Interpersonal trust and welfare state support

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Abstract

The economic importance of the welfare state has increased strongly over time, which has generated a vast academic literature studying the determinants of (preferences towards) redistribution. This article argues that citizens' trust in their fellow citizens can play a central role for welfare state support, because it buttresses the belief that others will not use the welfare system inappropriately. Using the fourth wave of the European Social Survey, we confirm a strong positive association between interpersonal trust and welfare state support (controlling for institutional trust). We also show that: *i)* this link is driven at least in part by the mechanism discussed above; *ii)* causality runs from interpersonal trust to welfare state support (using a sub-sample of second generation immigrants); and *iii)* the effect of interpersonal trust appears conditional on the perceived quality of a country's institutions.

Keywords: Trust, Welfare State, Redistribution, Procedural Justice, ESS.

JEL codes: D63, H5, H2

1. Introduction

The economic importance of social welfare programs has increased strongly over time. For instance, total social spending in OECD countries rose from an average level of 6% of GDP in 1960, to an average just under 22% in 2012 (see http://stats.oecd.org). As redistributive public policies require "*individual* support for taxing higher incomes more heavily and targeting expenditures to social need" (Costa Font and Cowell, 2013, 3, italics added), numerous scholars have analysed public support for income redistribution. Most thereby rely on hypotheses derived from either self-interest or political ideology (Esping-Andersen and Myles, 2011; Costa Font and Cowell, 2013). The former holds that individuals directly benefiting from a given public service – such as the socially vulnerable in the case of welfare policies – support it relatively more (Alesina and La Ferrara, 2005; Hays et al., 2005; Mayda and Rodrik, 2005). This view is also reflected in formal models of redistribution based on the median voter theorem (Meltzer and Richard, 1981; Moene and Wallerstein, 2001, 2003). The second perspective concentrates on individuals' ideological convictions. Left-leaning individuals are thereby typically seen as more in favour of redistribution, although their ability to achieve these higher preferred levels of redistribution is likely to be mediated by the effective legislative power of left-wing parties (Freier and Odendahl, 2012; Fiva et al., 2014; Folke, 2014).

In two interesting recent contributions, Rothstein et al. (2012) and Svallfors (2013) argue that public support for social welfare policies is affected by citizens' trust in the institutional fairness and effectiveness of the procedures that regulate the production and distribution of public goods. The underlying argument goes back to the importance of *procedural justice*, whereby citizens must believe that public goods are produced and distributed in an impartial and efficient way (Rothstein, 1998).[1]

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[1] This same line of argument has also been brought forward in studies maintaining that individuals' trust in EU institutions is a critical determinant for EU support in general (Sanchez-Cuenca, 2000) as well as for specific EU policies (Daniele and Geys, 2015).

Our main contribution lies in focusing on the potential relevance for welfare state support of *interpersonal* trust among the members of a given community (over and above *institutional* trust). While interpersonal trust has previously been linked to, for instance, economic growth (Knack and Keefer, 1997), financial development (Guiso et al., 2004) and international trade (Guiso et al., 2009), its potential significance for welfare state support has thus far been mostly disregarded. This, we argue, is unjustified. The reason is that public policy programs are generally implemented through continuous and repeated interactions between institutions and citizens, as well as among citizens. Consequently, public good provision is likely to be deficient when citizens do not cooperate and "co-produce" public goods (Parks et al., 1981, 1002; see also De Witte and Geys, 2013). Support for social welfare policies thus will at least in part reflect one's belief in the trustworthy and cooperative nature of one's fellow citizens – as this determines one's expectations concerning a *just distribution of the burden* of public policies (Rothstein, 1998). Since individuals engaging in disruptive activities (such as cheating, free riding or tax evasion) can undermine public good provision independent of institutions' quality, support for social welfare policies requires the trust that one's fellow citizens abstain from such disruptive behaviours. As 'interpersonal trust' refers to the expectation of "honest and cooperative behaviour (…) on the part of other members of [one's] community" (Fukuyama, 1995, 26), the above line of argument leads to the hypothesis that, all else equal, trusting individuals will be more likely to believe that others do not misbehave in dealing with public goods (i.e. in the sense of exploiting the system to achieve benefits they are not entitled to, or avoiding payments they should normally endure). Relative to less trusting individuals, this bolsters their support for social welfare policies.[2]

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[2] Unless otherwise specified, our use of 'trust' throughout the remainder of the manuscript refers to *interpersonal* rather than *institutional* trust. Note also that such hypothesised positive connection between trust and public policy preferences is not entirely without precedent. Yamamura (2012), for instance, relates community participation to preferences for inequality, arguing that rich people are more likely to favour redistributive policies when they can perceive a direct gain in terms of "an improvement in the evaluation from the neighbouring people" (Yamamura, 2012, 500).

Our central line of argument is reminiscent of moral hazard problems that can arise when good and adverse outcomes in life depend on personal decisions about self-reliance (Hillman 2009, 541-543). If the decision to invest high or low effort in self-reliance in such a setting is private information, the level of public welfare provision can become inappropriate when people choose low effort at self-reliance even though they could, in principle, be self-reliant. A similar problem in terms of an inappropriate level of public welfare provision can arise even without asymmetric information, as originally pointed out in Buchanan's (1975) article on the Samaritan's dilemma. In a high-trust environment, however, such Samaritan's dilemma would not arise *if* the high level of trust were justified (i.e. a fixed-point type equilibrium with a high level of public welfare provision would be sustainable). Basically, the central role of interpersonal trust in this framework becomes buttressing the belief that, if you support the welfare state, you can trust people *not* to put you in a situation where you make the error of giving money to people taking advantage of your goodwill.

Interestingly, a similar prediction – i.e. a positive relation between trust and support for social welfare policies – can also be inferred from the experimental economics literature employing public good games (PGG) to measure trust and cooperative behaviour (Karlan, 2005; Carpenter and Seki, 2011; Fehr and Leibbrandt, 2011; Thöni et al., 2012). Since each player in a PGG benefits from others' donations, there exists an individual-level free-riding incentive *even though* a higher total level of contributions benefits the group as a whole (for more details on PGG, see Ledyard, 1995). In equilibrium, larger contributions to the public good thus reflect higher expectations of reciprocal cooperation, because only players believing that others will do the same should contribute (Karlan, 2005; Carpenter and Seki, 2011; Fehr and Leibbrandt, 2011; Thöni et al., 2012). Within the confines of a PGG, contributions to the public good can therefore be interpreted as support for social welfare policies (i.e. paying a little into the system such as to

make everyone better off). This implies a positive association between trust and support for the welfare state.

