Adversarial economic preferences predict right-wing voting

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Abstract

I analyze Dutch panel data that contains rich information on voting, political opinions, and personality traits. I show that "adversarial" preferences – competitiveness, negative reciprocity, distrust, and selfishness – are strong predictors of right-wing and populist political preferences. Their explanatory power is similar to that of a rich set of socioeconomic status indicators – including income, education and occupation – and robust to non-parametrically controlling for them. I replicate previously studied associations between classic personality traits and political preferences, and show that adversarial preferences predict voting independently from these traits – and often with larger effect sizes. The complex Dutch party landscape allows me to go further than simple left-right comparisons to differentiate parties along an economic left-right axis, a social progressive-conservative axis, and a populism axis. Competitiveness predicts voting for economically right-wing parties, whereas negative reciprocity, distrust, and selfishness are stronger predictors of voting for socially conservative and populist parties.

Keywords: voting, political preferences, personality, competitiveness, reciprocity
JEL codes: D72, D9, J16

In democracies, people's voting behavior and political attitudes have far-reaching social and economic implications. The recent rise of populist and far-right parties across Europe has led to intense speculation about the characteristics and motivations of people who vote for different types of parties. I use Dutch survey data that contains rich information on voting, political opinions, and personality traits and contribute to this discussion by showing that a number of widely studied economic preferences that I jointly call "adversarial" – competitiveness, negative reciprocity, distrust, and selfishness – are strong predictors of right-wing and populist political preferences.

Research into the factors that shape political preferences has traditionally emphasized economic self-interest (Meltzer and Richard, 1981), social identity (Green, Palmquist, and Schickler, 2004), or information access and media exposure (DellaVigna and Kaplan, 2007). Recent investigations into support for far-right parties have emphasized relative economic deprivation and social alienation (Algan et al., 2018; Bo' et al., 2023).

A different strand of research demonstrates that certain personality traits are reliably linked to political preferences (Gerber et al., 2010, 2011). Personality can be defined as distinctive patterns of thoughts, emotions, cognitive processes, and behaviors that characterize an individual's way of interacting with their environment and remain relatively stable across time and situations (Cervone and Pervin, 2022). Economic preferences can be conceptualized in a similar way and can be thought of as complements to the traits defined by personality psychology (Almlund et al., 2011; Becker et al., 2012).

The fact that relatively stable and generally defined traits predict political preferences gives rise to a mental model where voting is based on temperament rather than on self-interest or on beliefs that are the result of information processing. I add to this model by investigating the role of "adversarial" preferences: competitiveness, negative reciprocity, distrust, and selfishness. A large literature in experimental economics shows that preferences for competition, willingness to engage in negative reciprocity, trust and other social preferences vary strongly across individuals and predict behavior outside the lab (Fehr and Gächter, 1998, 2000; Zak and Knack, 2001; Fehr and Schmidt, 2006; Fehr, 2009; Croson and Gneezy, 2009; Niederle and Vesterlund, 2011; Lozano, Ranehill, and Reuben, 2022).

The main contribution of the paper lies in showing that these preferences are strong predictors of political preferences and voting, above and beyond socioeconomic status and a range of previously studied personality traits. Given recent political trends in Europe and elsewhere, I am particularly interested in the potential of these traits to predict voting for populist and far-right parties. The fractured Dutch party landscape – where voters choose from many ideologically distinct options – allows me to separate voting on an economic left-right axis from voting on a social progressive-conservative axis as well as on a populism axis. Overall, I find that adversarial preferences predict voting for more right-wing parties. While competitiveness predicts voting for economically right-wing parties, negative reciprocity, dis-

trust and selfishness are associated with voting for socially conservative and populist parties. These associations are robust to non-parametrically controlling for income, occupation, education level and other indicators of socioeconomic status (SES), as well as a wide range of other personality traits. The combined explanatory power of personality is high, often similar in magnitude to the explanatory power of all SES variables.

On top of voting choices, I also study the link between personality and political attitudes, including self-placement on a left-right political scale and attitudes towards political topics that dominated recent elections. People who are more competitive, more negatively reciprocal, less trusting, or more selfish all see themselves as politically more on the right. Competitiveness and negative reciprocity predict lower support for economic equality and immigration. Distrust and selfishness predict negative attitudes towards immigration and a lack of concern about climate change. Competitiveness is also a strong predictor of lower support for gender equality.

Finally, I contribute to the study of gender differences in political attitudes. Women in the sample see themselves as more left-wing, vote for more left-wing, more progressive and less populist parties, and hold more progressive political opinions. They are also significantly less competitive and less negatively reciprocal. Controlling for these differences in adversarial preferences strongly reduces the estimated gender difference in voting and political attitudes.

The rest of the paper is organized as follows. Section 1 summarizes the relevant literature. Section 2 explains how the Dutch parliamentary elections work and describes the party landscape. Section 3 describes the data. Section 4 presents the results, and Section 5 concludes.

1 Literature

Economists, and naturally political scientists, have been interested in the correlates and determinants of individual political preferences for a long time. The political science literature has traditionally focused on demographic characteristics such as gender, race and age (Campbell et al., 1980). The economics literature has traditionally focused on preferences for redistribution and how they are linked to socioeconomic status, based on the idea that people vote for their own economic interests (Meltzer and Richard, 1981).[1] Relatedly, political scientists have shown that people tend to use their vote to hold politicians responsible for economic conditions (Lewis-Beck and Stegmaier, 2000). Other studies have focused on the role of socialization through family and culture, and the role of identity (Green, Palmquist, and Schickler, 2004; Luttmer and Singhal, 2011). Studies into the determinants of support for populist far-right parties in Europe have emphasized the (perceived) outsider status of

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[1]In contrast, Enke, Polborn, and Wu (2023) show that values might be "luxury goods". That is, people who are richer can more easily afford to care about social issues rather than material considerations.

their voters. Support for these parties is high in areas where social cohesion is low, family ties are tenuous, and attachment to the labor market is low (Algan et al., 2018; Bo' et al., 2023). In the Dutch context, de Voogd and Cuperus (2021) additionally emphasize loneliness and bad health as correlates of support for "outsider" parties.[2]

More recently, economists and political scientists have become interested in the role of information. This includes studies that exploit random variation in media exposure (DellaVigna and Kaplan, 2007; Ladd and Lenz, 2009; Allcott and Gentzkow, 2017). Other studies focus on the role of beliefs, in particular whether (and why) people hold biased beliefs and – when confronted with new information – update these beliefs in a biased or self-serving manner (Taber and Lodge, 2006; Mullainathan and Washington, 2009; Nyhan and Reifler, 2010; Schwardmann, Tripodi, and Van der Weele, 2022).

A different conceptualization of the roots of political preferences posits that they may partially flow from individual differences in personality. Personality traits can be thought of as distinctive patterns of thoughts, emotions, cognitive processes, and behaviors that characterize an individual's way of interacting with their environment and remain relatively stable across time and situations (Cervone and Pervin, 2022). Economic preferences such as risk tolerance and social preferences can be conceptualized in a similar way and can be thought of as complements to the traits defined by personality psychology (Almlund et al., 2011; Dohmen et al., 2011; Becker et al., 2012). This literature has mainly focused on the Big Five personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism (or its inverse, mental stability).

These studies show that in Western countries, progressives tend to be more open (and sometimes more agreeable), while conservatives are more conscientious and mentally stable (Caprara, Barbaranelli, and Zimbardo, 1999; Barbaranelli et al., 2007; Gerber et al., 2010; Chirumbolo and Leone, 2010; Gerber et al., 2011; Morton, Tyran, and Wengström, 2011). Many of these studies conceptualize political preferences on a unidimensional left-right axis – or, for papers based on American data, a Democrat-Republican axis – or as preferences for or against redistribution. Some studies go further by distinguishing social conservatism from economic conservatism. Gerber et al. (2010), using US survey data, find that extraversion specifically predicts economic conservatism while agreeableness predicts economic progressivism and social conservatism. Stability and conscientiousness predict both kinds of conservatism while openness predicts both kinds of progressivism. Schoen and Schumann (2007), using German data, find amongst other things that low agreeableness specifically predicts voting for the far right. Ziller and Berning (2021) look at support for minority rights in Germany and find that it is associated with high openness, high agreeableness, and low

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[2]Recent studies also show that political preferences (Alford, Funk, and Hibbing, 2005) and participation (Ahlskog, 2021) are partially heritable (that is, explained by genetic factors). Oskarsson et al. (2015) show that the relationship between genes and political orientation is mediated by cognitive ability.

conscientiousness.[3]

Behavioral economists have similarly been interested in the link between economic preferences and political preferences. This literature has mainly focused on preferences for redistribution, both as a determinant of and as a proxy for political preferences (Alesina and Giuliano, 2011). One strand of this literature shows that choices in redistributive games in the lab predict political preferences. Fehr, Epper, and Senn (2021) measure other-regarding preferences in a broad sample of the Swiss population and show that inequality aversion and altruistic concerns predict support for redistribution. Kerschbamer and Müller (2020) find that participants who are selfish in the lab are more likely to be right-wing, favor less redistribution, and are less pro-immigration. The opposite is true for inequality-averse and altruistic participants. Fisman, Jakiela, and Kariv (2017) look at equality-efficiency trade-offs and find that equality-focused participants are more likely to vote Democrat and to be affiliated with the Democratic Party. Cappelen et al. (2017) find that the amount given in a dictator game predicts left-wing voting. Other papers show that attitudes towards redistribution – in the lab or in surveys – are linked to economic preferences such as risk tolerance (Durante, Putterman, and Van der Weele, 2014). Finally, political scientists have looked into link between trust and political preferences. Berning and Ziller (2017) show that low levels of social trust predict radical right-wing voting in the Netherlands. Algan et al. (2018) show that extreme-left and extreme-right voters in France both have low subjective wellbeing, but that extreme-right voters are uniquely characterized by very low interpersonal trust.[4]

In Western democracies, there is typically a sizeable gender difference in political preferences whereby women tend to vote for more economically left-wing and socially progressive parties (Giger, 2009) and favor higher levels of redistribution (Alesina and Giuliano, 2011). Some studies have demonstrated that gender differences in personality traits (Morton, Tyran, and Wengström, 2016) or economic preferences (Buser et al., 2020) can statistically account for part of these gender differences.

In this paper, I focus on a set of traits that are very prominent in the behavioral economics literature and which I jointly designate as "adversarial" preferences: competitiveness, negative reciprocity, lack of trust, and selfishness. For each of these traits, a large literature exists that shows significant variation across individuals and strong links to behavior outside the lab.

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[3]Psychologists have also looked into the link between personality and interest in politics or political participation. Mondak (2010) finds that openness strongly predicts interest in politics whereas agreeableness is weakly negatively related. Openness and extraversion are positively correlated with political activity. Other studies have focused on the so-called dark triad traits (Machiavellianism, narcissism, and psychopathy). Chen, Pruysers, and Blais (2021) look at political participation rather than voting, finding that narcissism and psychopathy – but interestingly not Machiavellianism which captures a tendency to manipulate others – are associated with political activity.

[4]Alesina and La Ferrara (2002) show that interpersonal trust is in turn predicted by socioeconomic background characteristics including education, income and minority status.

The economic literature on competitiveness was initiated by papers that focused on documenting gender differences (Gneezy, Niederle, and Rustichini, 2003; Niederle and Vesterlund, 2007; Croson and Gneezy, 2009; Niederle and Vesterlund, 2011; Niederle, 2016; Dariel et al., 2017). Later studies have shown that competitiveness predicts career choices and labor market outcomes with competitive people sorting into more prestigious and higher-paid careers (Buser, Niederle, and Oosterbeek, 2014; Reuben, Sapienza, and Zingales, 2015; Buser, Niederle, and Oosterbeek, 2021; Buser, Peter, and Wolter, 2022; Lozano, Ranehill, and Reuben, 2022). Another large literature in behavioral and experimental economics studies the tendency of humans to be reciprocal. This includes both positive reciprocity – in response to friendly actions, people are often more generous and cooperative than predicted by pure self-interest – and negative reciprocity – in response to hostile actions people are often willing to engage in costly retaliation (Fehr and Gächter, 2000; Fehr and Schmidt, 2006). The reciprocal nature of humans has profound implications for how people react to various incentives and how they enforce social norms (Fehr and Gächter, 1998). Dohmen et al. (2009) find that positive reciprocity predicts higher wages and working harder while negative reciprocity predicts lower effort and a higher likelihood of being unemployed. Likewise, trust has been shown to vary strongly across individuals and societies and is correlated with economic outcomes (Zak and Knack, 2001; Fehr, 2009). Chapman et al. (2023) show that positive reciprocity and altruism (and also trust) are strongly correlated and can be thought of as a single, prosocial trait. Kosse et al. (2020) show that this kind of generally defined prosociality is positively linked with socioeconomic status, wellbeing and labor market success.

