooses between the incumbent and its alternatives, namely the mainstream opposition and the two populist parties. If the voter opts for the incumbent's alternatives at the first level, he will choose between the mainstream opposition, the right-wing populist party

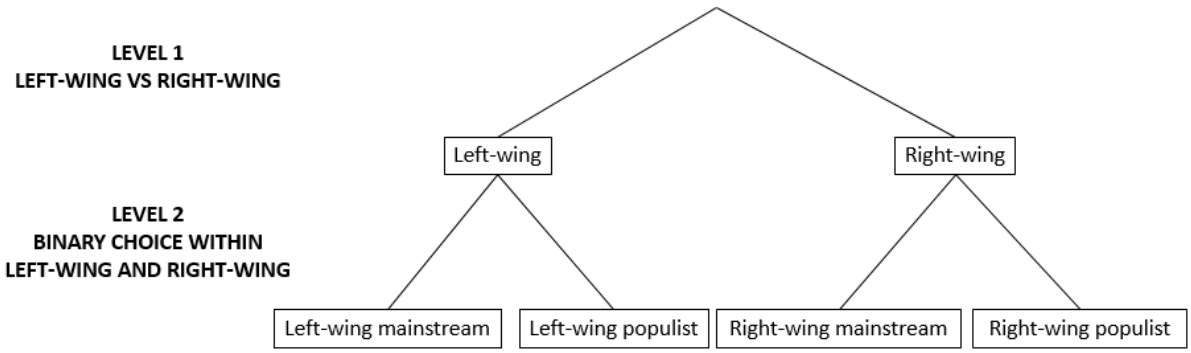
Figure 2.5: Alternative nested logit tree C



and the left-wing populist party at the second level. Results available in Table 2.A14 in appendix partially validate H1a, H2a, H2b and H3. Egotropic current unemployment (i.e. being personally unemployed) increases the probability to vote for the incumbent's alternatives. Both egotropic and sociotropic accumulated unemployment measured respectively by $PCS\,unemployment\,rate$ and $LT\,unemployment\,rate$ is most of the time significantly and positively linked with a higher probability to vote for the right-wing populist party and the left-wing populist party. Agreeing that there are too many immigrants in France increases the probability to vote for the right-wing populist party and agreeing that government should take measures in order to reduce income disparities boosts the probability to vote for the left-wing populist party.

The last nested logit tree D presented in Figure 2.6 distinguishes the choice within left-wing parties and right-wing parties at the first level. If the voter chooses left-wing parties at the first level, he will be given the choice between the left-wing mainstream party and the left-wing populist party at the second level. If on the contrary he chooses right-wing parties at the first level, he will be offered the choice between the

Figure 2.6: Alternative nested logit tree D



right-wing mainstream party and the right-wing populist party at the second level. We propose two proxies to explain the binary choice within left-wing parties and right-wing parties at the first level: the voters' political self-position[16] (version 1) and the voters' own explanation of unemployment (version 2). Results are displayed in appendix, in Table 2.A15 for version 1 and Table 2.A16 for version 2. Both the voters' political self-position and their own explanation of unemployment significantly distinguish vote for right-wing parties and vote for left-wing parties. In detail, a voter who self-positions to the right of the political space significantly decreases his probability to vote for left-wing parties. Also, the probability to vote for left-wing parties decreases when the voter agrees that there are too many immigrants in France while it raises when the voter agrees that government should take measures in order to reduce income disparities. Regarding current and accumulated unemployment, results are not always significant but go in the same direction to partially validate H1a, H2a, H2b and H3.

To conclude about alternative nested logit models, we argue that results are robust

[16]This variable is scored from left (0) to right (10). For more information, see Table 2.A17 in appendix.

and validate H1a, H2a, H2b and H3. Nevertheless, these alternative two-level nested logit models are less suitable than the baseline three-level nested logit model in equation 2.2 (page 177): unlike dissimilarity parameters of the baseline three-level nested logit estimations, those of the two-level nested logit estimations are not significant. Yet, as it is the closest to the baseline three-level nested logit model, the alternative two-level nested logit model C is the only one to present significant dissimilarity parameters (see Table 2.A14 in appendix).

2.6.3 Are the results driven by the candidate categorisation rule?

The candidate categorisation rule presented in subsection 2.4.2 and in Table 2.1 can be questioned for 2017 in particular. That year, indeed, the incumbent president, François Hollande chooses not to stand for re-election. His low popularity, his friction with the Prime minister, Manuel Valls and the large number of left-wing candidates in the election may explain this historic political decision: for the first time in the Fifth Republic, an incumbent president refuses to run for a second term[17]. Consequently, there is no incumbent president for the 2017 presidential election.

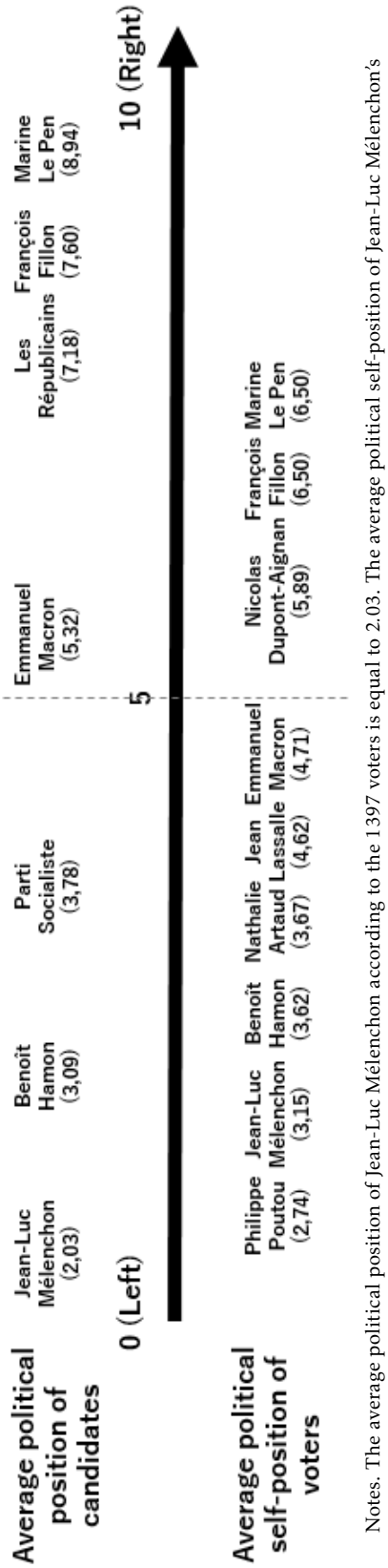
That is why, we set in our baseline estimations this categorisation rule for the incumbent: candidates who are either the incumbent president or a member of the incumbent government or a person of the same political affiliation as the incumbent president. Thus, we list two candidates in the 2017 incumbent category: Benoît Hamon, the Socialist Party candidate and Emmanuel Macron, the former Minister of Economy in

[17] https://www.lemonde.fr/election-presidentielle-2017/article/2016/12/01/francois-hollande-s-exprimera-a-20-heures-en-direct-depuis-l-elysee_5041785_4854003.html

Hollande's government. The first one stands for Hollande's party, i.e. the Socialist Party (PS). The second one is not member of the Socialist Party but he took an active part in the incumbent government, implementing Hollande's economic policy. He was in charge of the liberalisation of the French economy. It was he for example who promoted what we call "Macron laws" in 2014, which aimed at opening up the touring coach market and simplifying exemptions to Sunday working.

In the literature, Benoît Hamon and Emmanuel Macron like François Fillon are considered as mainstream candidates (Ivaldi, 2018) but it is difficult to determine Emmanuel Macron's political affiliation (left-wing with Benoît Hamon or right-wing with François Fillon). That is why, we ask 1397 voters to position on the political scale, from 0 (left) to 10 (right), the following 2017 candidates and parties: Benoît Hamon, Emmanuel Macron, François Fillon, Jean-Luc Mélenchon, Marine Le Pen, Parti socialiste and Les Républicains (ex UMP). The average political position of these candidates and parties according to voters in 2017 is presented in the upper part of Figure 2.7. As the 2017 FES does not take into account all candidates, we calculate for each candidate the average political self-position of their voters. The average political self-position of voters is presented in the lower part of Figure 2.7. In Figure 2.7, we notice that all of the voters do place Benoît Hamon on the left of the political scale and Emmanuel Macron on the centre-right. Conversely, while Benoît Hamon's voters are self-positioned on the left of the political scale, Emmanuel Macron's voters are self-positioned on the centre-left. In any case, Emmanuel Macron is closer to Benoît Hamon than François Fillon on the political scale. This justifies our placing Emmanuel Macron in the incumbent category

Figure 2.7: Average political position of candidates and average political self-position of voters on the political scale in the 2017 presidential election



Notes. The average political position of Jean-Luc Mélenchon according to the 1397 voters is equal to 2.03. The average political self-position of Jean-Luc Mélenchon's voters is equal to 3.15.

Table 2.6: Categorisation of candidates in French presidential elections - Case of one single candidate in each category

Categorization of candidates	**2002**	**2007**	**2012**	**2017**
Incumbent	Jacques Chirac (RPR)	Nicolas Sarkozy (UMP)	Nicolas Sarkozy (UMP)	Benoît Hamon (PS) Emmanuel Macron (EM)
Mainstream opposition	Lionel Jospin (PS)	Ségolène Royal (PS)	François Hollande (PS)	François Fillon (LR)
Right-wing populist	Jean-Marie Le Pen (FN)	Jean-Marie Le Pen (FN)	Marine Le Pen (FN)	Marine Le Pen (FN)
Left-wing populist	Arlette Laguillier (LO)	Olivier Besancenot (LCR)	Jean-Luc Mélenchon (FG)	Jean-Luc Mélenchon (LFI)

in the 2017 presidential election.

To test whether the results are driven by the candidate categorisation rule, we propose an alternative candidate categorisation grid. As displayed in Table 2.6, we reduce each category to a single candidate. For the mainstream opposition, the right-wing populist and the left-wing populist, we select the candidate who got the highest vote shares in the election in his category. Despite the reduction of each category to a single candidate, results are the same regarding the mainstream opposition referendum and the populist vote. Whatever the candidate categorisation rule, H2a, H2b and H3 are validated. Given the 2017 incumbent issue, we consider in our estimations first Benoît Hamon as the only 2017 incumbent and second, Emmanuel Macron as the only 2017 incumbent. Whether we take either Benoît Hamon alone or Emmanuel Macron alone as the only 2017 incumbent, results are the same regarding the incumbent referendum: unlike egotropic current unemployment, sociotropic current unemployment has no significant impact on the probability to vote for the incumbent. Thus, H1a is validated and H1b is not validated whatever the candidate categorisation rule.

2.7 Conclusion

In this paper, we analyse the link between unemployment and populist vote. We contribute to the literature in two ways. First, we consider several aspects of unemployment simultaneously: egotropic/sociotropic unemployment, current/accumulated unemployment and voters' own explanation of unemployment. Then, we distinguish between right-wing populist vote and left-wing populist vote. We seek to measure not only the link between unemployment and populism (whatever the side) but also the link between unemployment and each side of populism (right-wing and left-wing) separately. We choose to focus on French presidential elections from 2002 to 2017 because left-wing and right-wing populist parties have coexisted in France for a very long time and both achieved significant vote shares in the 2017 presidential election. We argue that the analysis of populist vote requires taking into account all political actors. Hence, to study several candidates simultaneously, we run multinomial logit and nested logit estimations.

We do find a significant positive link between unemployment and populist vote, whatever the side. On the one hand, if the voter is unemployed at the time of the election, he will be less prone to vote for the incumbent as he might seek to condemn his political action (H1a validated). On the other hand, if the voter has a high risk of unemployment in his PCS and/or lives in a department with high long-term unemployment rate, he will be more likely to shift away from the mainstream opposition because his accumulated unemployment experience might push him to condemn incumbent's

rival too (H2a and H2b validated). In short, higher unemployment (egotropic current unemployment, sociotropic and egotropic accumulated unemployment) corresponds to a lower probability to vote for mainstream parties (i.e. the incumbent and the mainstream opposition) and consequently a higher probability to vote for a populist party, whatever its political side, whether right-wing or left-wing.

The distinction between right-wing and left-wing populist vote only depends on the voters' own explanation of current and accumulated unemployment. If the voter thinks that there are too many immigrants (i.e. high unemployment is explained by immigration), he will be more prone to vote for the right-wing populist party (H3 validated). In the discussion section, we go further by arguing that left-wing populist voters have their own explanation of unemployment. We make this claim: if the voter agrees that government should act in the economy (i.e. high unemployment is explained by the lack of state intervention in the economy), he will be more likely to vote for the left-wing populist party.

Through this analysis, we demonstrate the relevance of taking into account the entire political space. Using nested logit models, we argue that populist vote is also related to the refusal to vote for mainstream parties, by backward induction. Thus, future research on economic populist vote should take into account the entire political space, notably using nested logit models.

Appendix

2.A Variables used in the estimation strategy

Table 2.A7: Description of variables

Name of variable	Source	Description	Mean	Sd	Min	Max
Incumbent vote	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter voted for the incumbent in the 1st round of the French presidential election	0.28	0.45	0	1
Mainstream Opposition vote	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter voted for the mainstream opposition in the 1st round of the French presidential election	0.42	0.49	0	1
Right-wing populist vote	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter voted for right-wing populist parties in the 1st round of the French presidential election	0.14	0.34	0	1
Left-wing populist vote	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter voted for left-wing populist parties in the 1st round of the French presidential election	0.16	0.36	0	1
Unemployment rate	Pôle emploi-DARES, STMT[18]	Department unemployment rate for A, B and C categories registered at Pôle Emploi three months before the election	14.32	3.56	7.19	27.66
LT Unemployment rate	Pôle emploi-DARES, STMT[18]	Department long-term (over one year) unemployment rate for A, B and C categories registered at Pôle Emploi three months before the election	5.36	1.97	1.76	12.25
Job category	FES 2002, 2007, 2012 and 2017	Four levels of current work activity: “Employed” (full-time job, part-time job and less than 15 hours’ week, including temporary leaves), “Unemployed” (and looking for a job), “Retired” and “Out of job market” (working in the family business, college or formation (not paid by the employer), stay-at-home, sick or permanently handicapped and other situation, without paid job)	Categorical variable			
PCS unemployment rate	1999, 2006, 2011 and 2016 population census	Department unemployment rate per PCS (Professions and Socio-professional Categories) divided into 6 items: “Farmers”, “Craftsmen and entrepreneurs”, “Managers”, “Intermediate professions”, “Employees” and “Blue collars”. We set the PCS unemployment rate of people without professional activity or retired to zero by default. It allows us to measure the risk of unemployment. The 2016 PCS unemployment rate is used for 2017 vote, the 2011 PCS unemployment rate for 2012 vote, the 2006 PCS unemployment rate for 2007 vote and the 1999 PCS unemployment rate for 2002 vote	9.47	8.00	0	29.48
Too many immigrants	FES 2002, 2007, 2012 and 2017	For 2002, 2012 and 2017: equal to 1 if the voter agrees or somewhat agrees with the fact that "There are too many immigrants in France"; equal to 0 if the voter either disagrees or somewhat disagrees.	2.64	14.30	0	99

[18] Statistique Mensuelle sur le Marché du Travail / Monthly Labour Market Statistics

Name of variable	Source	Description	Mean	Sd	Min	Max
Too many immigrants	FES 2002, 2007, 2012 and 2017	For 2007: equal to 1 if at the question "Do you think that immigration needs to be stopped (10) or to welcome new immigrants (0)?" the voter's answer is between 7 and 10				
Income disparities reduction	FES 2002, 2012 and 2017	Four levels to the item "Government should take measures in order to reduce income disparities": "Disagree", "Neither agree nor disagree", "Agree", "DK Refuse"	2.59	8.91	0	99
Female	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter is a woman	0.55	0.50	0	1
Age	FES 2002, 2007, 2012 and 2017	Seven age levels: "18-32", "33-42", "43-52", "53-62", "63-73", "74 and over" and "DK Refuse"	2.32	2.93	0	99
Education level	FES 2002, 2007, 2012 and 2017	Five levels corresponding to the highest level of education or training achieved: "None or Primary", "Secondary" (Lower secondary - vocational (CAP-BEP), Secondary), "Tertiary" and "DK Refuse"	1.88	5.15	0	99
Partner	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter lives with a partner	0.81	4.01	0	99
Having children	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter has at least one child	0.65	1.64	0	99
Income	FES 2002, 2007, 2012 and 2017	Six levels corresponding to the last month individual income: "1st quintile" (lowest income), "2nd quintile", "3rd quintile", "4th quintile", "5th quintile" (highest income) and "DK Refuse"	5.88	19.48	0	99

Table 2.A8: Spearman's rank correlation coefficients matrix for dependent and independent variables

	Incumbent vote	**Mainstream Opposition vote**	**Right-wing populist vote**	**Left-wing populist vote**	**Unemployment rate**	**Job category**	**Long-term unemploy. rate**	**PCS unemploy. rate**
Incumbent vote	1.0000							
Mainstream Opposition vote	-0.5391*	1.0000						
Right-wing populist vote	-0.2506*	-0.3412*	1.0000					
Left-wing populist vote	-0.2707*	-0.3685*	-0.1713*	1.0000				
Unemploy. rate	-0.0170	-0.1738*	0.1455*	0.1200*	1.0000			
Job category	0.0662*	-0.0184	0.0003	-0.0574*	0.0493*	1.0000		
LT unemploy rate	-0.0086	-0.1800*	0.1440*	0.1193*	0.9581*	0.0453*	1.0000	
PCS unemployment rate	-0.0487*	-0.0849*	0.0878*	0.0929*	0.1569*	-0.5602*	0.1583*	1.0000
Too many immigrants	0.1121*	-0.2272*	0.2272*	-0.1134*	0.1158*	0.0878*	0.0983*	0.0131
Income disparities reduction	-0.0948*	0.0615*	-0.0504*	0.0779*	-0.1174*	0.0541*	-0.1393*	-0.0399*
Female	0.0396*	-0.0069	-0.0321*	-0.0094	-0.0179	0.0676*	-0.0151	0.0460*
Age	0.1501*	-0.0276*	-0.0265*	-0.1238*	0.0362*	0.3631*	0.0387*	-0.3008*
Education level	-0.0255*	0.1274*	-0.1439*	-0.0055	-0.0316*	-0.2114*	-0.0140	-0.0347*
Partner	0.0037	-0.0078	0.0238*	-0.0164	-0.0339*	-0.1805*	-0.0384*	0.1122*
Having children	-0.0454*	-0.0391*	0.0659*	0.0472*	0.1235*	-0.1500*	0.1298*	0.1569*
Income	0.0222*	0.0509*	-0.0633*	-0.0370*	-0.0467*	-0.1772*	-0.0527*	-0.0231*

	Too many immigrants	**Income disparities reduction**	**Female**	**Age**	**Education level**	**Partner**	**Having children**	**Income**
Too many immigrants	1.0000							
Income disparities reduction	-0.0358*	1.0000						
Female	0.0284*	0.0371*	1.0000					
Age	0.1932*	0.0322*	-0.0139	1.0000				
Education level	-0.3066*	0.1087*	-0.0162	-0.3391*	1.0000			
Partner	0.0251*	-0.0202	-0.0811*	0.0277*	0.0291*	1.0000		
Having children	0.0143	-0.0462*	0.0419*	-0.1534*	0.0399*	0.1534*	1.0000	
Income	-0.1074*	-0.0449*	-0.1334*	-0.0590*	0.3016*	0.2938*	0.1442*	1.0000

2.B Detailed presentation of nested logit models

Nested logit models were introduced by McFadden (1978). These models consider decisions as subsets or "nests". In each nest, alternatives are IIA whereas between nests, IIA does not hold any longer. The choice between alternatives is linked to the other alternatives, thus it biases multinomial logits as IIA does not hold. Moreover, nested logit models are consistent with utility maximisation (Daly and Stanley, 1978, McFadden, 1978 and Williams, 1977).

We consider, with alternatives classified in K different nests, the utility U_j that the individual obtains from alternative j in nest B_k. This utility is equal to: $U_j = V_j + \epsilon_j$ and the error terms follow this multivariate distribution:

$$exp\left(-\sum_{k=1}^{K}\left(\sum_{j\in B_k} e^{-\epsilon_j/\lambda_k}\right)^{\lambda_k}\right) \tag{2.3}$$

In equation 2.3, the parameter λ_k corresponds to the measure of the degree of independence in unobserved utility among the alternatives in nest k. Alternatively, $1-\lambda_k$ is a measure correlation. Hence, $\lambda_k = 1$, indicates that there is no correlation between all error terms. In other words, IIA holds whatever the nest. So in that case, nested logit model is not appropriate and it can be reduced to a standard logit model (multinomial or ordered).

Therefore, we can write the probability of choosing alternative j that is part of nest l:

$$P_j = \frac{e^{V_j/\lambda_l}\left(\sum_{j\in B_l} e^{V_j/\lambda_l}\right)^{\lambda_l - 1}}{\sum_{k=1}^{K}\left(\sum_{j\in B_k} e^{V_j/\lambda_k}\right)^{\lambda_k}} \tag{2.4}$$

By writing $V_j = Z_j + W_l$ (Croissant, 2012), equation 2.4 becomes:

$$P_j = \frac{e^{Z_j/\lambda_l}}{\sum_{j\in B_l} e^{Z_j/\lambda_l}} \times \frac{e^{W_l + \lambda_l I_l}}{\sum_{k=1}^{K} e^{W_k + \lambda_k I_k}} \tag{2.5}$$

where $I_l = ln\left(\sum_{j\in B_l} e^{Z_j/\lambda_l}\right)$ is the inclusive value or inclusive utility

In equation 2.5, the first term represents the conditional probability of choosing alternative j if nest l is chosen: that corresponds to the "lower model", i.e. the last level of the nested logit tree. The second term in equation 2.5 represents the marginal probability of choosing the nest l and it corresponds to the "upper model", i.e. the first level of the nested logit tree.

2.C Baseline nested logit estimations - Controls results

Table 2.A9: Nested logit estimations analysing the link between unemployment and populist vote - Controls results

Three-level nested logit	(1)	(2)	(3)	(4)	(5)	(6)
			Level 3: Populist vote			
			Candidate reference: Left-wing populist vote			
Incumbent vote	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.37*	0.20	0.41**	0.37*	0.39**	0.19
	(0.19)	(0.45)	(0.19)	(0.19)	(0.19)	(0.46)
Age			*Reference: 18-32*			
33-42	0.63***	0.72**	0.67***	0.64***	0.66***	0.74**
	(0.22)	(0.34)	(0.22)	(0.22)	(0.22)	(0.35)
43-52	1.00***	0.94***	1.03***	1.00***	1.02***	0.96***
	(0.27)	(0.36)	(0.26)	(0.27)	(0.26)	(0.35)
53-62	1.41***	1.33***	1.37***	1.41***	1.36***	1.31***
	(0.25)	(0.30)	(0.24)	(0.25)	(0.24)	(0.30)
63-73	2.36***	2.24***	2.24***	2.38***	2.24***	2.17***
	(0.26)	(0.59)	(0.28)	(0.28)	(0.27)	(0.58)
74 and over	2.78***	2.83***	2.65***	2.80***	2.65***	2.77***
	(0.30)	(0.79)	(0.31)	(0.31)	(0.30)	(0.79)
DK Refuse	14.6	25.4	14.5	14.5	14.6	30.6
	(21.4)	(71.7)	(23.2)	(21.9)	(27.9)	(93.4)
Education level			*Reference: None or Primary*			
Lower secondary - vocational (CAP-BEP)	0.098	0.040	0.16	0.096	0.14	0.041
	(0.19)	(0.26)	(0.19)	(0.19)	(0.19)	(0.25)
Secondary	0.79***	0.57	0.78***	0.79***	0.77***	0.59
	(0.25)	(0.65)	(0.25)	(0.25)	(0.25)	(0.66)
Tertiary	1.48***	1.22***	1.40***	1.47***	1.39***	1.24***
	(0.31)	(0.45)	(0.30)	(0.31)	(0.30)	(0.45)
DK Refuse	13.7	27.1	13.7	13.8	13.8	34.1
	(21.0)	(74.3)	(21.5)	(21.5)	(23.8)	(157.1)
Partner			*Reference: Not living with a partner*			
Living with a partner	-0.10	0.042	-0.086	-0.10	-0.086	0.041
	(0.19)	(0.16)	(0.19)	(0.19)	(0.19)	(0.17)
DK Refuse	0.99	-0.32	0.67	0.97	0.69	-0.29
	(1.57)	(5.04)	(1.45)	(1.56)	(1.45)	(5.20)
Having children			*Reference: No child*			
At least one child	-0.38***	-0.33	-0.34**	-0.38***	-0.34**	-0.33
	(0.14)	(0.57)	(0.14)	(0.14)	(0.14)	(0.57)
DK Refuse	-0.40	-2.98	-0.35	-0.44	-0.38	-2.94
	(4.32)	(9.08)	(4.37)	(4.30)	(4.29)	(9.22)
Income			*Reference: 1st quintile*			
2nd quintile	-0.42	-0.41	-0.36	-0.41	-0.36	-0.41
	(0.26)	(0.30)	(0.26)	(0.26)	(0.26)	(0.30)
3rd quintile	-0.42**	-0.55**	-0.33	-0.43**	-0.34	-0.55***
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
4th quintile	0.27	0.071	0.34	0.26	0.32	0.067
	(0.26)	(0.32)	(0.27)	(0.27)	(0.26)	(0.31)
5th quintile	0.78**	0.48	0.81**	0.77**	0.77**	0.48
	(0.34)	(0.46)	(0.33)	(0.34)	(0.33)	(0.49)
DK Refuse	0.72	0.73	0.71	0.71	0.71	0.72
	(0.46)	(0.48)	(0.47)	(0.46)	(0.46)	(0.48)

Three-level nested logit	(1)	(2)	(3)	(4)	(5)	(6)
Mainstream opposition vote	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.32	0.13	0.37*	0.32	0.35	0.12
	(0.22)	(0.43)	(0.22)	(0.22)	(0.22)	(0.44)
Age			*Reference: 18-32*			
33-42	0.51*	0.63	0.59**	0.51*	0.57*	0.62
	(0.29)	(0.39)	(0.30)	(0.29)	(0.29)	(0.39)
43-52	1.22***	1.07**	1.29***	1.21***	1.26***	1.06**
	(0.39)	(0.42)	(0.39)	(0.39)	(0.39)	(0.42)
53-62	1.50***	1.22***	1.44***	1.49***	1.42***	1.22***
	(0.37)	(0.40)	(0.36)	(0.37)	(0.36)	(0.40)
63-73	2.44***	2.01***	2.23***	2.43***	2.22***	2.00***
	(0.38)	(0.70)	(0.38)	(0.38)	(0.37)	(0.68)
74 and over	3.03***	2.88***	2.79***	3.01***	2.78***	2.87***
	(0.41)	(0.90)	(0.41)	(0.41)	(0.40)	(0.89)
DK Refuse	14.3	25.5	14.4	14.3	14.4	30.6
	(21.6)	(71.8)	(23.5)	(22.2)	(28.0)	(93.5)
Education level			*Reference: None or Primary*			
Lower secondary - vocational (CAP-BEP)	0.28	0.16	0.37	0.28	0.33	0.16
	(0.27)	(0.29)	(0.27)	(0.27)	(0.27)	(0.28)
Secondary	1.13***	0.74	1.12***	1.12***	1.10***	0.75
	(0.35)	(0.66)	(0.34)	(0.35)	(0.34)	(0.67)
Tertiary	2.21***	1.66***	2.10***	2.19***	2.08***	1.67***
	(0.41)	(0.51)	(0.39)	(0.41)	(0.39)	(0.51)
DK Refuse	14.0	27.4	14.1	14.1	14.0	34.4
	(21.0)	(74.5)	(21.6)	(21.6)	(23.7)	(157.3)
Partner			*Reference: Not living with a partner*			
Living with a partner	-0.15	0.043	-0.12	-0.15	-0.12	0.041
	(0.24)	(0.19)	(0.24)	(0.24)	(0.23)	(0.19)
DK Refuse	-0.45	-1.78	-0.88	-0.47	-0.89	-1.73
	(2.27)	(5.91)	(2.19)	(2.26)	(2.18)	(6.10)
Having children			*Reference: No child*			
At least one child	-0.50**	-0.35	-0.46**	-0.50**	-0.46**	-0.35
	(0.21)	(0.58)	(0.21)	(0.21)	(0.21)	(0.58)
DK Refuse	0.027	-6.69	-0.15	-0.019	-0.071	-6.42
	(6.45)	(28.7)	(7.54)	(6.49)	(6.79)	(26.8)
Income			*Reference: 1st quintile*			
2nd quintile	-0.45	-0.38	-0.38	-0.45	-0.38	-0.38
	(0.33)	(0.34)	(0.34)	(0.33)	(0.33)	(0.34)
3rd quintile	-0.58**	-0.59**	-0.46*	-0.57**	-0.47*	-0.59**
	(0.28)	(0.27)	(0.28)	(0.28)	(0.27)	(0.27)
4th quintile	0.038	-0.026	0.13	0.039	0.11	-0.033
	(0.33)	(0.35)	(0.33)	(0.33)	(0.33)	(0.34)
5th quintile	0.77*	0.27	0.83*	0.77*	0.78*	0.26
	(0.45)	(0.51)	(0.45)	(0.45)	(0.45)	(0.54)
DK Refuse	0.76	0.91	0.73	0.75	0.74	0.90
	(0.62)	(0.57)	(0.63)	(0.62)	(0.62)	(0.57)
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.16	-0.39	-0.15	-0.15	-0.14	-0.39
	(0.29)	(0.89)	(0.28)	(0.29)	(0.29)	(0.91)
Age			*Reference: 18-32*			
33-42	0.053	0.11	0.050	0.053	0.047	0.12
	(0.19)	(0.62)	(0.18)	(0.19)	(0.18)	(0.66)
43-52	-0.060	-0.17	-0.058	-0.060	-0.055	-0.16
	(0.17)	(0.61)	(0.16)	(0.16)	(0.16)	(0.59)
53-62	-0.042	0.037	-0.037	-0.041	-0.038	0.042
	(0.12)	(0.42)	(0.12)	(0.12)	(0.11)	(0.44)
63-73	0.057	0.32	0.056	0.058	0.055	0.32
	(0.16)	(0.95)	(0.16)	(0.17)	(0.16)	(0.96)