Although such proposed link between trust and welfare state *support* has thus far been neglected, two recent studies explore the link between trust and welfare state *size* (Bergh and Bjørnskov, 2011, 2014). Bergh and Bjørnskov (2011) establish that historical levels of trust are causally related to the current size of the welfare state. This finding is further substantiated in Bergh and Bjørnskov (2014), which points out the lack of evidence for a reverse relation running from welfare state policies to trust. Our argument can be seen as complementary to Bergh and Bjørnskov (2011, 2014). Indeed, by evaluating the effect of trust on welfare state *support*, we look into one plausible mechanism explaining the link between trust and welfare state *size*.

Aggregate-level data appear in line with our central hypothesis. In Figure 1, we plot expenditure on social benefits and services as % of GDP in 2012 for 34 OECD countries on the x-axis. The y-axis shows the share of individuals in those same countries agreeing that "most people can be trusted" (data taken from the World Value Survey). In line with our key proposition, the raw correlation between both variables is positive and statistically significant at conventional levels (r=0.36; p<0.05).

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Figure 1 about here

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Yet, as outlined above, public good provision results from a close cooperation between citizens and institutions. Therefore, even if citizens do not abuse the welfare system, the final outcome – in terms of welfare provisions – might not satisfy their expectations when institutions do not reciprocate citizens' behaviour. Under such a scenario, the positive effect of interpersonal trust on social welfare support would only arise *conditional* on the (perceived) quality of public institutions. This supplementary hypothesis is closely linked to Svallfors' (2013) argument that

individuals' egalitarian attitudes and beliefs only foster support for the welfare state conditional upon institutions' impartiality and efficiency.

In the remainder of this article, we verify the main implications of the above discussion using the fourth wave of the European Social Survey. The analysis generates four key insights. First, we find that trust is significantly *positively* correlated with support for social welfare provisions, even after controlling for respondents' institutional trust and personal characteristics. The strength of this association is roughly comparable to that of institutional trust. Second, we show that part of the association between trust and support for welfare provisions is indeed due to trusting individuals' belief in co-citizens' proper use of public goods. Clearly, however, inference based on a simple correlation analysis of survey data cannot be considered causal, since unobserved personality characteristics may induce both higher trust and positive feelings towards the welfare state. Hence, our third main result derives from a causality test using a sub-sample of second generation immigrants (for a similar approach, see Alesina and Giuliano, 2010; Dinesen, 2013; Alesina et al., 2014). This confirms that causality runs from trust to welfare support. Finally, we find supportive evidence for a stronger effect of trust on welfare support in countries where institutions are perceived as fair and uncorrupted. This corroborates the idea that the positive effect of trust on social welfare support is *conditional* on the quality of public institutions.

2. Empirical approach

2.1. Model specification

To empirically assess the relation between trust and welfare state support, we rely on data from the European Social Survey (ESS). The ESS is a multi-national survey collected every two years, and covers a wide range of individual attitudes, beliefs and behaviours (more details about response rates, collection schedules and methodology can be found at http://www.europeansocialsurvey.org/). We base our analysis on the fourth wave of the ESS,

which was conducted in 2008-2009. This wave, unlike other waves, is particularly useful for our analysis as it includes a wide set of questions on preferences towards the welfare state. It covers 56.752 respondents from 29 countries.[3] We employ this dataset to estimate the following baseline specification (with subscript i for individuals and j for country).

$$Welfare\ Support_{i,j} = \alpha_j + \beta_1\ Trust_{i,j} + \beta_2\ Misbehaviour_{i,j} + \beta_3\ Control_{i,j} + \varepsilon_{i,j} \qquad (1)$$

Welfare Support$_{i,j}$ operationalizes individual-level preferences towards social welfare provisions based on a question gauging respondents' position with respect to the welfare state:

"Many social benefits and services are paid for by taxes. If the government had to choose between increasing taxes and spending more on social benefits and services, or decreasing taxes and spending less on social benefits and services, which should they do?"

Answers are collected on a scale from 0 ('Decrease taxes and social spending a lot') to 10 ('Increase taxes and social spending a lot'). It is important to note here that the question accounts for the trade-off between social spending and taxes, such that expressing a preference for higher spending *and* lower taxes is impossible. As can be seen from the summary statistics presented in table A1 in Appendix A, the mean response lies just to the right of the midpoint of the answer scale, such that respondents on average tend to display a weak preference towards an increase in taxes and social spending.

In line with a large foregoing literature (Putnam, 1995; Uslaner, 2002; Thöni et al., 2012), the explanatory variable of central interest (*Trust*$_{i,j}$) is operationalized using respondents' answer to the following statement:

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[3] These 29 countries are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK and Ukraine.

"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted."

Given our hypothesis of a positive relation between (interpersonal) trust and support for social welfare policies, we expect $\beta_1 > 0$. Still, Thöni et al. (2012) recently argued that this standard trust question is more likely to capture *own* cooperative preferences, whereas beliefs about *others'* cooperativeness (our key theoretical mechanism of interest, see above) are better captured by an alternative question gauging individuals' 'fairness':

"Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?

As this 'fairness' question is also included in the ESS, we will employ it as an alternative measure of trusting attitudes in the analysis below (*Fairness$_{i,j}$*). As before, we expect $\beta_1 > 0$.[4]

One might argue at this point that linking redistributive preferences (i.e. our dependent variable) to individuals' trust (i.e. our central independent variable) amounts to linking one self-reported attitude to another self-reported attitude. As an additional robustness check, we therefore also employ a variable that captures individuals' *actual* cooperativeness. Given that association membership is often shown to be closely tied to trusting and cooperative attitudes (Putnam, 1995; Coffé and Geys, 2007; Yamamura, 2012), we thereby operationalize individuals' *actual* cooperativeness via the following question: *"There are different ways of trying to improve things in [country] or help prevent things from going wrong. During the last 12 months, have you done any of the following? Have you worked in another organisation or association?" (Yes/No).*

In our theoretical line of argument, the key mechanism linking trust and support for social welfare provisions is that trust undermines individuals' expectations regarding others'

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[4] Note that we abstain from using both variables simultaneously since they are very strongly correlated (r=0.77; p<0.001), which would lead to substantial multicollinearity issues.

misconduct with respect to public good provision. To directly address the explanatory power of this transmission channel, we follow the 'causal steps' approach set out by Baron and Kenny (1986), and insert an additional variable – *Misbehaviour$_{i,j}$* – into the regression model. This variable directly measures respondents' perception of their fellow citizens' likelihood to cheat on welfare state support via three closely related statements.