2 Dutch party landscape and parliamentary elections

The political landscape of the Netherlands is notable for its high degree of fragmentation, with numerous political parties representing a wide range of ideological perspectives. While the system has always been a multi-party one, with several major parties and some smaller ones, a recent proliferation of new parties has further increased the number of small parties represented in parliament.

In this paper, I will focus on voting for the the House of Representatives, or "Second Chamber". The composition of the Second Chamber is determined by national parliamentary elections. It is made up of 150 seats, and these seats are allocated based on a system of proportional representation. This means that each party gets a number of seats that is roughly proportional to the number of votes it received in the election. There is no minimum vote threshold and small parties can be represented with a single seat.

Typically, no single party wins a majority of seats (>75 out of 150), so parties must form coalitions to govern. The party with the most votes at least initially leads coalition negotiations with other parties and its leader typically becomes the prime minister. Due to

Table 1: Parties elected to parliament in 2021

Party	Orientation	Votes/Seats	Block	Sample	Left-right: economic	Left-right: social	Populism
BIJ1	Identity politics	0.8% / 1		0.5%	1	2	
Party for the Animals PvdD	Animal rights	3.8% / 6	Populist left	4.7%	2	5	9
Socialist Party SP	Socialism	6.0% / 9		7.0%	3	7	11
DENK	Minority rights	2.0% / 3		0.7%	5	8	8
GreenLeft GL	Green politics	5.2% / 8	Established left	6.0%	4	4	3
Labour Party PvdA	Social democracy	5.7% / 9		8.8%	6	6	5
Democrats 66 D66	Social liberalism	15.0% / 24		16.3%	11	3	1
Volt	European federalism	2.4% / 3	Centre	2.9%	10	1	
Christian Union CU	Christian democracy	3.4% / 5		4.1%	7	9	2
Christian Democratic Appeal CDA	Christian democracy	9.5% / 15		10.7%	12	12	7
People's Party for Freedom and Democracy VVD	Economic liberalism	21.9% / 34	Established right	21.0%	15	11	6
Reformed Political Party SGP	Christian right	2.1% / 3		1.6%	14	14	4
50PLUS	Pensioners' interests	1.0% / 1		1.6%	8	10	10
Farmer–Citizen Movement BBB	Farmer's interests	1.0% / 1		0.6%	13	13	
JA21	Conservative liberalism	2.4% / 3	Populist right	3.1%	16	15	
Party for Freedom PVV	Right-wing populism	10.8% / 17		7.9%	9	17	13
Forum for Democracy FVD	National conservatism	5.0% / 8		2.6%	17	16	12

increased fragmentation, these negotiations can take a long time and government coalitions are made up of up to four parties. The centre-right government that came to power after the 2021 election (which is the most recent election covered by the survey data) and fell in 2023 was a coalition of the economically liberal People's Party for Freedom and Democracy (VVD), the socially liberal Democrats 66 (D66), and two Christian democratic parties (CDA and CU). Parties in a coalition agree on a common policy agenda and select the ministers.

Table 1 shows a list of all parties elected to the Second Chamber at the national elections in 2021. For presentational purposes, the parties are roughly ordered from left to right as perceived by the public and the press and divided into five blocks. For the analyses linking votes to individual traits, I will use three orderings of the parties: along an economic left-right axis, along a social progressive-conservative axis, and along a populism axis. The first two are based on an analysis of the 2021 party manifestos by the Dutch political research company Kieskompas.[5] Figure 1 shows the positioning of the parties elected to parliament in 2021 along these two axes. The economic left-right axis represents a party's position on economic issues including taxes, redistribution and public services. The progressive-conservative axis represents a party's position on social issues including migration, European integration, and climate change. Parties that are on the left economically also tend to be more progressive (and vice versa) but there are important outliers that make the two rankings distinct from

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[5]https://www.kieskompas.nl/en/about/

each other, including some of the parties that received the most votes in 2021. Democrats 66 (D66) are very progressive on social issues but close to the center on economic issues. The People's Party for Freedom and Democracy (VVD) – the biggest party in 2021 – are economically one of the most right-wing parties but socially closer to the center. The Party for Freedom (PVV) – the party led by the internationally known anti-immigrant populist Geert Wilders that subsequently triumphed in the 2023 elections – is socially on the conservative extreme but favors centrist economic policies. The Socialist Party (SP) is economically on the extreme left but is less progressive than many economically more centrist parties.

The populism ranking is based on populism scores from the Populism and Political Parties Expert Survey (POPPA).[6] For some small, recently created parties this score is missing, but these parties represent few voters, in the population as well as the sample. The two most populist parties are parties typically seen as far-right (PVV and FvD). The third-most populist party is the far-left SP. Established parties tend to be less populist.

3 Survey data

I use data from the Dutch LISS (Longitudinal Internet Studies for the Social sciences) panel.[7] This is an ongoing online survey panel that has been operating since late 2007. It is based on a true probability sample of households drawn from the population register by Statistics Netherlands. Approximately 7,500 panel members answer yearly "core" questionnaires which cover topics including work, education, wealth, family, politics, and personality. On top of this, researchers can run questionnaires on the panel, which can then be linked to all other data that is available on the respondents. All LISS data, including researcher-run questionnaires, is publicly available to all researchers.

In this section, I will describe the variables used in the study. I grouped them into three categories: political preferences, economic preferences and personality, and socioeconomic status and demographic indicators. Table A1 in the online appendix shows descriptive statistics – number of observations, mean, standard deviation, minimum, 25th percentile, median, 75th percentile, and maximum – for all variables.

Political preferences

The LISS panel's Politics and Values core module is elicited yearly from all panel members and contains detailed indicators of the respondents' political outlook and voting behavior.

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[6]http://poppa-data.eu/. The populism scores for each of the parties are: D66 (0.39), GL (1.06), SGP (1.18), PvdA (1.37), VVD (2.34), CDA (2.58), DENK (3.34), PvdD (3.40), 50Plus (4.97), SP (6.56), FvD (8.91), PVV (10.00).

[7]www.lissdata.nl

Figure 1: Parties in Dutch parliament following the 2021 election along the left-right and progressive-conservative axes
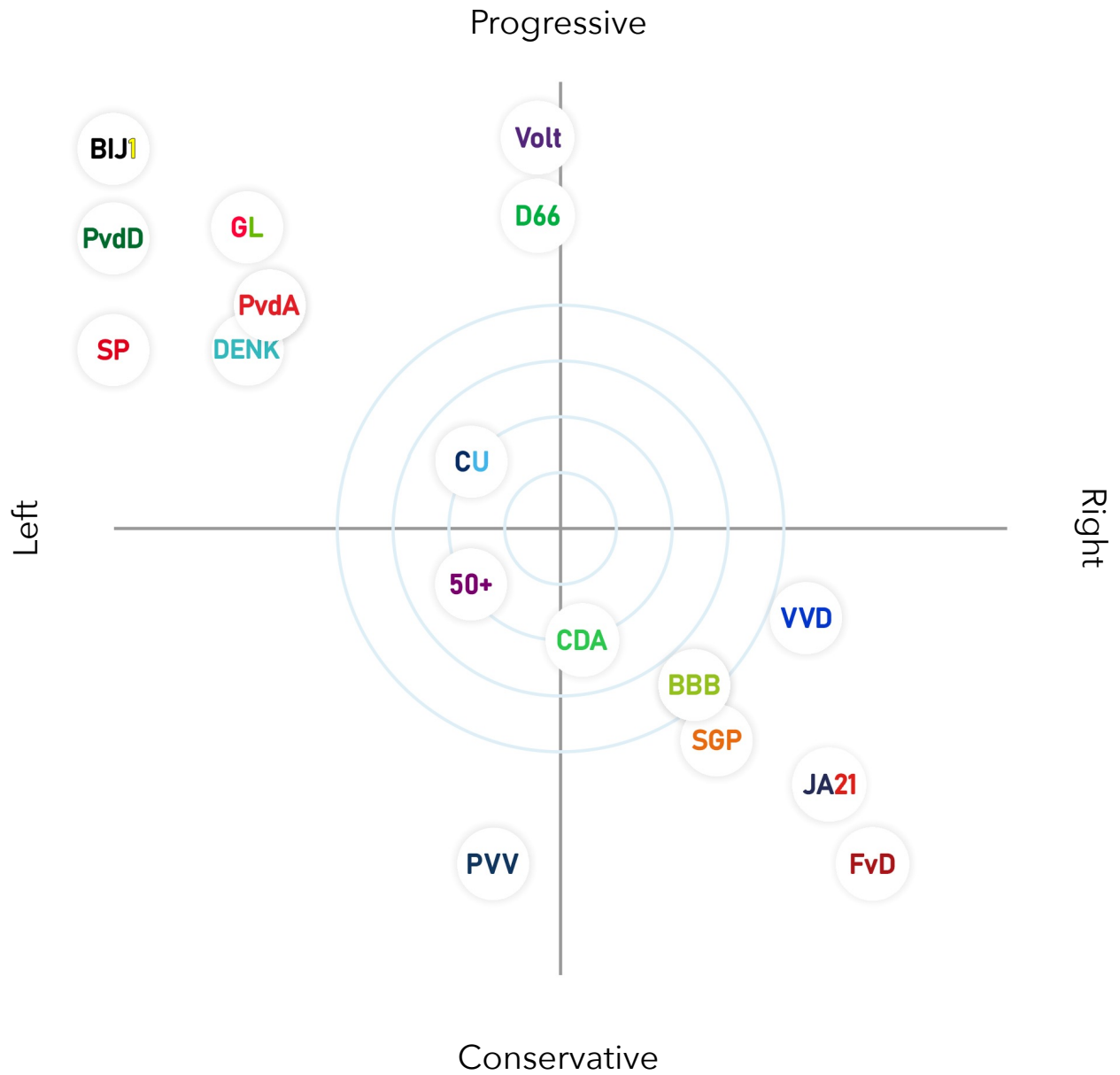
Source: kieskompas.nl, a Dutch political research company.

I use data from the 2022 LISS politics questionnaire which is the first conducted after the 2021 elections. Most importantly for my purposes, respondents are asked which party they voted for in the most recent national elections and where they position themselves on a unidimensional left-right axis (from 0 to 10).[8] Table 1 shows the percentage of people in the sample who voted for each party.

On top of voting, I will focus on attitudes towards four topics that were prominent during recent parliamentary elections: economic equality, immigration, gender equality, and climate change. "Economic equality" is the response to a single five-point question ("Where would you place yourself on a scale from 1 to 5, where 1 means that differences in income should increase and 5 means that these should decrease?"). "Immigration" is constructed as the average over six items that elicit attitudes towards immigration and immigrants.[9] "Gender equality" is constructed as the average over four items that elicit attitudes towards the emancipation of women.[10] "Climate change" is constructed as the average over six items that elicit the extent to which the respondent thinks climate change is a problem.[11]

Economic preferences and personality

I link the political data to survey data on a wide range of economic preferences and personality traits. The traits the paper focuses on are are economic preferences that I jointly designate as "adversarial" preferences: competitiveness, negative reciprocity, lack of trust, and selfishness.

Competitiveness is measured through the detailed questionnaire of Buser and Oosterbeek (2023) which is mostly based on the questionnaire of Urbig et al. (2021).[12] The 13 competitiveness questions contain items such as "I enjoy competing against others" and "It is important for me to outperform others". Social preferences are measured through items

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[8]For panel members who did not answer the 2022 questionnaire, I use their answers in the two preceding waves if available. For voting in the 2021 election, I use the answer in the subsequent 2023 questionnaire if available.

[9]"It is good if society consists of people from different cultures"; "It should be made easier to obtain asylum in the Netherlands"; "Legally residing foreigners should be entitled to the same social security as Dutch citizens"; "There are too many people of foreign origin or descent in the Netherlands"; "Some sectors of the economy can only continue to function because people of foreign origin or descent work there"; "It does not help a neighborhood if many people of foreign origin or descent move in".

[10]"A woman is more suited to rearing young children than a man"; "It is actually less important for a girl than for a boy to get a good education"; "Generally speaking, boys can be reared more liberally than girls"; "It is unnatural for women in firms to have control over men"

[11]"Climate change will have an impact on my immediate surroundings."; "The impact of climate change is overstated."; "Climate change mainly has an impact on faraway countries."; "Climate change will probably have a great impact on people like me."; "I am unsure as to whether climate change really exists."; "Seeing as it is still so unclear what the impact of climate change will be, the Dutch government should focus on other things instead.". These items are not elicited in the yearly Politics and Values core module but were contained in a one-off questionnaire on "State of the environment and environmental policy" that was collected in 2020 (https://www.dataarchive.lissdata.nl/study_units/view/1045).

[12]The Urbig et al. (2021) questionnaire items are in turn taken from Spence and Helmreich (1983); Smither and Houston (1992); Newby and Klein (2014); Bönte, Lombardo, and Urbig (2017).

taken from the preference survey module of Falk et al. (2023). The six items measure negative reciprocity, positive reciprocity, trust, altruism, and willingness to punish someone who treats others unfairly (third-party punishment).