Three-level nested logit	(1)	(2)	(3)	(4)	(5)	(6)
Right-wing populist vote (continued)	(1)	(2)	(3)	(4)	(5)	(6)
Age (continued)			*Reference: 18-32*			
74 and over	0.072	0.50	0.069	0.073	0.068	0.50
	(0.22)	(1.24)	(0.21)	(0.22)	(0.21)	(1.27)
DK Refuse	12.7	24.6	12.6	12.7	12.6	29.8
	(21.4)	(74.6)	(22.6)	(21.9)	(26.4)	(96.1)
Education level			*Reference: None or Primary*			
Lower secondary - vocational (CAP-BEP)	-0.065	-0.035	-0.061	-0.064	-0.060	-0.029
	(0.15)	(0.38)	(0.14)	(0.14)	(0.14)	(0.35)
Secondary	-0.11	-0.18	-0.100	-0.11	-0.096	-0.18
	(0.26)	(1.30)	(0.24)	(0.26)	(0.25)	(1.31)
Tertiary	-0.21	-0.23	-0.20	-0.21	-0.19	-0.23
	(0.38)	(0.78)	(0.37)	(0.38)	(0.38)	(0.77)
DK Refuse	13.2	27.4	13.1	13.2	13.2	34.4
	(21.9)	(77.6)	(22.4)	(22.5)	(24.5)	(160.3)
Partner			*Reference: Not living with a partner*			
Living with a partner	0.15	0.19	0.14	0.15	0.14	0.19
	(0.24)	(0.23)	(0.24)	(0.25)	(0.25)	(0.23)
DK Refuse	0.23	-0.94	0.24	0.23	0.24	-0.95
	(0.70)	(9.19)	(0.63)	(0.70)	(0.61)	(9.45)
Having children			*Reference: No child*			
At least one child	-0.055	0.23	-0.054	-0.055	-0.052	0.22
	(0.086)	(1.16)	(0.087)	(0.086)	(0.085)	(1.16)
DK Refuse	-18.5	-27.9	-18.5	-18.5	-18.5	-28.0
	(31.6)	(90.8)	(32.2)	(32.3)	(34.5)	(93.0)
Income			*Reference: 1st quintile*			
2nd quintile	-0.20	-0.37	-0.19	-0.20	-0.18	-0.36
	(0.35)	(0.49)	(0.34)	(0.36)	(0.34)	(0.48)
3rd quintile	-0.16	-0.29	-0.16	-0.16	-0.15	-0.29
	(0.27)	(0.26)	(0.26)	(0.27)	(0.26)	(0.26)
4th quintile	-0.19	-0.49	-0.18	-0.19	-0.17	-0.48
	(0.37)	(0.60)	(0.36)	(0.37)	(0.36)	(0.59)
5th quintile	0.25	0.26	0.25	0.25	0.23	0.27
	(0.49)	(1.02)	(0.49)	(0.50)	(0.50)	(1.09)
DK Refuse	-0.16	-0.44	-0.15	-0.16	-0.15	-0.45
	(0.31)	(0.60)	(0.30)	(0.31)	(0.30)	(0.61)
			Dissimilarity parameters (λ values)			
Level 1: Incumbent referendum						
Incumbent	1.01	1.02	1.01	1.01	0.98	1.01
Alternatives	3.41***	2.43***	3.48***	3.40***	3.38***	2.43***
Level 2: Mainstream opposition referendum						
Incumbent	1.00	1.00***	0.98	1.00	1.06**	1.18
Mainstream opposition	0.98***	0.79***	1.01	1.10**	0.44***	1.08***
Populists	0.71	1.89	0.67	0.70	0.65	1.88
Observations	7904	7904	7904	7904	7904	7904
Log-Pseudo likelihood	-8730.9876	-9002.3543	-8728.4705	-8730.0915	-8724.1625	8998.5763
Controls	YES	YES	YES	YES	YES	YES
Year FE	YES	NO	YES	YES	YES	NO
Department FE	NO	NO	NO	NO	NO	NO
Wald test	20790.47***	5652.80***	7276.03***	8195.48***	8352.21***	8704.70***

The method estimation is RUM-consistent nested logit.
Clustered standard errors at year-department level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2.D Robustness for nested logit estimations

Table 2.A10: Nested logit estimations explaining the link between unemployment and populist vote (with left-wing populist variable)

Three-level nested logit	(1)	(2)	(3)	(4)	(5)
	Level 1: Incumbent referendum				
	Candidate reference: Incumbent				
Alternatives vote	(1)	(2)	(3)	(4)	(5)
Unemployment rate	-0.0082	0.026	0.046		
	(0.010)	(0.040)	(0.038)		
Job category			*Reference: Employed*		
Unemployed				0.25*	0.28*
				(0.15)	(0.14)
Retired				-0.013	0.073
				(0.14)	(0.13)
Out of job market				-0.15	-0.050
				(0.12)	(0.11)
	Level 2: Mainstream opposition referendum				
	Candidate reference: Mainstream opposition				
Populist vote	(1)	(2)	(3)	(4)	(5)
LT unemployment rate		0.18**	0.59***		
		(0.071)	(0.11)		
PCS unemployment rate	0.12***		0.037**	0.12***	
	(0.030)		(0.015)	(0.030)	
	Level 3: Populist vote				
	Candidate reference: Left-wing populist vote				
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)
Too many immigrants			*Reference: Disagree*		
Agree	6.53**	3.27*	4.97**	6.63**	3.32*
	(2.69)	(1.87)	(2.15)	(2.70)	(1.87)
Income disparities reduction			*Reference: Disagree*		
Neither agree nor disagree	-0.91	-0.74	-0.67	-0.92	-0.74
	(0.66)	(0.47)	(0.51)	(0.67)	(0.46)
Agree	-2.74***	-1.44*	-2.16***	-2.78***	-1.47*
	(0.95)	(0.80)	(0.83)	(0.96)	(0.80)
	Dissimilarity parameters (λ values)				
Level 1: Incumbent referendum					
Incumbent	1.00	1.00	1.00	0.95	1.00
Alternatives	4.18***	3.12***	2.62***	4.19***	3.11***
	(0.87)	(0.68)	(0.64)	(0.88)	(0.68)
Level 2: Mainstream opposition referendum					
Incumbent	1.00	1.00	1.00	1.02	1.00
Mainstream opposition	1.00***	1.00	1.00***	0.60	1.00
Populists	2.13**	1.05*	1.62**	2.16**	1.07*
Observations	6166	6166	6166	6166	6166
Log-Likelihood	-7286.3791	-7043.0799	-7179.4936	-7284.1185	-7041.1141
Controls	YES	YES	YES	YES	YES
Year FE	NO	YES	NO	NO	YES
Department FE	NO	NO	NO	NO	NO
Wald test	4736.59***	8632.84***	4607.63***	4649.76***	8193.23***

The method estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Three-level nested logit	(6)	(7)	(8)	(9)
Level 1: Incumbent referendum				
Candidate reference: Incumbent				
Alternatives vote	(6)	(7)	(8)	(9)
Unemployment rate		-0.0058	0.026	0.017
		(0.010)	(0.040)	(0.055)
Job category		*Reference: Employed*		
Unemployed	0.26*	0.25*	0.27*	0.24*
	(0.14)	(0.15)	(0.14)	(0.14)
Retired	0.087	-0.0019	0.084	0.085
	(0.14)	(0.14)	(0.14)	(0.14)
Out of job market	0.0035	-0.13	-0.0027	-0.0032
	(0.12)	(0.12)	(0.12)	(0.12)
Level 2: Mainstream opposition referendum				
Candidate reference: Mainstream opposition				
Populist vote	(6)	(7)	(8)	(9)
LT unemployment rate	0.15**		0.15**	0.14
	(0.073)		(0.074)	(0.11)
PCS unemployment rate	0.034**	0.12***	0.034**	0.037**
	(0.016)	(0.030)	(0.016)	(0.018)
Level 3: Populist vote				
Candidate reference: Left-wing populist vote				
Right-wing populist vote	(6)	(7)	(8)	(9)
Too many immigrants		*Reference: Disagree*		
Agree	3.16*	6.61**	3.16*	2.28
	(1.86)	(2.70)	(1.87)	(2.36)
Income disparities reduction		*Reference: Disagree*		
Neither agree nor disagree	-0.72	-0.92	-0.72	-0.53
	(0.46)	(0.67)	(0.46)	(0.53)
Agree	-1.40*	-2.77***	-1.40*	-1.05
	(0.81)	(0.96)	(0.81)	(1.08)
Dissimilarity parameters (λ values)				
Level 1: Incumbent referendum				
Incumbent	1.00	1.00	1.00	1.00
Alternatives	3.19***	4.18***	3.21***	3.36***
	(0.70)	(0.88)	(0.70)	(0.85)
Level 2: Mainstream opposition referendum				
Incumbent	1.00	1.00	1.00	1.00***
Mainstream opposition	0.98	1.00	1.00	1.00
Populists	1.02*	2.15**	1.02*	0.74
Observations	6166	6166	6166	6166
Log-Likelihood	-7037.3622	-7283.9174	-7037.0235	-6997.1984
Controls	YES	YES	YES	YES
Year FE	YES	NO	YES	YES
Department FE	NO	NO	NO	YES
Wald test	8348.24***	4875.10***	8704.74***	43922.61***

The method of estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Table 2.A11: Conditional predicted probabilities from nested logit estimation (with left-wing populist variable)

	Conditional probability at Level 1	**Baseline**	**(1) 1pt increase in unemployment rate**	**(2) Job category = Unemployed**	**(1) + (2)**
Level 1: Incumbent referendum	Incumbent vote	34.57 %	34.19 % (−0.4 pt)	29.36 % (−5 pts)	29.01 % (−5.5 pts)
	Alternatives vote	65.43 %	65.81 % (+0.4 pt)	70.64 % (+5 pts)	70.99 % (+5.5 pts)
	Conditional probability at Level 2	**Baseline**	**(3) 1pt increase in LT unemployment rate**	**(4) 1pt increase in PCS unemployment rate**	**(3) + (4)**
Level 2: Mainstream opposition referendum	Mainstream vote	30.60 %	29.72 % (−1 pt)	30.37 % (−0.2 pt)	29.50 % (−1 pt)
	Populist vote	69.40 %	70.28 % (+1 pt)	69.63 % (+0.2 pt)	70.50 % (+1 pt)
	Conditional probability at Level 3	**Baseline**	**(5) Too many immigrants = Agree**	**(6) Income disparities reduction = Agree**	**(5) + (6)**
Level 3: Populist Vote	Right-wing populist vote	43.78 %	94.47 % (+50.5 pts)	15.89 % (−28 pts)	80.55 % (+37 pts)
	Left-wing populist vote	56.22 %	5.53 % (−50.5 pts)	84.11 % (+28 pts)	19.45 % (−37 pts)

The presented predicted probabilities are made with the estimation (9) in Table 2.A10.
Baseline profile: Voter in the 2017 presidential election, living in Calvados (with unemployment rate equal to 18.87 % and LT unemployment rate equal to 8.18 %), employed, having the average PCS unemployment rate (9.11 %), disagreeing that there are too many immigrants in France and that government should take measures in order to reduce income disparities, male, under 32 years old, none or primary education level, single, without children and belonging to the 1st quintile of income.
Reading key for conditional probability at Level 1: The probability of the baseline profile to vote for the incumbent is equal to 34.57 %; when the unemployment rate increases by one percentage point, that probability decreases by 0.4 percentage point.
Reading key for conditional probability at Level 2: Knowing that the baseline profile chooses incumbent's alternatives at the first nested level, his probability to vote for the mainstream opposition is equal to 30.60 %; when the long-term unemployment rate rises by one percentage point, that probability falls by 1 percentage point.
Reading key for conditional probability at Level 3: Knowing that the baseline profile chooses populist parties at the second nested level, his probability to vote for the right-wing populist party is equal to 43.78 %; when the voter agrees that there are too many immigrants in France, that probability raises by 50.5 percentage points.

Table 2.A12: Nested logit estimations from alternative tree A

Two-level nested logit A	(1)	(2)	(3)	(4)	(5)
Level 1: Choice between Populists, Incumbent and Mainstream opposition					
Candidate Reference: Incumbent					
Mainstream opposition vote	(1)	(2)	(3)	(4)	(5)
Unemployment rate	0.12***	-0.014	0.086***	-0.014	-0.026
	(0.028)	(0.032)	(0.032)	(0.035)	(0.055)
Job category			*Reference: Employed*		
Unemployed	0.35***	0.31**	0.45***	0.42**	0.41**
	(0.14)	(0.14)	(0.16)	(0.16)	(0.16)
Retired	-0.39***	-0.27***	-0.37***	-0.25**	-0.24**
	(0.076)	(0.077)	(0.10)	(0.10)	(0.11)
Out of job market	-0.16*	-0.0050	-0.20	-0.058	-0.062
	(0.10)	(0.10)	(0.13)	(0.13)	(0.13)
LT unemployment rate	-0.33***	0.000088	-0.29***	0.0029	0.042
	(0.052)	(0.063)	(0.058)	(0.071)	(0.097)
PCS unemployment rate	-0.015***	-0.00085	-0.012**	-0.0019	-0.0019
	(0.0046)	(0.0048)	(0.0060)	(0.0062)	(0.0062)
Populist vote	(1)	(2)	(3)	(4)	(5)
Unemployment rate	0.090***	0.018	-0.024	0.021	0.046
	(0.029)	(0.033)	(0.032)	(0.035)	(0.055)
Job category			*Reference: Employed*		
Unemployed	0.26*	0.22	0.28*	0.26	0.24
	(0.14)	(0.14)	(0.16)	(0.16)	(0.16)
Retired	-0.68***	-0.50***	-0.59***	-0.58***	-0.57***
	(0.082)	(0.085)	(0.10)	(0.099)	(0.100)
Out of job market	0.13	0.37***	0.18	0.23*	0.24*
	(0.10)	(0.11)	(0.12)	(0.12)	(0.12)
LT unemployment rate	0.0030	-0.00080	0.13**	-0.0086	-0.041
	(0.052)	(0.065)	(0.057)	(0.070)	(0.095)
PCS unemployment rate	0.015***	0.034***	0.025***	0.029***	0.030***
	(0.0047)	(0.0049)	(0.0056)	(0.0056)	(0.0057)
Level 2: Populist vote					
Candidate Reference: Left-wing populist vote					
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)
Too many immigrants			*Reference: Disagree*		
Agree	3.16	-2.06*	1.93**	1.11	1.00
	(865.7)	(1.20)	(0.83)	(0.71)	(0.67)
Income disparities reduction			*Reference: Disagree*		
Neither agree nor disagree			-0.37*	-0.30	-0.27
			(0.22)	(0.20)	(0.19)
Agree			-0.86**	-0.51	-0.47
			(0.35)	(0.33)	(0.32)
Dissimilarity parameters (λ values)					
Level 1: Choice between Populists, Incumbent and Mainstream opposition					
Incumbent	1.00	1.00	1.00	1.00	1.00
Mainstream opposition	1.00	1.00	1.00	1.00	1.00
Populists (right-wing and left-wing)	1.06	-0.67*	0.62**	0.35	0.32
Observations	7904	7904	6166	6166	6166
Log-Likelihood	-9187.2139	-8925.5277	-7328.6772	-7205.586	-7165.862
Controls	NO	NO	NO	NO	NO
Year FE	NO	YES	NO	YES	YES
Department FE	NO	NO	NO	NO	YES
Wald test	941.14***	1292.38***	743.81***	889.09***	934.40***
LR test for IIA ($\lambda = 1$)	-0.00	12.17***	1.60	6.05	7.16*

The method of estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Table 2.A13: Nested logit estimation from alternative tree B

Two-level nested logit B	(1)	(2)	(3)	(4)	(5)	(6)
Level 1: Choice between Mainstreams and Populists						
Candidate Reference: Mainstreams						
Populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.036	-0.057**	-0.068**	0.032	0.061	0.062
	(0.025)	(0.027)	(0.027)	(0.029)	(0.047)	(0.045)
Job category			*Reference: Employed*			
Unemployed	0.056	-0.099	0.0025	0.0071	-0.12	-0.011
	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Retired	-0.47***	0.027	-0.40***	-0.46***	0.015	-0.46***
	(0.073)	(0.14)	(0.085)	(0.086)	(0.14)	(0.086)
Out of job market	0.21**	0.069	0.29***	0.26**	0.031	0.27***
	(0.087)	(0.11)	(0.100)	(0.10)	(0.11)	(0.10)
Level 2: Choice within Mainstream parties and Populist parties						
Candidate Reference: Incumbent						
Mainstream opposition vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	1.06***	-0.26**	0.082	0.0014	0.0031	-0.00099
	(0.41)	(0.12)	(0.13)	(0.013)	(0.049)	(0.0059)
PCS unemployment rate	-0.018	-0.011	-0.0026	-0.00040	0.0015	0.0013
	(0.031)	(0.012)	(0.0047)	(0.0036)	(0.0072)	(0.0040)
Too many immigrants			*Reference: Disagree*			
Agree	7.39**	-1.47**	0.40	0.043	-1.14**	-0.14
	(3.31)	(0.73)	(0.62)	(0.39)	(0.45)	(0.42)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree		-0.53	0.14	0.0088	-0.22	-0.030
		(0.43)	(0.24)	(0.079)	(0.27)	(0.092)
Agree		1.09*	-0.22	-0.014	0.56*	0.047
		(0.63)	(0.34)	(0.12)	(0.31)	(0.14)
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	0.52***	0.15**	0.33***	-0.017	-0.064	-0.075
	(0.14)	(0.076)	(0.082)	(0.058)	(0.087)	(0.080)
PCS unemployment rate	0.025*	0.0033	0.028***	0.028***	0.011*	0.030***
	(0.013)	(0.0086)	(0.0052)	(0.0051)	(0.0066)	(0.0052)
Too many immigrants			*Reference: Disagree*			
Agree	-15.9	1.22**	1.29***	0.87**	0.61	0.87**
	(15.4)	(0.56)	(0.48)	(0.42)	(0.46)	(0.40)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree		-0.34	0.048	-0.12	-0.31	-0.13
		(0.26)	(0.21)	(0.18)	(0.21)	(0.18)
Agree		0.48*	0.21	0.48***	0.54***	0.49***
		(0.28)	(0.19)	(0.16)	(0.19)	(0.16)
Left-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	0.91***	0.11	0.33***	-0.014	-0.024	-0.060
	(0.29)	(0.090)	(0.087)	(0.058)	(0.087)	(0.080)
PCS unemployment rate	0.0018	0.011	0.031***	0.029***	0.015**	0.032***
	(0.023)	(0.0084)	(0.0060)	(0.0054)	(0.0068)	(0.0055)
Too many immigrants			*Reference: Disagree*			
Agree	16.3	-1.22	0.66	0.60	-0.50	0.43
	(10.1)	(0.75)	(0.60)	(0.38)	(0.48)	(0.38)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree		0.041	0.20	-0.043	-0.047	-0.011
		(0.29)	(0.21)	(0.20)	(0.24)	(0.19)
Agree		1.54***	0.50	0.60**	1.05***	0.69***
		(0.53)	(0.37)	(0.23)	(0.34)	(0.23)
Dissimilarity parameters (λ values)						
Level 1: Choice between Mainstreams and Populists						
Mainstreams (Incumbent and Mainstream opposition)	-7.89**	1.99**	-0.49	-0.045	1.39**	0.15
Populists (right-wing and left-wing)	-10.8	0.79**	0.20	0.086	0.36	0.14
Observations	7904	6166	6166	6166	6166	6166
Log-Likelihood	-9207.0326	-7185.1259	-7339.0609	-7207.7194	-7017.4272	-7167.1008
Controls	NO	YES	NO	NO	YES	NO
Year FE	NO	NO	NO	YES	YES	YES
Department FE	NO	NO	NO	NO	YES	YES
Wald test	411.38***	615.88***	456.58	525.55***	711.62***	550.42***
LR test for IIA ($\lambda = 1$)	13.06***	3.23	6.44**	13.48***	9.08**	12.31***

The method of estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Table 2.A14: Nested logit estimations from alternative tree C

Two-level nested logit C	(1)	(2)	(3)	(4)	(5)	(6)
Level 1: Choice between Incumbent and Alternatives						
Candidate Reference: Incumbent						
Alternative vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.13***	0.024	0.061	0.049*	0.024	0.011
	(0.026)	(0.029)	(0.046)	(0.029)	(0.032)	(0.050)
Job category			*Reference: Employed*			
Unemployed	0.23*	0.18	0.27**	0.28*	0.28*	0.25
	(0.13)	(0.13)	(0.13)	(0.15)	(0.15)	(0.15)
Retired	-0.12	0.068	-0.37***	-0.024	0.092	0.093
	(0.11)	(0.11)	(0.071)	(0.14)	(0.14)	(0.14)
Out of job market	-0.16*	0.045	0.15	-0.15	0.0074	0.012
	(0.097)	(0.10)	(0.094)	(0.12)	(0.12)	(0.12)
Level 2: Choice between Alternatives						
Candidate Reference: Mainstream opposition						
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	0.72***	0.14**	-0.018	0.64***	0.11*	-0.022
	(0.086)	(0.070)	(0.12)	(0.087)	(0.066)	(0.099)
PCS unemployment rate	0.022*	0.025*	0.081***	0.027*	0.018	0.017
	(0.012)	(0.013)	(0.015)	(0.014)	(0.014)	(0.014)
Too many immigrants			*Reference: Disagree*			
Agree	7.03***	8.55***	11.5***	7.16***	7.54***	7.49***
	(0.98)	(0.86)	(1.30)	(1.09)	(0.88)	(0.88)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				0.29	-0.48	-0.39
				(0.47)	(0.48)	(0.49)
Agree				-0.85***	-0.72**	-0.66**
				(0.30)	(0.30)	(0.31)
Left-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
LT unemployment rate	0.59***	0.19***	0.31**	0.50***	0.17**	0.22**
	(0.072)	(0.071)	(0.12)	(0.070)	(0.067)	(0.098)
PCS unemployment rate	0.035***	0.044***	0.11***	0.043***	0.035**	0.036**
	(0.013)	(0.014)	(0.017)	(0.014)	(0.014)	(0.014)
Too many immigrants			*Reference: Disagree*			
Agree	-0.24	-0.41*	-0.49	-0.48**	-0.24	-0.19
	(0.18)	(0.23)	(0.31)	(0.21)	(0.21)	(0.21)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				1.14*	0.65	0.63
				(0.64)	(0.63)	(0.63)
Agree				1.89***	1.90***	1.91***
				(0.49)	(0.44)	(0.44)
Dissimilarity parameters (λ values)						
Level 1: Choice between Incumbent and Alternatives						
Incumbent	1.00	1.00	1.00	1.00	1.00	1.00
Alternatives (Mainstream opposition, Right-wing and Left-wing populists)	2.47***	3.00***	4.04***	2.52***	2.58***	2.58***
Observations	7904	7904	7904	6166	6166	6166
Log-Likelihood	-8995.0125	-8726.9322	-8851.7977	-7174.4277	-7041.5893	-7001.3906
Controls	YES	YES	NO	YES	YES	YES
Year FE	NO	YES	YES	NO	YES	YES
Department FE	NO	NO	YES	NO	NO	YES
Wald test	406.28***	657.14***	599.99***	368.83***	462.06***	485.10***
LR test for IIA ($\lambda = 1$)	27.23***	79.49***	115.70***	22.86***	40.94***	40.94***

The method of estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Table 2.A15: Nested logit estimations from alternative tree D - Version 1

Two-level nested logit D	(1)	(2)	(3)	(4)	(5)	(6)
Level 1: Choice between Left-wing and Right-wing						
Candidate Reference: Right-wing						
Left-wing vote	(1)	(2)	(3)	(4)	(5)	(6)
Self-position	-0.013***	-0.013***	-0.014***	-0.012***	-0.012***	-0.012***
	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)
Level 2: Choice between Mainstream and Populist						
Candidate Reference: Right-wing mainstream						
Left-wing mainstream vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.0076	-0.020	-0.034	-0.039	-0.0042	-0.023
	(0.031)	(0.035)	(0.062)	(0.035)	(0.036)	(0.059)
Job category			*Reference: Employed*			
Unemployed	0.43**	0.46**	0.54***	0.51**	0.58***	0.48**
	(0.20)	(0.20)	(0.21)	(0.23)	(0.22)	(0.20)
Retired	0.18	0.23	0.28*	-0.41***	-0.38***	0.22
	(0.16)	(0.16)	(0.17)	(0.12)	(0.12)	(0.16)
Out of job	0.085	0.13	0.15	0.14	0.12	0.10
	(0.13)	(0.14)	(0.14)	(0.15)	(0.13)	(0.14)
LT unemployment rate	0.019	0.048	0.040	0.15*	0.032	0.036
	(0.068)	(0.068)	(0.10)	(0.080)	(0.071)	(0.098)
PCS Uunemployment rate	0.0032	0.0042	0.0025	0.014	0.0095	0.0021
	(0.0068)	(0.0064)	(0.0071)	(0.011)	(0.0085)	(0.0066)
Too many immigrants			*Reference: Disagree*			
Agree	-1.50***	-1.49***	-1.44***	-1.35***	-1.30***	-1.36***
	(0.15)	(0.13)	(0.13)	(0.18)	(0.16)	(0.13)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				0.54***	0.44**	0.44**
				(0.18)	(0.18)	(0.18)
Agree				1.21***	1.13***	1.00***
				(0.19)	(0.19)	(0.15)
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.050	0.031	-0.0085	-0.093*	0.014	-0.020
	(0.033)	(0.032)	(0.055)	(0.048)	(0.044)	(0.062)
Job category			*Reference: Employed*			
Unemployed	0.34*	0.36**	0.37**	0.56**	0.60**	0.42**
	(0.18)	(0.18)	(0.19)	(0.28)	(0.27)	(0.20)
Retired	0.24	0.28*	0.31*	-0.38**	-0.47**	0.33*
	(0.15)	(0.16)	(0.17)	(0.18)	(0.18)	(0.18)
Out of job market	0.20	0.23*	0.26*	0.32*	0.37**	0.27*
	(0.12)	(0.13)	(0.14)	(0.18)	(0.18)	(0.15)
LT unemployment rate	0.21**	-0.018	0.0051	0.32**	0.010	0.018
	(0.093)	(0.062)	(0.094)	(0.13)	(0.087)	(0.11)
PCS unemployment rate	0.0082	0.0084	0.010	0.025**	0.027***	0.0095
	(0.0053)	(0.0056)	(0.0062)	(0.010)	(0.0099)	(0.0068)
Too many immigrants			*Reference: Disagree*			
Agree	1.03***	1.10***	1.19***	1.54***	1.72***	1.37***
	(0.37)	(0.35)	(0.33)	(0.55)	(0.49)	(0.34)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				0.075	-0.13	-0.13
				(0.19)	(0.22)	(0.19)
Agree				0.34*	0.47**	0.36**
				(0.18)	(0.19)	(0.15)
Left-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.015	0.018	0.11	-0.022	0.00049	0.039
	(0.035)	(0.048)	(0.089)	(0.044)	(0.043)	(0.072)
Job category			*Reference: Employed*			
Unemployed	0.27	0.22	0.11	0.63***	0.56**	0.27
	(0.23)	(0.23)	(0.25)	(0.23)	(0.22)	(0.22)
Retired	0.074	0.028	-0.037	-0.23	-0.43	0.028
	(0.20)	(0.21)	(0.23)	(0.30)	(0.31)	(0.21)
Out of job	0.053	0.030	0.026	0.0079	0.14	0.0092
	(0.13)	(0.15)	(0.17)	(0.24)	(0.18)	(0.15)
LT unemployment rate	0.100	0.025	-0.077	0.046	0.028	-0.014
	(0.13)	(0.078)	(0.13)	(0.16)	(0.073)	(0.11)
PCS unemployment rate	0.0091	0.011	0.017	-0.0022	0.013	0.0079
	(0.010)	(0.0092)	(0.011)	(0.023)	(0.018)	(0.0083)
Too many immigrants			*Reference: Disagree*			
Agree	-1.58***	-1.57***	-1.55***	-1.33***	-1.30***	-1.41***
	(0.13)	(0.12)	(0.14)	(0.18)	(0.17)	(0.12)

Two-level nested logit D	(1)	(2)	(3)	(4)	(5)	(6)
Left-wing populist vote (continued)	(1)	(2)	(3)	(4)	(5)	(6)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				0.45*	0.45**	0.44**
				(0.25)	(0.19)	(0.21)
Agree				0.82	1.22**	1.46***
				(0.59)	(0.53)	(0.38)
Dissimilarity parameters (λ values)						
Level 1: Choice between Left-wing and Right-wing						
Right-wing	0.62***	0.66***	0.72***	0.88***	0.97***	0.82***
Left-wing	0.42	0.67	1.18*	-0.48	0.099	0.57
Observations	6129	6129	6129	6129	6129	6129
Log-Likelihood	-6980.39	-6930.8727	-6892.5207	-7068.5498	-7016.0048	-6816.6442
Controls	YES	YES	YES	NO	NO	YES
Year FE	NO	YES	YES	NO	YES	YES
Department FE	NO	NO	YES	NO	NO	YES
Wald test	913.19***	916.72***	926.25***	928.10***	925.90***	972.38***
LR test for IIA ($\lambda = 1$)	2.49	2.57	2.79	2.86	1.64	0.89

The method of estimations is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

Table 2.A16: Nested logit estimations from alternative tree D - Version 2

Two-level nested logit D	(1)	(2)	(3)	(4)	(5)	(6)
Level 1: Choice between Left-wing and Right-wing						
Candidate Reference: Right-wing						
Left-wing vote	(1)	(2)	(3)	(4)	(5)	(6)
Too many immigrants			*Reference: Disagree*			
Agree	-1.84***	-1.87***	-1.84***	-1.84***	-1.86***	-1.81***
	(0.064)	(0.065)	(0.065)	(0.065)	(0.065)	(0.069)
Income disparities reduction			*Reference: Disagree*			
Neither agree nor disagree				0.51***	0.51***	0.47***
				(0.16)	(0.16)	(0.16)
Agree				0.99***	0.97***	0.98***
				(0.10)	(0.10)	(0.10)
Level 2: Choice between Mainstream and Populist						
Candidate Reference: Right-wing mainstream						
Left-wing mainstream vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.011	-0.012	-0.011	-0.018	-0.0039	-0.054
	(0.044)	(0.033)	(0.067)	(0.045)	(0.033)	(0.072)
Job category			*Reference: Employed*			
Unemployed	0.72	0.28	0.60 **	0.68	0.29	0.64**
	(0.63)	(0.36)	(0.29)	(0.63)	(0.37)	(0.28)
Retired	-0.13	-0.12	-0.11	-0.21	-0.21	0.36*
	(0.17)	(0.13)	(0.13)	(0.16)	(0.13)	(0.19)
Out of job market	0.19	0.040	0.20	0.097	-0.016	0.15
	(0.22)	(0.17)	(0.17)	(0.22)	(0.18)	(0.16)
LT unemployment rate	0.040	0.029	0.0091	0.066	0.016	0.055
	(0.11)	(0.062)	(0.10)	(0.11)	(0.062)	(0.12)
PCS unemployment rate	0.013	0.0031	0.013	0.0079	0.00081	0.0018
	(0.014)	(0.012)	(0.012)	(0.014)	(0.013)	(0.0083)
Right-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.081	0.00054	-0.0082	-0.080	0.0023	0.0017
	(0.10)	(0.011)	(0.061)	(0.10)	(0.013)	(0.075)
Job Category			*Reference: Employed*			
Unemployed	0.69	0.025	0.52	0.68	0.10	0.48*
	(0.82)	(0.47)	(0.37)	(0.82)	(0.48)	(0.26)
Retired	-0.18	-0.0069	-0.15	-0.17	-0.028	0.45*
	(0.25)	(0.13)	(0.16)	(0.25)	(0.13)	(0.24)
Out of job market	0.54	0.021	0.48	0.52	0.088	0.31*
	(0.69)	(0.41)	(0.34)	(0.68)	(0.41)	(0.18)
LT unemployment rate	0.31	0.00081	-0.021	0.31	0.0032	-0.012
	(0.38)	(0.016)	(0.11)	(0.37)	(0.020)	(0.13)

Two-level nested logit D	(1)	(2)	(3)	(4)	(5)	(6)
Right-wing populist vote (continued)	(1)	(2)	(3)	(4)	(5)	(6)
PCS unemployment rate	0.043	0.0017	0.036	0.041	0.0070	0.017*
	(0.051)	(0.033)	(0.024)	(0.050)	(0.033)	(0.0089)
Left-wing populist vote	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.032	-0.0053	0.063	-0.040	0.0036	0.11
	(0.093)	(0.049)	(0.10)	(0.090)	(0.050)	(0.11)
Job category			*Reference: Employed*			
Unemployed	0.54*	0.24	0.45*	0.48	0.25	0.10
	(0.31)	(0.25)	(0.26)	(0.31)	(0.26)	(0.30)
Retired	-0.39	-0.19	-0.35	-0.48	-0.28	-0.0048
	(0.63)	(0.40)	(0.34)	(0.62)	(0.41)	(0.27)
Out of job market	0.40	0.078	0.35	0.32	0.025	0.028
	(0.70)	(0.36)	(0.30)	(0.68)	(0.36)	(0.20)
LT unemployment rate	0.17	0.023	-0.070	0.21	0.010	-0.073
	(0.43)	(0.065)	(0.13)	(0.41)	(0.066)	(0.15)
PCS unemployment rate	0.038	0.0081	0.034	0.035	0.0062	0.021
	(0.071)	(0.038)	(0.031)	(0.069)	(0.038)	(0.016)
Dissimilarity parameters (λ values)						
Level 1: Choice between Left-wing and Right-wing						
Right-wing	1.07	0.040	0.85	1.03	0.16	1.03**
Left-wing	0.71	0.16	0.60	0.76	0.17	1.48
Observations	6166	6166	6166	6166	6166	6166
Log-Likelihood	-7308.359	-7262.5391	-7219.0946	-7253.0371	-7210.419	-6980.9499
Controls	NO	NO	NO	NO	NO	YES
Year FE	NO	YES	YES	NO	YES	YES
Department FE	NO	NO	YES	NO	NO	YES
Wald test	890.88***	897.78***	910.65***	946.86***	950.07***	987.13***
LR test for IIA ($\lambda = 1$)	0.14	1.53	0.16	0.08	1.15	0.46

The method of estimation is RUM-consistent nested logit
Clustered standard errors at year-department level in parentheses
List of controls: Female, Age, Education level, Partner, Having children, Income
*** p<0.01, ** p<0.05, * p<0.1

2.E Alternative independent variables of interest

The choice of independent variables in baseline estimations can be questioned. That is why, we propose alternative variables in order to check the robustness of our model. The variables described below are presented in Table 2.A17 in appendix (page 226).