"Most unemployed people do not really try to find a job;

Many people manage to obtain benefits and services to which they are not entitled;

Employees often pretend they are sick in order to stay at home."

Answers are recorded on a 5-point scale where 1 represents 'Agree Strongly' and 5 represents 'Disagree Strongly'. We invert this scale such that higher values reflect a stronger scepticism of others' behaviour with respect to social welfare policies. A factor analysis of the answers to these three statements reveals the presence of a single factor (with eigenvalue equal to 1.646, and explained variance equal to 54.9%) upon which all elements load strongly (i.e. all factor loadings exceed 0.71). The predicted values of this factor variable are employed in the analysis to estimate its importance as a mechanism linking trust and support for social welfare provisions: i.e. *if* the mechanism linking trust to welfare support is related to expectations regarding others' misconduct dealing with public goods, *then* the introduction of *Misbehaviour$_{i,j}$* will reduce the explanatory power of trust in equation (1) (Baron and Kenny, 1986; Kam and Zechmeister, 2013).

To mitigate the potential for missing variable bias, we first of all include a full set of country fixed effects to account for possible unobserved heterogeneity across countries (α_j). Then, the vector of control variables (*Control$_{i,j}$*) includes several demographic and socio-economic controls: i.e. female (0 for male, 1 for female), age (in years), age squared, citizenship status (1 if citizenship, 0 otherwise), education (three indicator variables for elementary or low-secondary, secondary, and university education), marital status (married, separated or divorced and single), employment status (six separate indicator variables; see Appendix A for details), self-reported

income (recoded into four categories: low-income, middle-income, high-income and no income data available) and political orientation (self-placement on a 0-10 left-right scale). We also control for individuals' feelings of social solidarity as this might induce favourable opinions towards social welfare provisions (Rothstein and Uslaner, 2005), and can help account for the potential importance of individual beliefs in the determination of political or social opinions (Benabou and Tirole, 2006). This is operationalized using the following question: "*Please tell me how much [this] person is or is not like you: It's very important to her/him to help the people around her/him. She/he wants to care for their well-being*". Answers are coded from "Very much like me" (1) to "Not like me at all" (6). We invert the original scale to obtain a measure that increases in respondents' feelings of solidarity.

Finally, since the existing literature shows welfare state support to be dependent upon trust in institutions (Rothstein et al., 2012; Svallfors, 2013), we also control for people's trust in the country's parliament, legal system, police, politicians and political parties. Individuals' trust in the executive and supervisory branches of government appears the most appropriate operationalization here since these, respectively, administer social welfare programmes and judge possible welfare state abuses (Svallfors, 2013). The original question reads:

"*How much do you personally trust each of the following institutions [0 means you do not trust an institution at all, and 10 means you have complete trust]?*"

We combine respondents' answers into a single factor (with eigenvalue equal to 3.94, and explained variance equal to 0.66) upon which all elements load strongly (i.e. all factor loadings exceed 0.67). Using each variable independently does not affect our key results, but induces substantial multicollinearity concerns. While conceptually distinct, institutional and interpersonal trust are strongly correlated ($r = 0.328$; $p<0.001$). Auxiliary tests indicate, however, that this is not causing any multicollinearity issues in the analysis below. Coding details and summary statistics for all variables are provided in Appendix A.

As our analysis largely relies on survey questions to investigate individuals' attitudes, it is important to note that we are aware that respondents' answers might be affected by several factors including the framing or phrasing of the question, social desirability, or even respondents' inaccuracy regarding their own *true* attitudes (Bertrand and Mullainathan, 2001; Hillman, 2010). We try to deal with these concerns in a number of ways. First, it is critical for the credibility of our central explanatory variable – i.e. $Trust_{i,j}$ – that most respondents interpret the reference to 'most people' in the same way (Sturgis and Smith, 2010). Fortunately, recent research has shown this to hold, as the "question seems to work well in Western and affluent nations" (Delhey et al., 2011, 800). Second, recent experimental evidence suggests that survey questions on trust are closely related to individuals' *real* attitudes (Thöni et al., 2012). Even so, as a further robustness check assessing the validity of our survey-based inferences, we rely on an additional proxy for trust that builds on respondents' *actual* behaviour. We thereby employ the latter both in its own right, and as an instrument for the central $Trust_{i,j}$ variable (see below).

2.2. Causality

Before turning to the results, it is important to note that causal inference based on survey data collected at one point in time is extremely difficult. In our setting, there might not only be reverse causality running from social welfare support to trust (though recent evidence in Bergh and Bjørnskov (2014) suggests that this is probably of minor concern), but also unobserved personality traits that simultaneously induce both higher trust and positive feelings towards the welfare state. To address this, we follow recent work by Alesina and Giuliano (2010) in replicating our baseline analysis on the full ESS sample (which can at best uncover a correlation between trust and welfare state support) on a sub-sample of second generation immigrants (Dinesen, 2013; Alesina et al., 2014). In this extension, the central *Trust* (or *Fairness*) variable in equation (1) does not correspond to respondents' self-reported level of trust (as it does in the

baseline analysis), but instead reflects the average level of trust (or perceived 'fairness') in the country of origin of the respondents' parents. Specifically, we assign the average level of trust (or perceived 'fairness') in the country of origin of the father if the father or both parents were immigrants, and the level of trust (or perceived 'fairness') in the mother's country of origin if only the mother was an immigrant. These country-level data were calculated using all available waves of the European and World Values Surveys (see also Alesina and Giuliano, 2010; Dinesen, 2013; Alesina et al., 2014).

This approach allows an assessment of causality here for two reasons. First, it avoids any possible reverse causality running from welfare support to trust, because welfare state support of any given individual is highly unlikely to affect the average level of trust in the country of origin of the respondents' parents. Second, the country-level measure of trust is independent of possible unobserved personality traits that may induce both higher trust and positive feelings towards the welfare state. However, and crucially, it remains correlated to respondents' trust because social norms such as trust generally change slowly over time and persist across generations (Inglehart and Baker, 2000). This key identifying assumption is further substantiated in recent experimental research illustrating that "trust beliefs are heterogeneous across individuals and, at the same time, persistent across generations" (Butler et al., 2015, 1).