The competitiveness and social preferences questions were elicited by Buser and Oosterbeek (2023) in July 2021. The same questionnaire also elicited general challenge seeking through two items[13], general willingness to take risk through the single-item measure of Dohmen et al. (2011), and grit through the questionnaire of Duckworth and Quinn (2009). I also use standard personality traits that are elicited through the Personality core module, most importantly the Big Five personality traits (Goldberg et al., 2006), but also self esteem (Rosenberg, 2015) and optimism (Scheier, Carver, and Bridges, 1994). The Personality module also elicits trust through a question taken from the European Social Survey (ESS). I use the personality questionnaire that was elicited closest to the Buser and Oosterbeek (2023) questionnaire and use data from earlier waves in case of non-response. I also use a follow-up questionnaire collected in 2023 by Buser and Oosterbeek (2023) that elicits the so-called dark triad traits – machiavellianism (a tendency to manipulate and exploit others), psychopathy (lack of empathy and remorse), and narcissism (excessive self-love and entitlement) – through the short scale of Jonason and Webster (2010). The same questionnaire also contains two measures of cognitive skills: a short version of the need for cognition scale (Lins de Holanda Coelho, Hanel, and Wolf, 2020)[14] and the three-item cognitive reflection test (Frederick, 2005)[15].

I use the following questions to construct the "adversarial" preferences the paper focuses on. Competitiveness is measured as the mean of the 13 competitiveness questions of Buser and Oosterbeek (2023) which are measured on a 7-point scale.[16] Negative reciprocity is the mean of the following two questions from Falk et al. (2023): "How willing are you to punish someone who treats you unfairly, even if there may be costs for you?" and "If I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so." Distrust is measured as the inverse of the mean of "I assume that people have only the best intentions" (Falk et al., 2023) and "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (ESS). Selfishness is measured as the inverse of the mean of "When someone does me a favor I am willing to return it" and "How willing are you to give to good causes without expecting anything in return?". Selfishness

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[13]"I always look for new challenges" and "I enjoy working on challenging tasks".

[14]Need for cognition measures "the tendency for an individual to engage in and enjoy thinking" (Cacioppo and Petty, 1982) and has been shown to predict fluid intelligence (Fleischhauer et al., 2010; Hill et al., 2013).

[15]The cognitive reflection test consists of three quantitative questions where the most intuitive answer is wrong, and therefore measures a person's "ability or disposition to reflect on a question and resist reporting the first response that comes to mind" (Frederick, 2005).

[16]Buser and Oosterbeek (2023) differentiate between three dimensions of competitiveness: enjoyment of competition, desire to win and personal development motives. Although these dimensions sometimes predict disparate life outcomes, they are heavily correlated. In this paper, I will average all 13 questions into a single measure of competitiveness.

therefore combines (lack of) altruism and positive reciprocity into a single measure. Finally, I also include willingness to engage in third-party punishment – which is measured by "How willing are you to punish someone who treats others unfairly, even if there may be costs for you?" (Falk et al., 2023) – with the other adversarial preferences. It is strongly correlated with negative reciprocity (0.69 in my sample) but is conceptually different.

Socioeconomic status and demographic indicators

Throughout the paper, I will present associations that control for demographic and socioeconomic factors that the scientific literature and public discourse have flagged as potential determinants of political preferences. The magnitudes of the correlations of these variables with voting and attitudes will also serve as benchmarks for judging the magnitudes of the correlations between personality and political preferences.

Socioeconomic status (SES) is measured through the following variables: education, income, occupation, place of residence, and religiosity. Level of education is measured in six categories defined by Statistics Netherlands (CBS).[17] Participants are asked about their gross monthly income every time they answer a questionnaire. I use the measure of household income that was collected in the same wave as the competitiveness and social preferences questionnaires.[18] The Work and Schooling core module asks respondents to classify their current or most recent occupation into one of nine categories, which I use to construct an indicator of level of occupation.[19] The LISS panel does not provide precise geographic data but rates the urbanity of the place of residence on a five-point scale. The Religion and Ethnicity core module asks respondents to rate their religiosity on a four-point scale.

On top of these standard socioeconomic indicators, de Voogd and Cuperus (2021) have shown that bad health and lack of social connections are strong predictors of support for "outsider" parties in the Dutch context. I construct a health index based on two sets of variables from the LISS Health core module: first, respondents rate the difficulty they experience

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[17]1. Primary schooling 2. Pre-vocational education 3. Vocational education 4. Upper (pre-college) tracks of secondary school 5. University of applied sciences 6. University.

[18]If a panel member does not enter their gross income but reports their net income, then gross income is imputed based on net income and other variables. See https://www.dataarchive.lissdata.nl/study_units/view/322.

[19]The LISS panel asks people to classify their occupation into one of nine categories. I order these from high to low level in the following way. Higher supervisory profession (e.g. manager, director, owner of large company, supervisory civil servant). Higher academic or independent profession (e.g. architect, physician, scholar, academic instructor, engineer). Intermediate supervisory or commercial profession (e.g. head representative, department manager, shopkeeper). Intermediate academic or independent profession (e.g. teacher, artist, nurse, social worker, policy assistant). Other mental work (e.g. administrative assistant, accountant, sales assistant, family carer). Skilled and supervisory manual work (e.g. car mechanic, foreman, electrician). Semi-skilled manual work (e.g. driver, factory worker). Unskilled manual work (e.g. cleaner, packer). Agrarian profession (e.g. farm worker, independent agriculturalist). I group the last two categories together because of the relatively low number of people in agrarian occupations.

in performing a list of activities on a four-point scale[20], and second, they are asked whether they suffer from any of a list of health conditions[21]. I use the first principal component of these variables as an objective measure of people's health. The LISS Social Integration and Leisure core module asks respondents to list up to five people with whom they discussed "important things" over the last six months. I take the number of people listed (from 0 to 5) as the first indicator of social connection. The second indicator, based on the same module, is a dummy for being a member of a sports or hobby club. Finally, the LISS background data contains demographic variables including age in years, migration background (Western or non-Western), living with a partner, number of people in the household, and gender.

4   Results

The aim of the analyses presented in this section is to document the predictive power of adversarial economic preferences – competitiveness, negative reciprocity, distrust, and selfishness – for voting choices and political attitudes. Throughout, I will compare the magnitude of the associations to those of socioeconomic status (SES) indicators and other personality traits.

Figure 2 visualizes coefficients from regressions of political preferences on personality traits and a range of socioeconomic variables. Apart from the adversarial preferences, the following personality traits and preferences are included as explanatory variables: the Big Five traits, grit, the dark triad traits, risk taking, challenge seeking, self esteem, optimism, need for cognition, and cognitive reflection. The following indicators of SES that are typically seen as strong predictors of political preferences both in the academic literature and in public discourse are included: level of education, household income, level of occupation, urbanity of the place of residence, health, social connectedness, and religiosity.

The Figure shows results from three regression specifications. First, from separate regressions for each of the personality and SES variables that only control for basic demographic indicators (age, migration background, living with a partner, number of people in the household, and gender).[22] Second, from multivariate regressions that include all personality and

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[20]Walking 100 meters, sitting for around two hours, getting up from a chair in which you sat for some time, walking several stairs without resting in between, walking up a staircase without resting, crouching, kneeling, crawling on all fours, reaching above shoulder height or stretching your arms above shoulder height, moving large objects such as a dining room chair, lifting or carrying a weight of 5 kilos, such as a heavy bag of groceries, picking up a small coin lying on the table.

[21]Back-, knee-, hip-pain or pain in any other joint, heart complaints or angina, pain in the chest due to exertion, short of breath, problems with breathing, coughing, a stuffy nose and/or flu-related complaints, stomach or intestinal problems, headache, fatigue, sleeping problems, other recurrent complaints.

[22]The demographic indicators are controlled for non-parametrically. Age controls consist of dummies for age in years. Migration background controls consist of two dummies for having a Western or non-Western background (people are deemed to have a migration background if they are first or second-generation immigrants). Living with a partner, number of people in the household, and gender are also controlled for by dummy variables.

SES variables plus demographic controls simultaneously. Third, from multivariate regressions that include all personality variables simultaneously and control for socioeconomic status non-parametrically.[23] The regression results underlying the graphs are reported in Tables A2 to A5 in the online appendix. The graphs show both standard 95-percent confidence intervals and very strict 99.5-percent confidence intervals, as recommended by Benjamin et al. (2018). This approach makes it possible to compare the predictive power of different personality traits with that of socioeconomic factors and other personality traits. It will also allow me to test whether the relationships between personality traits and politics are robust to thoroughly controlling for socioeconomic status.

Figure 2 shows regression results for four different political outcomes. The first – reported in the top-left panel – is self-judged political attitude on an 11-point left-to-right scale. The other three outcome variables are based on the party voted for in 2021, whereby I rank the parties in different ways. In the top-right panel, parties are ranked along the economic left-right axis. That is, the dependent variable is the rank of the party somebody voted for, where low ranks mean more left-wing and higher ranks mean more right-wing. In the bottom-left panel, parties are ranked along the social progressive-conservative axis, where low ranks mean the party voted for is more progressive and higher ranks mean it is more conservative. In the bottom-right panel, parties are ordered along the populism axis, where low ranks designate less populist parties and high ranks designate more populist parties. Both the dependent and all independent variables are standardized to make the coefficients comparable.

Overall, the regression results establish that adversarial preferences are strong and robust predictors of voting and politics. Looking at self-judged political attitudes (top-left panel), people who are more competitive, more negatively reciprocal, less trusting, and more selfish all see themselves as more right-wing, and these associations are significant at the strict 0.5% level. The association between political attitudes and willingness to engage in third-party punishment is not a priori significant and changes sign when all variables are included simultaneously.

Conditional on all other traits and socioeconomic variables, negative reciprocity is the strongest predictor of right-wing attitudes, followed by competitiveness and distrust. People who are one standard deviation more negatively reciprocal see themselves as 0.15 standard deviations more right-wing (0.11 standard deviations for competitiveness and distrust, and 0.07 for selfishness). How should we judge the magnitude of these associations? The strongest socioeconomic predictors are level of education and household income. People who are one standard deviation less educated or have a one standard deviation higher income see themselves as around 0.1 standard deviations more right wing. This means that competitiveness

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[23]These regressions control for six level-of-education dummies, income-decile dummies, five urbanity dummies, health-quartile dummies, number-of-friends and club-membership dummies, and four religiosity dummies, on top of the non-parametric demographic controls.

Figure 2: OLS regressions: political position and voting
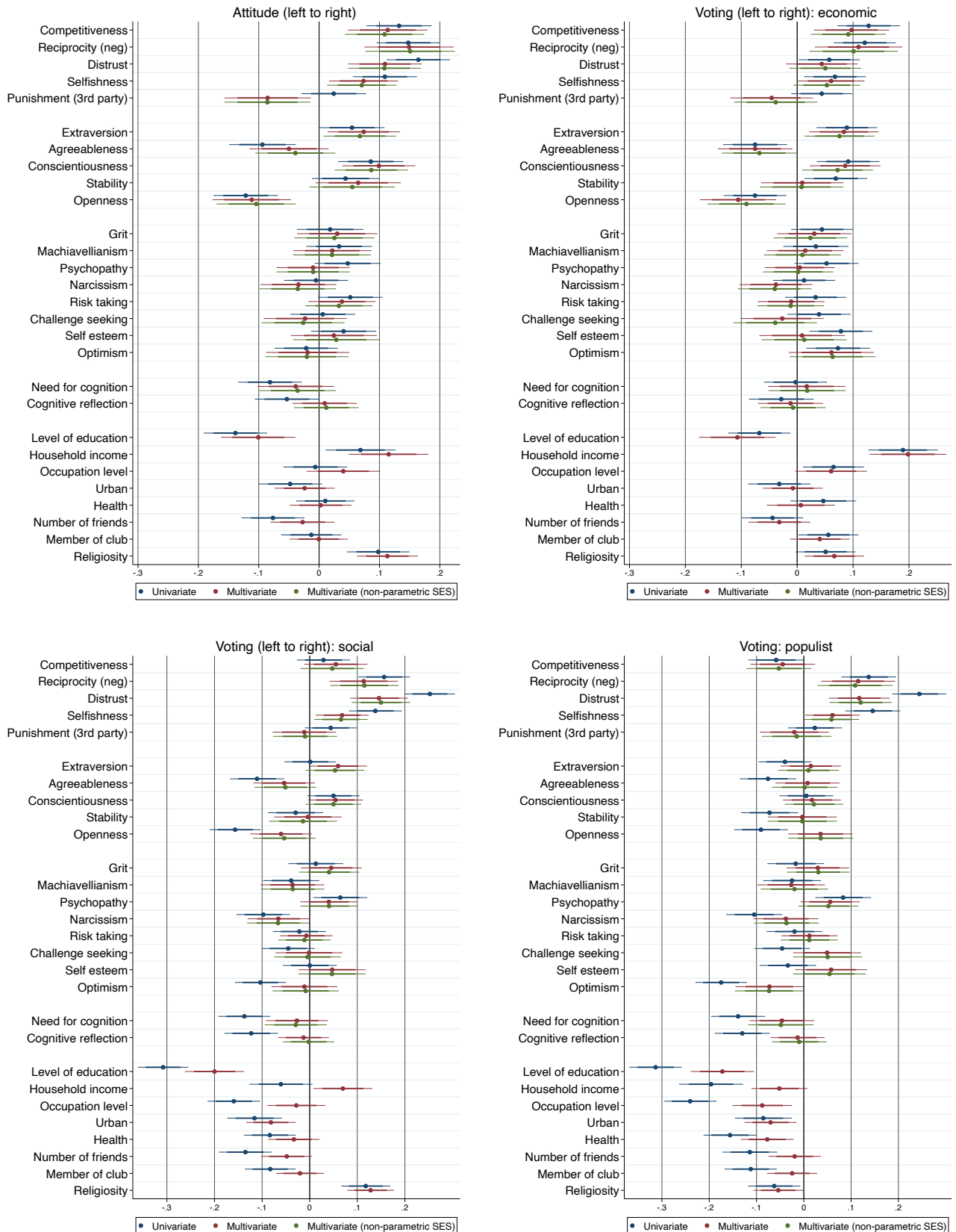
Note: Thick (thin) error bars show 95% (99.5%) confidence intervals. All regressions control for age dummies, migration background dummies (two dummies for having a western or a non-western migration background), partner living in the house, dummies for number of people in the household, and gender.