At the first level of the three-level nested logit estimations, sociotropic current unemployment measured by *Unemployment rate* has no significant effect on the probability to vote for the incumbent. This non-significant effect echoes what Dassonneville and Lewis-Beck (2013) demonstrate: using the electoral results of Western European legislative elections, the authors note that unemployment rate has no significant effect on the probability to vote for a left-wing incumbent. Only an increasing unemployment rate has a significantly negative impact on this probability. Given this finding, we want to verify whether the growth of unemployment rate rather than unemployment rate itself is a better proxy to measure sociotropic current unemployment. So we use different variables that measure the evolution of department unemployment rate at 3, 6, 9 and 12 months before the election[19]. In any case, all these variables measuring unemployment growth are not significant on the probability to vote for the incumbent.

At the second level of the three-level nested logit estimations, we have highlighted the complexity of measuring accumulated unemployment due to voters' myopia. We therefore need to find variables that measure current structural unemployment. On the one hand, we average the four department unemployment rates in 2002, 2007, 2012, and 2017 to capture the department structural unemployment rate. On the other

[19]It is useless to go further back in time owing to voters' myopia.

hand, we estimate the contextual unemployment effect by the difference between the average department unemployment rate and the current department unemployment rate. We find that only the average department unemployment rate is significant on the probability to vote for the incumbent: higher department structural unemployment has a negative effect on the probability to vote for the mainstream opposition. This confirms that accumulated unemployment, here measured by current structural unemployment, has a negative effect on the probability to vote for the mainstream opposition. As with the first level, we test whether the evolution of department long-term unemployment rate at 3, 6, 9 and 12 months before the election can affect the probability to vote for the mainstream opposition. Unfortunately, all these variables measuring long-term unemployment growth are not significant on the probability to vote for the mainstream opposition. Regarding the egotropic accumulated unemployment effect (H2a), we split the "Unemployed" category of the variable $Job\,category$ into two in order to differentiate long-term unemployed voters (i.e. unemployed voters for over one year) from other unemployed voters. Notice that this distinction is only made for 2012 and 2017. The effect of being long-term unemployed is not significantly robust. To test H2a, we also propose alternative measures for the personal risk of unemployment, regarding voters' work status and the nature of their employment contract. Therefore, we use three alternative proxies: "Being a civil servant", "Having a private/public permanent contract" and "Being a union member", which ultimately have no stable effects on the probability to vote for populist parties.

At the last and third level of the three-level nested logit estimations, we have already admitted that the proxies for the right-wing populist voters' own explanation of unemployment are too general. Therefore, on the one hand, we propose two alternative variables that better measure immigration as right-wing populist voters' own explanation of current and accumulated unemployment: *Immigration threatens jobs* available only for 2012 and *Immigrants not good for eco* available only for 2017. We observe similar results to those obtained with the variable *Too many immigrants*: in 2012, if the voter considers that immigration threatens natives' jobs (i.e. thinks therefore that immigration explains his unemployment experience), he will be more prone to vote for the right-wing populist party. Similarly, in 2017, if the voter considers that immigrants are generally bad for France's economy (i.e. thinks therefore that immigration has a general negative effect on the economy, including unemployment), he will also be more likely to vote for the right-wing populist party. However, all these proxies measure two effects at the same time: the real effect of immigration (i.e. immigration does increase unemployment for real[20]) and the perceived effect of immigration (i.e. the voter does believe that immigration increases unemployment). That is why, we propose to focus only on the real effect of immigration on the probability to vote for the right-wing populist party. We use the proportion of immigrants and the proportion of foreigners in the department population. Both proportions have no significant effect on the probability to vote for the right-wing populist party. This result reveals that only perceived immigration effect matters in our model. Besides, when we interact the

[20]In immigration economics, immigration can increase competition in natives' labour market by causing for example a decrease in available jobs or in wages (e.g. Bansak, Simpson, and Zavodny, 2021 and Borjas, 2014).

variable *Too many immigrants* with these proportions, no significant link is estimated; it even seems that in departments with a low proportion of immigrants or foreigners, the proportion of voters considering that there are too many immigrants in France is high. Once again, this confirms that only perceived immigration effect matters.

As with right-wing populist voters, we also propose two alternative variables to better tackle this time the left-wing populist voters' own explanation of unemployment: *State intervention* available only for 2002 and 2017 and *Not reduce civil servants* available only for 2002, 2012 and 2017. The results are very similar to those obtained with the variable *Income disparities reduction*. In 2002 and 2017, if the voter considers that state control is better suited to face today's economic issues (unemployment for example), he will be more prone to vote for the left-wing populist party. Similarly, in 2002, 2012 and 2017, if the voter is against the reduction of the number of public officials, he will be more likely to vote for the left-wing populist party.

Furthermore, we would like to test whether the sociotropic unemployment effect is homogeneous for all voters. We thus interact both department current and long-term unemployment rates with these following individual variables: income, education level, *Job category* and *PCS unemployment rate*. As no significant link is estimated, we assume that the effect of unemployment is homogeneous throughout the population, regardless of individual characteristics.

Finally, we would like to test whether the sociotropic unemployment effect is not reduced to a department effect. We estimate the link between department independent variables (unemployment rates) and department fixed effects by a two-stage test. We

find that there is no significant link between the two, confirming the significance of sociotropic unemployment effects on the probability to vote for populist parties.

Table 2.A17: Variables used for robustness checks

Name of variable	Source	Description	Mean	Sd	Min	Max
Unemployment rate evolution	Pôle emploi-DARES, STMT[21]	Evolution of department unemployment rate for A, B and C categories registered at Pôle Emploi between the first quarter of the election year and the first quarter of the year preceding the election	0.31	7.02	-15.33	19.34
LT unemployment rate evolution	Pôle emploi-DARES, STMT[21]	Evolution of department long-term (over one year) unemployment rate for A, B and C categories registered at Pôle Emploi between the first quarter of the election year and the first quarter of the year preceding the election	-4.93	8.32	-26.74	20.08
Average LT unemployment rate	Pôle emploi-DARES, STMT[21]	Average of the four LT unemployment rates (2002, 2007, 2012 and 2017) coming from the variable *LT unemployment rate*. It measures the department structural unemployment rate	5.66	1.24	3.06	8.54
Deviation from Average LT unemployment rate	Pôle emploi-DARES, STMT[21]	Difference between the variables *LT unemployment rate* and *Average LT unemployment rate*. If it is positive, it means that department current unemployment is higher than the department structural unemployment rate	-0.30	1.52	-3.01	4.90
Job category 2	FES 2012 and 2017	Five levels of current work activity: “Employed” (full-time job, part-time job and less than 15 hours’ week, including temporary leaves), “Unemployed for more than a year” (and looking for a job), "Unemployed for less	Categorical variable			

[21] Statistique Mensuelle sur le Marché du Travail / Monthly Labour Market Statistics

Name of variable	Source	Description	Mean	Sd	Min	Max
Job category 2	FES 2012 and 2017	than a year" (and looking for a job), "Retired" and "Out of job market" (working in the family business, college or formation (not paid by the employer), stay-at-home, sick or permanently handicapped and other situation, without paid job)	Categorical variable			
Civil servant	FES 2002, 2007, 2012 and 2017	Equal to 1 if the voter is a civil servant	0.19	0.39	0	1
Work status	FES 2002, 2007, 2012 and 2017	Six levels of current work activity: "Public permanent contract", "Private permanent contract", "Public limited contract", "Private limited contract", "Entrepreneur", "DK Refuse - No activity"	Categorical variable			
Union member	FES 2007, 2012 and 2017	Equal to 1 if the voter belongs to a trade union	0.10	0.29	0	1
Proportion of immigrants PCS	1999, 2007, 2012 and 2016 population census	Proportion of immigrants to population in the department population by PCS; an immigrant is a person born as a foreigner in a foreign country	10.55	7.59	0.39	57.15
Proportion of foreigners PCS	1999, 2007, 2012 and 2016 population census	Proportion of foreigner in the department population by PCS; an foreigner is a person who lives in France but is not of French nationality	5.76	5.38	0.13	40.62
Immigration threatens jobs	FES 2012	Equal to 1 if the voter agrees or somewhat agrees with the statement "Immigration threatens our jobs"; equal to 0 if the voter either disagrees or somewhat disagrees	0.46	0.50	0	1
Immigrants not good for eco	FES 2017	Equal to 1 if the voter disagrees or somewhat disagrees with the statement "Immigrants are generally good for France's economy"; equal to 0 if the voter either agrees, somewhat agrees or neither agrees nor disagrees	2.79	15.43	0	99

Name of variable	Source	Description	Mean	Sd	Min	Max
State intervention	FES 2002 and 2017	Three levels reflecting voters' views on state intervention in the economy: "Freedom for firms", "State control", "DK Refuse"	4.27	19.09	0	99
Not reduce civil servants	FES 2002, 2012 and 2017	Equal to 1 if the voter agrees with the statement "We should reduce the number of public officials"; 0 otherwise	3.74	17.31	0	99
Self-position	FES 2002, 2012 and 2017	Subjective political position of the voter ranked between 0 (left) and 10 (right)	7.03	12.95	0	99

Chapter 3

European funds: a shield against populism? Evidence from EP elections

3.1 Introduction

In December 2020, EU-27 reach final agreement on the Covid-19 recovery plan and the multi-annual budget for 2021-2027. At the same time, a rule of law conditionality mechanism was established: a EU member state that does not respect the rule of law can be deprived of EU funds. This mechanism targeted the Hungarian and Polish populist incumbent governments which tended to become illiberal and autocratic regimes. In the name of rule of law conditionality, the European Commission suspended the EU 2020 recovery plan funds for Poland (€36 billion) and Hungary (€7 billion). More recently, on 5 April 2022, two days after Viktor Orbán's re-election, the European Commission President Ursula von der Leyen announced in the European Parliament the first activation of the rule of law conditionality mechanism against Hungary. This

decision would deprive Hungary of 40 billion euros in European subsidies. This deprivation would be a serious cost for Hungary as EU funds represent more than 80 % of its public investment[1]. This recent example shows us that EU members need European funds, even populist incumbent governments. However, despite the adoption in December 2020 of the Rule of Law Conditionality Regulation into EU law, that would deprive their country of EU funds, Hungarians still decided to elect Viktor Orbán for a fourth term. This raises the question of the link between the political success of populist parties in Europe and European funds.

In the literature, the link between European funds and populist vote is still challenged. Some papers find a positive relationship, i.e. higher EU funds correspond to a higher populist vote share. In contrast, other papers argue that higher EU funds correspond to a lower populist vote share (i.e. negative relationship). For the Brexit vote, the relationship between EU funds and Leave vote turns out to be non significant. In order to address the lack of consensus in the literature about this relationship, our paper aims to study the link between European funds and populist vote in EP election, at voter level.

Using four European Elections Studies (EES) waves simultaneously, we find that one-percentage-point increase in EU funds per capita at NUTS2 level during the last MEP mandate corresponds *ceteris paribus* to a decrease of around 2 % in the individual probability to vote for a populist party in EP election. We also test for the first time the conditioned effect of EU funds on populist vote by the populist nature of national

[1]Source from *The Washington Post* at `https://www.washingtonpost.com/politics/2022/04/13/hungary-eu-subsidies-backsliding-democracy/`.

and regional incumbents. In other words, we investigate whether the negative link between EU funds and populist vote remains even if the national or regional incumbent is populist. We do not find empirical evidence of this conditioned effect: whatever the nature of regional and/or national incumbent (populist or non-populist), EU funds always have a negative link with populist vote in EP elections, at voter level.

As a consequence, our paper contributes to the literature in two ways. First, conducting for the first time a cross-sectional analysis of four EP elections simultaneously, we provide further strong empirical evidence of the negative link between EU funds and populist vote. Second, as far as we know, this is the first time that the conditioned effect of EU funds on populist vote by the populist nature of national/regional incumbent is studied.

Our paper is organised as follows. Section 3.2 presents the literature review of the challenged relationship between European funds and populist vote. After describing data and the estimation strategy in section 3.3, we present in section 3.4 results regarding the direct and conditioned relationship between EU funds and the individual probability to vote for a populist party in EP election. We discuss these results in section 3.5, especially by examining the heterogeneity of EU funds effect on populist vote regarding the level of NUTS2 development and the voters' economic characteristics. Finally, section 3.6 concludes this paper.

3.2 Challenged link between European funds and populist vote

3.2.1 European funds are economically efficient...

Our paper indirectly relies on the literature consensus regarding the efficiency of European funds.

Most papers support that EU funds promote regional economic development. For example, using a spatial Regression Discontinuity Design (RDD) at NUTS3 level, Crescenzi and Giua (2020) find that globally, Objective 1 NUTS3 regions benefit from Cohesion Policy through higher economic growth and higher employment. However, by focusing on Germany, Spain, Italy and the UK, the authors note that regional economic impacts from Cohesion Policy are not evenly distributed across member states. Germany benefits most from the positive impact on economic growth and the UK from the positive impact on employment. On the contrary, Italy shows only short-lived impacts on employment and Spain is impacted by Cohesion Policy only in the recovery period, without curbing its structural unemployment. Analysing firm growth in seven European countries in the programming period 2007-2013, Bachtrögler, Fratesi, and Perucca (2020) argue that Cohesion Policy support promotes firm growth more in size (value added and employment) than in productivity. Here again, the positive effect on firm growth in size and in productivity varies across regions: it is stronger in regions with lower income or scant endowments of territorial assets. Studying about 500 000

European manufacturing firms, Fattorini, Ghodsi, and Rungi (2020) find that European Regional Development Fund (ERDF) is linked with higher firms productivity at NUTS2 level, with a stronger impact in the least efficient firms in the NUTS2.

Other papers argue that EU funds are inefficient. For example, analysing firm-level dataset from Latvia by a propensity score matching approach, Beņkovskis, Tkačevs, and Yashiro (2019) find that there is no significant productivity premium with public financing with ERDF. Private funds bring as many productivity gains to firms as EU funds, if not more.

In order to find a consensus regarding the efficiency of EU funds, three recent papers argue that the efficiency/inefficiency of EU funds is conditioned by the capacity of regions to absorb them. First, using a RDD with heterogeneous treatment and data at European NUTS3 level from 1997 to 2008, Percoco (2017) argues that the causal impact of European Structural Funds on regional growth depends on the size of the service sector. The larger this sector, the greater the amount of Structural Funds and the slower regional growth. Therefore, the authors suggest that Structural Funds should be given to regions with a not-yet-developed service sector, as its potential for productivity growth is very high. Second, analysing 86 European NUTS2 convergence regions and 186 European NUTS2 developed regions for the period 2000-2013, Kersan-Škabić and Tijanić (2017) confirm that the absorption of EU funds is determined by regional economic characteristics such as the education level, unemployment rate, the degree of decentralisation, the institutional framework and the infrastructure development. Third, using a tobit model with a dynamic panel data of 27 European countries between

2007 and 2015, Incaltarau, Pascariu, and Surubaru (2020) add that fighting corruption within political governance in European countries and especially in new member states significantly boosts the positive effects of Structural and Cohesion Funds (SCF) absorption.

As a consequence, the literature concedes that EU funds are on the whole economically efficient although this efficiency is conditioned by regional characteristics.

3.2.2 ... but do they lead to populism?

Our paper also deals with the literature regarding the role of EU funds on vote.

First, EU funds increase incumbent votes. For example, Henceroth and Oganesyan (2019) find that Structural and Investment Funds (SIFs) have a positive effect on national incumbent vote share in the 2009 and 2014 EP elections. Besides, low regional unemployment rates and high regional GDP per capita levels also correspond to higher national incumbent vote share in EP election.

Second, EU funds have contrasting effects on Eurosceptic vote, either positive or negative. One strand of the literature argues that EU funds have a positive effect on Eurosceptic vote, i.e. higher EU funds correspond to higher Eurosceptic vote. Using the 2004 European Social Survey (ESS) including 19 EU countries, Lubbers and Scheepers (2007) find that regions which receive more agricultural funds are more eurosceptic. Hartnett and Gard-Murray (2018) confirm the positive effect of EU agricultural spending on Euroscepticism, measured by both Eurosceptic sentiment and vote. Focusing their study on Poland at county and individual levels between 2005 and

2015, the authors highlight that higher EU agricultural spending is linked with stronger individual Eurosceptic sentiment and higher regional Eurosceptic vote shares (i.e. PiS vote shares) in the 2015 Polish presidential election. In his analysis of ten Central and Eastern Europe (CEE) states from 2001 to 2017, Hlatky (2020) also finds a positive effect of EU funds on Eurosceptic vote at NUTS2 level in national elections. This result is also confirmed by an additional survey experiment in Slovakia. According to the author, "Euroscepticism is a result of anti-minority backlash" (Hlatky, 2020, p. 360). Ethnonationalists politicise European funds, claiming that they are used to promote minorities. In this way, such politicised EU funds indirectly encourage Euroscepticism.

Conversely, another strand of the literature claims that EU funds have a negative effect on Euroscepticism, i.e. lower Eurosceptic vote and greater support for Europe. For example, Garry and Tilley (2009) who use the 2004 European Election Study (EES) demonstrate that high levels of EU funding act as a "buffer" against eurosceptic sentiment: individuals living in high net recipient countries are more prone to think of themselves as citizens of the European Union. On the contrary, individuals living in high net contributor countries are less likely to consider themselves as EU citizens, claiming exclusively their national identity. By studying individual support for European membership through Eurobarometer surveys from 1995 to 1999, Osterloh (2011) confirms that EU funds have a positive effect on European support; additionally, if individuals become aware of the activities of ERDF in their country, they will be even more supportive of Europe. Dąbrowski, Stead, and Mashhoodi (2019) use the Eurobarometer 84.4 survey in 2015 to evidence the same positive effect of ESIFs on European support.

More recently, Borin, Macchi, and Mancini (2020) focus on EU15 using European Social Surveys (ESS) from 2002 to 2014 They come up with the following precise results: "increasing the regional per capita EU transfers by 1000 € over the 2000-2014 period reduces the share of Eurosceptic individuals by about 8 percentage points and voters' support for anti-EU parties by 10 percentage points".

Third and last, an emerging literature investigates the link between EU funds and populist vote but, again, this link is not yet established: when it is significant, this relationship can be positive or negative. On the one hand, EU funds can be related with higher populist vote (positive effect). Willett et al. (2019) seek to understand why Cornwall voted for Brexit in the 2016 referendum on UK's membership in the UE. To this end, the authors conduct a qualitative study through focus groups and one-to-one interviews. Although Cornwall is the region which benefits most from EU funds, voters, fearing post-national forms of identification and governance, perceive these funds as being organised by Brussels elites for European elites rather than benefiting local communities. Willett et al. (2019) conclude that ultimately, an increase in EU funding in Cornwall corresponds to a higher Leave vote share. Using this time quantitative data from World Input–Output Database (WIOD), Los et al. (2017) highlight that UK NUTS2 regions that are heavily economically dependent on EU markets for their local economic development (GDP, labor income exported to EU, manufacturing and services value added exported to EU) are those where voters largely opted for Leave in the 2016 UK referendum.

On the other hand, other papers reveal a negative relationship between EU funds and

populist vote. Using the 2017 French presidential election as a case study, Bachtrögler and Oberhofer (2018) argue that the effectiveness of EU funds allocation (measured by firm-level employment effects in French NUTS2 regions during the multi-annual financial framework 2007-2013) corresponds to a lower NUTS2 vote share for the Eurosceptic candidate Marine Le Pen (Front National leader). Albanese, Barone, and de Blasio (2022) focus their study on the 2013 Italian general election. Adopting a parametric spatial regression discontinuity design at the Italian municipality level, the authors find that municipalities favoured by European redistribution (by belonging to Convergence Objective regions) present a drop in municipal populist vote share of about 5 % in the 2013 Italian general election.

Finally, the case of Brexit is somewhat puzzling. Analysing Brexit referendum results in 382 electoral districts published by the Electoral Commission, Fidrmuc, Hulényi, and Tunali (2016) conclude that past European transfers played virtually no role in the referendum. Similarly, Becker, Fetzer, and Novy (2017) use the same dataset to explain Leave vote shares by four groups of regional variables: EU exposure through immigration, trade and structural funds; local public service provision and fiscal consolidation; demography and education; economic structure, wages and unemployment. The authors note that a higher pro-Leave vote share can be explained by the growth rate of migrants from the 12 EU accession countries that joined the EU in 2004 and 2007, the share of population with low or no qualifications, the high share of manufacturing employment and low public service provision. Like Fidrmuc, Hulényi, and Tunali (2016), Becker, Fetzer, and Novy (2017) do not find a significant relationship between

EU structural funds and Leave vote share at UK electoral district level. The literature explains the lack of significance in the relationship between EU funds and Leave vote by the lack of UK citizens' awareness of EU funds. Using the same dataset (i.e. EU referendum results at the local authority level provided by the Electoral Commission), Huggins (2018) stipulates that EU spending in local areas has a low impact on Remain vote at local level because of the lack of communication and awareness of EU regional spending. Same conclusions for Crescenzi, Di Cataldo, and Giua (2020): using Referendum results at the level of electoral wards collected by the British Broadcasting Corporation (BBC), the authors estimate the effect of Cohesion Policy on the Brexit referendum results in Wales. They use a regression discontinuity design (RDD) separating Welsh areas highly funded by the EU (namely West Wales and The Valley) from East Wales which is less EU funded. Crescenzi, Di Cataldo, and Giua (2020) conclude that electoral wards from West Wales and The Valley (benefiting from EU funds) do not show significant differences in Leave vote shares compared to electoral wards from East Wales (less benefiting from Cohesion Policy). Nevertheless, they argue that Remain vote shares at electoral ward level significantly increase if and only if EU funding is coupled with tangible improvements in local labour markets such as lower unemployment rate.

3.3 Estimation strategy and data

In this section, we propose to start with a detailed description of what European funds are. Then, we present the hypotheses that test the link between European funds and populist vote in EP elections. After explaining our estimation strategy, we provide a

first insight into the descriptive statistics that differentiate populist from non-populist incumbents.

3.3.1 What are European funds?

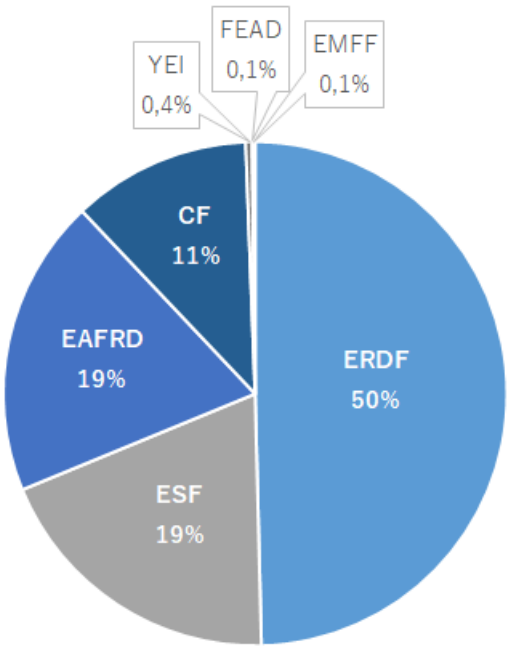
European Structural and Investment Funds (called ESI Funds or ESIFs) were created in their current form in 1988. These funds are allocated by multi-annual Community budget periods: 1989-1993, 1994-1999, 2000-2006, 2007-2013, 2014-2020 and the current one is 2021-2027. These funds aim not only at promoting economic, social and territorial cohesion and convergence inside the EU but also at encouraging sustainable development and employment. These funds represent a significant amount of money in the European budget: for the period 2014-2020, ESIFs amount to 733 billion euros[2].

Today, there are five ESIFs: the European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the European Social Fund (ESF), all three of which promote Cohesion Policy; the European Agricultural Fund for Rural Development (EAFRD) which supports the Common Agricultural Policy (CAP); and the European Maritime and Fisheries Fund (EMFF) which contributes to the Common Fisheries Policy (CFP). All these funds correspond to subsidies in the framework of co-financing with national and regional incumbents. Figure 3.1 displays ESIFs distribution over the 1987-2018 period.

Half of all EU funds between 1987 and 2018 are for European Regional Development Fund (ERDF). This fund co-finances regional projects that stimulate regional economic development and aim at the economic convergence of European regions. That is why

[2]For more information, see `https://cohesiondata.ec.europa.eu/overview`.

Figure 3.1: Distribution of EU funds in the 1987-2018 period[3]



ERDF only co-finances up to 50 % of any project from the more developed regions. On the contrary, if a project is presented by transition regions, it will be co-financed up to 60 % and even up to 85 % if the project comes from the less-developed regions. ERDF is distributed by the European Commission to local authorities that are responsible for fund allocation.

The European Social Fund (ESF), which accounts for 19 % of all EU funds from 1987 to 2018, invests in human resources in order to improve employment and education in the EU. The allocation of this fund is managed in a partially decentralised way as it can be given to national or regional authorities. As with ERDF, projects in the more developed regions are co-financed by ESF up to 50 % while in the transition regions, projects are co-financed up to 60 % and even up to 85 % in the less-developed regions.

[3]These percentages are calculated thanks to the "Historic EU payments - regionalised and modelled" database made by the European Commission - DG Regional Policy.

For the 1987-2018 period, the European Agricultural Fund for Rural Development (EAFRD) represents the same proportion as ESF, i.e. 19 % of all EU funds. This fund supports rural development programmes in Europe. Today, it takes more into account the environmental aspect such as animal welfare and the protection of ecosystems. The allocation of this fund is managed in a centralised way by national programmes (like in 20 European countries) or in a decentralised way by regional projects (like in 8 European countries). While the minimum EAFRD contribution rate is set at 20 %, the more developed regions can receive up to 53 % of the eligible public expenditure from EAFRD. At the same time, the EAFRD contribution rate can rise to 85 % for the less-developed regions.

The Cohesion Fund (CF) represents 11 % of all EU funds for the 1987-2018 period. It contributes not only to transport and infrastructure projects but also to environmental projects for EU members with a gross national income (GNI) below 90 % of the EU average. The fund aims at reducing social and economic disparities and also at promoting sustainable development. For example, for the 2014-2020 period, the EU members eligible for CF programmes were Bulgaria, Cyprus, Croatia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Czech Republic, Romania, Slovakia and Slovenia.

The European Maritime and Fisheries Fund (EMFF), corresponding to 0.1 % of all EU funds from 1987 to 2018, was created in 2014. It not only supports fisheries and aquaculture professionals but also helps coastal populations to adapt to economic and environmental requirements. In any case, national authorities are responsible for

managing the fund. The European Commission may provide complementary subsidies to existing national funds. The co-financing rate which is generally 50 % can be as high as 75 %.

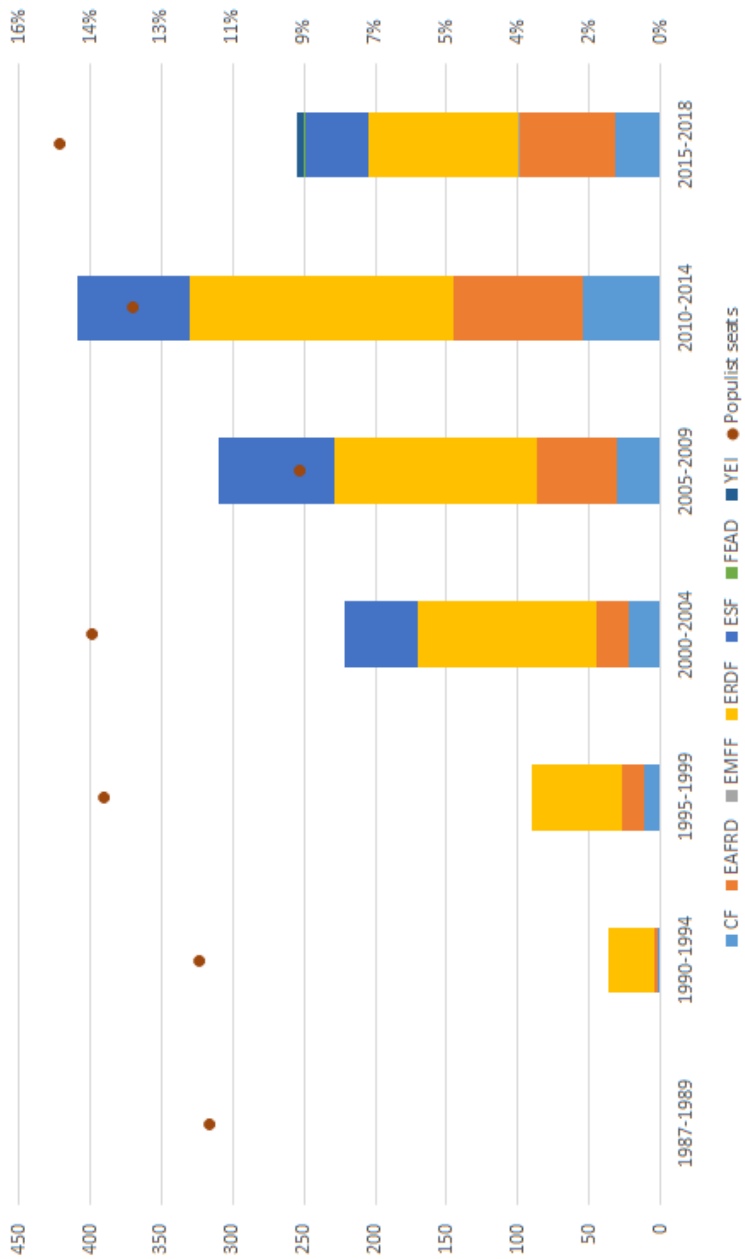
Two other EU funds are considered in this analysis: the Youth Employment Initiative (YEI) and the Fund for European Aid to the most Deprived (FEAD). The Youth Employment Initiative (YEI), launched in 2013, represents 0.4 % of all EU funds between 1987 and 2018. It provides support to young people who are not in education, employment or training (NEETs) and who live in areas where youth unemployment is above 25 %. As for the Fund for European Aid to the most Deprived (FEAD), it was adopted in 2014. It represents 0.1 % of all EU funds for the 1987-2018 period. It supports EU country actions to provide basic food and/or material assistance to the most deprived. These last two funds are in fact recent ESF derivatives.