For the credibility and reliability of any results obtained from this subsample, it is important to observe at this point that the average level of welfare support is roughly equivalent across the complete sample and the sample of second generation immigrants. Specifically, the mean level of welfare state support on a scale from 0 to 10 lies at 5.14 for second generation immigrants and at 5.09 for all other respondents in the survey sample (p-value<0.10).

3. Results

3.1 Main results

Our main findings – based on a linear multilevel model (Snijders and Bosker, 1999) where individuals (level 1) are clustered within countries (level 2) – are brought together in tables 1 and 2.[5] In both tables, column (1) represents a baseline model that only includes our central explanatory variable ($Trust_{i,j}$) and the full set of control variables (which we largely omit for reasons of space; full details upon request). It excludes, however, $Misbehaviour_{ij}$. This variable is additionally included in column (2), such that a direct comparison of the results in columns (1) and (2) allows us to verify its importance as a mechanism linking trust and individual-level preferences towards welfare provisions (Baron and Kenny, 1986; Kam and Zechmeister, 2013). Columns (3) and (4) repeat the analysis using $Fairness_{i,j}$ as our key explanatory variable, while columns (5) and (6) introduce a proxy for *actual* cooperative behaviour as the key explanatory variable. Table 2 differs from Table 1 only in that it relies on a sub-sample of second generation immigrants to assess the causal nature of any correlations uncovered in Table 1 (Alesina and Giuliano, 2010; Dinesen, 2013; Alesina et al., 2014).[6]

Before turning to the results, it is important to first cast a look at the pairwise correlation between the central explanatory variables ($Trust_{i,j}$ and $Fairness_{i,j}$) and $Misbehaviour_{i,j}$. The reason is that in the absence of a substantively important, and statistically significant, correlation between these variables, the latter's role as a mechanism linking trust and individual-level preferences towards welfare provisions is questionable (Baron and Kenny, 1986; Kam and Zechmeister, 2013). This auxiliary analysis indicates that $Trust_{i,j}$ and $Misbehaviour_{i,j}$ are significantly negatively correlated (r = -0.19; p<0.001), and the same holds for $Fairness_{i,j}$ and $Misbehaviour_{i,j}$ (r = -0.17; p<0.001).

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[5] As the dependent variable is an 11-point ordinal scale with a clear ordering in the answer options, we also replicated the analysis using an ordered logit approach. The results are unaffected by the different distributional assumptions underlying the ordered logit model (details upon request).

[6] Note that we refrained from using the migrant subsample when studying 'work in associations'. The reason is that trust, fairness, and misbehaviour-beliefs are more likely to show persistence across generations compared to actual individual-level behaviours. This undermines the intuitive validation of any causality assessment for the behavioural variable. As such, we exclude it from Table 2.

Looking at table 1, we find that trusting individuals are more likely to support higher social spending even when this triggers higher levels of taxation (column 1). This result is statistically significant at the 1% level. It is important to note that this association arises even though we control for institutional trust (which confirms the strong positive association between support for social welfare provisions and institutional trust; Svallfors, 2013). Hence, interpersonal trust matters for individual-level welfare support independent of the effect of institutional trust (we return to this below). Interestingly, the estimated marginal effects of interpersonal and institutional trust are roughly comparable. Particularly, a one standard deviation change in interpersonal trust relates to a change of 0.14 points on the 11-point scale of support for social welfare provisions (or a 0.063 standard deviation increase in welfare support), whereas a similar change in institutional trust is associated with a 0.17-point change in support for social welfare provisions (equivalent to 0.080 standard deviations).

While the result in column (1) thus confirms the existence of a positive association between trust and support for social welfare provisions, it ignores the potential mechanism(s) relating trust to such preferences. This is tackled in column (2). Unsurprisingly, column (2) shows that individuals' beliefs about their fellow citizens' misconduct regarding social welfare policies are strongly negatively related to support for social welfare provisions. More importantly, however, the introduction of $Misbehaviour_{i,j}$ reduces the absolute value of the trust coefficient. This confirms that the association observed for the trust variable in column (1) partly derives from such individuals' different perception of their fellow citizens' misconduct regarding social welfare policies (Baron and Kenny, 1986; Kam and Zechmeister, 2013). The implication is that

at least part of the link between trust and welfare support arises *because* trusting individuals are less likely to perceive others as welfare cheats.

We have thus far intentionally referred to an 'association' between trust and welfare support. Columns (1) and (2) in Table 2, however, show that this relation is in fact very likely to be causal in nature. The sample here is restricted to second generation immigrants (Alesina and Giuliano, 2010; Dinesen, 2013; Alesina et al., 2014), and the trust measure reflects the average level of trust in respondents' parents' country of origin (all control variables are unchanged). Even so, the trust coefficient remains positive and statistically significant at the 5% level in column (1), and the introduction of *Misbehaviour*$_{i,j}$ (now calculated as the average value in the country of origin) reduces the absolute value of the trust coefficient. Consequently, this allows interpreting our findings as reflecting a causal connection running from trust to support for social welfare provisions.[7]

Columns (3) and (4) in Tables 1 and 2 repeat the same analysis replacing *Trust*$_{ij}$ with *Fairness*$_{ij}$. This confirms our previous results. In light of recent findings by Thöni et al. (2012) that *Trust*$_{ij}$ is more likely to capture respondents' own cooperative preferences, while *Fairness*$_{ij}$ captures beliefs about others' cooperativeness, one might wonder whether the inclusion of *Misbehaviour*$_{i,j}$ has a stronger effect on the coefficient of *Trust*$_{ij}$ or *Fairness*$_{ij}$. We tried to evaluate this by including *Trust*$_{ij}$ and *Fairness*$_{ij}$ in the same estimation. Unfortunately, this induces excessive multicollinearity problems due to the very close empirical connection between *Trust*$_{ij}$ and *Fairness*$_{ij}$ (see above).[8]

Finally, columns (5) and (6) in Table 1 indicate that our findings are not purely driven by linking one self-reported attitude to another self-reported attitude. In fact, we obtain very similar

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[7] Note that the coefficient estimate of *Solidarity*$_{ij}$ is roughly equivalent across both tables, but that the t-statistic is substantially lower in Table 2. We do not see any obvious explanation for this variable's insignificance in the subsample of second generation migrants beyond the increased imprecision of the estimated coefficient.