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and negative reciprocity are more predictive of political attitudes than income or education. Strikingly, the magnitudes of the conditional correlations for competitiveness and negative reciprocity do not change much when controlling for the other traits and for socioeconomic background, whereas those for distrust and selfishness shrink by about a third but remain highly significant.[24] I also replicate the "classic" findings for the Big 5 personality traits. People who are more conscientious, mentally stable, or extroverted see themselves as more right-wing, whereas more open or agreeable people are more left-wing. Associations for other traits and preferences tend to be weaker and less robust.

The remaining three panels of Figure 2 show regressions where the outcome variable is the party voted for in the 2021 election. The parties are ranked in three different ways: on an economic left-right axis, a social progressive-conservative axis, and a populism axis (see Table 1 and Figure 1) The adversarial preferences are strong and robust predictors of people's votes, but their relative importance and direction of association vary with how the parties are ranked. Competitiveness predicts voting for parties that are economically on the right – parties that favor less redistribution and fewer public services – but much less for parties that are socially conservative. Also, competitive people tend to vote for parties that are less populist. People who are more negatively reciprocal, on the other hand, tend to vote for parties that are more economically right-wing, more socially conservative, and more populist. Distrust and selfishness are strong predictors of voting for socially conservative and populist parties but not for more economically conservative parties. In the case of trust, this replicates the findings of Algan et al. (2018) for French elections.

We can again compare the magnitudes of these correlations to those of socioeconomic background indicators. The strongest predictor of voting for more economically right-wing parties is, not surprisingly, household income. A one-standard deviation difference in income is associated with a right-shift in voting that is about twice as strong as a one-standard deviation increase in competitiveness or negative reciprocity. The associations between preferences and voting are remarkably robust to controlling for other traits and socioeconomic background. This means that a simultaneous shift in competitiveness and negative reciprocity is as predictive of voting on the economic left-right axis as a shift in household income. The strongest socio-economic predictor of voting on the social (progressive-conservative) and populism axes is level of education. The relative magnitudes are such that a simultaneous shift in distrust and negative reciprocity is as predictive of voting for more socially conservative or populist parties as a shift in the level of education. Another interesting comparison is with religiosity. Knowing somebody's level of reciprocity or interpersonal trust is similarly helpful in predicting how socially conservative their vote is as is knowing how religious they

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[24]The associations for third-party punishment – the willingness to incur a cost to punish somebody who has wronged someone else – are weaker. Without controlling for the other traits and SES, third-party punishment is unrelated to attitudes, conditional on the other variables it predicts being more left-wing.

are.[25] We also replicate the finding of de Voogd and Cuperus (2021) that health is a strong negative predictor of voting for populist parties, but again the magnitudes of the preference correlations are similar.

The Big Five traits are predictive of voting on the economic left-right axis but are not robust predictors for voting on the other two axes. Some of the other personality traits show interesting associations. Optimism predicts voting for economically more right-wing but less populist parties. People who are more narcissistic – characterized by excessive self-love and entitlement – tend to vote for progressive parties, whereas more psychopathic people – characterized by lack of empathy and remorse – vote for more socially conservative and populist parties. The two indicators of cognitive skills individually predict more progressive and less populist voting but are not strongly associated with voting once other variables – which include level of education - are added to the regression.

Figure 3 shows results from analogous regressions with attitudes towards specific topics rather than voting as outcomes. I show regressions for attitudes towards economic equality, gender equality, immigration, and the importance of fighting climate change. The regression results underlying the graphs are reported in Tables A6 to A9 in the online appendix.

The strongest predictors of being in favor of more economic equality are income (negatively), followed by agreeableness (positively), negative reciprocity and competitiveness (negatively), and openness (positively). The same variables (plus level of education) are strong predictors of attitudes towards gender equality. Remarkably, the same traits tend to be predictive for men and women (see Figure A1 in the online appendix). For instance, not only do competitive men have more negative attitudes towards gender equality, but so do competitive women. The strongest predictors of attitudes towards immigration are distrust (negatively), level of education (positively), and selfishness (negatively). Negative reciprocity and competitiveness are also strongly negatively associated with attitudes towards immigration. Finally, selfishness is an exceptionally strong negative predictor of attitudes towards tackling climate change.

In summary, the regression results presented so far show that the correlations of adversarial economic preferences with voting and political attitudes are often of similar magnitude as – and sometimes exceed – those of key socioeconomic indicators and classic personality traits. Competitiveness is associated with seeing oneself as more right wing, voting for economically conservative (but less populist) parties, and negative attitudes towards economic equality, gender equality, and immigration. Negative reciprocity predicts being more right wing, voting for more economically and socially conservative (and more populist) parties, and negative attitudes towards economic equality and immigration. People who have low trust in others tend to vote for populist and socially conservative parties and strongly dislike immi-

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[25]More religious people actually vote slightly less populist, reflecting the fact that the Christian parties in the Netherlands (CU, CDA, and SGP) tend to be socially and economically on the right, but not populist.

Figure 3: OLS regressions: political attitudes
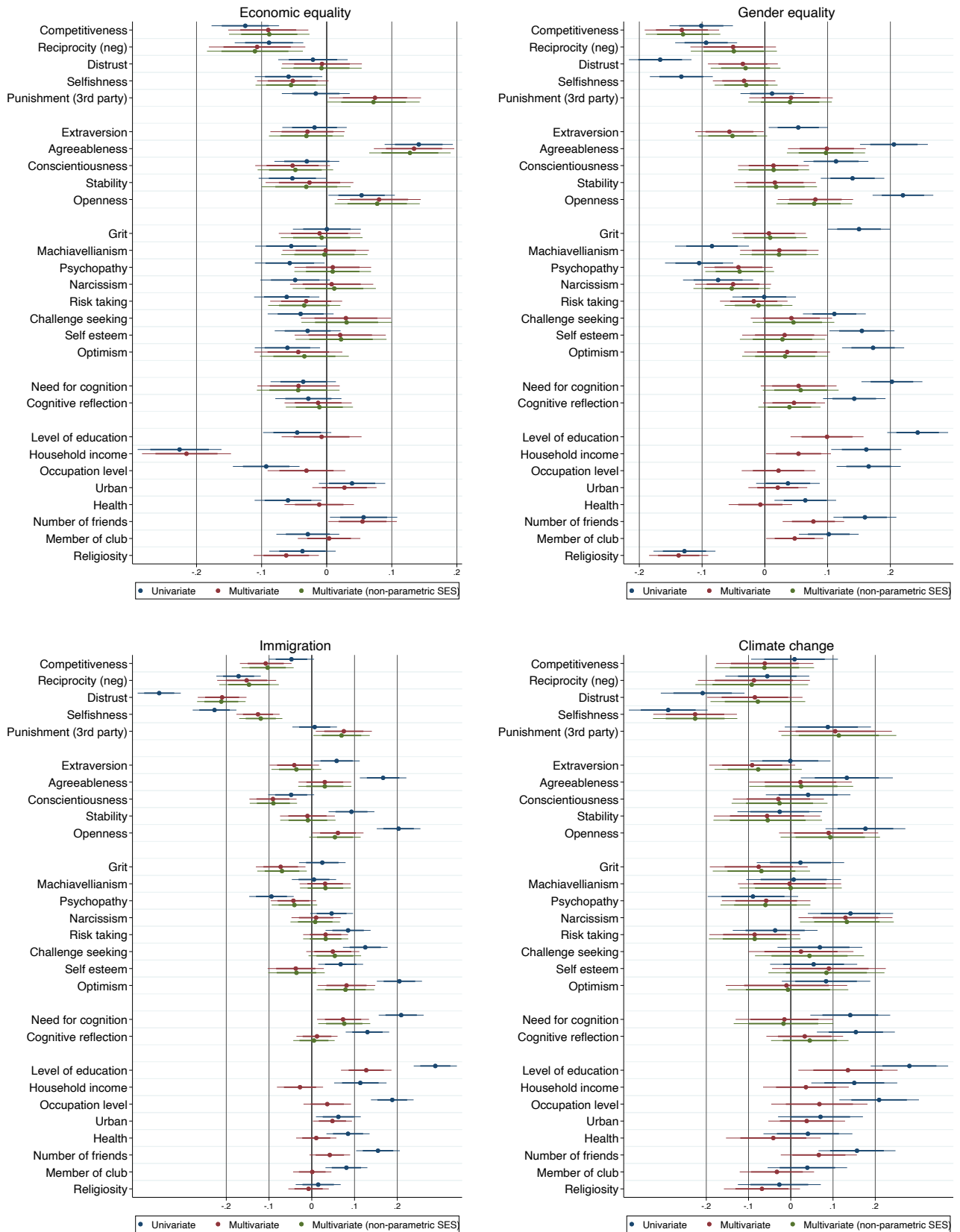
Note: Thick (thin) error bars show 95% (99.5%) confidence intervals. All regressions control for age dummies, migration background dummies (two dummies for having a western or a non-western migration background), partner living in the house, dummies for number of people in the household, and gender.

Figure 4: Explanatory power of personality and socioeconomic status
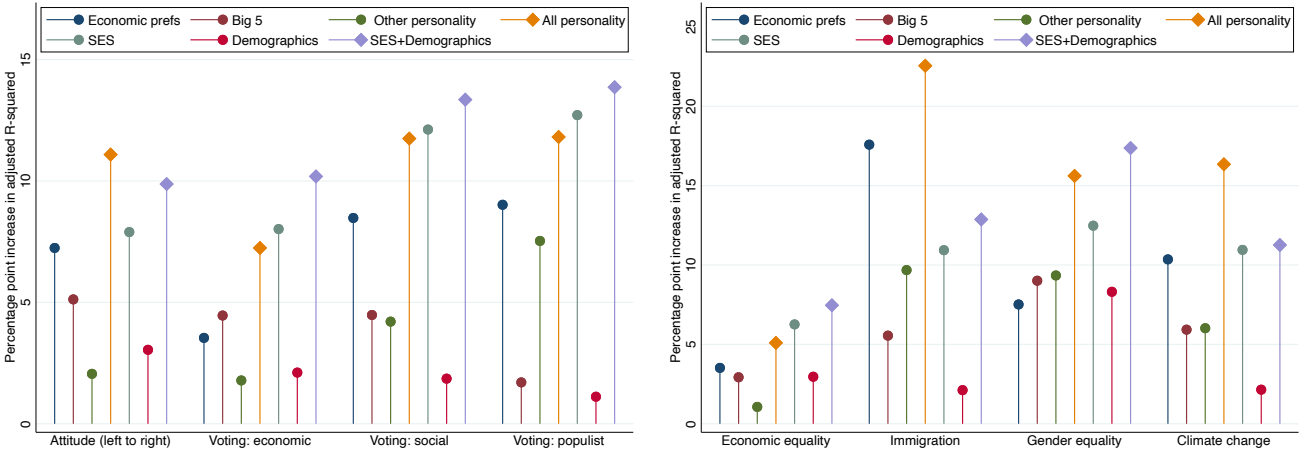
gration. Selfish people vote more right-wing and populist, dislike equality and immigration, and assign little importance to tackling climate change.

Figure 4 shows an alternative way of judging the relative explanatory power of personality and socioeconomic status. There, I plot the adjusted R-squared of regressions of political outcome variables on different sets of explanatory variables: adversarial preferences, Big Five personality traits, other personality traits, SES, and demographics, as well as all preferences and personality traits combined, and all SES and demographic variables combined. The list of personality traits, SES variables, and demographic indicators is identical to those included in the regressions reported in Figures 2 and 3. The regressions use non-parametric indicators for SES and demographics.