3.3.2 Analysing the link between European funds and populist vote in EP elections

In this paper, our first goal is to analyse the direct relationship between EU funds and populist vote in EP elections at the individual level.

Figure 3.2 gives us a first overview of the relationship between EU funds and the populist presence in the European Parliament: it shows indeed the amount of EU funds in billion euros distributed to European regions during the Members in the European Parliament (MEPs) mandate periods 1987-1989, 1990-1994, 2000-2004, 2005-2009,

Figure 3.2: Evolution of EU funds distributed (in billion euros) and of populist seats share in the European Parliament[6]



Notes. The left y-axis corresponds to the amount of EU funds distributed in billion euros and the right y-axis to the share of populist seats in the European Parliament. Due to data availability, we restrict the last period to 2015-2018. For the 1987-1989 period, the total amount of EU funds was equal to the amount of ERDF, i.e. 426 397 846€.

[6]The details of the number and shares of populist seats in the European Parliament are presented in Table 3.A4 in appendix.

2010-2014 and 2015-2018[4]; it also displays the share of populist seats in the European Parliament at the end of each MEPs mandate. We can see for example that, during the 1990-1994 period, European regions were allocated a total of 37 billion euros and that in the 1994 EP election, 12 % of EP seats went to populist groups. In general, EU funding has increased steadily in each MEP mandate, except for the last one[5]: we note the increase in EU funds allocated between the 1990-1994 MEP mandate and the 2010-2014 MEP mandate from 37 billion euros to 409 billion euros, i.e. a more than tenfold increase in 20 years. Conversely, in the same period, we do not observe a boom in the share of MEP seats held by populists: from 12 % in 1994, to 14 % in 1999 and 2004 and after a 5-percentage-point drop in 2009, populists still represent today 15 % of MEP seats. *A priori*, it seems that more European funding in general does not bring more populists to the European Parliament.

Moreover, there is a great disparity between countries regarding the distribution of European funds. Figure 3.3 shows the total amount of EU funds distributed per capita by European country and by programming period from 1989 to 2018. We observe that the country that benefits most from EU funds is Portugal with almost 7304.80€ distributed per capita, followed by Greece (with 6682.80€ per capita) and Estonia (with 4554.54€ per capita). On the contrary, the EU countries that benefit the least are respectively Netherlands (with 381.45€ per capita), Denmark (with 399.92€ per capita) and Croatia (with 468.63€ per capita).

Similarly, the same disparities in EU funding exist at NUTS2 level. In the case of

[4]Due to data availability, we do not have any information about EU funds distributed after 2018.

[5]As we do not have the amount of EU funds given to European regions in 2019, we cannot conclude to a reduction of EU funds in the 2015-2019 period compared to 2010-2014.

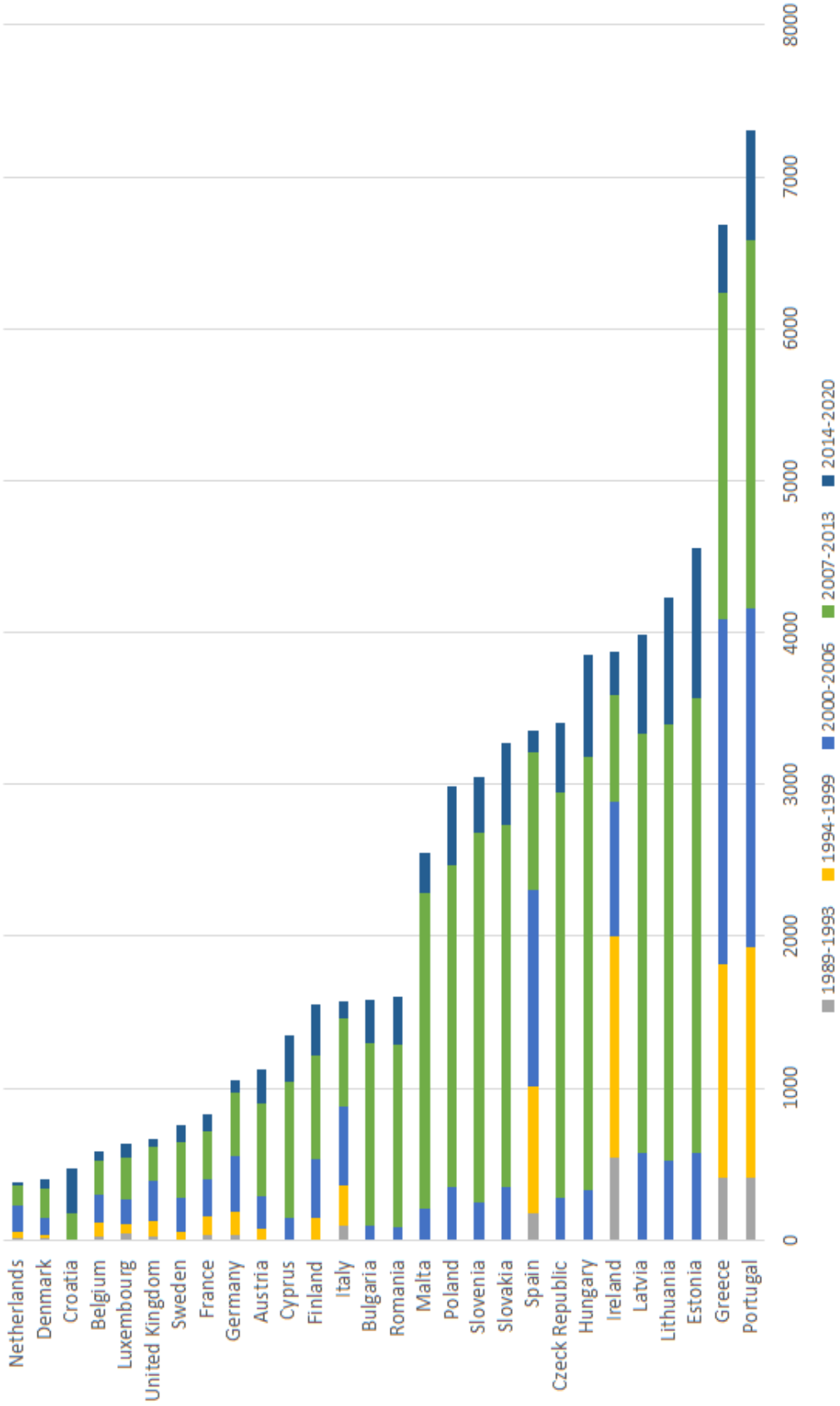


Figure 3.3: Distribution of European funds per capita in euros by EU member state and by programming period from 1989 to 2018

Portugal, the Região Autónoma dos Açores receives five times more EU funding than the Área Metropolitana de Lisboa (20153.10€ per capita versus 3839.19€ per capita). This regional disparity reinforces our view that European funds should not be measured at the country level but at a finer geographical level, i.e. at NUTS2 level.

We propose to test two hypotheses relative to the relationship between EU funds per capita at NUTS2 level and the individual probability to vote for a populist party in EP election[7]. As the literature demonstrates, EU funds promote future economic development and higher employment. They appear to have a potential positive economic impact for voters, regardless of the economic level of their region (GDP, unemployment...). Therefore, larger EU funding to their region may lead voters to expect an economic upturn in the future. This would thus turn them away from populist parties that flourish in a context of poor economic health at country level (e.g. Funke, Schularick, and Trebesch, 2016) or at the individual level (e.g. Guiso et al., 2017). That is why, we propose to test this first hypothesis:

Hypothesis 1 *A voter who lives in a region receiving a higher amount of EU funds per capita is less prone to vote for a populist party in EP election (direct relationship of EU funds with populist vote).*

Besides, as we have already mentioned in subsection 3.2.2, Henceroth and Oganesyan (2019) demonstrate that larger EU funds benefit the national incumbent in the 2009 and 2014 EP elections. We argue that this positive link is verified in this case because

[7]Notice that we do not study the possible politicisation of these funds by ethnonationalists (for example, as in Hlatky, 2020).

the national incumbent is from a mainstream party[8]. But what if the national incumbent is a populist? Our contribution to the literature is to test whether this positive relationship can be maintained when the national or regional incumbent is no longer from a mainstream but a populist party. In other words, do higher EU funds benefit the populist incumbent or do higher EU funds always mean a negative effect on the probability to vote for a populist party in EP election? This question is left open and we have no *a priori* idea of the direction of this conditional effect. So we also test this second hypothesis:

Hypothesis 2 *When the national or regional incumbent is populist, a voter who lives in a region receiving a higher amount of EU funds per capita is more prone to vote for a populist party in EP election (conditioned relationship of EU funds with populist vote by the populist nature of the incumbent).*

3.3.3 Estimation strategy

To test the two hypotheses presented above, we conduct a cross-sectional analysis of four different EP elections, thus covering a relatively long period. Indeed, in the literature, such studies have already been made but on no more than two EP elections simultaneously (e.g. Henceroth and Oganesyan, 2019). We thus focus on the 2004, 2009, 2014 and 2019 EP elections. To study the same number of EU countries per EP election, we start our analysis in 2004, the year of the great enlargement which included 10 new

[8]Henceroth and Oganesyan (2019) study 9 EU countries. They consider in their analysis these national incumbent parties: SPÖ in Austria, PS and CD&V in Belgium, ČSSD in Czech Republic, UMP and PS in France, CDU in Germany, Popolo della Libertà (PdL) and Partito Democratico (PD) in Italy, CDA and VVD in the Netherlands, PO in Poland and Labour and Conservatives in the UK.

countries in the EU. The 6th enlargement set in 2013 admits only one new country: Croatia. As a consequence, from the EP election in 2004 to the one in 2019, the sample of analysed EU countries is almost balanced.

To study voter's individual choice in EP election, we use European Elections Studies (ESS) between 2004 and 2019. These studies are post-election surveys carried out after EP elections. Different forms of surveys exist for ESS. For the 2004 EES, the interview modes were the following: telephone surveys in nine countries (Austria, the UK, Denmark, Finland, Germany, Greece, Luxembourg, Portugal and Slovenia); mail surveys in four countries (Belgium , Ireland, Italy and the Netherlands); and face-to-face interviews in 11 countries (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Northern Ireland, Poland, Slovakia, Spain and Sweden); Malta is not included in the survey[9].

For the 2009 EES, the main interview mode used was CATI[10] phone interviews conducted in 18 EU countries. There is an exception for nine countries where only 30 % of the interviews were operated via CATI, the remaining 70 % being conducted face-to-face. These countries are Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia[11].

For the 2014 EES, data collection was done via CAPI[12] (face-to-face interviews). Notice that the sample size for each country is about 1100 interviews, except for Malta and Luxembourg samples with 500 interviews and the UK sample with 1300 interviews

[9]For more details about the 2004 ESS, see Schmitt, Bartolini, et al., 2009.
[10]CATI means Computer Assisted Telephone Interviewing.
[11]For more details about the 2009 ESS, see Egmond et al., 2013.
[12]CAPI means Computer Assisted Personal Interviewing.

(including 300 interviews for Northern Ireland alone)[13].

Finally, for the 2019 EES, data collection was mostly conducted online, except in Malta and Cyprus where a multi-stage Random Digit Dialling approach was used. Notice that this time, the sample size of each country is around 1000 interviews with the exception of Cyprus, Luxembourg and Malta which collect each a sample of only 500 interviews[14].

Using the 2004, 2009, 2014 and 2019 ESS, we create our dependent variable, populist vote, that is a dummy equal to 1 if the voter has chosen a populist party in EP election. To label parties as populist, we use as classification rules not only the 1999-2019 Chapel Hill Expert Survey (CHES) trend file (in particular "rad right" and "rad left" families and marks about "nationalism" and "salience of anti-establishment and anti-elite rhetoric") but also Müller's definition of populism: populism is an ideology in which the population is divided into two groups of unequal size. The majority called the "people" which is morally "pure" and a minority which is morally "impure" (Müller, 2016). According to populists, the minority is rejected and not included into the "people" because of its moral impurity. This minority can be represented on the one hand by foreigners, immigrants or refugees (i.e. right-wing populism) or on the other hand by wealthy people or the elites (i.e. left-wing populism). In appendix, Table 3.A5 shows the classification of populist parties according to these two presented classification rules (CHES and Müller's definition).

Our main variable of interest is EU funding. We calculate the total amount per

[13]For more details about the 2014 ESS, see Schmitt, Hobolt, Popa, et al., 2016.
[14]For more details about the 2019 ESS, see Schmitt, Hobolt, Van Der Brug, et al., 2020.

capita of all EU funds allocated to the voter's region over the last MEP mandate. We choose NUTS2 level because it is the finest level given by all EES. In addition, compared to countries or municipalities, it is rather the regions that benefit most from EU funds. Indeed, the European Regional Development Fund (ERDF) which represents half of EU funding is targeted at the EU regions. We calculate this variable by using the "Historic EU payments - regionalised and modelled" database made by the European Commission - DG Regional Policy. This database gathers all EU funds distributed to European NUTS2 regions per multi-annual programming period (1989-1993, 1994-1999, 2000-2006, 2007-2013 and 2014-2020) until 2018 and it also estimates the amount of EU funds allocated per year at NUTS2 level. With this estimate and as we test the relationship between EU funds and populist vote in EP election, we consider the MEP mandate period rather than the multi-annual programming period which does not coincide with the electoral deadlines. For example, the 2000-2006 programming period straddles the 2000-2004 MEP mandate and the 2004-2009 MEP mandate. We calculate all EU funds received by European NUTS2 regions during the MEP mandate preceding the EP election. That is to say, we count for the 2004 EP election all EU funds received by NUTS2 during the 2000-2004 MEP mandate period; for the 2009 EP election, we count all EU funds received by NUTS2 during the 2005-2009 MEP mandate period; for the 2014 EP election, we count all EU funds received by NUTS2 during the 2010-2014 MEP mandate period; for the 2019 EP election, we count all EU funds received by NUTS2 during the 2015-2018 MEP mandate period[15]. We include in the main interest

[15]For this last EP election, we cannot count all EU funds received during the 2015-2019 MEP mandate period because 2019 is not yet available in the "Historic EU payments - regionalised and modelled" database.

variable the different EU funds presented in subsection 3.3.1: Cohesion Fund (CF), European Agricultural Fund for Rural Development (EAFRD), European Maritime and Fisheries Fund (EMFF)[16], European Regional Development Fund (ERDF), European Social Fund (ESF), Fund for European Aid to the most Deprived (FEAD)[16] and Youth Employment Initiative (YEI)[16]. To better compare NUTS2 with different population sizes, we consider EU funds per capita. In addition, for convenience, we use the log of EU funds per capita.

In order to test H1 (direct relationship of EU funds per capita with populist vote in EP election), we estimate a Hierarchical Linear Model (HLM) (also called multilevel model) with random effects of NUTS2. The political science literature indeed uses HLM in order to better take into account context-specific effects (e.g., Bojar and Vlandas, 2021). In EP election, voters may be influenced by their geographical context. As our main interest variable is at NUTS2 level, we consider NUTS2 as a group level. Thanks to HLM, we take into account not only the voters' homogeneity in a NUTS2 (with common macro variables) but also the voters' heterogeneity within the same NUTS2 (with different individual variables)[17]. We thus estimate the individual probability to vote for a populist party in EP election by the following baseline model:

$$\text{Populist Vote}_{i,r,y} = \gamma_{00} + \gamma_{01} X_{r,y} + \gamma_{10} X_{i,r,y} + \eta_y + \delta_{0,r,y} + \epsilon_{i,r,y} \tag{3.1}$$

where i is the voter, r is the NUTS2 region where the voter lives and y is the year of

[16]The amounts of EMFF, FEAD and YEI are available in our database only for the 2014 and 2019 EP elections.

[17]For more information about multilevel model or HLM, see Simonoff, Scott, and Marx, 2013, pp3-20 and Luke, 2020.

EP election.

$X_{r,y}$ gathers level-2 variables, i.e. regional variables. There are three variables in this matrix: the log of EU funds per capita at NUTS2 level (our main variable of interest) and two control variables at NUTS2 level. Indeed, as the objectives of EU funds are to promote economic convergence, employment and economic growth, we need to control the economic health of NUTS2 in our model. On the one hand, the log of GDP per capita in the year of EP election at NUTS2 level controls regional wealth. On the other hand, unemployment rate in the year of EP election at NUTS2 level controls regional labour market dynamics. Both regional variables come from Eurostat.

$X_{i,r,y}$ gathers level-1 variables, i.e. individual variables. We choose control variables usually used in VP-functions (Lewis-Beck and Stegmaier, 2013): school leaving age in five levels, gender, age in five levels, household size in four levels, work status in seven levels and household standard of living in six levels. Both macro and individual controls are presented in Table 3.A7 in appendix.

γ_{00} corresponds to the average probability to vote for a populist party in EP election for all individuals and NUTS2. The level-1 error term $\epsilon_{i,r,y}$ measures the voter's probability deviation from the average probability to vote for a populist party in EP election (γ_{00}) in the NUTS2 region in which he lives. The level-2 error term $\delta_{0,r,y}$ measures the NUTS2 probability deviation from the average probability to vote for a populist party in EP election (γ_{00}).

Moreover, as we analyse four EP elections simultaneously, we add year fixed effects

η_y. Finally, we cluster errors at NUTS2 level.

As a consequence, if H1 is verified, we expect a negative coefficient of the log of EU funds per capita on the probability to vote for a populist party in EP election.

In order to test H2 (conditioned relationship of EU funds per capita with populist vote in EP election by the populist nature of the incumbent), we also estimate a Hierarchical Linear Model (HLM) with random effects of NUTS2 and with an interaction term:

$$\text{Populist Vote}_{i,r,y} = \gamma_{0,r,y} + \gamma_{10} X_{i,r,y} + \epsilon_{i,r,y} \tag{3.2}$$

$$\begin{aligned} \text{with} \qquad \gamma_{0,r,y} &= \gamma_{00} + \gamma_{01}\text{EU funds}_{r,y} + \gamma_{02}\text{Populist gvt}_{r,y} \\ &+ \gamma_{03}\text{EU funds}_{r,y} \times \text{Populist gvt}_{r,y} \\ &+ \gamma_{04} X_{r,y} + \eta_y + \delta_{0,r,y} \end{aligned}$$

where i is the voter, r is the NUTS2 region where the voter lives and y is the year of EP election.

As in equation 3.1, γ_{00} corresponds to the average probability to vote for a populist party in EP election for all individuals and NUTS2; $X_{i,r,y}$ gathers level-1 variables, i.e. individual variables; $\epsilon_{i,r,y}$ is the level-1 error term; $\delta_{0,r,y}$ is the level-2 error term; η_y gathers year fixed effects; errors are clustered at NUTS2 level.

In equation 3.2, the variables “EU funds”, “Populist gvt” and the interaction “EU funds x Populist gvt” are level-2 variables. We add to equation 3.1 the dummy variable

Table 3.1: Summary of the estimation strategy

Hypothesis	Type of estimation	Variable of interest	Expected sign on populist vote
H1: A voter who lives in a region receiving a higher amount of EU funds per capita is less prone to vote for a populist party in EP election.	Hierarchical Linear Model (HLM)	Log of EU funds per capita	Negative
H2: When the national or regional incumbent is populist, a voter who lives in a region receiving a higher amount of EU funds per capita is more prone to vote for a populist party in EP election.	HLM with interaction	Interaction effect between EU funds per capita and populist incumbent	Positive

"Populist gvt" that is equal to 1 if the national/regional incumbent is led at least by one populist party. Notice that in case of a coalition between mainstream parties and a populist party, as the populist party has a decision-making weight within the incumbent government, this incumbent government is thus considered as populist. In appendix, Table 3.A6 lists countries and NUTS2 that are ruled by populist parties in the baseline sample. In 2004, there are 21 populist regional incumbents and no populist national incumbent while in 2019, there are 42 populist regional incumbents and 8 populist national incumbents.

$X_{r,y}$ gathers the level-2 controls, i.e. GDP per capita and unemployment rate in the year of EP election at NUTS2 level.

As a consequence, if H2 is verified, we expect a positive coefficient for the interaction between EU funds per capita and populist incumbent, that is to say $\gamma_{01} + \gamma_{03}$ in equation 3.2. Table 3.1 summarises this estimation strategy.

The baseline sample used for both estimations gathers 66 554 observations. In each EP election, there are around 18 000 observations except for 2004 which counts only

11 670 observations. Indeed, in 2004, due to a lack of information on voters' regions, we exclude these six countries: Austria, Denmark, Ireland, Italy, Poland and Sweden. Their exclusion explains the unbalanced sample in 2004. To go further, in appendix, Table 3.A7 presents a more detailed description of dependent and independent variables and Table 3.A8 displays the Spearman's rank correlation coefficients matrix confirming the correlation of independent variables with populist vote.

3.3.4 Is there a statistical difference between populist and non-populist incumbents?

To analyse the distinction between voters with a populist national incumbent and voters with a non-populist national incumbent, we show descriptive statistics according to the populist nature of the national incumbent in Table 3.2.

First, voters with a populist national incumbent are significantly more prone to vote for a populist party in EP election than those with a non-populist national incumbent.

Second, we observe that there are significant differences between voters in EP election with a populist incumbent and voters with a non-populist national incumbent regarding NUTS2 variables. The average amount of NUTS2 European funds per capita during the previous MEP mandate is significantly higher for voters with a populist national incumbent than for those with a non-populist national incumbent. At the same time, the average NUTS2 GDP per capita and the average unemployment rate are significantly lower for voters with a populist national incumbent.

Third, there are also significant differences between voters with a populist national

Table 3.2: Descriptive statistics of independent variables by the populist nature of the national incumbent

Independent variables	**Full sample**	**Populist national incumbent**	**Non-populist national incumbent**
Number of respondents	66554	7861	58693
Percentage of respondents	100 %	11.81 %	88.19 %
Number of different NUTS2	241	76	238
Dependent variable: Populist vote in EP election			
Average probability to vote for a populist party	15.86 %	29.84 %	13.99 %
Macroeconomic variables (at NUTS2 level)			
Average amount of EU funds per capita	549.91 €	780.79 €	518.98 €
Average GDP per capita in election year	27477.48 €	21654.54 €	28257.37 €
Average unemployment rate in election year	8.29 %	7.18 %	8.43 %
Individual variables			
Average school leaving age (between 1 and 3 for people who stopped full-time education)	2.34 (N = 61729)	2.42 (N = 7249)	2.33 (N = 54480)
Percentage of women	52.88 %	51.33 %	53.09 %
Average age (between 1 and 4)	2.86 (N = 64991)	2.77 (N = 7843)	2.87 (N = 57148)
Average household size (between 1 and 5)	2.12	2.18	2.12
Percentage of employed	50.73 %	54.59 %	50.22 %
Percentage of unemployed	5.80 %	5.67 %	5.82 %
Average household standard of living (between 1 and 5)	3.06 (N = 63714)	2.98 (N = 7776)	3.07 (N = 55938)

incumbent and those with a non-populist incumbent regarding individual variables. Voters in EP election with a populist national incumbent are significantly more educated, mostly men, younger, from a larger family, more likely to be employed and low-income than voters with a non-populist incumbent.

Finally, there is no significant difference according to the populist nature of national incumbent regarding the percentage of unemployed.

To conclude, there are significant differences between voters with a populist national incumbent and voters with a non-populist national incumbent, in particular regarding the amount of EU funds per capita. This first insight allows us to legitimate our second hypothesis, which is to test the conditioned relationship of EU funds per capita with populist vote by the populist nature of national/regional incumbent.

3.4 Results

3.4.1 Test of H1: Direct relationship of EU funds with populist vote in EP election at voter level

To test our first hypothesis (direct relationship of EU funds with populist vote), we estimate equation 3.1 by a Hierarchical Linear Model (HLM) with random effects of NUTS2. Results are presented in Table 3.3[18]. Column A only considers the log of EU funds per capita, individual controls and year fixed effects. Columns B and C each add a single macro control, respectively the log of GDP per capita for column B and unemployment rate for column C. Column D includes all independent variables: the log of EU funds per capita, the two macro controls, individual controls and year fixed effects.

The direct relationship between the log of EU funds per capita at NUTS2 level and the voter's probability to vote for a populist party in EP election is still negative and significant, no matter whether macro variables (log of GDP per capita and unemployment rate) are included or not. So H1 is verified: one-percentage-point increase in EU funds per capita at NUTS2 level during the last MEP mandate corresponds *ceteris paribus* to a decrease of around 2 % in the individual probability to vote for a populist party in EP election.

Regarding macro controls, both the log of GDP per capita and unemployment rate at NUTS2 level are not robustly significant but their signs are in the same direction as

[18]The complete estimations table is in appendix (Table 3.A10).

Table 3.3: EU funds and populist vote in EP election - Direct relationship

Populist vote	A	B	C	D
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.023**	-0.020**	-0.020**	-0.018**
	(0.0092)	(0.0081)	(0.0095)	(0.0085)
Log of GDP per capita		-0.038		-0.032
		(0.029)		(0.030)
Unemployment rate			0.0027*	0.0021
			(0.0015)	(0.0019)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.021**	-0.022**
	(0.010)	(0.010)	(0.010)	(0.010)
Working in the household	-0.0084	-0.0084	-0.0079	-0.0080
	(0.0074)	(0.0072)	(0.0073)	(0.0072)
Retired	0.0010	0.00084	0.0012	0.00095
	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Unemployed	0.021***	0.021***	0.020***	0.020***
	(0.0075)	(0.0074)	(0.0076)	(0.0076)
Other	0.0027	0.0029	0.0025	0.0028
	(0.010)	(0.010)	(0.010)	(0.010)
DK refuse	0.012	0.014	0.012	0.013
	(0.031)	(0.031)	(0.031)	(0.030)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	-0.0061	-0.0061	-0.0061
	(0.0085)	(0.0084)	(0.0087)	(0.0085)
3rd quintile	-0.035***	-0.035***	-0.035***	-0.034***
	(0.0096)	(0.0096)	(0.0097)	(0.0097)
4th quintile	-0.043***	-0.043***	-0.043***	-0.042***
	(0.010)	(0.010)	(0.010)	(0.010)
5th quintile	-0.051***	-0.050***	-0.050***	-0.050***
	(0.012)	(0.012)	(0.013)	(0.012)
DK refuse	-0.042***	-0.040***	-0.041***	-0.039***
	(0.013)	(0.013)	(0.013)	(0.013)
Constant	0.34***	0.69**	0.30***	0.61*
	(0.056)	(0.30)	(0.062)	(0.33)
Standard deviation (Random intercept)	0.1111598	0.1114515	0.1081483	0.1092898
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23839.57	-23823.27	-23827.81	-23816.83
AIC	47739.15	47708.54	47717.62	47697.67
BIC	48012.32	47990.82	47999.9	47989.05
Observations	66,554	66,554	66,554	66,554

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

mentioned in the literature: wealthy regions have a lower share of populist voters and regions with high unemployment rate present a higher share of populist voters (e.g. Funke, Schularick, and Trebesch, 2016, Guiso et al., 2017 and Algan et al., 2017).

The effects of individual controls also confirm what has already been shown in the literature. First, compared to employed voters, students are significantly less prone to vote for a populist party in EP election while unemployed voters are more likely to do so. This echoes the fact that economic insecurity leads to populist vote (e.g. Guiso et al., 2017 and Bossert et al., 2019). Second, the higher the voter's household standard of living, the stronger his probability to vote for a populist party in EP election (e.g. Becker, Fetzer, and Novy, 2017). Third, better educated voters are less prone to vote for a populist party in EP election. This echoes the literature that highlights education as one of the most important determinants of anti-EU and populist vote (e.g. Dijkstra, Poelman, and Rodríguez-Pose, 2020). Fourth, women are less likely to vote for a populist party in EP election. Fifth, compared to young voters (18-29), old voters (60 and over) have a significant lower probability to vote for a populist party in EP election. Finally, the household size has no significant effect on populist vote in EP election.

To support our results, we perform two main robustness checks. As a first robustness check, we want to verify whether the baseline results are not correlated with the estimation method. As populist vote is a dummy variable, we can estimate the baseline model using logit and probit models instead of HLM. On the one hand, we estimate the baseline model by multilevel logit estimations. Results are shown in Table 3.A14 in appendix. The log of EU funds per capita is still significantly negatively correlated

with the individual probability to vote for a populist party in EP election. Controls have the same signs as in baseline estimations. Notice that unemployment rate effect is here significantly positive. On the other hand, we estimate the baseline model by multilevel probit estimations. Results are shown in Table 3.A15 in appendix. Here again, results are the same: macro controls are not significant, individual controls have the same expected signs and higher log of EU funds per capita significantly corresponds to a higher individual probability to vote for a populist party in EP election. Finally, we want to test whether the baseline results are the same when we change the method that takes into account NUTS2 effects. Instead of estimating NUTS2 effect by multilevel models with NUTS2 random effects, we propose to use OLS estimations with NUTS2 fixed effects as an alternative estimation method. Results, shown in Table 3.A16 in appendix, remain unchanged compared to our baseline estimations, i.e. the negative relationship of EU funds with populist vote and the signs of controls.

As a second robustness check, we make sure that baseline results are not correlated with the type of EU funds. We propose to restrict EU funds to one type of EU funds in baseline estimations. Therefore, we run baseline estimations by considering separately ERDF, then ESF, then EAFRD and finally CF[19]. In Table 3.A17 in appendix, we replace the log of EU funds per capita by the log of ERDF per capita in the first column, the log of ESF per capita in the second column, the log of EAFRD per capita in the third column and the log of CF per capita in the last column. Higher ERDF and EAFRD per capita significantly correspond to a lower individual probability to vote for a populist

[19]We do not show baseline estimations using separately YEI, FEAD and EMFF because these funds together account for less than 1 % of all EU funds. Nevertheless, they are also negatively correlated with the probability to vote for a populist party in EP election.

party in EP election. The relationship between populist vote and ESF/CF per capita is not significant. Here again, controls are in the same direction as in baseline estimations.

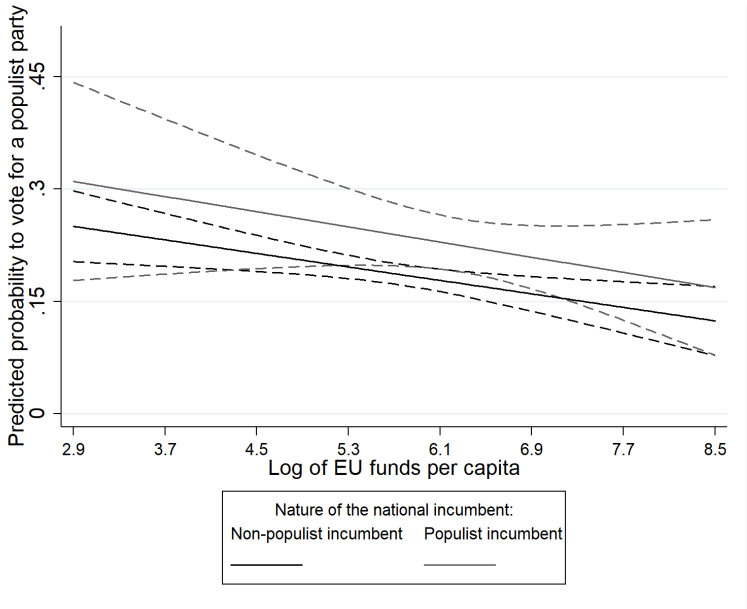
3.4.2 Test of H2: Conditioned relationship of EU funds with populist vote in EP election by the populist nature of the incumbent at voter level

As H1 is validated, we now test H2 to see whether the direct negative effect of EU funds varies in case of a populist incumbent at national or regional level.