[8] We should also observe at this point that the macro evidence in Figure 1 suggests that the Nordic countries might constitute outliers in terms of the trust-welfare preference relationship. From this perspective, it is important to note that all results in table 1 are qualitatively unaffected when excluding all Nordic countries from the analysis.

results when operationalizing our key independent variable via a proxy for *actual* cooperative behaviour (see Yamamura, 2012, for a similar approach). That is, we still find a significant positive association between trusting attitudes (as reflected in associational activity) and welfare state support, which can at least partly be attributed to individuals' belief that others will not use the welfare system inappropriately (i.e. a reduction of the coefficient estimate between columns (5) and (6)). Moreover, as an additional robustness check on the potential endogeneity bias underlying the analysis in column (1) of Table 1, we also experimented with using our indicator of actual cooperative behaviour as an instrument for $Trust_{ij}$ in a 2SLS approach. The first stage results indicate that actual cooperative behaviour has a strong positive correlation with $Trust_{ij}$ (t=8.64; p<0.01), whereas the second stage confirms the results in column (1) in terms of sign and significance (details upon request).[9]

3.2 Heterogeneous effects

Our results thus far implicitly assume that the effect of interpersonal trust is independent of institutional trust. Yet, as discussed in the introduction, this need not be true. Indeed, to the extent that social welfare provisions result from a close cooperation between citizens and institutions (Parks et al., 1981; De Witte and Geys, 2013), people may well require *both* high interpersonal trust *and* high trust in institutions to support social welfare policies. This section looks at such conditionality in two complementary ways.

First, we look at the interaction between interpersonal and institutional trust from an individual-level perspective, using the '*Trust in Institutions*' variable previously employed in table 1. Based on the argument presented above, we would expect that the positive relation between interpersonal trust and welfare support is stronger for individuals who perceive institutions as relatively uncorrupted and fair (since this means that they believe public

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[9] We are grateful to an anonymous referee for pointing out this alternative test to us.

institutions are likely to cooperate effectively with citizens in the provision of public goods). This implies a positive interaction effect. The results are provided in table 3 (columns 1 and 4).

Our findings indicate that the coefficient estimates of both interpersonal and institutional trust are positive and statistically significant. Their interaction is likewise found to be positive. Although both interaction terms fail to reach statistical significance at conventional levels, this is insufficient to evaluate whether or not the effects of $Trust_{ij}$ and $Fairness_{ij}$ vary depending on respondents' level of institutional trust (Brambor et al., 2006). One should also take into account *how* its marginal effect varies across the range of respondents' institutional trust. This is illustrated in figure 2. The positive slope documented in both panels is in line with the idea that the effect of $Trust_{ij}$ and $Fairness_{ij}$ on welfare support is *conditional* upon the perceived quality of institutions – although especially the latter conditionality is rather weak.

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Table 3 about here

Figure 2 about here

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Second, we can also assess the interaction effect by analysing institutional trust from an aggregate perspective using the 2008 Corruption Perception Index (CPI; available at http://www.transparency.org/research/cpi/cpi_2008). This is a well-known index of *perceived* levels of corruption across countries, and ranks countries from 0 to 10 (where higher ranks correspond to lower levels of corruption).[10] In this case, we introduce a cross-level interaction term between trust and the country's CPI index into our multilevel model. Table 3 (columns 2-3 and 5-6) reports the results.

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[10] Note that our results are qualitatively unaffected when using different indices of corruption or institutional quality – such as the World Bank governance indicators (details upon request).

The central variable of interest – i.e. the cross-level interaction term between trust (in column (3); or perceived 'fairness' in column (6)) and the CPI index – is positive sign in both columns (3) and (6). This supports the idea that the association between trust and welfare support strengthens when moving towards less corrupted countries. To better interpret these results, a graphical illustration is again provided in figure 3. The y-axis of figure 3 depicts the marginal effect of interpersonal trust (left-hand side of figure 3) or perceived fairness (right-hand side of figure 3) on welfare state support, depending upon a country's CPI score (given on the x-axis). The figure illustrates that trust has no significant effect on welfare state support in countries with very high levels of corruption, but has a statistically significant positive effect once the CPI surpasses value 4 (when using $Trust_{ij}$) or 5 (when using $Fairness_{ij}$). Both results provide evidence supportive of the idea that the effect of trust on welfare support is *conditional* upon the perceived quality of institutions.

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Figure 3 about here

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Finally, to indicate the likely causal nature of the results in Table 3, Table 4 replicates the analysis using only the subsample of second generation immigrants. While this again provides fairly weak results when relying on individual-level trust in institutions, the coefficients on the interaction terms using the CPI measure are again positive and present t-values close to those uncovered in Table 3. Consequently, we can interpret our findings on the *conditional* effect of trust on welfare support as reflecting a causal connection – though only when assessing this conditionality at the aggregate level.

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Table 4 about here

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4. Conclusion

The economic importance of the welfare state has increased strongly over time, which has triggered a vast academic literature studying the determinants of (preferences towards) redistribution. This article has argued that interpersonal trust (i.e. citizens' trust in their fellow citizens) can play an important role in explaining such preferences. Our empirical analysis – based on the fourth wave of the European Social Survey – provides substantial confirmation of this proposition. Indeed, we find that trusting people are more likely to support paying higher taxes in return for increases in social expenditures. Moreover, in line with our theoretical argument, we illustrate that a substantial part of this link can be explained by trusting individuals' confidence in the appropriate behaviour of their fellow citizens towards social welfare provisions. Using a sub-sample of second generation immigrants, we also highlight the causal nature of our results (in line with recent evidence provided by Bergh and Bjørnskov, 2014). Finally, we provide some evidence indicating that the positive effect of trust on social welfare support may be *conditional* on the perceived quality of public institutions. Hence, it appears that preferences towards public welfare policies require *both* high interpersonal trust *and* high trust in institutions.

From a policy perspective, our argument linking trust to welfare state support is evocative of the recurrent use of 'benefit cheats' stories as a political strategy to challenge the welfare state. While often particularly popular among right-leaning media outlets, the current Conservative government in the UK recently engaged in a similar strategy by employing the alleged size of welfare system abuses to defend its implementation of Universal Credit (a large-scale reconsideration of welfare state provisions) (UK Department for Work & Pensions, 2013). Evidently, such a strategy can be a rational action under the expectation that trust among the people in one's society is essential to broad-based popular support for the welfare state (which is our key contention).