The graphs reveal two interesting overall patterns. First, the combined explanatory power of personality is always close to – and sometimes exceeds – the combined explanatory power of SES and demographics. This is striking in the sense that the SES and demographic variables jointly cover the individual characteristics that are most commonly mentioned in discussions of "polarization" and the "rise of populism": gender, age, education, income, occupation, health, social connectedness, religiosity, and the city vs countryside divide. The second pattern is that for most outcomes, the adversarial economic preferences – competitiveness, negative reciprocity, lack of trust, and selfishness – jointly contribute more to the explanatory power of personality than classic and very widely studied personality traits, in particular the Big Five traits.

I will next turn to the much-debated topic of gender differences in political attitudes. In recent decades in most Western countries, a political gender gap has emerged whereby women tend to vote more left-wing than men. This gender gap has been hotly debated during the last presidential elections in the US where 57 percent of women but only 45 percent of men voted for Joe Biden over Donald Trump. Gender differences in political preferences are

smaller but still significant in the fragmented party landscape of the Netherlands. Figure A2 in the online appendix shows gender differences in voting and attitudes in the LISS sample. Women judge themselves as 0.19 standard deviations more left-wing and vote significantly more left-wing and less populist. They are also significantly more in favor of immigration, gender equality and fighting climate change. These differences are wider for younger people: among people below 55, women see themselves as 0.31 standard deviations more left-wing. We can compare these gender differences to other much-debated gaps. The urban-rural gap in political self-perception is 0.36 standard deviations and the gap between people with and without college education is 0.47 standard deviations.[26]

Many of the economic preferences and personality traits measured in the LISS data differ significantly between men and women too. Figure A3 in the online appendix shows the raw gender differences in all measured traits. To statistically explain gender differences in political preferences, a trait needs to be associated with political preferences and differ between the average man and the average woman. The traits with the biggest gender differences are agreeableness, competitiveness, negative reciprocity, psychopathy, and mental stability. Women are higher on agreeableness and lower on the other mentioned traits.

Figures A4 and A5 in the online appendix show what happens to the estimated gender gap in voting and political preferences when different personality variables are added to OLS regressions that control for demographic variables. For most outcomes, controlling for adversarial preferences has a bigger impact on the estimated gender gap than controlling for the Big Five traits, the dark triad traits, or the remaining personality traits. Including competitiveness, negative reciprocity, distrust, selfishness, and third-party punishment in a regression shrinks the estimated gender gap in self-placement on the left-right scale by more than half, reverses the gender gap in voting on the economic left-right scale, and shrinks the gender gaps in voting on the progressive-conservative and populism scales by around 50 and 35 percent respectively. The explanatory power of adversarial preferences is similarly high for the gender gaps in attitudes towards economic equality, immigration, and gender equality, but less so for attitudes towards climate change. Adding all other measured personality traits on top of the adversarial preferences increases the explanatory power for gender differences in voting only slightly, but adds explanatory power for the gender gaps in attitudes towards economic equality and climate change.

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[26]These gaps are estimates from OLS regressions controlling for gender. The urban-rural gap is the difference between people living in "very strongly urban" or "strongly urban" areas and the rest. The college gap is the difference between people who graduated from a university or a university of applied sciences and the rest.

5   Conclusion

In democracies, people's political preferences – and which party they ultimately vote for – have important social and economic consequences. Social scientists have theorized and investigated many potential mechanisms behind the formation of these preferences, including economic self interest, social background and identity, (potentially biased) belief formation, and media exposure. On the other hand, psychologists have shown that personality traits are consistent predictors of political preferences and party affiliation. This gives rise to a mental model where voting is based not only on economic interests and social identity, but on individual temperament too. Using representative Dutch survey data, I add to this literature by showing that a range of widely studied economic preferences are strong predictors of political preferences above socioeconomic status and other personality traits.

Competitiveness, reciprocity, trust and prosocial preferences are each the subject of large literatures in behavioral and experimental economics. They vary strongly across individuals and predict important life choices and outcomes. This study shows that they strongly predict voting decisions and political preferences too. The most important pattern to emerge is that people with "adversarial" preferences – competitiveness, negative reciprocity, distrust, and selfishness – are politically more right-wing. The explanatory power of these preferences is similar to, and sometimes exceeds, that of income, occupation or level of education. While both competitiveness and negative reciprocity predict right-wing politics, the underlying reasons are different. Competitive people tend to vote for economically conservative parties and favor less economic equality, less gender equality and less immigration, but also tend to vote for less populist parties. Negatively reciprocal people also favor less equality but tend to vote for socially conservative and populist parties. Distrust and selfishness predict voting for populist parties, opposing immigration and caring less about climate change, but they are less strongly related to attitudes towards equality.

The emergence of new populist parties (and populist movements within established parties) is one of the most hotly debated phenomena in Western democracies. The results presented in this paper show that voting for such parties – and embracing their positions including opposition to immigration and skepticism about climate change – is predicted as much or more by personality as it is by income, education, health or other socioeconomic variables that are typically referred to as explanatory factors in social science and the media. Extrapolating beyond the correlational nature of the analyses in this paper, if people's votes and attitudes are based on personality as well as pecuniary considerations, this can help us understand the often-observed fact that many low-income voters seem to vote "against their own economic interests". It may also lead us to discount the potential of information-based interventions to sway people's vote. Moreover, the analyses presented in this paper indicate that gender differences in personality may explain a sizeable part of the much-discussed

gender gap in politics that is observed in many Western countries.

Deep-seated differences in personally across voters might also help explain why in many countries, communicating across party lines seems increasingly difficult and contentious. The entry of a large number of new parties with differentiated profiles – the Netherlands has over recent years seen the emergence of parties as diverse as the identity politics-oriented BIJ1, the radically pro-Europe Volt, and the far-right, conspiracy-minded Forum for Democracy – means that people can increasingly choose options that match not only their social identity and economic interests but also their personality.

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Online appendix: Additional graphs and tables

Figure A1: OLS regressions: attitudes towards gender equality by gender
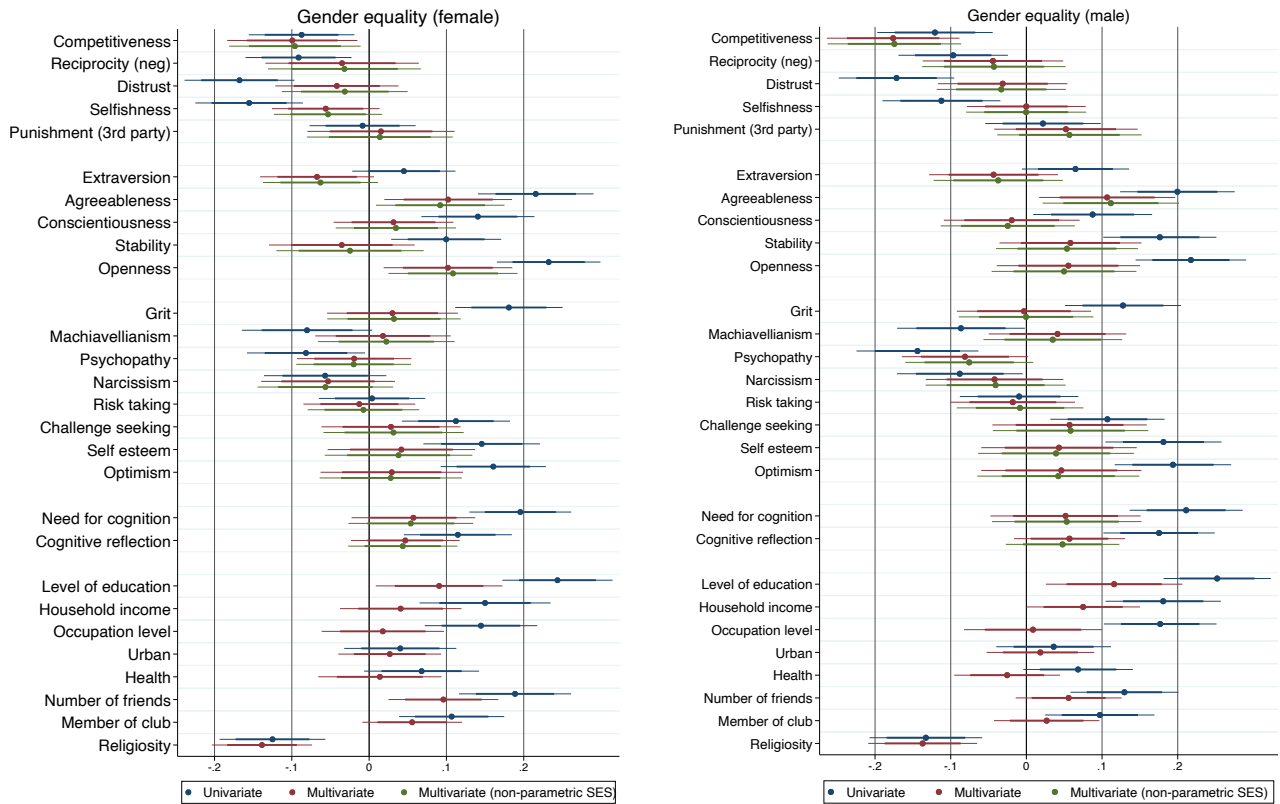
Note: Thick (thin) error bars show 95% (99.5%) confidence intervals. All regressions control for age dummies, migration background dummies (two dummies for having a western or a non-western migration background), partner living in the house, dummies for number of people in the household, and gender.

Figure A2: Gender differences in voting and political attitudes
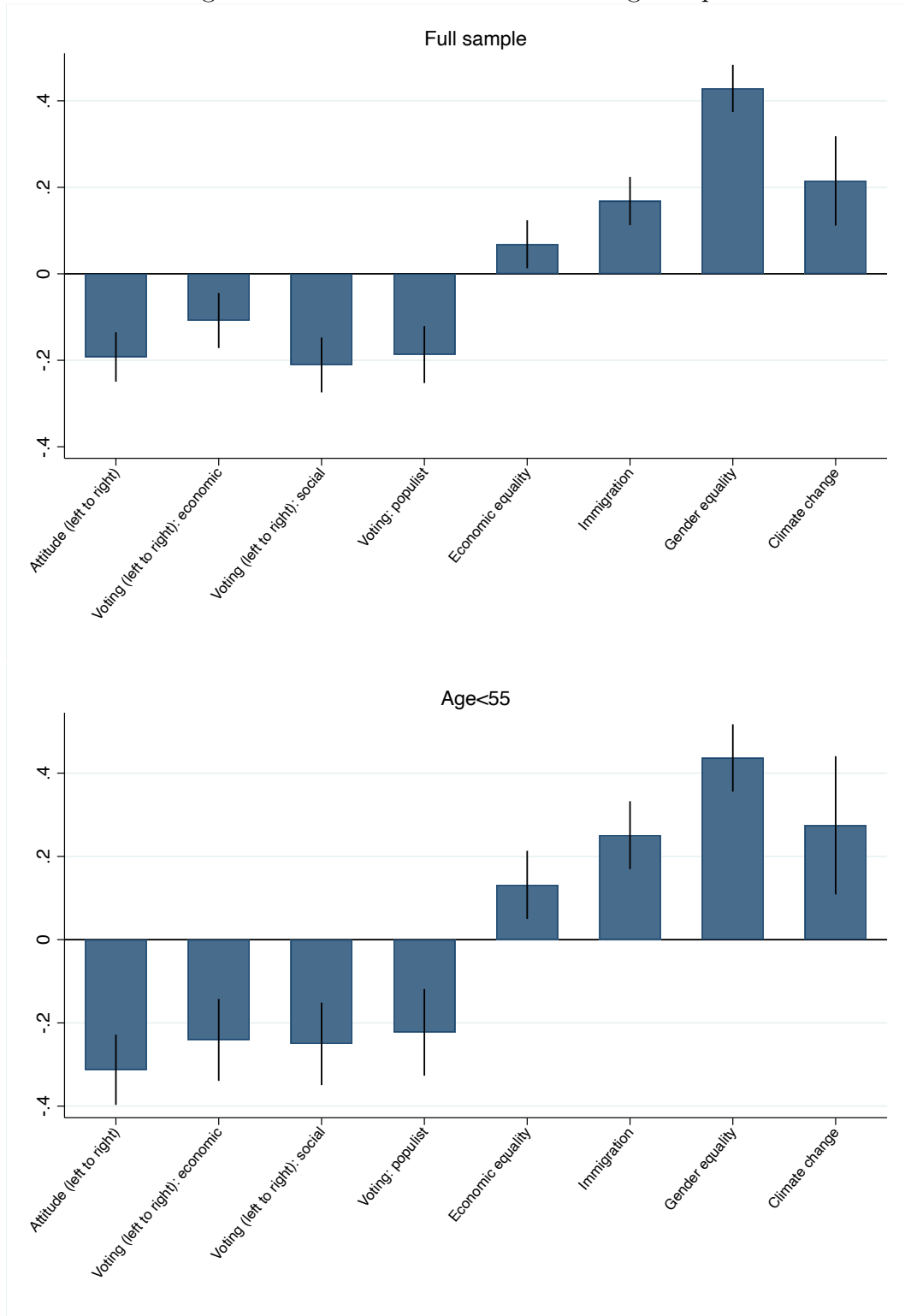
Note: All variables are standardized. Error bars represent 95-percent confidence intervals from OLS regressions.