First, we test the conditioned relationship of EU funds with populist vote by the populist nature of the national incumbent. We estimate equation 3.2 by interacting the populist nature of the national incumbent (populist or non-populist) with the log of EU funds per capita. Figure 3.4 shows the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the populist nature of the national incumbent. We notice that the negative effect of EU funds on the predicted probability to vote for a populist party in EP election is still significant. However, there is no significant difference between populist and non-populist national incumbents with 95 % confidence interval: whether the voter is led by a populist or non-populist national incumbent, higher EU funds per capita in his NUTS2 correspond to a lower probability to vote for a populist party in EP election.

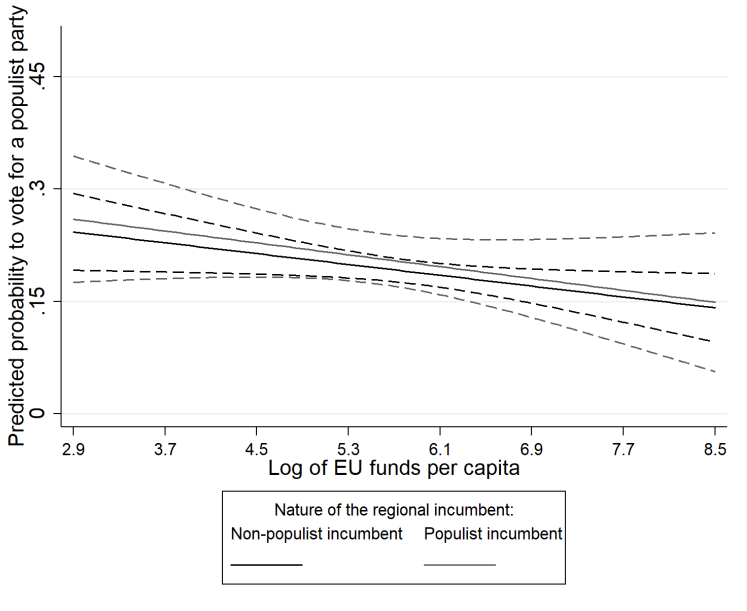
Second, we test the conditioned relationship of EU funds with populist vote by the populist nature of the regional incumbent. We estimate equation 3.2 by interacting the populist nature of the regional incumbent (populist or non-populist) with the log of

Figure 3.4: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the populist nature of the national incumbent with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A11.

Figure 3.5: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the populist nature of the regional incumbent with 95 % confidence interval



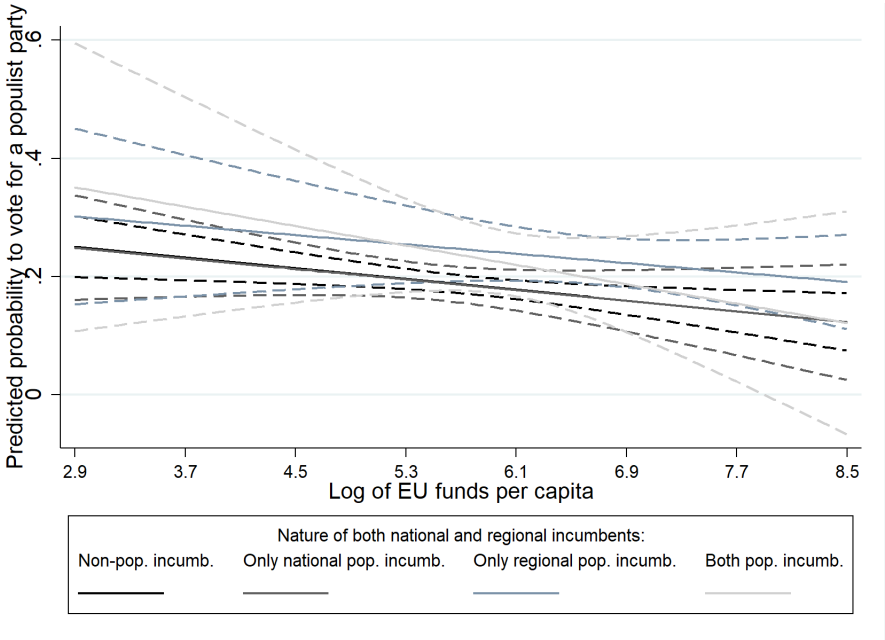
Notes. The prediction is made with the interaction model presented in Table 3.A12.

EU funds per capita. Figure 3.5 displays the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the populist nature of the regional incumbent. Here again, the negative effect of EU funds on the predicted probability to vote for a populist party in EP election is still significant. This effect is not affected by the populist nature of the regional incumbent with 95 % confidence interval: whether the voter is led by a populist or non-populist regional incumbent, higher EU funds per capita in his NUTS2 correspond to a lower probability to vote for a populist party in EP election.

We find that the populist nature of the incumbent has no effect on the relationship between EU funds and populist vote if we consider the national or regional incumbent separately. Following this finding, we test the conditioned relationship of EU funds with populist vote by considering the populist nature of both national and regional incumbents simultaneously. We thus consider four types of incumbents: both national and regional non-populist incumbents, only national populist incumbent, only regional populist incumbent and both national and regional populist incumbents. Figure 3.6 presents the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the populist nature of both national and regional incumbents. Here again, the significant negative effect of EU funds on the predicted probability to vote for a populist party in EP election is not conditioned by the populist nature of national and regional incumbents with 95 % confidence interval.

Based on these three estimations, we cannot validate H2: the negative effect of EU

Figure 3.6: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the populist nature of both national and regional incumbents with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A13.

funds on populist vote is not conditioned by the populist nature of the national and regional incumbents. Whether the voter is led by a populist or non-populist incumbent (national and/or regional), one-percentage-point increase in EU funds per capita at NUTS2 level during the last MEP mandate corresponds *ceteris paribus* to a decrease of around 2 % in the individual probability to vote for a populist party in EP election.

To support our results, as in subsection 3.4.1, we perform two main robustness checks. For the first one, we want to check whether the baseline results are not correlated with the estimation method. As we estimate an interaction model, we only test whether the baseline results are not affected when we change the method that takes into account NUTS2 effects in interaction model, i.e. OLS with NUTS2 fixed effects. Results are shown in appendix in Table 3.A18 (interaction with the populist nature

of the national incumbent), in Table 3.A19 (interaction with the populist nature of the regional incumbent) and in Table 3.A20 (interaction with the populist nature of both national and regional incumbents). The direct effect of the log of EU funds per capita is still negatively significant and is not conditioned by the populist nature of the national/regional incumbent. Controls also show the same signs.

For the second robustness check, to verify whether the baseline results are not correlated with the type of EU funds, we replace the log of all EU funds per capita by respectively the log of ERDF per capita, the log of ESF per capita, the log of EAFRD per capita and the log of CF per capita[20]. In appendix, Tables 3.A21 and 3.A22 present results of the interaction of EU funds per capita with the populist nature of the national incumbent, Tables 3.A23 and 3.A24 results of the interaction with the populist nature of the regional incumbent and Tables 3.A25 and 3.A26 results of the interaction with the populist nature of both national and regional incumbents. Here again, there is no conditional effect of EU funds on the individual probability to vote for a populist party in EP election by the populist nature of the national and/or regional incumbent. Note that the direct effect of EU funds is not always significant but remains negative. Besides, unemployment rate effect is significantly positive in estimations with interaction with the populist nature of the national incumbent. Otherwise, macro controls are not significant. Individual controls are in the same direction as in baseline estimations.

[20]Here again, as they together account for less than 1 % of all EU Funds, we do not show baseline estimations for YEI, FEAD and EMFF. Nevertheless, the interaction of these funds with the populist nature of the national and/or regional incumbent is also non-significant on the probability to vote for a populist party in EP election.

To conclude this results section, we only find empirical evidence to validate H1: one-percentage-point increase in EU funds per capita at NUTS2 level during the last MEP mandate corresponds *ceteris paribus* to a decrease of around 2 % in the individual probability to vote for a populist party in EP election. But we cannot validate H2 as there is no empirical evidence that a populist incumbent (national, regional or at both levels) may condition this negative relationship between EU funds and populist vote in EP election.

3.5 Discussion

We have previously demonstrated in this paper the direct negative link between EU funds and the individual probability to vote for a populist party in EP election. In this discussion section, we raise two questions. Subsection 3.5.1 deals with the existence of a differentiated effect of European funds on populist vote in EP election according to the level of NUTS2 development. In subsection 3.5.2, our analysis is related to individuals. We investigate whether the negative effect of European funds on populist vote is greater for the voters most targeted by these funds.

3.5.1 Discussion 1: Is there a differentiated effect of European funds on populist vote in EP election according to the level of NUTS2 development?

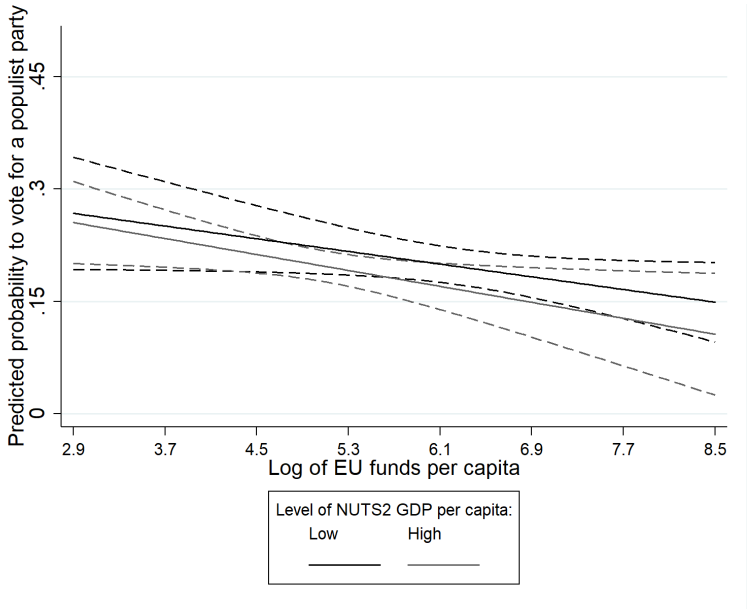
We have already exposed that EU funds are allocated much more largely to EU less-developed regions, in name of economic convergence. Indeed, ERDF, ESF and EAFRD

can co-finance projects up to 85 % in the less-developed regions, compared to up to 50 % in the more developed regions. The literature demonstrates that EU funding is more efficient in EU less-developed regions because these regions provide more potential economic gains (e.g. Bachtrögler, Fratesi, and Perucca, 2020). We assume that higher amount of EU funding signals greater expected economic prosperity in the less-developed regions than in the more developed regions. As the direct effect of EU funds on populist vote is negative whatever the level of NUTS2 development, we want to test whether EU funds have a stronger negative effect on voters living in a less developed NUTS2 than those living in a more developed NUTS2.

This analysis is done in three steps, each step corresponding to a proxy for the level of NUTS2 development. We test the differentiated effect of EU funds between less developed NUTS2 and more developed NUTS2 first through the NUTS2 GDP per capita, then through the NUTS2 unemployment rate and finally through the NUTS2 eligibility to Cohesion Fund.

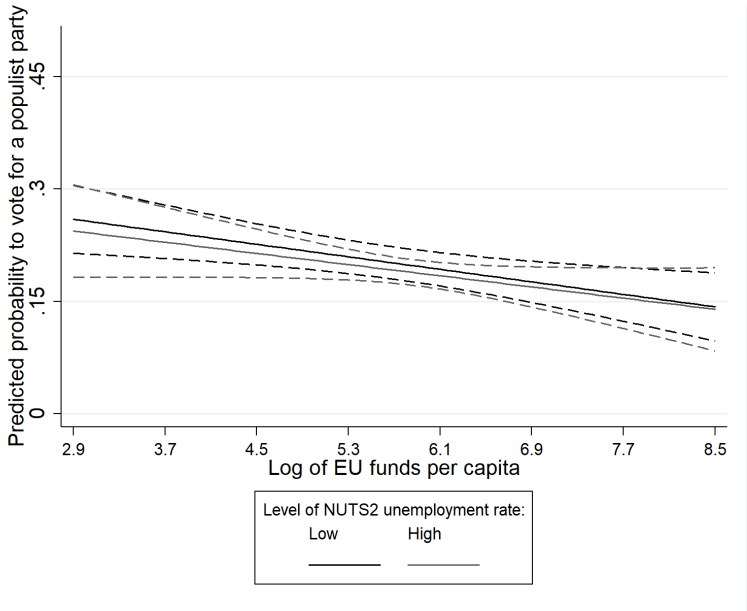
To test the differentiated effect of EU funds on populist vote in EP election by NUTS2 GDP per capita, we create a dummy variable splitting EU NUTS2 into two groups according to their log of GDP per capita: this dummy is equal to 1 if the log of NUTS2 GDP per capita is below 10.10 (i.e. NUTS2 GDP is below 24 343.01€ per capita). In other words, this dummy variable is equal to 1 when the NUTS2 GDP per capita is low. We interact this dummy variable with the log of EU funds received by NUTS2. We expect that the effect of this interaction is negatively higher than the effect of EU funds alone on the individual probability to vote for a populist party in EP

Figure 3.7: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the level of NUTS2 GDP per capita with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A27.

Figure 3.8: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the level of NUTS2 unemployment rate with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A28.

election. Figure 3.7 displays the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the level of NUTS2 GDP per capita. We see that the relationship between EU funds and populist vote in EP election is still significantly negative but not differentiated by the level of NUTS2 GDP per capita, with 95 % confidence interval. We also test the interaction effect of EU funds with NUTS2 GDP per capita with alternative divisions of NUTS2 GDP per capita: division into thirds, quartiles, quintiles and deciles. Here again, there is still no significant differentiated effect of EU funds on populist vote in EP election according to the level of NUTS2 GDP per capita.

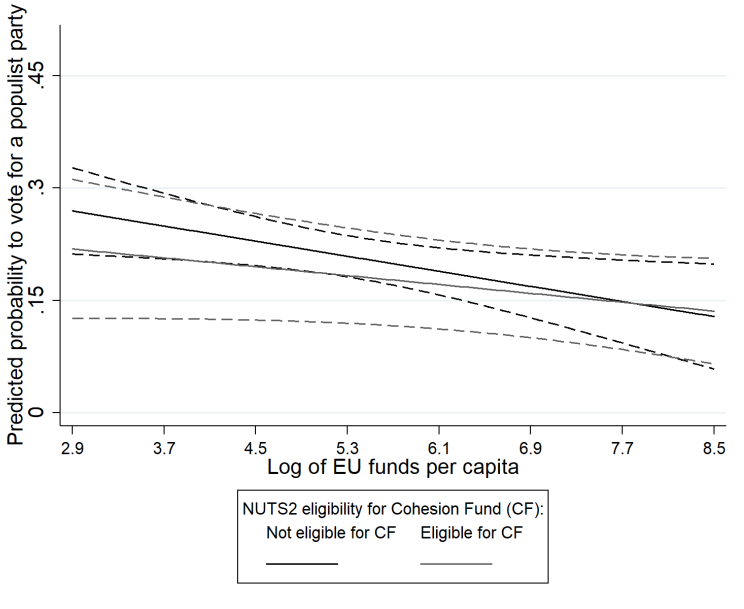
Second, we investigate whether the differentiated effect of EU funds on populist vote in EP election is not rather determined by NUTS2 unemployment rate. Indeed, unemployment rate is a measure of economic development too: regions with a high unemployment rate are less dynamic than those with a low unemployment rate. Here again, we divide NUTS2 into two equal groups, according to their unemployment rate: those with an unemployment rate below 7 % are considered as NUTS2 with a low unemployment rate. We thus create a dummy variable which is equal to 1 if the NUTS2 presents a high unemployment rate, i.e. equal to and over 7 %. Here again, we expect that the effect of the interaction between EU funds and high NUTS2 unemployment rate is negatively higher than the effect of EU funds alone on the individual probability to vote for a populist party in EP election. Figure 3.8 shows the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the level of NUTS2 unemployment rate. Whatever the level of

unemployment rate (low or high), the relationship between EU funds and populist vote is still significantly negative. However, there is no significant differentiated effect of EU funds on populist vote between NUTS2 with a low unemployment rate and those with a high unemployment rate, with 95 % confidence interval. Alternative divisions of NUTS2 unemployment rate (division into thirds, quartiles, quintiles and deciles) do not change results.

Finally, as the regional economic health does not condition the effect of EU funds on populist vote in EP election, we propose another dummy variable that is equal to 1 if the NUTS2 belongs to a country eligible for Cohesion Fund (CF). As we have explained in subsection 3.3.1, CF targets EU state members with a gross national income (GNI) below 90 % of the EU average. These recipient countries are: Croatia[21], Bulgaria[22], Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania[22], Malta[22], Poland[22], Portugal, Romania[22], Slovakia and Slovenia. Here again, as CF distributes extra funding to the less-developed EU countries, we expect that the effect of the interaction between EU funds and being CF eligible is negatively higher than the effect of EU funds alone on the individual probability to vote for a populist party in EP election. Figure 3.9 shows the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by being CF eligible. Whatever the NUTS2 CF eligibility, the relationship between EU funds and populist vote is still significantly negative. Again, we note no differentiated EU funds effect on populist vote between CF eligible and non-CF eligible NUTS2, with 95 % confidence interval.

[21] Only for 2014 and 2019.
[22] Only for 2009, 2014 and 2019.

Figure 3.9: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by being Cohesion Fund (CF) eligible with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A29.

To conclude this first discussion, we do not find empirical evidence of a differentiated effect of EU funds on populist vote in EP election according to the level of NUTS2 development. In other words, whatever the level of NUTS2 economic development, EU funding is still significantly and negatively linked with the individual probability to vote for a populist party in EP election.

3.5.2 Discussion 2: Is the negative effect of European funds on populist vote greater for the voters most targeted by these funds?

We have seen in baseline estimations that unemployed voters are significantly more prone to vote for a populist party in EP election while rich voters are significantly less

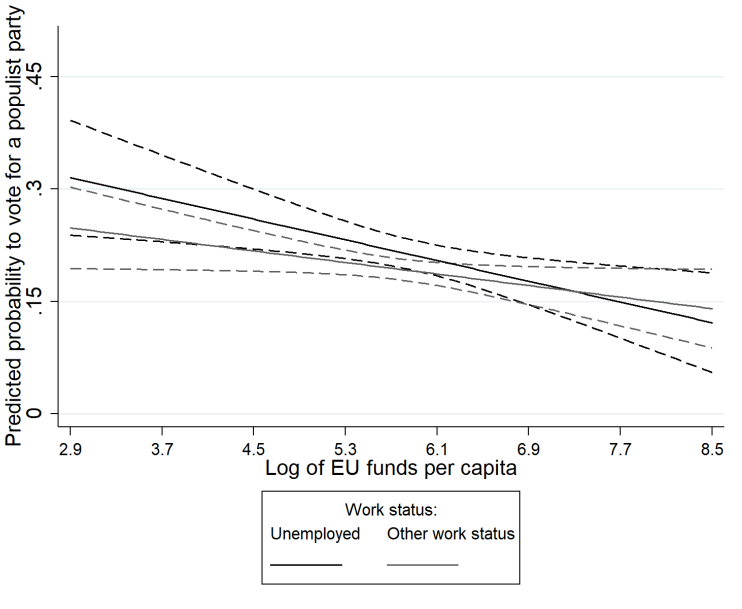
likely to do so. That is why, as EU funds target in particular poor and unemployed people, we would like to know whether the negative effect of EU funds on populist vote is greater for these targetted voters compared to the others less targeted by these funds.

We propose to interact EU funds per capita with two variables. The first variable is a dummy variable equal to 1 if the voter is unemployed. This variable measures the voter's unemployed status. Unemployed voters represent 5.80 % of our baseline sample. We expect a negative interaction between the voter's unemployed status and the log of EU funds per capita in his NUTS2. Then, we create a second variable that recodes the voter's household standard of living into 4 levels: "Low" gathering the 1st and 2nd quintiles of the initial variable, "Medium" corresponding to the 3rd quintile of the initial variable, "High" gathering the 4th and 5th quintiles of the initial variable and "DK refuse".

Figure 3.10 shows the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the voter's unemployed status. We observe that the voter's unemployed status does not significantly condition the direct negative relationship between EU funds and the individual probability to vote for a populist party in EP election, with 95 % confidence interval.

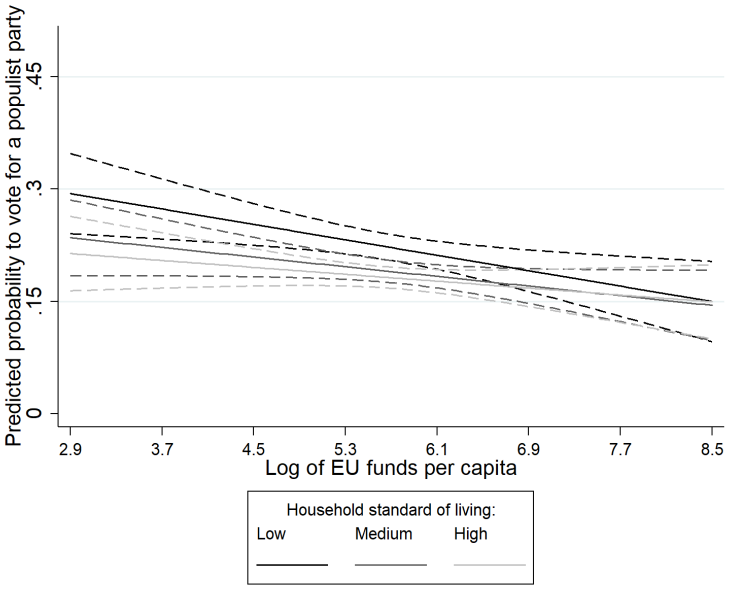
Figure 3.11 shows the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the voter's household standard of living. Whatever the voter's household standard of living (low, medium or high), the relationship between EU funds and populist vote is still significantly negative. However, there is no differentiated effect of EU funds on populist vote in EP election

Figure 3.10: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the voter's unemployed status with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A30.

Figure 3.11: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the voter's household standard of living with 95 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A31.

according to voters' wealth, with 95 % confidence interval: for a given amount of EU funding in their NUTS2 region, the poor voter and the rich voter do not show significant different individual probabilities to vote for a populist party in EP election, with 95 % confidence interval. Nonetheless, we notice that, with 90 % confidence interval, the differentiated effect of EU funds on populist vote between poor voters and rich voters is significant[23]: for a log of EU funds per capita between 2.9 and 6.1 (i.e. EU funds between 18.17€ and 445.86€ per capita), voters with a low household standard of living have a significantly higher individual probability to vote for a populist party in EP election than those with a high household standard of living. When the log of EU funds per capita is above 6.1 (i.e. EU funds higher than 445.86€ per capita), this difference is no longer significant. We also test this interaction with the initial variable of voter's household standard of living in 6 levels. There is no significant differentiated effect of EU funds on populist vote according to voters' household standard of living. In addition, the log of EU funds per capita is still significantly and negatively linked with the individual probability to vote for a populist party in EP election.

To conclude this second discussion, we do not find any strong empirical evidence of a higher negative effect of EU funds on populist vote for the voters most targeted by these funds. For a given amount of EU funding in their NUTS2 region, whether they are poor or rich and unemployed or not, voters do not present significant different individual probabilities to vote for a populist party in EP election.

[23]Figure 3.A12 in appendix displays the conditioned predicted effect of EU funds per capita on the individual probability to vote for a populist party in EP election by the voter's household standard of living with 90 % confidence interval.

3.6 Conclusion

In this paper, we investigate on the one hand the direct relationship between European funds and populist vote in EP election, at voter level. On the other hand, we contribute to the literature by considering for the first time the conditioned link of EU funds with the individual probability to vote for a populist party in EP election by the populist nature of the national/regional incumbent. We conduct a cross-sectional analysis with four EP elections, from 2004 to 2019. Using the four corresponding waves of European Election Studies (ESS), we estimate a Hierarchical Linear Model (HLM) with random effect of NUTS2.

We test two hypotheses. We suppose that the direct relationship between EU funds and populist vote in EP election is negative (H1): a higher amount of EU funds per capita at NUTS2 level reduces the individual probability to vote for a populist party in EP election. This first hypothesis H1 is validated: one-percentage-point increase in EU funds per capita at NUTS2 level during the last MEP mandate corresponds *ceteris paribus* to a decrease of about 2 % in the individual probability to vote for a populist party in EP election. This negative effect is significant and robust. The second hypothesis H2 deals with the conditioned effect of EU funds on populist vote by the populist nature of the national/regional incumbent: when the voter's national or regional incumbent is populist, we expect an increase in his probability to vote for a populist party in EP election. Our results do not show empirical evidence of a difference between voters led by a populist incumbent and those led by a non-populist incumbent regarding the

effect of EU funds on populist vote in EP election. H2 is thus not validated.

In the discussion section, we investigate whether the direct negative effect of EU funds is heterogeneous, regarding the level of NUTS2 development (measured by GDP per capita, unemployment rate and Cohesion Fund eligibility at NUTS2 level) and the voters' economic characteristics (i.e. their unemployed status and their household standard of living). Our results do not provide empirical evidence of a differentiated effect of EU funds on the individual probability to vote for a populist party in EP election according to the level of NUTS2 development. In addition, we do not find any strong empirical evidence of a higher negative effect of EU funds on populist vote for the voters most targeted by these funds (i.e. unemployed and poor voters).

As a consequence, this paper brings an important additional evidence of the negative link between EU funds and populist vote, at voter level. Nevertheless, this paper only considers the economic effect of EU funds on populist vote. Due to the lack of suitable proxy variables, we were not able to test how voters perceive EU funding, i.e. from a purely economic perspective or from a more politicised perspective. Indeed, as Hlatky (2020) highlights, EU funds can be politicised to the point of generating a negative perception of EU funding, which can lead to a populist or anti-EU vote. In further research, it might be interesting to investigate which voters are more likely to perceive EU funds from an economic perspective (i.e. positively) and which ones are more likely to perceive them from a politicised perspective (i.e. negatively).

Appendix

3.A Description of European populist parties

Table 3.A4 details the number and the shares of right-wing and left-wing populist seats between 1989 and 2019. Table 3.A5 lists the parties considered as populist in our analysis in EP elections by country and by election year. Finally, Table 3.A6 displays the list of countries and NUTS2 led by populist parties in the baseline sample.

Table 3.A4: Number and shares of both right-wing and left-wing populist seats in the European Parliament

EP election year	List of populist groups	Number of EP seats	Share of EP seats
1989	Right-wing populist groups: - Technical Group of the European Right (DR)	17	11 %
	Left-wing populist groups: - Group for the European United Left (EUL) - Left Unity (LU)	42	
1994	Right-wing populist groups: - Group of the European Radical Alliance (ERA) - Europe of Nations Group (EN)	38	12 %
	Left-wing populist groups: - Confederal Group of the European United Left (EUL)	28	
1999	Right-wing populist groups: - Union for Europe of the Nations (UEN) - Europe of Democracies and Diversities (EDD)	46	14 %
	Left-wing populist groups: - European United Left/Nordic Green Left (EUL/NGL)	42	
2004	Right-wing populist groups: - Independence/Democracy (IND/DEM) - Union for Europe of the Nations (UEN)	64	15 %
	Left-wing populist groups: - European United Left/Nordic Green Left (EUL/NGL)	41	
2009	Right-wing populist groups: - Europe of Freedom and Democracy (EFD)	32	9 %
	Left-wing populist groups: - European United Left/Nordic Green Left (EUL/NGL)	35	
2014	Right-wing populist groups: - Europe of Freedom and Direct Democracy (EFDD)	48	13 %
	Left-wing populist groups: - European United Left/Nordic Green Left (EUL/NGL)	52	
2019	Right-wing populist groups: - Identity and Democracy (ID)	73	15 %
	Left-wing populist groups: - European United Left/Nordic Green Left (EUL/NGL)	41	

Table 3.A5: List of populist parties in EP elections by country and by EP election year

Country	EP election year	Populist parties
Austria	**2009**	FPÖ, BZÖ, Hans Peter Martin List and KPÖ
	2014	FPÖ, BZÖ and EU stop
	2019	FPÖ, Jetz-Europa and KPÖ
Belgium	**2004**	Vlaams Blok, N-VA, RESIST and Front National
	2009	Vlaams Belang, N-VA, LDD, PVDA+ and Front National
	2014	PVDA+, Vlaams Belang, Front National, PTB-go! and Parti populaire
	2019	PVDA/PTB, Vlaams Belang, Front National, PTB and Parti populaire
Bulgaria	**2009**	ATAKA
	2014	ATAKA and Bulgaria Without Censorship
	2019	BMPO, ATAKA and National Front for the Salvation of Bulgaria
Croatia	**2014**	*No populist parties*
	2019	Živi zid, Bandić Milan 365 and Coalition of NHR
Cyprus	**2004**	AKEL and New Horizons
	2009	AKEL
	2014	AKEL, Citizens' Alliance, ELAM, Message of Hope and Drasy
	2019	AKEL and ELAM
Czech Republic	**2004**	KSČM, Pravý blok, SZR and RMS
	2009	KSČM
	2014	KSČM, ANO 2011, Úsvit, SPO, DSSS and Volte Pravý Blok
	2019	KSČM, ANO 2011 and SPD
Denmark	**2009**	Socialistisk Folkeparti, Dansk Folkeparti and Fremskridtspartiet
	2014	Socialistisk Folkeparti, and Dansk Folkeparti
	2019	Socialistisk Folkeparti, Dansk Folkeparti and Enhedslisten
Estonia	**2004**	*No populist parties*
	2009	*No populist parties*
	2014	EKRE
	2019	EKRE
Finland	**2004**	VAS, True Finns and SKP
	2009	VAS, True Finns and SKP
	2014	VAS and True Finns
	2019	VAS and True Finns
France	**2004**	Extreme Left, PCF, FN-MNR and MPF-RPF
	2009	Extreme Left, PCF and Front National
	2014	Front National, Front de Gauche, Debout la République, NPA, LO and Union pour les Outre-Mer
	2019	Rassemblement National, LFI, La liste Patriote et Gilets jaunes, Debout la France, LO, PCF and Liste pour le Frexit
Germany	**2004**	PDS, Republikaner and NPD
	2009	Linke, DKP and Die Republikaner
	2014	Die Linke, AfD and NPD
	2019	Die Linke, AfD and NPD

Country	EP election year	Populist parties
United Kingdom	**2004**	UKIP, Scottish National Party, Plaid Cymru, British National Party
	2009	Scottish National Party, Plaid Cymru, UKIP, British National Party, England Democrats and Scottish Socialist Party
	2014	UKIP, SNP, Plaid Cymru, DUP and BNP
	2019	UKIP, SNP, Plaid Cymru, DUP and The Brexit Party
Greece	**2004**	KKE, Synaspismós, LAOS, Golden Dawn and Patriot coalition
	2009	KKE, SYRIZA and LAOS
	2014	SYRIZA, AE, Golden Dawn, KKE and LAOS
	2019	SYRIZA, Golden Dawn, KKE, The River, ANEL, LAE and Greek Solution
Hungary	**2004**	MIÉP and MP-Workers Party
	2009	Jobbik, MKP and MIÉP
	2014	Jobbik
	2019	Jobbik and MH
Ireland	**2009**	Libertas
	2014	Socialist Party, Direct Democracy Ireland and People Before Profit Alliance
	2019	Solidarity - People Before Profit
Italy	**2009**	Lega Nord, Italia dei valori, Sinistra Arcobaleno, Partito della Rifonda and Partito Comunista dei Lavoratori
	2014	Lega Nord, Five Star Movement and Italia dei valori
	2019	Lega Salvini Premier, Five Star Movement, Fratelli d'Italia, Partito Comunista, Forza Nuova and Casa Pound
Latvia	**2004**	PCTVL, LNNK and Latvian Socialist Party
	2009	LNNK, PCTVL, Ricibas partija and Visu Latvijai!
	2014	LNNK and LKS
	2019	LNNK, KPV LV, LKS, Latviešu nacionālisti and Rīcības partija
Lithuania	**2009**	*No populist parties*
	2014	*No populist parties*
	2019	Public election committee "Decisive Leap"
Luxembourg	**2004**	KPL and Déi Lenk
	2009	KPL and Déi Lenk
	2014	Déi Lénk
	2019	Déi Lénk
Malta	**2009**	Azzjoni Nazzjonali and Imperium Europa
	2014	*No populist parties*
	2019	*No populist parties*
Netherlands	**2004**	LPF, SP, Leefbaar Nederland/Leefbar Europa and Nieuw Rechts
	2009	SP and PVV
	2014	PVV and SP
	2019	PVV, SP and Forum voor Democratie
Poland	**2009**	PiS
	2014	PiS, Nowa Prawica and Ruch Narodowy
	2019	PiS and Kukiz'15