Finally, while our analysis highlights an important degree of heterogeneity in the relation between interpersonal trust and welfare state support depending on the level of institutional trust (especially when the latter is measured at the aggregate level), future work should investigate additional potential sources of heterogeneity. One might indeed imagine that the trust-welfare support relation differs between Western and Eastern European welfare states, or between high- and low-income countries. The reason is that individuals in such countries might have a different perception of the welfare state, and obtain a different gain or loss from it. Although an analysis of heterogeneity in these alternative dimensions lies beyond the scope of the present paper, they constitute important directions for further research in this field.

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Appendix A

Table A1: Summary statistics

	N	Mean	Std. Dev.	Min	Max
Dependent variables					
Welfare Support	41734	5.107	2.145	0	10
Explanatory variables					
Trust	44173	4.704	2.543	0	10
Fairness	43998	5.345	2.428	0	10
Work in an association in the last 12 months (1=yes, 0=no; political parties are excluded)	44081	0.125	0.331	0	1
Misbehaviour (factor variable)	44243	-0.006	0.999	-2.895	2.229
Trust – only for second generation immigrants (in the country of origin)	5417	2.813	1.095	0.486	6.811
Fairness – only for second generation immigrants (in the country of origin)	4461	0.443	0.137	0.186	0.874
Misbehaviour (in the country of origin)	3330	-0.0053	0.281	-0.660	0.510
CPI 2008 (country level variable)	44243	6.329	1.941	2.1	9.3
Control variables					
Trust in Institutions (factor variable)	44243	0.020	0.989	-2.190	2.388
Solidarity	43200	2.207	0.997	1	6
Political orientation (1=left, 10=right)	39210	5.188	2.244	0	10
Female (0=male,1=female)	44223	0.523	0.499	0	1
Age	44107	46.617	17.817	15	95
Separated or Divorced	44243	0.101	0.301	0	1
Married	44243	0.523	0.499	0	1
Citizenship (1=yes,0=no)	44214	0.037	0.189	0	1
Education – Secondary	44243	0.422	0.493	0	1
Education – University Degree or Higher	44243	0.284	0.451	0	1
In Education	44072	0.077	0.266	0	1
Unemployed	44072	0.041	0.198	0	1
Disabled	44072	0.024	0.154	0	1
Retired	44072	0.216	0.411	0	1
Housework	44072	0.096	0.287	0	1
Low Income	44243	0.221	0.415	0	1
Middle Income	44243	0.319	0.466	0	1
High Income	44243	0.211	0.408	0	1

Table 1: Interpersonal trust and support for social welfare provisions

	(1)	(2)	(3)	(4)	(5)	(6)
Trust	0.057**	0.044**				
	(5.36)	(4.53)				
Fairness			0.035**	0.024**		
			(3.58)	(2.67)		
Work in Association					0.131**	0.105**
					(3.91)	(3.43)
Misbehaviour		-0.286**		-0.293**		-0.299**
		(10.43)		(10.33)		(10.45)
Solidarity	0.074**	0.089**	0.074**	0.089**	0.074**	0.089**
	(2.88)	(3.52)	(2.84)	(3.48)	(2.83)	(3.49)
Trust in Institutions	0.172**	0.140**	0.190**	0.158**	0.211**	0.170**
	(6.53)	(5.65)	(6.97)	(6.57)	(7.47)	(7.01)
Political orientation	-0.111**	-0.098**	-0.113**	-0.100**	-0.113**	-0.100**
	(4.89)	(4.82)	(4.99)	(4.96)	(5.01)	(4.99)
N Countries	29	29	29	29	29	29
N	36,341	36,341	36,251	36,251	36,260	36,260

Note: The dependent variable – *Welfare Support* – is support for social welfare on an 11-point scale (with higher values representing higher support). Coefficient estimates are obtained using multilevel linear model where individuals (level 1) are clustered within countries (level 2). In all cases, t-statistics based on robust standard errors are given in parentheses. *Trust* and *Fairness* measured (on a scale from 0 to 10 where higher values correspond to higher trust and fairness' attitudes) are the main explanatory variables. *Work in Association* is an indicator variable measuring individuals' actual cooperativeness via their involvement in voluntary organisations. *Misbehaviour* is a factor variable where higher values correspond to stronger scepticism of others' behaviour with respect to social welfare policies. All models include control variables for individuals' self-perceived *Solidarity* (higher values representing higher solidarity toward others), *Trust in Institutions* (higher values representing higher trust), political orientation (higher values correspond to positions towards the right of the ideology scale). Additional controls are included in all models but they are not reported: gender, age, age squared, marital status, income, education, employment status and citizenship. * $p<0.05$; ** $p<0.01$.

Table 2: Interpersonal trust and support for social welfare provisions (second generation immigrants)

	(1)	(2)	(3)	(4)
Trust (in the country of origin)	0.084**	0.050		
	(3.30)	(1.25)		
Fairness (in the country of origin)			0.087**	0.042
			(3.70)	(1.23)
Misbehaviour (in the country of origin)		-0.214		-0.285
		(1.30)		(1.66)
Solidarity	0.039	0.040	0.031	0.031
	(0.74)	(0.76)	(0.51)	(0.53)
Trust in Institutions	0.203**	0.206**	0.216**	0.218**
	(3.63)	(3.67)	(4.21)	(4.30)
Political orientation	-0.131**	-0.132**	-0.125**	-0.127**
	(3.94)	(3.98)	(3.79)	(3.85)
N Countries	29	29	29	29
N	3,073	3,073	2,472	2,472

Note: The dependent variable – *Welfare Support* – is support for social welfare on an 11-point scale (with higher values representing higher support). Coefficient estimates are obtained using multilevel linear model where individuals (level 1) are clustered within countries (level 2). In all cases, t-statistics based on robust standard errors are given in parentheses. *Trust* and *Fairness* measured (on a scale from 0 to 10 where higher values correspond to higher average trust and fairness' attitudes in the country of origin) are the main explanatory variables. *Work in Association* is an indicator variable measuring individuals' actual cooperativeness via their involvement in voluntary organisations. *Misbehaviour* is a factor variable where higher values correspond to stronger scepticism of others' behaviour with respect to social welfare policies (calculated as the average value in the country of origin). All models include control variables for individuals' self-perceived *Solidarity* (higher values representing higher solidarity toward others), *Trust in Institutions* (higher values representing higher trust), political orientation (higher values correspond to positions towards the right of the ideology scale). Additional controls are included in all models but they are not reported: gender, age, age squared, marital status, income, education, employment status and citizenship. * $p<0.05$; ** $p<0.01$.