Figure A3: Gender differences in personality
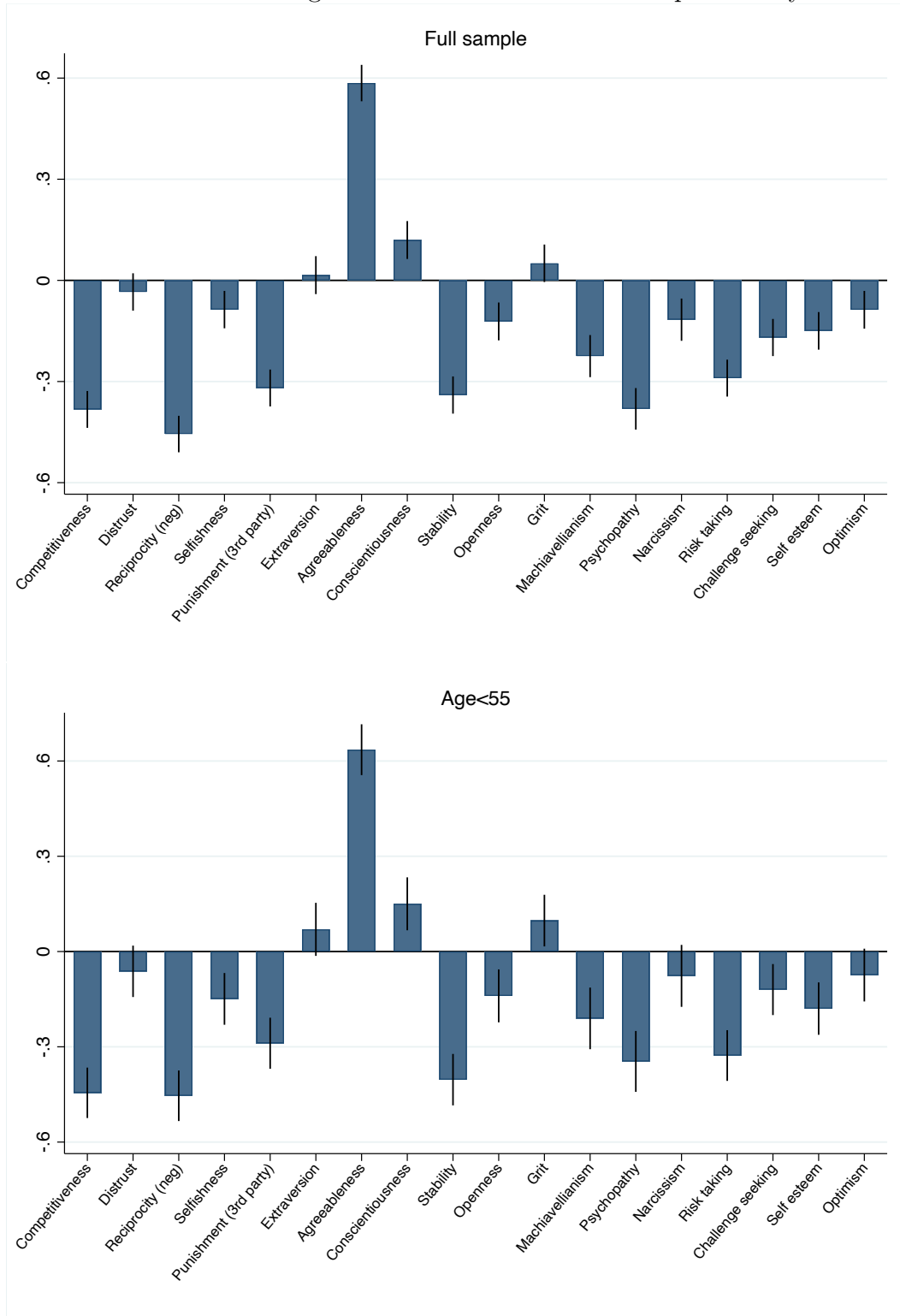
Note: All variables are standardized. Error bars represent 95-percent confidence intervals from OLS regressions.

Figure A4: Gender regressions
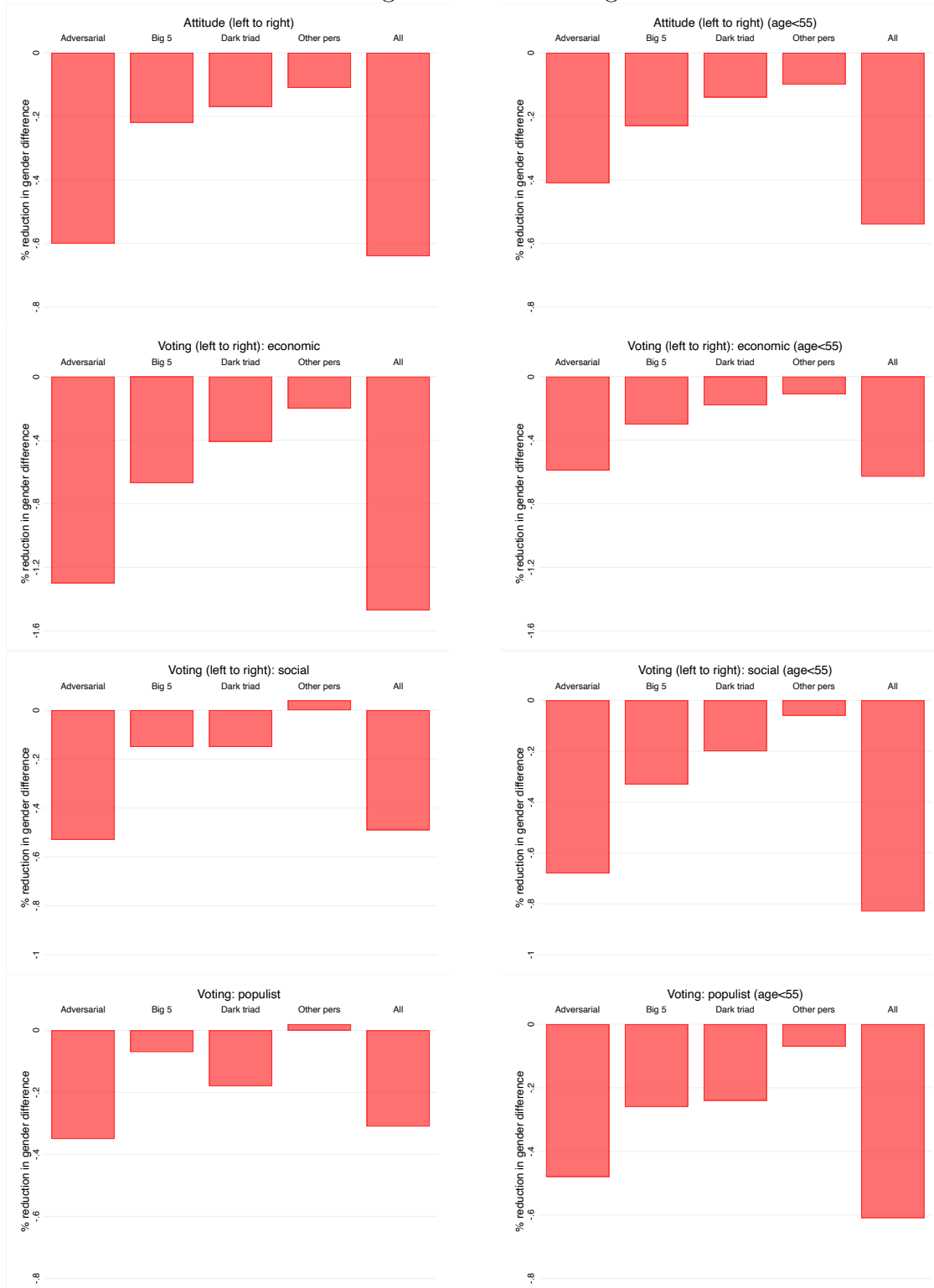
Note: "% reduction in gender difference means the difference in the coefficient on a gender dummy between OLS regressions without and with different groups of personality variables included. All regressions control for age, migration background, living with a partner, and number of people in the household. "Adversarial" means competitiveness, negative reciprocity, distrust, selfishness, and third-party punishment, "Big 5" means extraversion, agreeableness, conscientiousness, mental stability, and openness. "Dark triad" means Machiavellianism, psychopathy, and narcissism, and "Other pers" means grit, risk seeking, challenge seeking, self esteem, and optimism.

Figure A5: Gender regressions
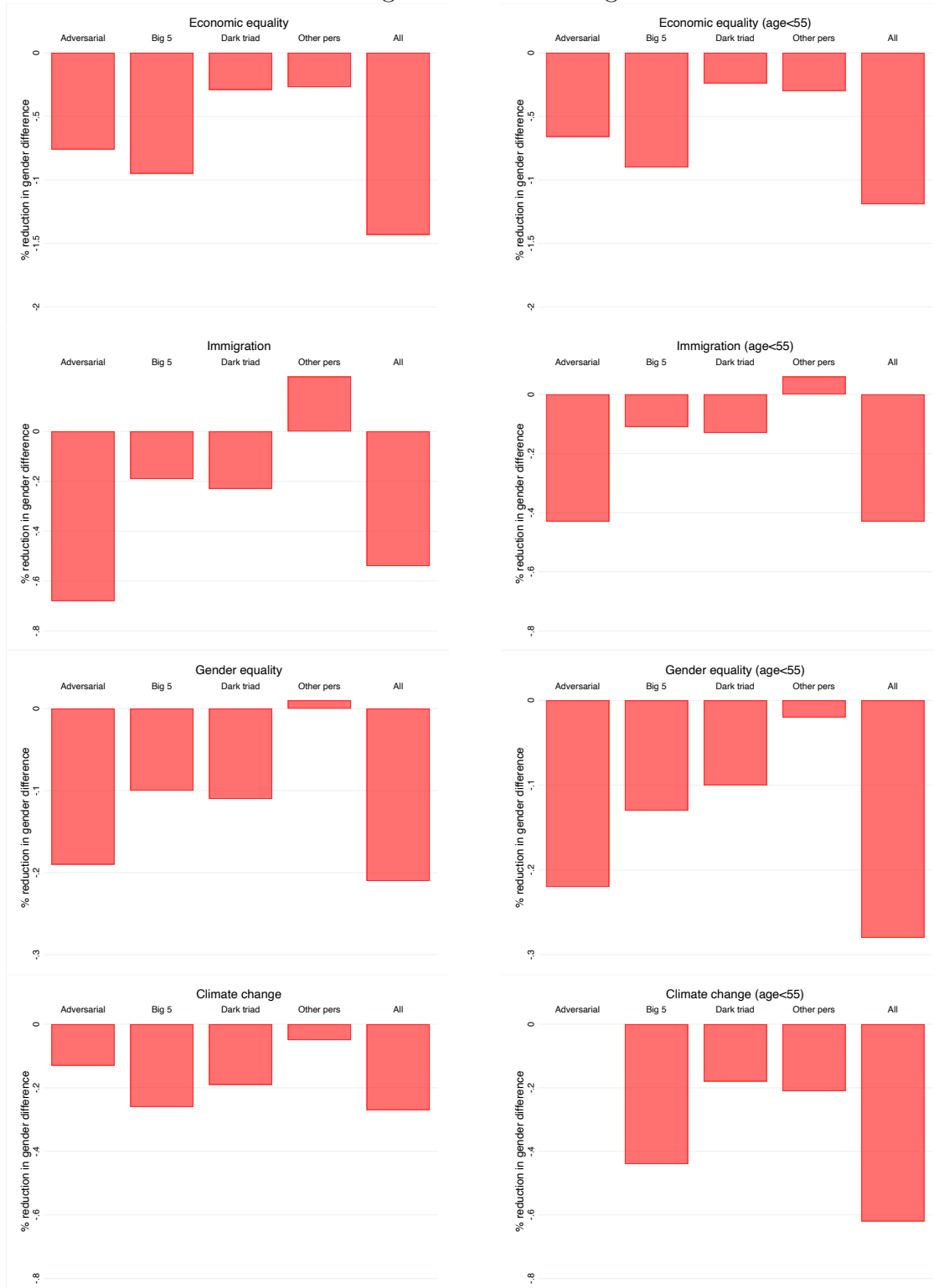
Note: "% reduction in gender difference means the difference in the coefficient on a gender dummy between OLS regressions without and with different groups of personality variables included. All regressions control for age, migration background, living with a partner, and number of people in the household. "Adversarial" means competitiveness, negative reciprocity, distrust, selfishness, and third-party punishment, "Big 5" means extraversion, agreeableness, conscientiousness, mental stability, and openness. "Dark triad" means Machiavellianism, psychopathy, and narcissism, and "Other pers" means grit, risk seeking, challenge seeking, self esteem, and optimism.