Country	EP election year	Populist parties
Portugal	**2004**	Bloco de Esquerda, CDU (PCP-PEV) and Partido da Nova Democracia
	2009	Bloco de Esquerda and CDU (PCP-PEV)
	2014	Bloco de Esquerda and CDU (PCP-PEV)
	2019	Bloco de Esquerda and CDU
Romania	**2009**	Partidul România Mare
	2014	PP-DD, PRM and Partidul Dreptății Sociale
	2019	PRM and PRU
Slovakia	**2004**	ĽS-HZDS, KSS, SNS, HZD and Slovenská udová strana
	2009	ĽS-HZDS, SNS and KSS
	2014	SNS, KSS, L'SNS and Slovak People's Party
	2019	SNS, KSS, L'SNS and OL'aNO
Slovenia	**2004**	SNS and SJN
	2009	SNS
	2014	SNS and SSN
	2019	SNS and DOM
Spain	**2004**	IU/IC-V, Regional Party of Center and Regional Party of Left
	2009	IU, Alternativa española, ERC and Coalicion por Europa
	2014	IU/IC-V, Coalición por Europa (CiU, EAJ-PNV, CC, CxG), Podemos, Coalición "Los Pueblos Deciden", Coalición "Primavera Europea" and VOX
	2019	Podemos, VOX and Ahora Repúblicas (ERC and others)
Sweden	**2009**	Sweden Democrats
	2014	Sweden Democrats
	2019	Sweden Democrats

Table 3.A6: List of countries and NUTS2 led by populist parties in the baseline sample

EP election year	Countries led by a populist national incumbent	NUTS2 led by a populist regional incumbent
2004	-	**21 NUTS2:** *France* (Bretagne, Centre-Val de Loire, Champagne-Ardenne, Nord-Pas-de-Calais, Île-de-France, Haute-Normandie, Aquitaine, Limousin, Midi-Pyrénées, Provence-Alpes-Côte d'Azur), *Germany* (Berlin, Mecklenburg-Vorpommern), *United Kingdom* (Northern Ireland), *Slovakia* (Západné Slovensko, Stredné Slovensko, Východné Slovensko), *Spain* (Principado de Asturias, Canarias, Cataluña, Comunidad Foral de Navarra, País Vasco)
2009	Cyprus Slovakia	**23 NUTS2:** *Austria* (Kärnten), *Cyprus*, *Czech Republic* (Střední Čechy), *France* (Centre-Est, Bassin Parisien, Ouest, Est, Nord-Pas-de-Calais, Île-de-France, Sud-Ouest, Méditerranée), *Germany* (Berlin), *United Kingdom* (Scotland, Wales), *Poland* (Podkarpackie, Łódzkie), *Slovakia* (Západné Slovensko, Stredné Slovensko, Východné Slovensko), *Spain* (Noroeste (Galicia, Principado de Asturias, Cantabria), Este (Cataluña, Comunidad Valenciana), Noreste (País Vasco, Comunidad Foral de Navarra, La Rioja, Aragón)), *Sweden* (Västsverige)
2014	Czech Republic Hungary	**42 NUTS2:** *Austria* (Steiermark), *Czech Republic* (Střední Čechy, Severozápad, Střední Morava), *Finland* (Etelä-Suomi), *France* (Auvergne, Rhône-Alpes, Bourgogne, Bretagne, Centre, Lorraine, Nord-Pas-de-Calais, Picardie, Île-de-France, Basse-Normandie, Haute-Normandie, Aquitaine, Poitou-Charentes, Languedoc-Roussillon, Midi-Pyrénées, Pays-de-la-Loire, Provence-Alpes-Côte d'Azur), *Germany* (Brandenburg), *United Kingdom* (Scotland, Northern Ireland, Wales), *Greece* (Ipeiros, Peloponnisos), *Italy* (Lombardia, Piemonte, Valle d'Aosta, Veneto), *Poland* (Dolnośląskie, Podkarpackie), *Slovakia* (Západné Slovensko, Stredné Slovensko), *Spain* (Andalucía, Canarias, Cataluña, Comunidad Foral de Navarra, País Vasco), *Sweden* (Västsverige)
2019	Austria Czech Republic Greece Hungary Italy Latvia Poland Slovakia	**42 NUTS2:** *Austria* (Burgenland, Oberösterreich), *Czech Republic* (Jihovýchod, Střední Morava, Střední Čechy, Severozápad), *Finland* (Etelä-Suomi), *France* (Bourgogne-Franche-Comté, Normandie, Centre-Val de Loire, Nouvelle Aquitaine, Occitanie, Corse), *Germany* (Berlin, Brandenburg, Thüringen), *United Kingdom* (Scotland, Northern Ireland), *Greece* (Attiki, Ionia Nisia, Kentriki Makedonia), *Italy* (Friuli-Venezia Giulia, Lombardia, Sicilia, Veneto), *Latvia*, *Poland* (Dolnośląskie, Lubelskie, Łódzkie, Opolskie, Małopolskie, Świętokrzyskie, Śląskie), *Slovakia* (Bratislavský kraj, Západné, Slovensko, Stredné Slovensko, Východné Slovensko), *Spain* (Canarias, Cataluña, País Vasco, Comunidad Valenciana), *Sweden* (Småland med öarna)

3.B Variables description

Table 3.A7 presents the description of variables used in baseline estimations in section 3.4. Table 3.A8 displays the Spearman's rank correlation coefficients matrix for dependent and independent variables used in baseline estimations in section 3.4. Table 3.A9 shows the description of variables used for robustness checks in section 3.4 and in discussion section (section 3.5).

Table 3.A7: Description of variables used in baseline estimations

Name of variable	Source	Description	Mean	Sd	Min	Max
Populist vote	EES 2004, 2009, 2014 and 2019	Equal to 1 if the voter has voted for a populist party in European Parliament election	0.16	0.37	0	1
Log of EU funds per capita	European Commission - DG Regional Policy	Log of all EU funds per capita received by the voter's NUTS2 during the MEP mandate. The considered EU funds are: Cohesion Fund (CF), European Agricultural Fund for Rural Development (EAFRD), European Maritime and Fisheries Fund (EMFF), European Regional Development Fund (ERDF), European Social Fund (ESF), Fund for European Aid to the most Deprived (FEAD) and Youth Employment Initiative (YEI). For the 2004 EP election, we measure all EU Funds received during the period 2000-2004; for the 2009 EP election, the measured period is 2005-2009; for the 2014 EP election, the measured period is 2010-2014; for the 2019 EP election, the measured period is 2015-2018 (2019 is not available yet).	5.72	1.15	2.91	8.48
Log of GDP per capita	Eurostat (and INSEE for France before 2015)	Voter's NUTS2 GDP per capita at current market prices in the EP election year	10.00	0.69	7.82	11.89
Unemployment rate	Eurostat	Voter's NUTS2 Unemployment rate in percentage in the EP election year	8.29	4.85	1.30	34.80
Work status	EES 2004, 2009, 2014 and 2019	Seven levels of the voter's current work situation: "Employed" (self-employed and employed), "In school", "Working in the household", "Retired", "Unemployed", "Other" (other, military service) and "DK refuse"	Categorical variable			
Household standard of living	EES 2004, 2009, 2014 and 2019	For 2004: Six levels of the voter's household income: "1st quintile", "2nd quintile", "3rd quintile", "4th quintile", "5th quintile" and "DK refuse" For 2009, 2014 and 2019: Six levels of perceived voter's family's standard of living (7 levels for the initial question): "1st quintile" (levels 1 and 2), "2nd quintile" (level 3), "3rd quintile" (level 4), "4th quintile" (level 5), "5th quintile" (levels 6 and 7) and "DK refuse"	7.16	19.42	1	99
School leaving age	EES 2004, 2009, 2014 and 2019	Five levels built with the question: "How old were you when you stopped full-time education?": "Under 15 y.", "16-19 y.", "Over 20 y.", "Still studying" and "DK refuse"	2.50	0.89	1	5
Female	EES 2004, 2009, 2014 and 2019	Equal to 1 if the voter is a woman	0.53	0.50	0	1
Age	EES 2004, 2009, 2014 and 2019	Five levels corresponding to the voter's age: "18-29", "30-44", "45-59", "60 and over" and "DK refuse"	2.91	1.09	1	5
Household size	EES 2004, 2009, 2014 and 2019	Four levels corresponding to the number of people living in the voter's household: "1 person", "2 persons", "3-4 persons" and "5 persons and more"	2.12	0.82	1	4

Table 3.A8: Spearman's rank correlation coefficients matrix for dependent and independent variables

	Populist vote	**Log of EU funds per capita**	**Log of GDP per capita**	**Unemployment rate**	**School leaving age**
Populist vote	1.0000				
Log of EU funds per capita	-0.0387*	1.0000			
Log of GDP per capita	0.0233*	-0.5720*	1.0000		
Unemployment rate	-0.0115*	0.2921*	-0.3257*	1.0000	
School leaving age	-0.0156*	-0.0601*	0.1006*	-0.0566*	1.0000
Female	-0.0505*	0.0358*	-0.0409*	0.0277*	-0.0371*
Age	-0.0421*	-0.0153*	0.0535*	-0.0111*	-0.2888*
Household size	0.0172*	0.0757*	-0.0825*	0.0388*	0.0293*
Work status	-0.0061	0.0173*	-0.0341*	0.0502*	-0.1739*
Household standard of living	-0.0414*	-0.1528*	0.1536*	-0.0686*	0.1906*

	Female	**Age**	**Household size**	**Work status**	**Household standard of living**
Female	1.0000				
Age	0.0160*	1.0000			
Household size	-0.0345*	-0.2117*	1.0000		
Work status	0.0642*	0.4200*	-0.1996*	1.0000	
Household standard of living	-0.0426*	-0.0545*	0.0889*	-0.1390*	1.0000

Table 3.A9: Description of variables for robustness checks and discussion

Name of variable	Source	Description	Mean	Sd	Min	Max
Variables for robustness checks						
Log of ERDF per capita	European Commission - DG Regional Policy	Log of all European Regional Development Funds (ERDF) per capita received by the voter's NUTS2 during the MEP mandate[a]	4.61	1.54	0.15	16.56
Log of ESF per capita	European Commission - DG Regional Policy	Log of all European Social Funds (ESF) per capita received by the voter's NUTS2 during the MEP mandate[a]	4.05	0.98	1.77	7.13
Log of EAFRD per capita	European Commission - DG Regional Policy	Log of all European Agricultural Funds for Rural Development (EAFRD) per capita received by the voter's NUTS2 during the MEP mandate[ab]	3.96	1.64	-6.14	6.44
Log of CF per capita	European Commission - DG Regional Policy	Log of all Cohesion Funds (CF) per capita received by the voter's NUTS2 during the MEP mandate[ac]	4.91	1.16	-0.62	6.92
Variables for discussion						
Low NUTS2 GDP per capita	European Commission - DG Regional Policy	Equal to 1 if the log of NUTS2 GDP per capita is equal to or below 10.10; 0 otherwise	0.50	0.50	0	1
High NUTS2 unemployment rate	European Commission - DG Regional Policy	Equal to 1 if the NUTS2 unemployment rate is equal to or above 7 %; 0 otherwise	0.48	0.50	0	1
Being CF eligible	European Commission - DG Regional Policy	Equal to 1 if the NUTS2 benefits from Cohesion Fund ; 0 otherwise	0.45	0.50	0	1
Unemployed	EES 2004, 2009, 2014 and 2019	Equal to 1 if the voter is "Unemployed"; 0 otherwise. This variable is based on the variable "Work status"	0.06	0.23	0	1
Household standard of living	EES 2004, 2009, 2014 and 2019	Recoding the initial variable of "Household standard of living" in five levels: "Low" which gathers the 1st and 2nd quintiles of the initial variable, "Medium" corresponding to the 3rd quintile of the initial variable, "High" gathering the 4th and 5th quintile and "DK refuse"	7.24	19.43	1	99

[a]For the 2004 EP election, we measure all EU funds received during the period 2000-2004; for the 2009 EP election, the measured period is 2005-2009; for the 2014 EP election, the measured period is 2010-2014; for the 2019 EP election, the measured period is 2015-2018 (2019 is not available yet).

[b]The number of observations is reduced to 65 847.

[c]As Cohesion Fund only concerns the less-developed EU countries, the number of observations drops from 66 554 to 33 655.

3.C Complete estimation tables

Table 3.A10: EU funds and populist vote in EP election - Direct relationship

Populist vote	A	B	C	D
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.023**	-0.020**	-0.020**	-0.018**
	(0.0092)	(0.0081)	(0.0095)	(0.0085)
Log of GDP per capita		-0.038		-0.032
		(0.029)		(0.030)
Unemployment rate			0.0027*	0.0021
			(0.0015)	(0.0019)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.021**	-0.022**
	(0.010)	(0.010)	(0.010)	(0.010)
Working in the household	-0.0084	-0.0084	-0.0079	-0.0080
	(0.0074)	(0.0072)	(0.0073)	(0.0072)
Retired	0.0010	0.00084	0.0012	0.00095
	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Unemployed	0.021***	0.021***	0.020***	0.020***
	(0.0075)	(0.0074)	(0.0076)	(0.0076)
Other	0.0027	0.0029	0.0025	0.0028
	(0.010)	(0.010)	(0.010)	(0.010)
DK refuse	0.012	0.014	0.012	0.013
	(0.031)	(0.031)	(0.031)	(0.030)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	-0.0061	-0.0061	-0.0061
	(0.0085)	(0.0084)	(0.0087)	(0.0085)
3rd quintile	-0.035***	-0.035***	-0.035***	-0.034***
	(0.0096)	(0.0096)	(0.0097)	(0.0097)
4th quintile	-0.043***	-0.043***	-0.043***	-0.042***
	(0.010)	(0.010)	(0.010)	(0.010)
5th quintile	-0.051***	-0.050***	-0.050***	-0.050***
	(0.012)	(0.012)	(0.013)	(0.012)
DK refuse	-0.042***	-0.040***	-0.041***	-0.039***
	(0.013)	(0.013)	(0.013)	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0092	-0.0096	-0.0091	-0.0095
	(0.0070)	(0.0070)	(0.0071)	(0.0071)
Over 20 y.	-0.038***	-0.038***	-0.038***	-0.038***
	(0.0085)	(0.0084)	(0.0086)	(0.0085)
Still studying	-0.0042	-0.0038	-0.0027	-0.0027
	(0.013)	(0.013)	(0.013)	(0.013)
DK refuse	-0.061***	-0.061***	-0.060***	-0.061***
	(0.011)	(0.011)	(0.011)	(0.010)
Female	-0.031***	-0.031***	-0.030***	-0.030***
	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0077	-0.0076	-0.0074	-0.0074
	(0.0053)	(0.0053)	(0.0053)	(0.0053)
45-59	-0.0068	-0.0066	-0.0064	-0.0063
	(0.0065)	(0.0065)	(0.0064)	(0.0065)
60 and over	-0.026***	-0.026***	-0.026***	-0.025***
	(0.0068)	(0.0068)	(0.0067)	(0.0068)
DK refuse	0.0063	0.0034	0.0047	0.0027
	(0.016)	(0.016)	(0.015)	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00073	-0.00074	-0.00080	-0.00079
	(0.0043)	(0.0043)	(0.0044)	(0.0044)
3-4 persons	0.0028	0.0024	0.0023	0.0021
	(0.0047)	(0.0047)	(0.0048)	(0.0047)
5 persons and more	-0.0018	-0.0020	-0.0021	-0.0022
	(0.0090)	(0.0090)	(0.0091)	(0.0090)
Constant	0.34***	0.69**	0.30***	0.61*
	(0.056)	(0.30)	(0.062)	(0.33)
Standard deviation (Random intercept)	0.1111598	0.1114515	0.1081483	0.1092898
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23839.57	-23823.27	-23827.81	-23816.83
AIC	47739.15	47708.54	47717.62	47697.67
BIC	48012.32	47990.82	47999.9	47989.05
Observations	66,554	66,554	66,554	66,554

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A11: EU funds and populist vote in EP election - Conditioned relationship by the populist nature of the national incumbent

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.023***	(0.0082)	-0.023***	(0.0081)
Populist national incumbent	0.051***	(0.018)	0.068	(0.12)
Populist national incumb. X Log of EU funds pc			-0.0028	(0.018)
Log of GDP per capita	-0.026	(0.033)	-0.025	(0.033)
Unemployment rate	0.0028	(0.0018)	0.0028	(0.0018)
Work status ("Employed" as reference):				
In school	-0.022**	(0.010)	-0.022**	(0.010)
Working in the household	-0.0077	(0.0071)	-0.0077	(0.0071)
Retired	0.0012	(0.0048)	0.0012	(0.0048)
Unemployed	0.020***	(0.0075)	0.020***	(0.0075)
Other	0.0029	(0.010)	0.0028	(0.010)
DK refuse	0.015	(0.031)	0.015	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0065	(0.0086)	-0.0065	(0.0086)
3rd quintile	-0.035***	(0.0097)	-0.035***	(0.0097)
4th quintile	-0.042***	(0.010)	-0.043***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0092	(0.0071)	-0.0092	(0.0071)
Over 20 y.	-0.038***	(0.0085)	-0.038***	(0.0086)
Still studying	-0.0027	(0.013)	-0.0027	(0.013)
DK refuse	-0.060***	(0.010)	-0.060***	(0.010)
Female	-0.030***	(0.0035)	-0.030***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0076	(0.0053)	-0.0076	(0.0053)
45-59	-0.0066	(0.0064)	-0.0066	(0.0064)
60 and over	-0.026***	(0.0067)	-0.026***	(0.0067)
DK refuse	-0.0017	(0.016)	-0.0017	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00082	(0.0043)	-0.00082	(0.0043)
3-4 persons	0.0025	(0.0047)	0.0026	(0.0047)
5 persons and more	-0.0012	(0.0090)	-0.0013	(0.0090)
Constant	0.57	(0.35)	0.56	(0.35)
Standard deviation (Random intercept)	0.1036825		0.1034916	
Year FE	yes		yes	
Log Pseudo-likelihood	-23782.41		-23782.29	
AIC	47630.82		47632.59	
BIC	47931.31		47942.19	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A12: EU funds and populist vote in EP election - Conditioned relationship by the populist nature of the regional incumbent

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.018**	(0.0085)	-0.018**	(0.0084)
Populist regional incumbent	0.012	(0.020)	0.022	(0.074)
Populist regional incumb. X Log of EU funds pc			-0.0017	(0.012)
Log of GDP per capita	-0.031	(0.031)	-0.030	(0.031)
Unemployment rate	0.0022	(0.0018)	0.0022	(0.0019)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0079	(0.0072)	-0.0079	(0.0072)
Retired	0.0010	(0.0048)	0.0010	(0.0048)
Unemployed	0.020***	(0.0076)	0.020***	(0.0076)
Other	0.0027	(0.010)	0.0027	(0.010)
DK refuse	0.013	(0.031)	0.013	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	(0.0085)	-0.0061	(0.0085)
3rd quintile	-0.034***	(0.0097)	-0.034***	(0.0097)
4th quintile	-0.042***	(0.010)	-0.042***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0094	(0.0070)	-0.0094	(0.0071)
Over 20 y.	-0.038***	(0.0085)	-0.038***	(0.0085)
Still studying	-0.0027	(0.013)	-0.0028	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.030***	(0.0035)	-0.030***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0074	(0.0053)	-0.0074	(0.0053)
45-59	-0.0064	(0.0065)	-0.0064	(0.0065)
60 and over	-0.025***	(0.0068)	-0.025***	(0.0068)
DK refuse	0.0018	(0.015)	0.0019	(0.015)
Household size ("1 person" as reference):				
2 persons	-0.00081	(0.0044)	-0.00081	(0.0044)
3-4 persons	0.0022	(0.0047)	0.0022	(0.0047)
5 persons and more	-0.0020	(0.0091)	-0.0020	(0.0091)
Constant	0.60*	(0.34)	0.59*	(0.34)
Standard deviation (Random intercept)	0.1084591		0.1084506	
Year FE	yes		yes	
Log Pseudo-likelihood	-23815.08		-23815.03	
AIC	47696.15		47698.05	
BIC	47996.64		48007.65	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A13: EU funds and populist vote in EP election - Conditioned relationship by the populist nature of both national and regional incumbents

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.023***	(0.0084)	-0.023***	(0.0087)
Nature of regional and national incumbents ("Non-populist regional and national incumbents" as reference):				
Populist regional and national incumbents	0.038	(0.029)	0.15	(0.22)
Only populist national incumbent	0.062***	(0.023)	0.042	(0.13)
Only populist regional incumbent	-0.0013	(0.017)	-0.0023	(0.096)
Populist regional and national incumb. X Log of EU funds pc			-0.018	(0.035)
Only populist national incumb. X Log of EU funds pc			0.0030	(0.019)
Only populist regional incumb. X Log of EU funds pc			0.00022	(0.017)
Log of GDP per capita	-0.027	(0.032)	-0.025	(0.031)
Unemployment rate	0.0026	(0.0019)	0.0026	(0.0019)
Work status ("Employed" as reference):				
In school	-0.022**	(0.010)	-0.022**	(0.010)
Working in the household	-0.0077	(0.0071)	-0.0076	(0.0071)
Retired	0.0013	(0.0048)	0.0013	(0.0048)
Unemployed	0.020***	(0.0075)	0.020***	(0.0075)
Other	0.0030	(0.010)	0.0028	(0.010)
DK refuse	0.015	(0.031)	0.015	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0065	(0.0086)	-0.0065	(0.0086)
3rd quintile	-0.035***	(0.0097)	-0.035***	(0.0098)
4th quintile	-0.042***	(0.010)	-0.042***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0094	(0.0070)	-0.0094	(0.0071)
Over 20 y.	-0.038***	(0.0084)	-0.038***	(0.0085)
Still studying	-0.0027	(0.013)	-0.0028	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.031***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0076	(0.0053)	-0.0076	(0.0053)
45-59	-0.0066	(0.0064)	-0.0066	(0.0065)
60 and over	-0.026***	(0.0067)	-0.026***	(0.0067)
DK refuse	-0.0012	(0.015)	-0.0012	(0.015)
Household size ("1 person" as reference):				
2 persons	-0.00076	(0.0043)	-0.00079	(0.0043)
3-4 persons	0.0024	(0.0047)	0.0025	(0.0047)
5 persons and more	-0.0014	(0.0090)	-0.0015	(0.0090)
Constant	0.58*	(0.35)	0.56	(0.34)
Standard deviation (Random intercept)	0.1037759		0.1034592	
Year FE	yes		yes	
Log Pseudo-likelihood	-23779.85		-23778.2	
AIC	47629.7		47632.4	
BIC	47948.4		47978.42	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.D Robustness estimation tables

3.D.1 Robustness for the direct relationship between EU funds and populist vote in EP election

Table 3.A14: Direct relationship between EU funds and populist vote in EP election - Multilevel logit estimation

Populist vote	Coef.	(se)
Log of EU funds per capita	-0.14***	(0.022)
Log of GDP per capita	-0.033	(0.048)
Unemployment rate	0.0090**	(0.0045)
Work status ("Employed" as reference):		
In school	-0.15*	(0.080)
Working in the household	-0.12*	(0.062)
Retired	0.017	(0.040)
Unemployed	0.14***	(0.047)
Other	0.020	(0.078)
DK refuse	0.22	(0.25)
Household standard of living ("1st quintile" as reference):		
2nd quintile	-0.044	(0.046)
3rd quintile	-0.27***	(0.044)
4th quintile	-0.33***	(0.047)
5th quintile	-0.41***	(0.058)
DK refuse	-0.32***	(0.073)
School leaving age ("Under 15 y." as reference):		
16-19 y.	-0.10**	(0.039)
Over 20 y.	-0.35***	(0.041)
Still studying	-0.056	(0.096)
DK refuse	-0.52***	(0.082)
Female	-0.26***	(0.023)
Age ("18-29" as reference):		
30-44	-0.058	(0.043)
45-59	-0.053	(0.043)
60 and over	-0.23***	(0.051)
DK refuse	-0.55***	(0.19)
Household size ("1 person" as reference):		
2 persons	0.0052	(0.030)
3-4 persons	0.034	(0.033)
5 persons and more	0.0059	(0.067)
Constant	-0.40	(0.48)
Standard deviation (Random intercept)	0.8522946	
Year FE	yes	
Log Pseudo-likelihood	-25522.48	
AIC	51106.97	
BIC	51389.24	
Observations	66,554	

The method of estimation is multilevel logit with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A15: Direct relationship between EU funds and populist vote in EP election - Multilevel probit estimation

Populist vote	Coef.	(se)
Log of EU funds per capita	-0.081*	(0.043)
Log of GDP per capita	-0.054	(0.11)
Unemployment rate	0.0033	(0.0075)
Work status ("Employed" as reference):		
In school	-0.081	(0.050)
Working in the household	-0.061*	(0.035)
Retired	0.0044	(0.023)
Unemployed	0.086***	(0.031)
Other	0.011	(0.044)
DK refuse	0.12	(0.16)
Household standard of living ("1st quintile" as reference):		
2nd quintile	-0.020	(0.037)
3rd quintile	-0.15***	(0.041)
4th quintile	-0.19***	(0.043)
5th quintile	-0.23***	(0.053)
DK refuse	-0.18***	(0.063)
School leaving age ("Under 15 y." as reference):		
16-19 y.	-0.055*	(0.032)
Over 20 y.	-0.19***	(0.038)
Still studying	-0.033	(0.062)
DK refuse	-0.29***	(0.049)
Female	-0.15***	(0.016)
Age ("18-29" as reference):		
30-44	-0.032	(0.023)
45-59	-0.032	(0.028)
60 and over	-0.13***	(0.030)
DK refuse	-0.24**	(0.12)
Household size ("1 person" as reference):		
2 persons	0.0052	(0.022)
3-4 persons	0.021	(0.021)
5 persons and more	0.010	(0.044)
Constant	0.34	(1.25)
Variance (Random intercept)	0.2730098	
Year FE	yes	
Log Pseudo-likelihood	-25548.68	
AIC	51159.36	
BIC	51441.64	
Observations	66,554	

The method of estimation is multilevel probit with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A16: Direct relationship between EU funds and populist vote in EP election - OLS estimation with NUTS2 fixed effects

Populist vote	Coef.	(se)
Log of EU funds per capita	-0.018*	(0.0096)
Log of GDP per capita	-0.042	(0.046)
Unemployment rate	0.0014	(0.0022)
Work status ("Employed" as reference):		
In school	-0.021**	(0.010)
Working in the household	-0.0081	(0.0072)
Retired	0.0011	(0.0048)
Unemployed	0.020***	(0.0076)
Other	0.0020	(0.010)
DK refuse	0.014	(0.031)
Household standard of living ("1st quintile" as reference):		
2nd quintile	-0.0064	(0.0085)
3rd quintile	-0.035***	(0.0096)
4th quintile	-0.043***	(0.010)
5th quintile	-0.051***	(0.012)
DK refuse	-0.040***	(0.013)
School leaving age ("Under 15 y." as reference):		
16-19 y.	-0.0097	(0.0070)
Over 20 y.	-0.038***	(0.0085)
Still studying	-0.0035	(0.013)
DK refuse	-0.061***	(0.010)
Female	-0.030***	(0.0035)
Age ("18-29" as reference):		
30-44	-0.0076	(0.0053)
45-59	-0.0066	(0.0065)
60 and over	-0.026***	(0.0068)
DK refuse	0.0029	(0.017)
Household size ("1 person" as reference):		
2 persons	-0.00066	(0.0044)
3-4 persons	0.0019	(0.0047)
5 persons and more	-0.0017	(0.0090)
Constant	0.72	(0.47)
Year FE	yes	
NUTS2 FE	yes	
R squared	0.1152	
Log likelihood	-23349.03	
AIC	46756.06	
BIC	47020.12	
Observations	66,554	

The method of estimation is OLS with NUTS2 fixed effects
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A17: Direct relationship between EU funds and populist vote in EP election - Alternative EU funds

Populist vote	ERDF	ESF	EAFRD	CF
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.0097*	-0.0089	-0.011*	-0.0049
	(0.0053)	(0.0073)	(0.0059)	(0.0068)
Log of GDP per capita	-0.034	-0.034	-0.036	-0.034
	(0.030)	(0.030)	(0.033)	(0.034)
Unemployment rate	0.0024	0.0024	0.0023	0.0024
	(0.0019)	(0.0019)	(0.0019)	(0.0022)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.022**	-0.020
	(0.010)	(0.010)	(0.010)	(0.014)
Working in the household	-0.0082	-0.0083	-0.0091	-0.015
	(0.0072)	(0.0072)	(0.0075)	(0.012)
Retired	0.0014	0.0012	0.0022	0.0013
	(0.0048)	(0.0049)	(0.0047)	(0.0065)
Unemployed	0.020***	0.020***	0.021***	0.016
	(0.0076)	(0.0076)	(0.0075)	(0.010)
Other	0.0026	0.0028	0.0039	-0.025**
	(0.010)	(0.010)	(0.010)	(0.013)
DK refuse	0.012	0.013	0.0092	0.047
	(0.031)	(0.031)	(0.030)	(0.057)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0060	-0.0056	-0.0047	-0.015*
	(0.0086)	(0.0089)	(0.0086)	(0.0082)
3rd quintile	-0.034***	-0.034***	-0.033***	-0.038***
	(0.0098)	(0.010)	(0.0098)	(0.010)
4th quintile	-0.042***	-0.041***	-0.041***	-0.045***
	(0.010)	(0.011)	(0.010)	(0.011)
5th quintile	-0.050***	-0.049***	-0.048***	-0.035**
	(0.013)	(0.013)	(0.012)	(0.015)
DK refuse	-0.040***	-0.040***	-0.039***	-0.043***
	(0.013)	(0.013)	(0.013)	(0.014)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0092	-0.0093	-0.0074	-0.0053
	(0.0071)	(0.0071)	(0.0062)	(0.012)
Over 20 y.	-0.038***	-0.038***	-0.036***	-0.020
	(0.0086)	(0.0086)	(0.0077)	(0.014)
Still studying	-0.0026	-0.0030	-0.00055	0.0036
	(0.013)	(0.013)	(0.013)	(0.017)
DK refuse	-0.061***	-0.061***	-0.058***	-0.023*
	(0.010)	(0.010)	(0.010)	(0.012)
Female	-0.030***	-0.030***	-0.030***	-0.032***
	(0.0035)	(0.0035)	(0.0036)	(0.0049)
Age ("18-29" as reference):				
30-44	-0.0072	-0.0073	-0.0061	-0.016*
	(0.0053)	(0.0053)	(0.0052)	(0.0084)
45-59	-0.0060	-0.0062	-0.0056	-0.020*
	(0.0065)	(0.0065)	(0.0065)	(0.011)
60 and over	-0.025***	-0.025***	-0.026***	-0.031***
	(0.0068)	(0.0068)	(0.0068)	(0.0096)
DK refuse	0.0017	0.0018	-0.012	-0.069***
	(0.016)	(0.016)	(0.020)	(0.024)
Household size ("1 person" as reference):				
2 persons	-0.00083	-0.00096	-0.00087	0.0033
	(0.0044)	(0.0044)	(0.0044)	(0.0054)
3-4 persons	0.0020	0.0020	0.0023	0.0048
	(0.0047)	(0.0047)	(0.0048)	(0.0057)
5 persons and more	-0.0020	-0.0025	-0.0048	-0.0032
	(0.0091)	(0.0091)	(0.0086)	(0.012)
Constant	0.58*	0.57*	0.57*	0.55*
	(0.32)	(0.31)	(0.35)	(0.33)
Standard deviation (Random intercept)	0.1092698	0.1101221	0.1092194	0.1201211
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23823.18	-23832.88	-23498.86	-10961.64
AIC	47710.37	47729.76	47061.73	21987.27
BIC	48001.75	48021.14	47352.77	22256.84
Observations	66,554	66,554	65,847	33,655