Table 3: Interpersonal trust, institutional trust and support for social welfare provisions

|	Trust			Fairness		
	(1)	(2)	(3)	(4)	(5)	(6)
Trust	0.057**	0.056**	-0.003			
	(5.36)	(5.32)	(0.07)			
Fairness				0.036**	0.035**	-0.007
				(3.73)	(3.71)	(0.23)
Trust in Institutions	0.129**	0.166**	0.166**	0.150**	0.186**	0.186**
	(3.81)	(6.11)	(6.10)	(3.41)	(6.71)	(6.70)
Trust*Trust in Institutions	0.009					
	(1.50)					
Fairness*Trust in Institutions				0.007		
				(0.99)		
CPI		0.016	0.009		0.033	0.021
		(0.36)	(0.19)		(0.73)	(0.45)
Trust*CPI			0.010*			
			(2.09)			
Fairness*CPI						0.007
						(1.55)
Solidarity	0.073**	0.074**	0.074**	0.074**	0.075**	0.074**
	(2.96)	(2.97)	(2.97)	(2.96)	(2.97)	(2.96)
Right-wing ideology	-0.109**	-0.109**	-0.109**	-0.111**	-0.111**	-0.111**
	(4.96)	(4.96)	(4.96)	(5.09)	(5.09)	(5.09)
N Countries	29	29	29	29	29	29
N Individuals	38,475	38,694	38,694	38,578	38,578	38,578

Note: The dependent variable – *Welfare Support* – is support for social welfare on an 11-point scale (with higher values representing higher support). Coefficient estimates are obtained using multilevel linear model where individuals (level 1) are clustered within countries (level 2). In all cases, t-statistics based on robust standard errors are given in parentheses. *Trust* and *Fairness* measured (on a scale from 0 to 10 where higher values correspond to higher trust and fairness' attitudes) are the main explanatory variables. *Misbehaviour* is a factor variable where higher values correspond to stronger scepticism of others' behaviour with respect to social welfare policies. All models include control variables for individuals' self-perceived *Solidarity* (higher values representing higher solidarity toward others), *Trust in Institutions* (higher values representing higher trust), political orientation (higher values correspond to positions towards the right of the ideology scale). Additional controls are included in all models but they are not reported: gender, age, age squared, marital status, income, education, employment status and citizenship. * $p<0.05$; ** $p<0.01$.

Table 4: Interpersonal trust, institutional trust and support for social welfare provisions (second generation immigrants)

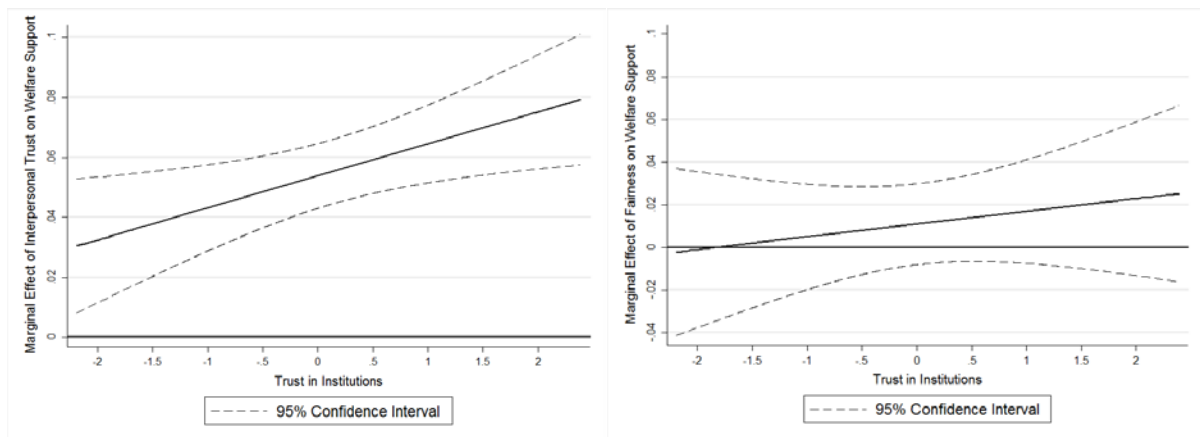|	Trust			Fairness		
	(1)	(2)	(3)	(4)	(5)	(6)
Trust	0.066	0.059	-0.131			
	(2.00)*	(2.41)*	(1.43)			
Fairness				0.056	0.049	-0.055
				(2.40)*	(3.04)**	(0.59)
Trust in Institutions	0.173	0.153	0.153**	0.225	0.174	0.174**
	(1.51)	(2.72)**	(2.73)	(1.69)	(2.99)**	(2.97)
Trust*Trust in Institutions	-0.005					
	(0.12)					
Fairness*Trust in Institutions				-0.016		
				(0.40)		
CPI		0.059	-0.011		0.052	-0.012
		(1.40)	(0.21)		(1.16)	(0.18)
Trust*CPI			0.025*			
			(2.14)			
Fairness*CPI						0.014
						(1.15)
Solidarity	0.070	0.068	0.068	0.066	0.064	0.064
	(1.77)	(1.73)	(1.72)	(1.42)	(1.40)	(1.39)
Right-wing ideology	-0.113	-0.112	-0.112**	-0.114	-0.113	-0.113**
	(4.19)**	(4.20)**	(4.24)	(4.29)**	(4.32)**	(4.32)
N Countries	29	29	29	29	29	29
N Individuals	4,816	4,816	4,816	3,949	3,949	3,949

Note: The dependent variable – *Welfare Support* – is support for social welfare on an 11-point scale (with higher values representing higher support). Coefficient estimates are obtained using multilevel linear model where individuals (level 1) are clustered within countries (level 2). In all cases, t-statistics based on robust standard errors are given in parentheses. *Trust* and *Fairness* measured (on a scale from 0 to 10 where higher values correspond to higher trust and fairness' attitudes in the country of origin) are the main explanatory variables. *Work in Association* is an indicator variable measuring individuals' actual cooperativeness via their involvement in voluntary organisations. *Misbehaviour* is a factor variable where higher values correspond to stronger scepticism of others' behaviour with respect to social welfare policies. All models include control variables for individuals' self-perceived *Solidarity* (higher values representing higher solidarity toward others), *Trust in Institutions* (higher values representing higher trust), political orientation (higher values correspond to positions towards the right of the ideology scale). Additional controls are included in all models but they are not reported: gender, age, age squared, marital status, income, education, employment status and citizenship. * $p<0.05$; ** $p<0.01$.