Table A1: Descriptive statistics

	N	Mean	SD	Min	P25	P50	P75	Max
Attitude (left to right)	4684	5.14	2.16	0.00	4.00	5.00	7.00	10.00
Voting (left to right): economic	3788	10.00	4.43	1.00	6.00	11.00	15.00	17.00
Voting (left to right): social	3788	8.72	4.58	1.00	4.00	9.00	12.00	17.00
Voting: populist	3522	6.11	3.71	1.00	3.00	6.00	9.00	13.00
Immigration	5016	-0.00	1.00	-2.92	-0.57	-0.10	0.61	2.73
Economic equality	4993	3.91	0.95	1.00	3.00	4.00	5.00	5.00
Climate change	1423	3.50	0.71	1.33	3.00	3.67	4.00	5.00
Gender equality	5014	4.11	0.66	1.00	3.75	4.25	4.75	5.00
Competitiveness	4999	3.56	1.08	1.00	2.85	3.62	4.31	7.00
Reciprocity (neg)	4981	4.29	2.33	0.00	2.50	4.50	6.00	10.00
Distrust	5032	3.72	1.92	0.00	2.50	3.50	5.00	10.00
Selfishness	4981	3.03	1.72	0.00	2.00	3.00	4.00	10.00
Punishment (3rd party)	4981	4.86	2.49	0.00	3.00	5.00	7.00	10.00
Extraversion	4905	3.19	0.67	1.00	2.80	3.20	3.60	5.00
Agreeableness	4905	3.84	0.53	1.30	3.50	3.90	4.20	5.00
Conscientiousness	4905	3.74	0.52	1.60	3.40	3.80	4.10	5.00
Stability	4905	3.48	0.73	1.00	3.00	3.50	4.00	5.00
Openness	4905	3.49	0.50	1.00	3.10	3.50	3.80	5.00
Grit	4985	3.53	0.51	1.50	3.20	3.50	3.90	5.00
Machiavellianism	3941	2.37	1.38	1.00	1.00	2.00	3.25	9.00
Psychopathy	3941	3.30	1.44	1.00	2.25	3.25	4.25	9.00
Narcissism	3938	3.08	1.51	1.00	2.00	3.00	4.25	9.00
Risk taking	5037	4.16	1.19	1.00	3.40	4.60	5.20	7.00
Challenge seeking	5007	4.47	1.21	1.00	4.00	4.50	5.50	7.00
Self esteem	4905	5.50	1.05	1.00	4.80	5.70	6.30	7.00
Optimism	4901	3.45	0.61	1.00	3.00	3.50	3.83	5.00
Need for cognition	3937	4.50	1.07	1.00	3.83	4.50	5.33	7.00
Cognitive reflection	3929	1.07	1.11	0.00	0.00	1.00	2.00	3.00
Level of education	5028	3.70	1.53	1.00	2.00	3.00	5.00	6.00
Household income	4601	4821.25	2988.88	0.00	2749.00	4244.12	6286.99	26448.00
Occupation level	4938	4.59	1.95	1.00	4.00	5.00	6.00	8.00
Urban	5012	2.90	1.42	1.00	2.00	3.00	4.00	5.00
Health	4548	0.00	2.68	-15.38	-0.81	0.81	1.91	2.28
Number of friends	4951	2.68	1.83	0.00	1.00	3.00	5.00	5.00
Member of club	4946	0.47	0.50	0.00	0.00	0.00	1.00	1.00
Religiosity	4890	2.04	1.04	1.00	1.00	2.00	3.00	4.00
Age	5041	53.36	18.62	16.00	38.00	56.00	69.00	103.00
Western migration backg.	4913	0.10	0.29	0.00	0.00	0.00	0.00	1.00
Non-western migration backg.	4913	0.09	0.28	0.00	0.00	0.00	0.00	1.00
Living with partner	5041	0.68	0.47	0.00	0.00	1.00	1.00	1.00
Number of people in hh	5041	2.42	1.29	1.00	2.00	2.00	3.00	9.00
Female	5041	0.53	0.50	0.00	0.00	1.00	1.00	1.00

Table A2: Attitude (left to right)

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	0.133**	0.114**	0.109**
	(0.019)	(0.023)	(0.023)
Reciprocity (neg)	0.148**	0.149**	0.151**
	(0.019)	(0.026)	(0.026)
Distrust	0.164**	0.109**	0.108**
	(0.019)	(0.022)	(0.021)
Selfishness	0.109**	0.074**	0.071**
	(0.019)	(0.020)	(0.020)
Punishment (3rd party)	0.024	-0.085**	-0.086**
	(0.019)	(0.025)	(0.025)
Extraversion	0.055**	0.074**	0.068**
	(0.019)	(0.021)	(0.021)
Agreeableness	-0.094**	-0.050*	-0.039
	(0.020)	(0.023)	(0.024)
Conscientiousness	0.086**	0.099**	0.086**
	(0.019)	(0.022)	(0.022)
Stability	0.044*	0.065*	0.055*
	(0.020)	(0.025)	(0.025)
Openness	-0.122**	-0.112**	-0.104**
	(0.019)	(0.023)	(0.023)
Grit	0.018	0.030	0.025
	(0.020)	(0.024)	(0.024)
Machiavellianism	0.033	0.022	0.021
	(0.019)	(0.023)	(0.023)
Psychopathy	0.047*	-0.010	-0.010
	(0.019)	(0.022)	(0.022)
Narcissism	-0.005	-0.034	-0.035
	(0.019)	(0.022)	(0.023)
Risk taking	0.052*	0.038	0.033
	(0.019)	(0.020)	(0.020)
Challenge seeking	0.006	-0.023	-0.026
	(0.019)	(0.024)	(0.024)
Self esteem	0.041*	0.024	0.029
	(0.019)	(0.025)	(0.025)
Optimism	-0.021	-0.019	-0.020
	(0.019)	(0.025)	(0.025)
Need for cognition	-0.081**	-0.039	-0.036
	(0.019)	(0.023)	(0.023)
Cognitive reflection	-0.053**	0.009	0.012
	(0.019)	(0.019)	(0.019)
Level of education	-0.139**	-0.101**	
	(0.019)	(0.022)	
Household income	0.069**	0.115**	
	(0.021)	(0.023)	
Occupation level	-0.006	0.040	
	(0.019)	(0.022)	
Urban	-0.048*	-0.024	
	(0.019)	(0.018)	
Health	0.010	0.003	
	(0.017)	(0.018)	
Number of friends	-0.076**	-0.027	
	(0.019)	(0.019)	
Member of club	-0.013	-0.000	
	(0.018)	(0.017)	
Religiosity	0.098**	0.113**	
	(0.018)	(0.018)	
Observations		3131	3131

Note: **p<0.005; *p<0.05.

Table A3: Voting (left to right): economic

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	0.128**	0.097**	0.091**
	(0.020)	(0.024)	(0.024)
Reciprocity (neg)	0.121**	0.110**	0.101**
	(0.020)	(0.028)	(0.028)
Distrust	0.057**	0.044	0.050*
	(0.019)	(0.023)	(0.023)
Selfishness	0.068**	0.061**	0.053*
	(0.020)	(0.021)	(0.021)
Punishment (3rd party)	0.044*	-0.046	-0.038
	(0.019)	(0.026)	(0.027)
Extraversion	0.089**	0.084**	0.076**
	(0.019)	(0.022)	(0.022)
Agreeableness	-0.075**	-0.075**	-0.068**
	(0.020)	(0.024)	(0.024)
Conscientiousness	0.091**	0.086**	0.072**
	(0.020)	(0.023)	(0.023)
Stability	0.069**	0.009	0.008
	(0.020)	(0.026)	(0.027)
Openness	-0.075**	-0.106**	-0.091**
	(0.020)	(0.024)	(0.025)
Grit	0.044*	0.031	0.024
	(0.020)	(0.024)	(0.023)
Machiavellianism	0.033	0.014	0.009
	(0.021)	(0.024)	(0.025)
Psychopathy	0.053*	0.005	0.002
	(0.020)	(0.022)	(0.022)
Narcissism	0.012	-0.038	-0.040
	(0.020)	(0.023)	(0.023)
Risk taking	0.033	-0.011	-0.012
	(0.019)	(0.021)	(0.021)
Challenge seeking	0.039	-0.027	-0.039
	(0.020)	(0.026)	(0.027)
Self esteem	0.078**	0.009	0.013
	(0.020)	(0.027)	(0.027)
Optimism	0.073**	0.061*	0.064*
	(0.020)	(0.027)	(0.027)
Need for cognition	-0.003	0.017	0.018
	(0.020)	(0.025)	(0.025)
Cognitive reflection	-0.028	-0.012	-0.007
	(0.021)	(0.021)	(0.021)
Level of education	-0.068**	-0.107**	
	(0.020)	(0.024)	
Household income	0.189**	0.198**	
	(0.022)	(0.024)	
Occupation level	0.065**	0.061*	
	(0.019)	(0.023)	
Urban	-0.032	-0.008	
	(0.020)	(0.019)	
Health	0.047*	0.007	
	(0.021)	(0.022)	
Number of friends	-0.044*	-0.032	
	(0.020)	(0.020)	
Member of club	0.056**	0.040*	
	(0.019)	(0.019)	
Religiosity	0.051*	0.066**	
	(0.019)	(0.019)	
Observations		2744	2744

Note: **p<0.005; *p<0.05.

Table A4: Voting (left to right): social

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	0.029	0.055*	0.047*
	(0.020)	(0.024)	(0.024)
Reciprocity (neg)	0.156**	0.113**	0.115**
	(0.019)	(0.025)	(0.026)
Distrust	0.253**	0.146**	0.150**
	(0.019)	(0.021)	(0.022)
Selfishness	0.138**	0.068**	0.066**
	(0.020)	(0.020)	(0.020)
Punishment (3rd party)	0.044*	-0.011	-0.010
	(0.019)	(0.024)	(0.024)
Extraversion	0.001	0.060*	0.053*
	(0.019)	(0.022)	(0.022)
Agreeableness	-0.111**	-0.054*	-0.051*
	(0.020)	(0.023)	(0.023)
Conscientiousness	0.050*	0.054*	0.050*
	(0.019)	(0.021)	(0.021)
Stability	-0.030	-0.004	-0.014
	(0.021)	(0.025)	(0.025)
Openness	-0.157**	-0.060*	-0.053*
	(0.019)	(0.023)	(0.023)
Grit	0.013	0.045*	0.041
	(0.020)	(0.023)	(0.022)
Machiavellianism	-0.039	-0.036	-0.036
	(0.021)	(0.024)	(0.024)
Psychopathy	0.064**	0.040	0.041
	(0.020)	(0.021)	(0.021)
Narcissism	-0.098**	-0.066**	-0.067**
	(0.020)	(0.023)	(0.023)
Risk taking	-0.022	-0.007	-0.011
	(0.020)	(0.020)	(0.020)
Challenge seeking	-0.045*	-0.001	-0.005
	(0.020)	(0.025)	(0.025)
Self esteem	0.000	0.047	0.047
	(0.020)	(0.025)	(0.025)
Optimism	-0.104**	-0.011	-0.008
	(0.019)	(0.025)	(0.025)
Need for cognition	-0.137**	-0.027	-0.029
	(0.019)	(0.023)	(0.023)
Cognitive reflection	-0.123**	-0.013	-0.002
	(0.020)	(0.019)	(0.019)
Level of education	-0.308**	-0.200**	
	(0.019)	(0.022)	
Household income	-0.061*	0.070**	
	(0.024)	(0.022)	
Occupation level	-0.160**	-0.028	
	(0.020)	(0.022)	
Urban	-0.116**	-0.082**	
	(0.020)	(0.019)	
Health	-0.084**	-0.033	
	(0.019)	(0.019)	
Number of friends	-0.135**	-0.048*	
	(0.020)	(0.019)	
Member of club	-0.083**	-0.020	
	(0.019)	(0.018)	
Religiosity	0.118**	0.128**	
	(0.018)	(0.017)	
Observations		2744	2744

Note: **p<0.005; *p<0.05.