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.D.2 Robustness for the conditioned relationship of EU funds with populist vote by the populist nature of the incumbent

Table 3.A18: Conditioned relationship of EU funds with populist vote by the populist nature of the national incumbent in EP election - OLS estimation with NUTS2 fixed effects

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.023**	(0.0092)	-0.023**	(0.0092)
Populist national incumbent	0.042**	(0.018)	0.024	(0.11)
Populist national incumb. X Log of EU funds pc			0.0029	(0.017)
Log of GDP per capita	-0.036	(0.050)	-0.037	(0.049)
Unemployment rate	0.0021	(0.0021)	0.0021	(0.0021)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0078	(0.0071)	-0.0079	(0.0071)
Retired	0.0013	(0.0048)	0.0013	(0.0048)
Unemployed	0.020***	(0.0075)	0.020***	(0.0075)
Other	0.0021	(0.010)	0.0022	(0.010)
DK refuse	0.015	(0.031)	0.015	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0068	(0.0085)	-0.0067	(0.0085)
3rd quintile	-0.035***	(0.0096)	-0.035***	(0.0096)
4th quintile	-0.043***	(0.010)	-0.043***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.040***	(0.013)	-0.040***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0094	(0.0070)	-0.0094	(0.0070)
Over 20 y.	-0.038***	(0.0085)	-0.038***	(0.0085)
Still studying	-0.0035	(0.013)	-0.0035	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.030***	(0.0035)	-0.030***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0078	(0.0053)	-0.0078	(0.0053)
45-59	-0.0068	(0.0064)	-0.0068	(0.0064)
60 and over	-0.026***	(0.0067)	-0.026***	(0.0067)
DK refuse	-0.00037	(0.017)	-0.00038	(0.017)
Household size ("1 person" as reference):				
2 persons	-0.00069	(0.0043)	-0.00069	(0.0043)
3-4 persons	0.0023	(0.0047)	0.0023	(0.0047)
5 persons and more	-0.00091	(0.0090)	-0.00089	(0.0090)
Constant	0.67	(0.51)	0.68	(0.50)
Year FE	yes		yes	
NUTS2 FE	yes		yes	
R squared	0.1158		0.1158	
Log likelihood	-23325.49		-23325.37	
AIC	46710.98		46712.74	
BIC	46984.15		46995.02	
Observations	66,554		66,554	

The method of estimation is OLS with NUTS2 fixed effects
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A19: Conditioned relationship of EU funds with populist vote by the populist nature of the regional incumbent in EP election - OLS estimation with NUTS2 fixed effects

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.018*	(0.0096)	-0.018*	(0.0095)
Populist regional incumbent	0.0060	(0.022)	0.012	(0.078)
Populist regional incumb. X Log of EU funds pc			-0.0010	(0.013)
Log of GDP per capita	-0.042	(0.047)	-0.041	(0.047)
Unemployment rate	0.0015	(0.0022)	0.0015	(0.0022)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0081	(0.0072)	-0.0081	(0.0072)
Retired	0.0011	(0.0048)	0.0011	(0.0048)
Unemployed	0.020***	(0.0076)	0.020***	(0.0076)
Other	0.0020	(0.010)	0.0019	(0.010)
DK refuse	0.014	(0.031)	0.014	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0064	(0.0085)	-0.0064	(0.0085)
3rd quintile	-0.035***	(0.0096)	-0.035***	(0.0096)
4th quintile	-0.043***	(0.010)	-0.043***	(0.010)
5th quintile	-0.051***	(0.012)	-0.051***	(0.012)
DK refuse	-0.040***	(0.013)	-0.040***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0096	(0.0070)	-0.0096	(0.0070)
Over 20 y.	-0.038***	(0.0084)	-0.038***	(0.0085)
Still studying	-0.0035	(0.013)	-0.0035	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.030***	(0.0035)	-0.030***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0076	(0.0053)	-0.0076	(0.0053)
45-59	-0.0066	(0.0065)	-0.0066	(0.0065)
60 and over	-0.026***	(0.0068)	-0.026***	(0.0068)
DK refuse	0.0025	(0.016)	0.0026	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00066	(0.0044)	-0.00067	(0.0044)
3-4 persons	0.0020	(0.0047)	0.0020	(0.0047)
5 persons and more	-0.0016	(0.0091)	-0.0016	(0.0091)
Constant	0.67	(0.51)	0.68	(0.50)
Year FE	yes		yes	
NUTS2 FE	yes		yes	
R squared	0.1152		0.1152	
Log likelihood	-23348.61		-23348.6	
AIC	46757.23		46759.19	
BIC	47030.4		47041.47	
Observations	66,554		66,554	

The method of estimation is OLS with NUTS2 fixed effects
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A20: Conditioned relationship of EU funds with populist vote by the populist nature of both national and regional incumbents in EP election - OLS estimation with NUTS2 fixed effects

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.023**	(0.0093)	-0.023**	(0.0093)
Nature of regional and national incumbents ("Non-populist regional and national incumbents" as reference):				
Populist regional and national incumbents	0.028	(0.030)	0.10	(0.22)
Only populist national incumbent	0.054**	(0.023)	0.0014	(0.12)
Only populist regional incumbent	-0.0081	(0.020)	-0.0078	(0.10)
Populist regional and national incumb. X Log of EU funds pc			-0.012	(0.036)
Only populist national incumb. X Log of EU funds pc			0.0082	(0.018)
Only populist regional incumb. X Log of EU funds pc			0.0000013	(0.017)
Log of GDP per capita	-0.038	(0.049)	-0.036	(0.048)
Unemployment rate	0.0018	(0.0023)	0.0018	(0.0023)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0079	(0.0071)	-0.0078	(0.0071)
Retired	0.0013	(0.0048)	0.0013	(0.0048)
Unemployed	0.020**	(0.0075)	0.020***	(0.0075)
Other	0.0023	(0.010)	0.0022	(0.010)
DK refuse	0.015	(0.031)	0.015	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0068	(0.0085)	-0.0067	(0.0085)
3rd quintile	-0.035***	(0.0097)	-0.035***	(0.0097)
4th quintile	-0.043***	(0.010)	-0.043***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0096	(0.0070)	-0.0097	(0.0070)
Over 20 y.	-0.038***	(0.0084)	-0.038***	(0.0085)
Still studying	-0.0035	(0.013)	-0.0037	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.031***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0078	(0.0053)	-0.0078	(0.0053)
45-59	-0.0068	(0.0065)	-0.0068	(0.0065)
60 and over	-0.026***	(0.0067)	-0.026***	(0.0067)
DK refuse	0.00030	(0.017)	0.00050	(0.017)
Household size ("1 person" as reference):				
2 persons	-0.00064	(0.0043)	-0.00068	(0.0043)
3-4 persons	0.0022	(0.0047)	0.0022	(0.0047)
5 persons and more	-0.0010	(0.0090)	-0.0011	(0.0090)
Constant	0.70	(0.50)	0.68	(0.49)
Year FE	yes		yes	
NUTS2 FE	yes		yes	
R squared	0.1159		0.1159	
Log likelihood	-23322.46		-23321.09	
AIC	46708.92		46712.17	
BIC	47000.31		47030.87	
Observations	66,554		66,554	

The method of estimation is OLS with NUTS2 fixed effects
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A21: Conditioned relationship of EU funds with populist vote by the populist nature of the national incumbent in EP election - Alternative EU funds (1)

Populist vote	ERDF		ESF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.012**	-0.013**	-0.012*	-0.015**
	(0.0054)	(0.0054)	(0.0070)	(0.0074)
Populist national incumbent	0.049***	0.014	0.045**	-0.048
	(0.018)	(0.066)	(0.018)	(0.058)
Populist national incumb. X Log of EU funds pc		0.0068		0.023*
		(0.012)		(0.013)
Log of GDP per capita	-0.028	-0.029	-0.028	-0.025
	(0.033)	(0.033)	(0.032)	(0.032)
Unemployment rate	0.0032*	0.0033*	0.0031*	0.0034*
	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.021**	-0.021**
	(0.010)	(0.010)	(0.010)	(0.010)
Working in the household	-0.0079	-0.0079	-0.0081	-0.0080
	(0.0071)	(0.0071)	(0.0071)	(0.0071)
Retired	0.0018	0.0019	0.0014	0.0015
	(0.0048)	(0.0048)	(0.0049)	(0.0049)
Unemployed	0.020***	0.020***	0.020***	0.020***
	(0.0075)	(0.0075)	(0.0075)	(0.0075)
Other	0.0027	0.0028	0.0029	0.0034
	(0.010)	(0.010)	(0.010)	(0.010)
DK refuse	0.013	0.013	0.014	0.014
	(0.031)	(0.031)	(0.031)	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0064	-0.0063	-0.0058	-0.0055
	(0.0087)	(0.0087)	(0.0090)	(0.0090)
3rd quintile	-0.034***	-0.034***	-0.034***	-0.033***
	(0.0098)	(0.0098)	(0.010)	(0.010)
4th quintile	-0.042***	-0.042***	-0.041***	-0.041***
	(0.010)	(0.010)	(0.011)	(0.011)
5th quintile	-0.049***	-0.049***	-0.048***	-0.048***
	(0.013)	(0.013)	(0.013)	(0.013)
DK refuse	-0.041***	-0.041***	-0.040***	-0.040***
	(0.013)	(0.013)	(0.013)	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0088	-0.0089	-0.0090	-0.0093
	(0.0071)	(0.0071)	(0.0071)	(0.0071)
Over 20 y.	-0.037***	-0.038***	-0.038***	-0.038***
	(0.0086)	(0.0086)	(0.0086)	(0.0086)
Still studying	-0.0026	-0.0026	-0.0030	-0.0031
	(0.013)	(0.013)	(0.013)	(0.013)
DK refuse	-0.061***	-0.061***	-0.061***	-0.061***
	(0.010)	(0.010)	(0.010)	(0.010)
Female	-0.030***	-0.030***	-0.030***	-0.030***
	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0074	-0.0074	-0.0075	-0.0075
	(0.0053)	(0.0053)	(0.0053)	(0.0053)
45-59	-0.0062	-0.0062	-0.0065	-0.0064
	(0.0064)	(0.0064)	(0.0064)	(0.0064)
60 and over	-0.026***	-0.026***	-0.026***	-0.026***
	(0.0067)	(0.0067)	(0.0067)	(0.0067)
DK refuse	-0.0024	-0.0025	-0.00099	0.0017
	(0.016)	(0.016)	(0.016)	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00086	-0.00085	-0.0010	-0.00095
	(0.0043)	(0.0043)	(0.0044)	(0.0044)
3-4 persons	0.0025	0.0024	0.0024	0.0022
	(0.0047)	(0.0047)	(0.0047)	(0.0047)
5 persons and more	-0.0010	-0.00097	-0.0018	-0.0016
	(0.0091)	(0.0091)	(0.0091)	(0.0091)
Constant	0.53	0.54	0.52	0.50
	(0.35)	(0.34)	(0.33)	(0.33)
Standard deviation (Random intercept)	0.103817	0.1043484	0.1052768	0.1056056
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23791.27	-23790.07	-23805.42	-23796.17
AIC	47648.54	47648.14	47676.85	47660.33
BIC	47949.03	47957.73	47977.34	47969.93
Observations	66,554	66,554	66,554	66,554

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A22: Conditioned relationship of EU funds with populist vote by the populist nature of the national incumbent in EP election - Alternative EU funds (2)

Populist vote	EAFRD		CF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.0099	-0.0089	-0.010	-0.012*
	(0.0062)	(0.0063)	(0.0064)	(0.0065)
Populist national incumbent	0.043**	0.076	0.061***	-0.19
	(0.020)	(0.077)	(0.021)	(0.13)
Populist national incumb. X Log of EU funds pc		-0.0072		0.047*
		(0.015)		(0.025)
Log of GDP per capita	-0.031	-0.027	-0.024	-0.037
	(0.036)	(0.034)	(0.037)	(0.034)
Unemployment rate	0.0031*	0.0032*	0.0037*	0.0039*
	(0.0018)	(0.0018)	(0.0019)	(0.0021)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.019	-0.020
	(0.010)	(0.010)	(0.014)	(0.014)
Working in the household	-0.0091	-0.0091	-0.014	-0.015
	(0.0074)	(0.0074)	(0.011)	(0.011)
Retired	0.0027	0.0027	0.0017	0.0015
	(0.0047)	(0.0047)	(0.0063)	(0.0063)
Unemployed	0.020***	0.020***	0.014	0.014
	(0.0075)	(0.0075)	(0.0100)	(0.010)
Other	0.0041	0.0041	-0.024*	-0.024*
	(0.010)	(0.010)	(0.012)	(0.012)
DK refuse	0.011	0.010	0.055	0.055
	(0.030)	(0.030)	(0.057)	(0.057)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0050	-0.0049	-0.015*	-0.015*
	(0.0088)	(0.0088)	(0.0082)	(0.0082)
3rd quintile	-0.033***	-0.033***	-0.038***	-0.038***
	(0.0099)	(0.0099)	(0.010)	(0.010)
4th quintile	-0.041***	-0.040***	-0.044***	-0.045***
	(0.010)	(0.011)	(0.011)	(0.011)
5th quintile	-0.047***	-0.047***	-0.035**	-0.035**
	(0.012)	(0.012)	(0.015)	(0.014)
DK refuse	-0.040***	-0.040***	-0.043***	-0.042***
	(0.013)	(0.013)	(0.014)	(0.014)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0071	-0.0070	-0.0045	-0.0048
	(0.0062)	(0.0062)	(0.012)	(0.012)
Over 20 y.	-0.036***	-0.036***	-0.020	-0.020
	(0.0077)	(0.0077)	(0.014)	(0.014)
Still studying	-0.00064	-0.00063	0.0032	0.0042
	(0.013)	(0.013)	(0.017)	(0.017)
DK refuse	-0.058***	-0.058***	-0.023*	-0.022*
	(0.010)	(0.010)	(0.012)	(0.012)
Female	-0.030***	-0.030***	-0.032***	-0.032***
	(0.0036)	(0.0036)	(0.0049)	(0.0049)
Age ("18-29" as reference):				
30-44	-0.0063	-0.0062	-0.017**	-0.016*
	(0.0052)	(0.0052)	(0.0084)	(0.0084)
45-59	-0.0058	-0.0057	-0.021**	-0.020*
	(0.0065)	(0.0065)	(0.010)	(0.010)
60 and over	-0.026***	-0.026***	-0.032***	-0.031***
	(0.0068)	(0.0068)	(0.0094)	(0.0094)
DK refuse	-0.017	-0.016	-0.072***	-0.072***
	(0.019)	(0.019)	(0.024)	(0.024)
Household size ("1 person" as reference):				
2 persons	-0.00093	-0.00090	0.0031	0.0034
	(0.0044)	(0.0044)	(0.0052)	(0.0052)
3-4 persons	0.0025	0.0026	0.0052	0.0051
	(0.0048)	(0.0049)	(0.0056)	(0.0056)
5 persons and more	-0.0042	-0.0042	-0.0017	-0.0015
	(0.0086)	(0.0086)	(0.012)	(0.012)
Constant	0.52	0.48	0.46	0.59*
	(0.37)	(0.35)	(0.35)	(0.32)
Standard deviation (Random intercept)	0.104645	0.1037878	0.1116171	0.1149884
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23473.1	-23471.49	-10924.41	-10910.5
AIC	47012.19	47010.98	21914.81	21889
BIC	47312.33	47320.21	22192.8	22175.42
Observations	65,847	65,847	33,655	33,655

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A23: Conditioned relationship of EU funds with populist vote by the populist nature of the regional incumbent in EP election - Alternative EU funds (1)

Populist vote	ERDF		ESF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.0098*	-0.0090*	-0.0090	-0.0086
	(0.0053)	(0.0050)	(0.0073)	(0.0075)
Populist regional incumbent	0.012	0.061	0.011	0.030
	(0.019)	(0.049)	(0.020)	(0.063)
Populist regional incumb. X Log of EU funds pc		-0.010		-0.0048
		(0.010)		(0.014)
Log of GDP per capita	-0.033	-0.032	-0.033	-0.033
	(0.032)	(0.031)	(0.031)	(0.031)
Unemployment rate	0.0025	0.0024	0.0025	0.0025
	(0.0018)	(0.0019)	(0.0018)	(0.0018)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.021**	-0.021**
	(0.010)	(0.010)	(0.010)	(0.010)
Working in the household	-0.0081	-0.0081	-0.0082	-0.0082
	(0.0072)	(0.0072)	(0.0072)	(0.0072)
Retired	0.0015	0.0014	0.0012	0.0013
	(0.0048)	(0.0048)	(0.0049)	(0.0049)
Unemployed	0.020***	0.020***	0.021***	0.021***
	(0.0076)	(0.0076)	(0.0076)	(0.0076)
Other	0.0026	0.0025	0.0028	0.0027
	(0.010)	(0.010)	(0.010)	(0.010)
DK refuse	0.012	0.012	0.013	0.013
	(0.031)	(0.031)	(0.031)	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0060	-0.0062	-0.0056	-0.0055
	(0.0087)	(0.0084)	(0.0089)	(0.0090)
3rd quintile	-0.034***	-0.034***	-0.034***	-0.034***
	(0.0098)	(0.0097)	(0.010)	(0.010)
4th quintile	-0.042***	-0.042***	-0.041***	-0.041***
	(0.010)	(0.010)	(0.011)	(0.011)
5th quintile	-0.050***	-0.050***	-0.049***	-0.049***
	(0.013)	(0.012)	(0.013)	(0.013)
DK refuse	-0.040***	-0.040***	-0.040***	-0.040***
	(0.013)	(0.013)	(0.013)	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0091	-0.0092	-0.0092	-0.0093
	(0.0071)	(0.0070)	(0.0071)	(0.0071)
Over 20 y.	-0.037***	-0.038***	-0.038***	-0.038***
	(0.0085)	(0.0085)	(0.0085)	(0.0086)
Still studying	-0.0026	-0.0030	-0.0030	-0.0031
	(0.013)	(0.013)	(0.013)	(0.013)
DK refuse	-0.061***	-0.061***	-0.061***	-0.061***
	(0.010)	(0.010)	(0.010)	(0.010)
Female	-0.030***	-0.030***	-0.030***	-0.030***
	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0073	-0.0073	-0.0074	-0.0074
	(0.0053)	(0.0053)	(0.0053)	(0.0053)
45-59	-0.0061	-0.0061	-0.0063	-0.0063
	(0.0065)	(0.0065)	(0.0065)	(0.0065)
60 and over	-0.025***	-0.025***	-0.026***	-0.026***
	(0.0068)	(0.0068)	(0.0068)	(0.0068)
DK refuse	0.00086	0.00090	0.0011	0.00094
	(0.016)	(0.015)	(0.016)	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00085	-0.00081	-0.00098	-0.0010
	(0.0044)	(0.0043)	(0.0044)	(0.0044)
3-4 persons	0.0021	0.0022	0.0021	0.0021
	(0.0047)	(0.0047)	(0.0047)	(0.0047)
5 persons and more	-0.0018	-0.0018	-0.0024	-0.0024
	(0.0091)	(0.0091)	(0.0091)	(0.0091)
Constant	0.57*	0.55*	0.56*	0.56*
	(0.34)	(0.33)	(0.33)	(0.33)
Standard deviation (Random intercept)	0.1084192	0.1083049	0.1093341	0.1093878
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23821.44	-23818.81	-23831.42	-23831.09
AIC	47708.87	47705.62	47728.83	47730.19
BIC	48009.36	48015.21	48029.32	48039.79
Observations	66,554	66,554	66,554	66,554

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A24: Conditioned relationship of EU funds with populist vote by the populist nature of the regional incumbent in EP election - Alternative EU funds (2)

Populist vote	EAFRD		CF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.010*	-0.011*	-0.0054	-0.0078
	(0.0060)	(0.0062)	(0.0068)	(0.0073)
Populist regional incumbent	0.014	0.0011	0.025	-0.034
	(0.023)	(0.050)	(0.029)	(0.065)
Populist regional incumb. X Log of EU funds pc		0.0030		0.012
		(0.0092)		(0.011)
Log of GDP per capita	-0.034	-0.036	-0.030	-0.034
	(0.035)	(0.034)	(0.037)	(0.037)
Unemployment rate	0.0025	0.0025	0.0027	0.0028
	(0.0019)	(0.0018)	(0.0020)	(0.0021)
Work status ("Employed" as reference):				
In school	-0.021**	-0.022**	-0.019	-0.019
	(0.010)	(0.010)	(0.014)	(0.014)
Working in the household	-0.0091	-0.0092	-0.014	-0.014
	(0.0075)	(0.0075)	(0.012)	(0.012)
Retired	0.0023	0.0023	0.0015	0.0014
	(0.0047)	(0.0046)	(0.0064)	(0.0064)
Unemployed	0.021***	0.021***	0.016	0.016
	(0.0075)	(0.0075)	(0.010)	(0.010)
Other	0.0038	0.0038	-0.025**	-0.025**
	(0.010)	(0.010)	(0.013)	(0.013)
DK refuse	0.0092	0.0095	0.047	0.047
	(0.030)	(0.029)	(0.057)	(0.057)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0047	-0.0048	-0.015*	-0.015*
	(0.0086)	(0.0084)	(0.0084)	(0.0084)
3rd quintile	-0.033***	-0.033***	-0.038***	-0.038***
	(0.0098)	(0.0096)	(0.010)	(0.010)
4th quintile	-0.041***	-0.041***	-0.045***	-0.045***
	(0.010)	(0.010)	(0.012)	(0.012)
5th quintile	-0.048***	-0.048***	-0.036**	-0.036**
	(0.012)	(0.012)	(0.015)	(0.015)
DK refuse	-0.040***	-0.040***	-0.044***	-0.045***
	(0.013)	(0.012)	(0.014)	(0.014)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0073	-0.0072	-0.0046	-0.0045
	(0.0061)	(0.0061)	(0.012)	(0.012)
Over 20 y.	-0.036***	-0.036***	-0.020	-0.020
	(0.0077)	(0.0077)	(0.014)	(0.014)
Still studying	-0.00055	-0.00028	0.0035	0.0039
	(0.013)	(0.013)	(0.017)	(0.017)
DK refuse	-0.058***	-0.058***	-0.022*	-0.022*
	(0.010)	(0.010)	(0.012)	(0.012)
Female	-0.030***	-0.030***	-0.032***	-0.032***
	(0.0036)	(0.0036)	(0.0049)	(0.0049)
Age ("18-29" as reference):				
30-44	-0.0061	-0.0062	-0.017*	-0.016*
	(0.0052)	(0.0052)	(0.0085)	(0.0085)
45-59	-0.0057	-0.0057	-0.021*	-0.021*
	(0.0065)	(0.0065)	(0.011)	(0.011)
60 and over	-0.026***	-0.026***	-0.032***	-0.032***
	(0.0069)	(0.0068)	(0.0097)	(0.0097)
DK refuse	-0.012	-0.014	-0.069***	-0.068***
	(0.019)	(0.019)	(0.024)	(0.024)
Household size ("1 person" as reference):				
2 persons	-0.00088	-0.00085	0.0031	0.0032
	(0.0044)	(0.0044)	(0.0053)	(0.0053)
3-4 persons	0.0024	0.0024	0.0050	0.0051
	(0.0048)	(0.0048)	(0.0056)	(0.0056)
5 persons and more	-0.0047	-0.0046	-0.0029	-0.0026
	(0.0086)	(0.0086)	(0.012)	(0.012)
Constant	0.55	0.57	0.51	0.56
	(0.37)	(0.35)	(0.36)	(0.35)
Standard deviation (Random intercept)	0.1082402	0.1083964	0.1170746	0.1178812
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23496.53	-23496.15	-10956.72	-10954.2
AIC	47059.07	47060.3	21979.44	21976.39
BIC	47359.21	47369.53	22257.43	22262.81
Observations	65,847	65,847	33,655	33,655

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A25: Conditioned relationship of EU funds with populist vote by the populist nature of both national and regional incumbents in EP election - Alternative EU funds (1)

Populist vote	ERDF		ESF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.012**	-0.012**	-0.012*	-0.015*
	(0.0055)	(0.0054)	(0.0072)	(0.0079)
Nature of regional and national incumbents ("Non-populist regional and national incumbents" as reference):				
Populist regional and national incumbents	0.037	0.099	0.033	-0.0053
	(0.029)	(0.13)	(0.030)	(0.12)
Only populist national incumbent	0.060***	-0.0067	0.056**	-0.051
	(0.023)	(0.075)	(0.023)	(0.063)
Only populist regional incumbent	-0.00047	0.061	-0.00000087	0.028
	(0.017)	(0.061)	(0.017)	(0.085)
Populist regional and national incumb. X Log of EU funds pc		-0.012		0.0096
		(0.025)		(0.027)
Only populist national incumb. X Log of EU funds pc		0.012		0.026*
		(0.013)		(0.014)
Only populist regional incumb. X Log of EU funds pc		-0.014		-0.0072
		(0.013)		(0.020)
Log of GDP per capita	-0.030	-0.028	-0.029	-0.027
	(0.033)	(0.032)	(0.031)	(0.032)
Unemployment rate	0.0029	0.0031	0.0028	0.0031
	(0.0019)	(0.0019)	(0.0019)	(0.0019)
Work status ("Employed" as reference):				
In school	-0.021**	-0.021**	-0.021**	-0.021**
	(0.010)	(0.010)	(0.010)	(0.010)
Working in the household	-0.0079	-0.0079	-0.0081	-0.0080
	(0.0071)	(0.0071)	(0.0071)	(0.0071)
Retired	0.0018	0.0018	0.0014	0.0015
	(0.0048)	(0.0048)	(0.0048)	(0.0049)
Unemployed	0.020***	0.020***	0.020***	0.020***
	(0.0076)	(0.0075)	(0.0075)	(0.0076)
Other	0.0028	0.0027	0.0030	0.0034
	(0.010)	(0.010)	(0.010)	(0.010)
DK refuse	0.013	0.014	0.014	0.014
	(0.031)	(0.031)	(0.031)	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0064	-0.0066	-0.0058	-0.0055
	(0.0087)	(0.0084)	(0.0090)	(0.0090)
3rd quintile	-0.034***	-0.034***	-0.034***	-0.033***
	(0.0099)	(0.0097)	(0.010)	(0.010)
4th quintile	-0.042***	-0.042***	-0.041***	-0.041***
	(0.010)	(0.010)	(0.011)	(0.011)
5th quintile	-0.049***	-0.050***	-0.048***	-0.048***
	(0.013)	(0.012)	(0.013)	(0.013)
DK refuse	-0.040***	-0.040***	-0.040***	-0.039***
	(0.013)	(0.013)	(0.014)	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0090	-0.0093	-0.0092	-0.0096
	(0.0070)	(0.0071)	(0.0070)	(0.0071)
Over 20 y.	-0.038***	-0.038***	-0.038***	-0.038***
	(0.0085)	(0.0085)	(0.0085)	(0.0085)
Still studying	-0.0026	-0.0033	-0.0030	-0.0033
	(0.013)	(0.013)	(0.013)	(0.013)
DK refuse	-0.061***	-0.061***	-0.061***	-0.062***
	(0.010)	(0.010)	(0.010)	(0.010)
Female	-0.030***	-0.030***	-0.030***	-0.030***
	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0075	-0.0074	-0.0075	-0.0075
	(0.0053)	(0.0053)	(0.0053)	(0.0053)
45-59	-0.0062	-0.0061	-0.0064	-0.0064
	(0.0065)	(0.0065)	(0.0064)	(0.0064)
60 and over	-0.026***	-0.026***	-0.026***	-0.026***
	(0.0067)	(0.0067)	(0.0067)	(0.0067)
DK refuse	-0.0020	-0.0024	-0.00051	0.0020
	(0.016)	(0.016)	(0.016)	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00081	-0.00079	-0.00095	-0.00095
	(0.0043)	(0.0043)	(0.0044)	(0.0044)
3-4 persons	0.0023	0.0024	0.0022	0.0020
	(0.0047)	(0.0047)	(0.0047)	(0.0047)
5 persons and more	-0.0011	-0.0010	-0.0019	-0.0018
	(0.0091)	(0.0090)	(0.0091)	(0.0091)
Constant	0.54	0.52	0.53	0.52
	(0.34)	(0.34)	(0.33)	(0.34)
Standard deviation (Random intercept)	0.1038926	0.104334	0.1053545	0.1059444
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23788.93	-23781.69	-23803.08	-23792.45
AIC	47647.87	47639.38	47676.15	47660.9
BIC	47966.57	47985.4	47994.85	48006.92
Observations	66,554	66,554	66,554	66,554

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A26: Conditioned relationship of EU funds with populist vote by the populist nature of both national and regional incumbents in EP election - Alternative EU funds (2)