Figure 1: Trust and expenditure on social benefits and services in OECD countries (2012)
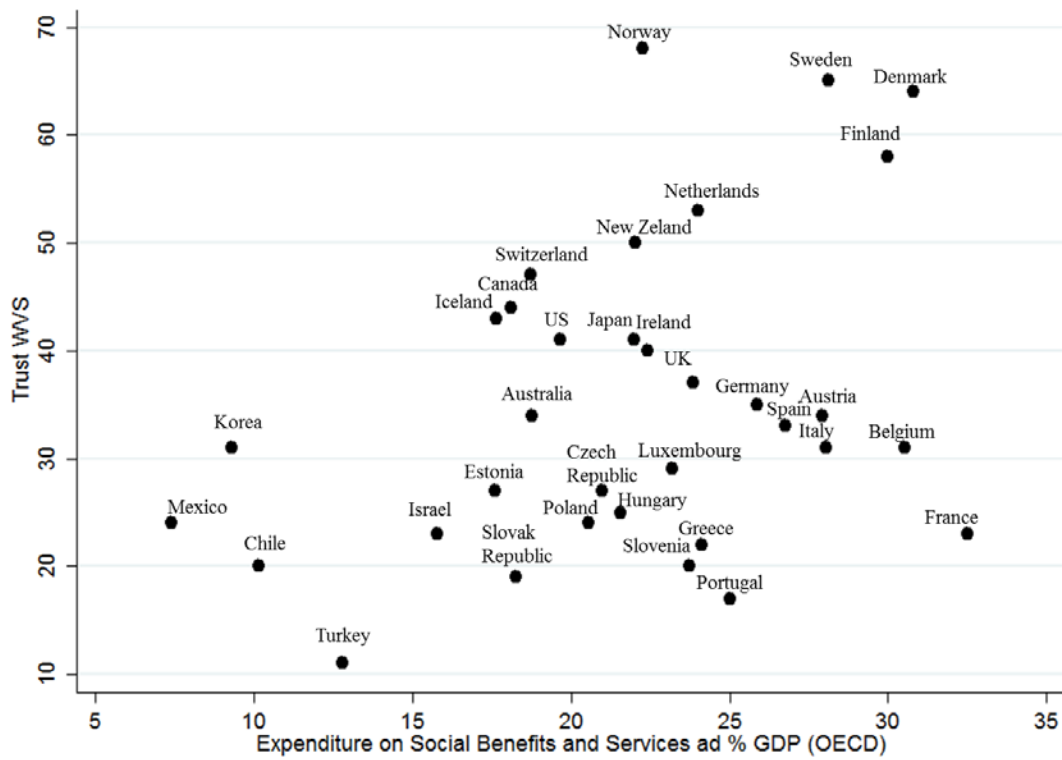

Note: The graph shows, on the x-axis, expenditure on social benefits and services as % of GDP in 2012 (OECD data), and, on the y-axis, positive answers to the trust question ("Most people can be trusted") in the World Value Survey. The raw correlation between both variables is 0.36 (p<0.05).

Figure 2: Marginal effects of trust (LHS) and fairness (RHS) depending on individual-level trust in institutions

Note: Both graphs show the marginal effect of our key independent variables – *Trust$_{ij}$* on the left-hand side and *Fairness$_{ij}$* on the right-hand side – on welfare state support, depending on respondents' *Trust in Institutions* (on the x-axis). The bold line provides the estimated marginal effects, with the dashed lines providing 5% significance levels.

Figure 3: Marginal effects of trust (LHS) and fairness (RHS) depending on institutional quality
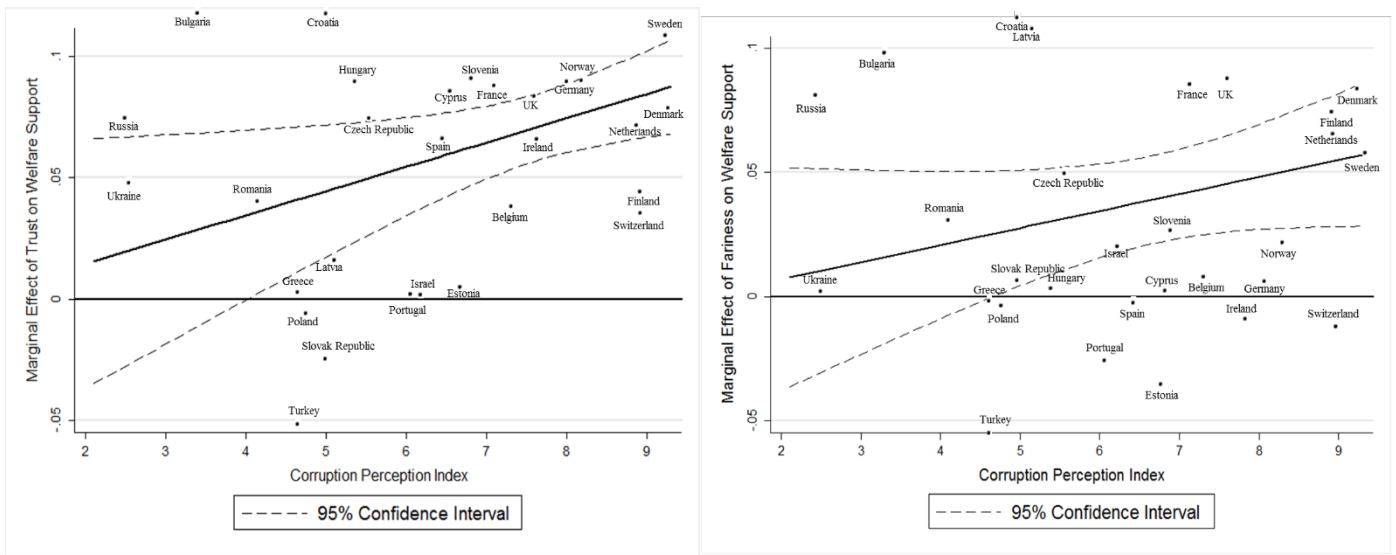
Note: Both graphs show the marginal effect of our key independent variables – $Trust_{ij}$ on the left-hand side and $Fairness_{ij}$ on the right-hand side – on welfare state support, depending on respondents' country's Corruption Perception Index in 2008 (on the x-axis). The bold line provides the estimated marginal effects, with the dashed lines providing 5% significance levels.