Table A5: Voting: populist

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	-0.058*	-0.045	-0.053*
	(0.021)	(0.024)	(0.024)
Reciprocity (neg)	0.137**	0.115**	0.109**
	(0.021)	(0.028)	(0.028)
Distrust	0.244**	0.117**	0.120**
	(0.020)	(0.023)	(0.023)
Selfishness	0.146**	0.061**	0.058*
	(0.021)	(0.021)	(0.021)
Punishment (3rd party)	0.023	-0.020	-0.015
	(0.020)	(0.026)	(0.026)
Extraversion	-0.040*	0.015	0.010
	(0.020)	(0.023)	(0.023)
Agreeableness	-0.076**	0.008	0.002
	(0.021)	(0.024)	(0.025)
Conscientiousness	0.005	0.017	0.022
	(0.020)	(0.022)	(0.022)
Stability	-0.072**	-0.003	-0.003
	(0.021)	(0.026)	(0.026)
Openness	-0.091**	0.036	0.036
	(0.020)	(0.024)	(0.024)
Grit	-0.017	0.030	0.031
	(0.021)	(0.023)	(0.024)
Machiavellianism	-0.025	-0.026	-0.020
	(0.022)	(0.025)	(0.025)
Psychopathy	0.083**	0.056*	0.052*
	(0.021)	(0.022)	(0.023)
Narcissism	-0.105**	-0.038	-0.037
	(0.021)	(0.024)	(0.025)
Risk taking	-0.020	0.012	0.012
	(0.021)	(0.021)	(0.021)
Challenge seeking	-0.046*	0.049	0.050
	(0.021)	(0.026)	(0.026)
Self esteem	-0.034	0.058*	0.054*
	(0.021)	(0.027)	(0.027)
Optimism	-0.175**	-0.073**	-0.073**
	(0.019)	(0.026)	(0.026)
Need for cognition	-0.139**	-0.046	-0.048*
	(0.020)	(0.024)	(0.025)
Cognitive reflection	-0.130**	-0.013	-0.010
	(0.021)	(0.020)	(0.021)
Level of education	-0.313**	-0.172**	
	(0.020)	(0.024)	
Household income	-0.196**	-0.052*	
	(0.024)	(0.021)	
Occupation level	-0.240**	-0.088**	
	(0.020)	(0.022)	
Urban	-0.086**	-0.070**	
	(0.021)	(0.020)	
Health	-0.156**	-0.077**	
	(0.020)	(0.020)	
Number of friends	-0.114**	-0.019	
	(0.021)	(0.020)	
Member of club	-0.112**	-0.025	
	(0.020)	(0.019)	
Religiosity	-0.063**	-0.054**	
	(0.020)	(0.019)	
Observations		2561	2561

Note: **$p<0.005$; *$p<0.05$.

Table A6: Economic equality

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	-0.125**	-0.090**	-0.088**
	(0.018)	(0.022)	(0.022)
Reciprocity (neg)	-0.089**	-0.107**	-0.110**
	(0.019)	(0.026)	(0.026)
Distrust	-0.021	-0.007	-0.008
	(0.019)	(0.022)	(0.022)
Selfishness	-0.059**	-0.052*	-0.055**
	(0.018)	(0.020)	(0.019)
Punishment (3rd party)	-0.017	0.074**	0.072**
	(0.019)	(0.025)	(0.025)
Extraversion	-0.019	-0.030	-0.031
	(0.018)	(0.020)	(0.020)
Agreeableness	0.141**	0.134**	0.128**
	(0.019)	(0.022)	(0.022)
Conscientiousness	-0.031	-0.052*	-0.048*
	(0.018)	(0.020)	(0.021)
Stability	-0.053**	-0.026	-0.031
	(0.018)	(0.024)	(0.024)
Openness	0.054**	0.080**	0.078**
	(0.018)	(0.023)	(0.023)
Grit	0.000	-0.011	-0.008
	(0.019)	(0.022)	(0.022)
Machiavellianism	-0.054*	-0.002	-0.004
	(0.020)	(0.024)	(0.024)
Psychopathy	-0.057**	0.009	0.009
	(0.019)	(0.021)	(0.021)
Narcissism	-0.048*	0.008	0.012
	(0.019)	(0.023)	(0.023)
Risk taking	-0.061**	-0.032	-0.035
	(0.018)	(0.020)	(0.020)
Challenge seeking	-0.040*	0.029	0.031
	(0.018)	(0.025)	(0.025)
Self esteem	-0.029	0.021	0.022
	(0.018)	(0.025)	(0.025)
Optimism	-0.060**	-0.044	-0.034
	(0.018)	(0.024)	(0.024)
Need for cognition	-0.036*	-0.043	-0.044
	(0.018)	(0.023)	(0.023)
Cognitive reflection	-0.028	-0.013	-0.011
	(0.018)	(0.018)	(0.018)
Level of education	-0.045*	-0.008	
	(0.019)	(0.022)	
Household income	-0.226**	-0.215**	
	(0.023)	(0.024)	
Occupation level	-0.093**	-0.031	
	(0.018)	(0.021)	
Urban	0.039*	0.027	
	(0.018)	(0.018)	
Health	-0.059**	-0.012	
	(0.018)	(0.019)	
Number of friends	0.057**	0.055**	
	(0.018)	(0.019)	
Member of club	-0.029	0.004	
	(0.017)	(0.017)	
Religiosity	-0.037*	-0.062**	
	(0.018)	(0.018)	
Observations		3258	3258

Note: **p<0.005; *p<0.05.

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Table A7: Immigration

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	-0.048*	-0.108**	-0.103**
	(0.019)	(0.022)	(0.022)
Reciprocity (neg)	-0.171**	-0.152**	-0.147**
	(0.019)	(0.025)	(0.025)
Distrust	-0.357**	-0.210**	-0.212**
	(0.018)	(0.020)	(0.020)
Selfishness	-0.227**	-0.126**	-0.119**
	(0.018)	(0.018)	(0.018)
Punishment (3rd party)	0.007	0.075**	0.070**
	(0.019)	(0.023)	(0.024)
Extraversion	0.058**	-0.041*	-0.036
	(0.019)	(0.021)	(0.021)
Agreeableness	0.167**	0.030	0.030
	(0.019)	(0.022)	(0.022)
Conscientiousness	-0.048*	-0.091**	-0.090**
	(0.019)	(0.020)	(0.020)
Stability	0.093**	-0.010	-0.009
	(0.019)	(0.023)	(0.023)
Openness	0.203**	0.061**	0.054*
	(0.018)	(0.021)	(0.021)
Grit	0.025	-0.073**	-0.070**
	(0.019)	(0.021)	(0.021)
Machiavellianism	0.005	0.031	0.032
	(0.018)	(0.021)	(0.021)
Psychopathy	-0.094**	-0.043*	-0.041*
	(0.019)	(0.019)	(0.019)
Narcissism	0.046*	0.010	0.008
	(0.018)	(0.021)	(0.021)
Risk taking	0.085**	0.032	0.033
	(0.019)	(0.019)	(0.019)
Challenge seeking	0.125**	0.049*	0.054*
	(0.019)	(0.022)	(0.022)
Self esteem	0.068**	-0.037	-0.036
	(0.019)	(0.023)	(0.024)
Optimism	0.205**	0.081**	0.079**
	(0.019)	(0.024)	(0.024)
Need for cognition	0.209**	0.073**	0.076**
	(0.019)	(0.022)	(0.022)
Cognitive reflection	0.130**	0.012	0.005
	(0.018)	(0.017)	(0.017)
Level of education	0.289**	0.127**	
	(0.018)	(0.021)	
Household income	0.114**	-0.028	
	(0.022)	(0.019)	
Occupation level	0.188**	0.036	
	(0.018)	(0.020)	
Urban	0.062**	0.048**	
	(0.019)	(0.016)	
Health	0.085**	0.010	
	(0.018)	(0.017)	
Number of friends	0.155**	0.042*	
	(0.018)	(0.017)	
Member of club	0.081**	0.001	
	(0.017)	(0.016)	
Religiosity	0.015	-0.007	
	(0.019)	(0.017)	
Observations		3261	3261

Note: **$p<0.005$; *$p<0.05$.

Table A8: Gender equality

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	-0.101**	-0.132**	-0.130**
	(0.018)	(0.021)	(0.021)
Reciprocity (neg)	-0.094**	-0.050*	-0.049*
	(0.018)	(0.024)	(0.024)
Distrust	-0.167**	-0.035	-0.031
	(0.018)	(0.020)	(0.020)
Selfishness	-0.133**	-0.033	-0.030
	(0.018)	(0.018)	(0.018)
Punishment (3rd party)	0.012	0.042	0.040
	(0.018)	(0.024)	(0.024)
Extraversion	0.053**	-0.056**	-0.052*
	(0.017)	(0.019)	(0.020)
Agreeableness	0.206**	0.099**	0.097**
	(0.019)	(0.022)	(0.022)
Conscientiousness	0.113**	0.014	0.014
	(0.018)	(0.020)	(0.020)
Stability	0.140**	0.016	0.018
	(0.018)	(0.023)	(0.023)
Openness	0.220**	0.081**	0.079**
	(0.017)	(0.021)	(0.021)
Grit	0.150**	0.007	0.008
	(0.018)	(0.021)	(0.021)
Machiavellianism	-0.084**	0.023	0.023
	(0.021)	(0.022)	(0.022)
Psychopathy	-0.105**	-0.042*	-0.040*
	(0.019)	(0.019)	(0.019)
Narcissism	-0.074**	-0.051*	-0.053*
	(0.020)	(0.022)	(0.022)
Risk taking	-0.001	-0.018	-0.010
	(0.018)	(0.019)	(0.019)
Challenge seeking	0.111**	0.042	0.046*
	(0.018)	(0.023)	(0.023)
Self esteem	0.155**	0.031	0.028
	(0.018)	(0.024)	(0.024)
Optimism	0.172**	0.035	0.032
	(0.018)	(0.024)	(0.024)
Need for cognition	0.202**	0.054*	0.057*
	(0.017)	(0.022)	(0.022)
Cognitive reflection	0.142**	0.046*	0.039*
	(0.018)	(0.018)	(0.018)
Level of education	0.244**	0.099**	
	(0.017)	(0.021)	
Household income	0.162**	0.054**	
	(0.020)	(0.018)	
Occupation level	0.165**	0.022	
	(0.018)	(0.021)	
Urban	0.037*	0.021	
	(0.018)	(0.017)	
Health	0.064**	-0.007	
	(0.017)	(0.018)	
Number of friends	0.159**	0.077**	
	(0.018)	(0.017)	
Member of club	0.102**	0.048**	
	(0.017)	(0.016)	
Religiosity	-0.128**	-0.137**	
	(0.018)	(0.017)	
Observations		3261	3261

Note: **p<0.005; *p<0.05.

Table A9: Climate change

	(1) Univariate	(2) Multivariate	(3) Nonparametric
Competitiveness	0.009	-0.062	-0.062
	(0.037)	(0.041)	(0.042)
Reciprocity (neg)	-0.056	-0.087	-0.092
	(0.035)	(0.047)	(0.047)
Distrust	-0.209**	-0.085*	-0.078
	(0.035)	(0.040)	(0.040)
Selfishness	-0.290**	-0.226**	-0.226**
	(0.033)	(0.035)	(0.035)
Punishment (3rd party)	0.088*	0.105*	0.114*
	(0.036)	(0.048)	(0.048)
Extraversion	-0.001	-0.091*	-0.077*
	(0.034)	(0.036)	(0.037)
Agreeableness	0.133**	0.023	0.025
	(0.039)	(0.043)	(0.044)
Conscientiousness	0.041	-0.029	-0.027
	(0.036)	(0.038)	(0.040)
Stability	-0.026	-0.056	-0.055
	(0.036)	(0.045)	(0.046)
Openness	0.177**	0.090*	0.094*
	(0.034)	(0.042)	(0.042)
Grit	0.023	-0.076	-0.069
	(0.037)	(0.041)	(0.041)
Machiavellianism	0.007	-0.003	-0.000
	(0.040)	(0.043)	(0.043)
Psychopathy	-0.090*	-0.058	-0.060
	(0.038)	(0.037)	(0.038)
Narcissism	0.141**	0.130**	0.133**
	(0.036)	(0.040)	(0.039)
Risk taking	-0.037	-0.086*	-0.085*
	(0.036)	(0.038)	(0.039)
Challenge seeking	0.069	0.024	0.044
	(0.036)	(0.044)	(0.046)
Self esteem	0.054	0.090	0.084
	(0.037)	(0.048)	(0.049)
Optimism	0.084*	-0.010	-0.007
	(0.037)	(0.051)	(0.051)
Need for cognition	0.141**	-0.015	-0.017
	(0.034)	(0.041)	(0.042)
Cognitive reflection	0.154**	0.033	0.045
	(0.033)	(0.032)	(0.033)
Level of education	0.281**	0.135**	
	(0.033)	(0.042)	
Household income	0.150**	0.036	
	(0.036)	(0.036)	
Occupation level	0.209**	0.068	
	(0.033)	(0.040)	
Urban	0.070*	0.038	
	(0.036)	(0.032)	
Health	0.041	-0.041	
	(0.037)	(0.040)	
Number of friends	0.157**	0.066*	
	(0.032)	(0.032)	
Member of club	0.039	-0.033	
	(0.033)	(0.031)	
Religiosity	-0.027	-0.068*	
	(0.035)	(0.032)	
Observations		1015	1015

Note: **p<0.005; *p<0.05.