Populist vote	EAFRD		CF	
	Overall	Interaction	Overall	Interaction
	Coef./(se)	Coef./(se)	Coef./(se)	Coef./(se)
Log of EU funds per capita	-0.010	-0.0093	-0.010	-0.011
	(0.0063)	(0.0065)	(0.0066)	(0.0073)
Nature of regional and national incumbents ("Non-populist regional and national incumbents" as reference):				
Populist regional and national incumbents	0.035	0.056	0.051	-0.43**
	(0.037)	(0.15)	(0.031)	(0.19)
Only populist national incumbent	0.051**	0.087	0.073***	0.12
	(0.022)	(0.089)	(0.028)	(0.12)
Only populist regional incumbent	0.0037	-0.015	-0.0026	0.031
	(0.018)	(0.049)	(0.029)	(0.060)
Populist regional and national incumb. X Log of EU funds pc		-0.0044		0.093***
		(0.032)		(0.035)
Only populist national incumb. X Log of EU funds pc		-0.0076		-0.0070
		(0.018)		(0.021)
Only populist regional incumb. X Log of EU funds pc		0.0048		-0.0012
		(0.011)		(0.012)
Log of GDP per capita	-0.032	-0.030	-0.025	-0.059
	(0.036)	(0.028)	(0.037)	(0.037)
Unemployment rate	0.0029	0.0030*	0.0034*	0.0027
	(0.0020)	(0.0018)	(0.0021)	(0.0020)
Work status ("Employed" as reference):				
In school	-0.021**	-0.022**	-0.019	-0.020
	(0.010)	(0.010)	(0.014)	(0.014)
Working in the household	-0.0090	-0.0092	-0.015	-0.016
	(0.0074)	(0.0073)	(0.011)	(0.011)
Retired	0.0027	0.0027	0.0017	0.00059
	(0.0047)	(0.0046)	(0.0063)	(0.0062)
Unemployed	0.020***	0.020***	0.014	0.014
	(0.0075)	(0.0076)	(0.010)	(0.010)
Other	0.0041	0.0040	-0.024*	-0.023*
	(0.010)	(0.010)	(0.012)	(0.012)
DK refuse	0.011	0.011	0.056	0.054
	(0.030)	(0.030)	(0.056)	(0.056)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0049	-0.0051	-0.015*	-0.014*
	(0.0088)	(0.0085)	(0.0083)	(0.0083)
3rd quintile	-0.033***	-0.033***	-0.037***	-0.037***
	(0.0099)	(0.0098)	(0.010)	(0.010)
4th quintile	-0.040***	-0.041***	-0.044***	-0.043***
	(0.011)	(0.010)	(0.012)	(0.011)
5th quintile	-0.047***	-0.047***	-0.034**	-0.033**
	(0.012)	(0.012)	(0.015)	(0.015)
DK refuse	-0.040***	-0.040***	-0.042***	-0.041***
	(0.013)	(0.013)	(0.014)	(0.015)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0072	-0.0070	-0.0049	-0.0053
	(0.0061)	(0.0061)	(0.012)	(0.012)
Over 20 y.	-0.036***	-0.036***	-0.021	-0.020
	(0.0076)	(0.0077)	(0.014)	(0.014)
Still studying	-0.00069	-0.00025	0.0032	0.0052
	(0.013)	(0.013)	(0.017)	(0.017)
DK refuse	-0.058***	-0.058***	-0.024**	-0.022*
	(0.010)	(0.010)	(0.012)	(0.012)
Female	-0.030***	-0.030***	-0.032***	-0.032***
	(0.0036)	(0.0036)	(0.0050)	(0.0050)
Age ("18-29" as reference):				
30-44	-0.0063	-0.0064	-0.017**	-0.016*
	(0.0052)	(0.0052)	(0.0084)	(0.0084)
45-59	-0.0058	-0.0058	-0.021*	-0.020*
	(0.0065)	(0.0065)	(0.011)	(0.010)
60 and over	-0.026***	-0.026***	-0.032***	-0.031***
	(0.0068)	(0.0068)	(0.0095)	(0.0094)
DK refuse	-0.017	-0.017	-0.072***	-0.071***
	(0.019)	(0.020)	(0.024)	(0.024)
Household size ("1 person" as reference):				
2 persons	-0.00089	-0.00082	0.0032	0.0036
	(0.0044)	(0.0044)	(0.0052)	(0.0052)
3-4 persons	0.0024	0.0026	0.0051	0.0046
	(0.0048)	(0.0049)	(0.0056)	(0.0056)
5 persons and more	-0.0043	-0.0042	-0.0019	-0.0016
	(0.0086)	(0.0086)	(0.012)	(0.012)
Constant	0.53	0.50*	0.48	0.79**
	(0.38)	(0.30)	(0.36)	(0.35)
Standard deviation (Random intercept)	0.1045552	0.10378	0.112019	0.115268
Year FE	yes	yes	yes	yes
Log Pseudo-likelihood	-23471.84	-23469.53	-10922.61	-10896.97
AIC	47013.68	47015.07	21915.23	21869.95
BIC	47332.01	47360.68	22210.06	22190.06
Observations	65,847	65,847	33,655	33,655

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.E Discussion estimation tables

Table 3.A27: EU funds and populist vote in EP election - Conditioned relationship by the level of NUTS2 GDP per capita

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.022**	(0.0097)	-0.027**	(0.012)
Low NUTS2 GDP per capita	0.029	(0.021)	-0.0034	(0.072)
Low NUTS2 GDP per capita X Log of EU funds pc			0.0054	(0.013)
Unemployment rate	0.0026*	(0.0015)	0.0026*	(0.0015)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0088	(0.0069)	-0.0089	(0.0069)
Retired	0.0013	(0.0048)	0.0013	(0.0048)
Unemployed	0.020***	(0.0076)	0.020***	(0.0076)
Other	0.0024	(0.010)	0.0023	(0.010)
DK refuse	0.011	(0.030)	0.012	(0.030)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0060	(0.0085)	-0.0061	(0.0085)
3rd quintile	-0.035***	(0.0096)	-0.035***	(0.0096)
4th quintile	-0.042***	(0.010)	-0.042***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.040***	(0.013)	-0.040***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0089	(0.0071)	-0.0089	(0.0071)
Over 20 y.	-0.038***	(0.0086)	-0.038***	(0.0085)
Still studying	-0.0027	(0.013)	-0.0027	(0.013)
DK refuse	-0.060***	(0.011)	-0.060***	(0.011)
Female	-0.031***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0073	(0.0053)	-0.0073	(0.0053)
45-59	-0.0063	(0.0064)	-0.0063	(0.0064)
60 and over	-0.026***	(0.0067)	-0.026***	(0.0067)
DK refuse	0.0078	(0.016)	0.0062	(0.015)
Household size ("1 person" as reference):				
2 persons	-0.00079	(0.0044)	-0.00083	(0.0044)
3-4 persons	0.0023	(0.0047)	0.0023	(0.0047)
5 persons and more	-0.0022	(0.0090)	-0.0023	(0.0090)
Constant	0.30***	(0.061)	0.32***	(0.063)
Standard deviation (Random intercept)	0.1083639		0.1083125	
Year FE	yes		yes	
Log Pseudo-likelihood	-23819.68		-23819.21	
AIC	47703.37		47704.41	
BIC	47994.75		48004.9	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A28: EU funds and populist vote in EP election - Conditioned relationship by the level of NUTS2 unemployment rate

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.020**	(0.0080)	-0.021***	(0.0073)
High NUTS2 unemployment rate	-0.0092	(0.013)	-0.022	(0.051)
High NUTS2 unemployment rate X Log of EU funds pc			0.0022	(0.0082)
Log of GDP per capita	-0.041	(0.029)	-0.041	(0.029)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.021**	(0.010)
Working in the household	-0.0087	(0.0071)	-0.0087	(0.0072)
Retired	0.00093	(0.0048)	0.00088	(0.0048)
Unemployed	0.021***	(0.0075)	0.021***	(0.0075)
Other	0.0029	(0.010)	0.0029	(0.010)
DK refuse	0.014	(0.031)	0.014	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	(0.0084)	-0.0061	(0.0084)
3rd quintile	-0.035***	(0.0095)	-0.035***	(0.0095)
4th quintile	-0.043***	(0.010)	-0.043***	(0.010)
5th quintile	-0.051***	(0.012)	-0.051***	(0.012)
DK refuse	-0.040***	(0.013)	-0.040***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0095	(0.0069)	-0.0094	(0.0069)
Over 20 y.	-0.038***	(0.0084)	-0.038***	(0.0083)
Still studying	-0.0040	(0.013)	-0.0040	(0.013)
DK refuse	-0.061***	(0.011)	-0.061***	(0.010)
Female	-0.030***	(0.0035)	-0.030***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0076	(0.0053)	-0.0075	(0.0053)
45-59	-0.0066	(0.0065)	-0.0065	(0.0065)
60 and over	-0.026***	(0.0068)	-0.026***	(0.0067)
DK refuse	0.0034	(0.016)	0.0033	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00076	(0.0043)	-0.00076	(0.0043)
3-4 persons	0.0025	(0.0046)	0.0025	(0.0046)
5 persons and more	-0.0018	(0.0090)	-0.0019	(0.0090)
Constant	0.73**	(0.30)	0.74**	(0.29)
Standard deviation (Random intercept)	0.1124187		0.1123113	
Year FE	yes		yes	
Log Pseudo-likelihood	-23821.42		-23821.18	
AIC	47706.85		47708.36	
BIC	47998.23		48008.85	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A29: EU funds and populist vote in EP election - Conditioned relationship by being Cohesion Fund eligible

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.017*	(0.0088)	-0.025**	(0.010)
Being CF eligible	-0.022	(0.042)	-0.081	(0.083)
Being CF eligible X Log of EU funds pc			0.010	(0.012)
Log of GDP per capita	-0.036	(0.038)	-0.038	(0.038)
Unemployment rate	0.0020	(0.0020)	0.0020	(0.0020)
Work status ("Employed" as reference):				
In school	-0.022**	(0.010)	-0.022**	(0.010)
Working in the household	-0.0081	(0.0072)	-0.0080	(0.0071)
Retired	0.00099	(0.0048)	0.00092	(0.0048)
Unemployed	0.020***	(0.0076)	0.020***	(0.0075)
Other	0.0027	(0.010)	0.0025	(0.010)
DK refuse	0.013	(0.030)	0.015	(0.031)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	(0.0085)	-0.0061	(0.0085)
3rd quintile	-0.034***	(0.0097)	-0.034***	(0.0097)
4th quintile	-0.042***	(0.010)	-0.042***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0095	(0.0071)	-0.0096	(0.0071)
Over 20 y.	-0.038***	(0.0085)	-0.038***	(0.0085)
Still studying	-0.0028	(0.013)	-0.0028	(0.013)
DK refuse	-0.061***	(0.010)	-0.061***	(0.010)
Female	-0.030***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0074	(0.0053)	-0.0073	(0.0053)
45-59	-0.0063	(0.0065)	-0.0063	(0.0065)
60 and over	-0.025***	(0.0068)	-0.025***	(0.0068)
DK refuse	0.0020	(0.016)	-0.0016	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.00077	(0.0044)	-0.00084	(0.0044)
3-4 persons	0.0021	(0.0047)	0.0021	(0.0047)
5 persons and more	-0.0021	(0.0090)	-0.0023	(0.0090)
Constant	0.65	(0.40)	0.71*	(0.40)
Standard deviation (Random intercept)	0.1091322		0.1087847	
Year FE	yes		yes	
Log Pseudo-likelihood	-23816.11		-23814.64	
AIC	47698.22		47697.27	
BIC	47998.71		48006.87	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A30: EU funds and populist vote in EP election - Conditioned relationship by the voter's unemployed status

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.018**	(0.0085)	-0.017**	(0.0084)
Unemployed	0.022***	(0.0075)	0.11***	(0.042)
Unemployed X Log of EU funds pc			-0.015**	(0.0067)
Log of GDP per capita	-0.032	(0.030)	-0.032	(0.030)
Unemployment rate	0.0021	(0.0019)	0.0021	(0.0019)
Household standard of living ("1st quintile" as reference):				
2nd quintile	-0.0061	(0.0085)	-0.0060	(0.0085)
3rd quintile	-0.034***	(0.0096)	-0.034***	(0.0096)
4th quintile	-0.042***	(0.010)	-0.042***	(0.010)
5th quintile	-0.050***	(0.012)	-0.050***	(0.012)
DK refuse	-0.039***	(0.013)	-0.039***	(0.013)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0088	(0.0071)	-0.0089	(0.0071)
Over 20 y.	-0.037***	(0.0084)	-0.037***	(0.0084)
Still studying	-0.017	(0.011)	-0.017	(0.011)
DK refuse	-0.068***	(0.011)	-0.069***	(0.011)
Female	-0.031***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0050	(0.0051)	-0.0051	(0.0051)
45-59	-0.0038	(0.0064)	-0.0039	(0.0064)
60 and over	-0.022***	(0.0066)	-0.022***	(0.0066)
DK refuse	0.0056	(0.015)	0.0058	(0.015)
Household size ("1 person" as reference):				
2 persons	-0.00087	(0.0043)	-0.00068	(0.0043)
3-4 persons	0.0019	(0.0047)	0.0022	(0.0047)
5 persons and more	-0.0024	(0.0090)	-0.0021	(0.0090)
Constant	0.61*	(0.33)	0.60*	(0.33)
Standard deviation (Random intercept)	0.1093252		0.1093174	
Year FE	yes		yes	
Log Pseudo-likelihood	-23820.64		-23816.25	
AIC	47695.28		47688.5	
BIC	47941.13		47943.46	
Observations	66,554		66,554	

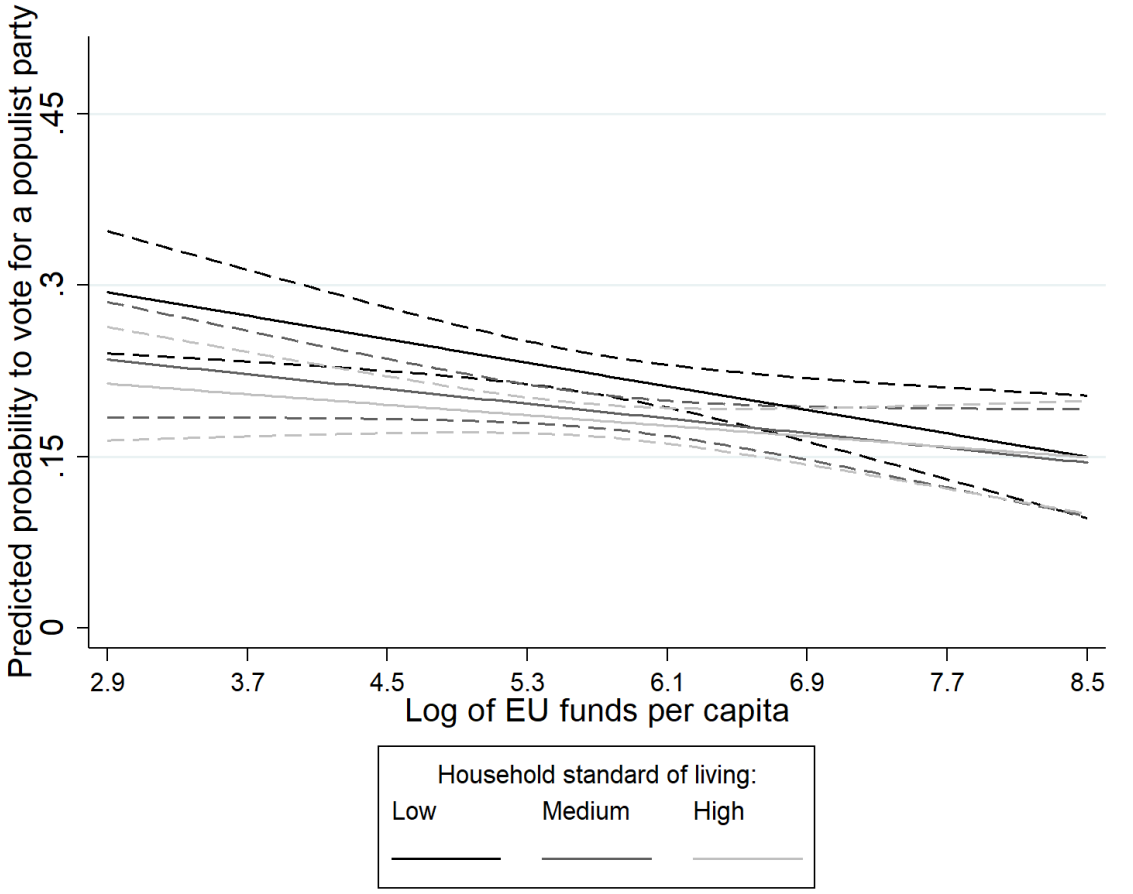
The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.A31: EU funds and populist vote in EP election - Conditioned relationship by the voter's household standard of living

Populist vote	Overall		Interaction	
	Coef.	(se)	Coef.	(se)
Log of EU funds per capita	-0.018**	(0.0085)	-0.026***	(0.0092)
Household standard of living ("Low" as reference):				
Medium	-0.030***	(0.0054)	-0.087***	(0.024)
High	-0.040***	(0.0061)	-0.12***	(0.024)
DK refuse	-0.035***	(0.0092)	-0.045	(0.039)
Medium HH standard of living X Log of EU funds pc			0.0096**	(0.0039)
High HH standard of living X Log of EU funds pc			0.014***	(0.0040)
DK refuse X Log of EU funds pc			0.0013	(0.0066)
Log of GDP per capita	-0.032	(0.030)	-0.031	(0.030)
Unemployment rate	0.0021	(0.0019)	0.0022	(0.0019)
Work status ("Employed" as reference):				
In school	-0.021**	(0.010)	-0.022**	(0.010)
Working in the household	-0.0078	(0.0072)	-0.0083	(0.0072)
Retired	0.0011	(0.0048)	0.00064	(0.0047)
Unemployed	0.021***	(0.0077)	0.020***	(0.0077)
Other	0.0031	(0.010)	0.0021	(0.010)
DK refuse	0.013	(0.030)	0.013	(0.031)
School leaving age ("Under 15 y." as reference):				
16-19 y.	-0.0096	(0.0071)	-0.0097	(0.0070)
Over 20 y.	-0.038***	(0.0086)	-0.038***	(0.0085)
Still studying	-0.0029	(0.013)	-0.0027	(0.013)
DK refuse	-0.061***	(0.010)	-0.060***	(0.010)
Female	-0.030***	(0.0035)	-0.031***	(0.0035)
Age ("18-29" as reference):				
30-44	-0.0072	(0.0053)	-0.0070	(0.0053)
45-59	-0.0062	(0.0065)	-0.0058	(0.0065)
60 and over	-0.025***	(0.0068)	-0.024***	(0.0068)
DK refuse	0.0025	(0.016)	0.0018	(0.016)
Household size ("1 person" as reference):				
2 persons	-0.0011	(0.0043)	-0.00035	(0.0043)
3-4 persons	0.0017	(0.0046)	0.0025	(0.0046)
5 persons and more	-0.0025	(0.0089)	-0.0017	(0.0089)
Constant	0.61*	(0.33)	0.64**	(0.33)
Standard deviation (Random intercept)	0.1092685		0.1090307	
Year FE	yes		yes	
Log Pseudo-likelihood	-23818.46		-23807.53	
AIC	47696.92		47681.06	
BIC	47970.09		47981.55	
Observations	66,554		66,554	

The method of estimation is MLE with random effects of NUTS2
Clustered standard errors at NUTS2 level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.A12: Conditioned predicted effect of EU funds per capita on the probability to vote for a populist party in EP election by the voter's household standard of living with 90 % confidence interval



Notes. The prediction is made with the interaction model presented in Table 3.A31.

General conclusion

By positioning this thesis on the political economy of populism, we directly address the issues raised by populism in advanced democracies. Indeed, populism is dangerous for democracies and costly for their economies (Müller, 2016). The main objectives of this thesis are to explore the economic explanations of the rise of populism in advanced democracies in Europe and in the USA. More precisely, we provide some answers to that question: how do economic factors and policies explain populism?

While a strand of the literature documents populism in terms of supply of populism (i.e. populist parties and actors) and of bad economic and political consequences, this thesis focuses on demand of populism (i.e. populist attitudes and populist votes). Populist demand is increasing for several economic reasons. First, populist successes can be explained by structural reasons such as the globalisation of the economy with the industrial decline (e.g. Autor, Dorn, and Hanson, 2013; Autor, Dorn, Hanson, and Majlesi, 2020; Dijkstra, Poelman, and Rodríguez-Pose, 2020; Barone and Kreuter, 2021; Dippel et al., 2022), automation (C. B. Frey, Berger, and C. Chen, 2018; Im et al., 2019), social networks and new communication technologies (Liberini et al., 2020; Guriev, Melnikov, and Zhuravskaya, 2021). Second, economic cycles also contribute to the

rise of populism. In particular, populism thrives in bad economic situations, such as financial crises, low growth, high unemployment or economic insecurity (e.g. Funke, Schularick, and Trebesch, 2016; Algan et al., 2017; Becker, Fetzer, and Novy, 2017; Guiso et al., 2017; Guriev and Papaioannou, 2020). Third, economists also demonstrate that immigration has a significant impact on the right-wing populist vote (e.g. Becker and Fetzer, 2016; Brunner and A. Kuhn, 2018; Dustmann, Vasiljeva, and Damm, 2019; Edo et al., 2019). Finally, with the "cultural backlash" theory of Norris and Inglehart (2019), the literature reveals that populism can also be explained by a cultural factor, i.e. the backlash among conservatives towards progressive values that have been spreading since the 1970s.

In this thesis, we study the demand of populism by examining first populist attitudes (chapter 1) and then populist votes (chapters 2 and 3). We provide empirical evidence that economic factors and policies can explain the demand of populism. In the following general conclusion, we present the main results of each thesis chapter and their contributions to the literature before suggesting some possible research perspectives from this study.

Main results and contributions of the thesis

Chapter 1 In this chapter, we analyse the relationship between populist attitudes (measured by democracy support) and income inequality. We contribute to reconciling the theoretical and the empirical literature on the relationship between income inequality and democracy support by exploring the mechanisms that link these two

variables.

On the one hand, we find that greater egotropic income inequality directly leads to both lower satisfaction with democracy and stronger support for alternative political systems to democracy, confirming what the empirical literature finds (Andersen, 2012; Schäfer, 2013; Soci, Maccagnan, and Mantovani, 2014; Kang, 2015; Wu and Chang, 2019). In other words, greater egotropic income inequality corresponds to stronger populist attitudes, at individual level.

On the other hand, we also highlight that the effects of sociotropic and egotropic income inequality on democracy support are significantly conditioned by partisanship: at a given level of income inequality, as they are less sensitive to income inequality than left-wing partisans, right-wing partisans share a significantly stronger democracy support. This echoes the theoretical positive effect of income inequality on democracy support (Boix, 2003; Dalton, 2004; Acemoglu and Robinson, 2006).

In short, like Krieckhaus et al. (2014), we bring additional evidence of the ambivalent relationship between income inequality and democracy support; this ambivalence is partly conditioned by the scope of democracy measured here by partisanship.

Chapter 2 In this chapter, we analyse one particular economic factor to explain populist vote in national elections: unemployment. The literature already assesses that unemployment explains populist vote, i.e. higher unemployment leads to higher vote share for populist parties and Leave vote (e.g. Algan et al., 2017; Becker, Fetzer, and Novy, 2017; Im et al., 2019; S. Chen, 2020). However, as far as we know, the economic populist vote literature considers that right-wing and left-wing populist economic

drivers are similar. We believe that this approach is reductive as the relationship could be more complex. As a consequence, in this chapter, we investigate unemployment not only as a common explanation of both right-wing and left-wing populist votes but also as a distinguishing explanation between these two populist votes.

Analysing French presidential elections from 2002 to 2017 through French presidential Election Studies (FES), we go further than Algan et al. (2017) on two points. On the one hand, we deal simultaneously with different aspects of unemployment: egotropic/sociotropic unemployment, current/accumulated unemployment and voters' own explanation of unemployment. We find, like Algan et al. (2017), a direct positive link between unemployment (in different simultaneous aspects) and populist vote in general, whatever the political side (right-wing or left-wing). On the other hand, by including the vote for the incumbent and for the mainstream opposition and using multinomial and nested logit estimations, we take into account the entire political space and its influence on the populist vote. Thus, we contribute to the literature by arguing that the distinction between the two sides of populism only lies on the voters' own explanation of unemployment: immigration for right-wing populist voters and the lack of state intervention in the economy for left-wing populist voters. We even go further with nested logit estimations by demonstrating an indirect effect of unemployment on populist vote via the mainstream parties channel: in case of high unemployment, the electoral failure of mainstream parties indirectly increases populist vote. Hence the necessity to take into account the entire political space when analysing the populist vote.

Chapter 3 In this chapter, we analyse the relationship between the European funds public policy and populist vote in EP elections from the 2004 great enlargement to the last EP election in 2019. We are motivated by the fact that there is no empirical consensus in the literature regarding the link of EU funds with populist vote in Europe (e.g. Fidrmuc, Hulényi, and Tunali, 2016; Becker, Fetzer, and Novy, 2017; Willett et al., 2019; Crescenzi, Di Cataldo, and Giua, 2020; Hlatky, 2020; Albanese, Barone, and de Blasio, 2022). In addition to testing the direct relationship between EU funds and populist vote, thanks to sufficiently recent data, we can test for the first time whether this relationship changes when the national or regional incumbent is populist. With this study, we would like to verify whether the EU funds efficiency as demonstrated in the literature (e.g. Bachtrögler, Fratesi, and Perucca, 2020; Crescenzi and Giua, 2020; Fattorini, Ghodsi, and Rungi, 2020) benefits the incumbent, whatever his populist or non-populist nature.

Analysing cross-sectionally for the first time four EP elections simultaneously, we provide further important evidence of the negative link between EU funds and populist vote, thus confirming the results of Garry and Tilley (2009), Bachtrögler and Oberhofer (2018) and Albanese, Barone, and de Blasio (2022). In particular, we find that one-percentage-point increase in EU funds per capita at NUTS2 level during the last mandate *ceteris paribus* is associated with a lower individual probability to vote for a populist party in EP election by around 2 %.

Nevertheless, we do not find any empirical evidence of a differential effect of EU funds between populist and non-populist incumbents: whatever the nature of the

incumbent (populist or non-populist), EU funds always have a negative link with populist vote in EP election, at voter level. This conditioned relationship will have to be tested again in further research.

Research avenues

The three chapters of this thesis contribute to the existing literature in political economy of populism. Chapter 1 provides additional insights into populist attitudes measured by democracy support. Chapter 2 proposes a new methodology to estimate populist vote by taking into account the entire political space. Finally, chapter 3 considers for the first time the populist nature of the incumbent regarding the link between public policy and populist vote. These three chapters contribute to fuel the debate on current policy questions: the economic origins of the rise of populist demand, the questioning of democracy by citizens and the influence of populist leaders on vote. In light of the results obtained, this thesis opens up research perspectives that fall into four categories.

Lack of confidence in democracy and populist vote In this thesis, we analyse separately populist attitudes (in chapter 1) and populist vote (in chapters 2 and 3). But it might be interesting in further research to analyse the link between populist attitudes and populist vote. In particular, one could ask the question: does adopting populist attitudes necessarily lead to voting for a populist party?

This question refers to two evidences shown in the political economy literature. On the one hand, satisfaction with democracy is positively linked with turnout (e.g.

Anderson and Guillory, 1997; Norris, 2002; M. N. Franklin, 2004; Ezrow and Xezonakis, 2016). As a consequence, the adoption of populist attitudes (i.e. being dissatisfied with democracy) can lead to lower turnout and therefore does not affect the vote for populist parties. On the other hand, the literature demonstrates that voters with populist attitudes are more prone to vote for a populist party (e.g. Akkerman, Mudde, and Zaslove, 2014; Van Hauwaert and Van Kessel, 2018; Marcos-Marne, Plaza-Colodro, and Freyburg, 2020).

Therefore, it would be interesting to test whether the overall effect of populist attitudes on populist party vote share is positive (i.e. mostly explained by the direct channel) or negative (i.e. mostly explained by the indirect turnout channel).

Populist votes versus mainstream votes In chapter 2, we emphasise that it is essential to take into account the entire political space in order to study populist vote. We argue that populist parties have gained voters due to the electoral failure of mainstream parties. Therefore, considering the entire political space corrects the information bias regarding the vote for a populist party. Indeed, we do not agree with the literature that presents voting for a populist party as a binary choice (e.g. Algan et al., 2017; Guiso et al., 2017; Bossert et al., 2019; Im et al., 2019). We argue that this populist vote is a multinomial choice between several candidates. Therefore, it would be relevant to keep taking into account the entire political space when estimating populist vote.

Furthermore, it might be interesting to study conversely the mainstream vote versus the populist one, i.e. do mainstream parties actually lose vote shares when a new or additional populist party enters the political competition? And if it is verified, how

can mainstream parties reduce the loss of vote shares? Should they ignore the populist party or on the contrary debate with it as with any other party?

Distinction between populist votes In chapter 2, we demonstrate that unemployment does not only explain both wings of populism (right-wing and left-wing) but also their distinction through the voters' own explanation of unemployment. In that chapter, we also gather under the same banner and without distinction all right-wing populist parties on the one hand and all left-wing populist parties on the other hand. However, in France, there is an asserted distinction between left-wing populist parties. For example, the French Communist Party refused to ally with Jean-Luc Mélenchon in the last French presidential election in 2022, stating that his political platform differs from theirs. But what about their voters? Are they significantly different?

These questions can also be asked about right-wing populist voters, especially between those of Marine Le Pen and those of Eric Zemmour: are their voting motivations significantly different?

Vote buying by populist parties The literature demonstrates that public policy can buy voters, especially through European funds (e.g. Osterloh, 2011; Papp, 2019; Dąbrowski, Stead, and Mashhoodi, 2019; Borin, Macchi, and Mancini, 2020). Therefore, in chapter 3, we investigate whether populist policy incumbents can also buy voters, by promoting populism at the European and regional levels. We unfortunately do not find any evidence for such a hypothesis.

However, we suggest that populist parties can buy voters otherwise, in particular

with national economic policy that stimulates growth and employment. This echoes the electoral success of the incumbent in the context of good national economic performance (e.g. Brug, Eijk, and M. Franklin, 2007; Brender and Drazen, 2008; Lewis-Beck and Stegmaier, 2013; Lewis-Beck and Stegmaier, 2019). The case of Hungary and Poland are particularly interesting as populist parties have been re-elected several times in those two countries. For example, Viktor Orbán is currently in his fourth term. How can economists explain this electoral success? How did Viktor Orbán manage to buy voters?

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Colophon

Doctoral dissertation entitled “Trois essais en Économie politique du Populisme”, written by Laura Duthilleul, completed on January 2, 2023, typeset with the document preparation system LaTeX and the yathesis class dedicated to theses prepared in France.

Trois essais en Économie politique du Populisme
Comment les facteurs et politiques économiques expliquent-ils le populisme ?

Abstract

This thesis seeks to empirically explain the rise of populism in advanced democracies. We focus our analysis on the demand of populism, materialised by populist vote, but also more generally by populist attitudes. The first chapter studies the link between income inequality and one aspect of populist attitudes, namely distrust of democracy. We find that greater income inequality corresponds to lower support for democracy and stronger support for alternative regimes (military, autocratic or technocratic). Furthermore, we highlight a partisan effect amplifying this relationship: at a given level of income inequality, as they are more sensitive to income inequality than right-wing partisans, left-wing partisans are also less supportive of democracy. The second chapter aims to test whether unemployment only explains populist vote in general or whether it also explains the distinction between right-wing and left-wing populist votes. By analysing the French presidential elections, we show that unemployment actually leads voters to choose any populist parties but that the choice between right-wing and left-wing populisms is exclusively determined by the voters' own explanation of unemployment. Finally, the third chapter examines the relationship between European funds and populist vote in EP elections since 2004. We provide major evidence of the negative link between EU funds and populist vote, regardless of the populist nature of the national/regional incumbent.

Keywords: Populism, Economic Vote, Democracy support, Unemployment, European funds, Inequality

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Three essays on Political Economy of Populism
How do economic factors and policies explain populism ?

Résumé

Cette thèse cherche à expliquer de façon empirique la montée du populisme dans les démocraties avancées. Plus particulièrement, nous nous intéressons à la demande de populisme matérialisée par le vote populiste mais aussi et plus largement par les attitudes populistes. Le premier chapitre analyse le lien entre les inégalités de revenus et une facette de l'attitude populiste qui est la défiance vis-à-vis de la démocratie. Nous trouvons que plus d'inégalités de revenus correspond à moins de soutien à la démocratie et plus de soutien à des régimes alternatifs (militaire, autocratique ou technocratique). Par ailleurs, nous mettons en évidence un effet partisan amplificateur sur cette relation : pour un même niveau d'inégalités, les répondants à gauche du spectre politique sont plus sensibles aux inégalités de revenus et donc soutiennent moins la démocratie. Le deuxième chapitre a pour objectif de vérifier si le chômage explique le vote populiste en général mais aussi son clivage gauche/droite. En analysant les élections présidentielles françaises, nous montrons que le chômage amène les électeurs à voter pour n'importe quel parti populiste, de droite comme de gauche. Le choix entre ces deux populismes réside exclusivement dans l'explication de chômage donnée par les électeurs. Enfin, le troisième chapitre explicite la relation des fonds européens avec le vote populiste lors des élections européennes depuis 2004. Nous apportons une preuve conséquente du lien négatif entre les fonds européens et le vote populiste, et ce quelle que soit l'idéologie politique du gouvernement national/régional en place (populiste ou non populiste).

Mots clés : Populisme, Économie du vote, Soutien à la démocratie, Chômage, Fonds européens, Inégalités

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