Revisiting the link between political trust and political participation

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Abstract

Political trust is typically seen as a cause of political participation and thus declining levels of trust in politicians and institutions are often blamed for political disengagement. By revisiting the formation of political trust, we argue that this blame may be misplaced. We show that the correlation between political trust and participation is largely explained by heritable predispositions which make some people simultaneously more likely to trust political authorities and to participate in politics. Using variance decomposition models and co-twin control designs with data from three twin studies from the United States, Sweden and Australia, we demonstrate that trust is moderately heritable and that previous estimates of the association between trust and participation are over-stated. This result is robust to multiple operationalizations and specifications. We conclude that political trust may be less likely to affect political behaviour than previously thought.

Keywords— trust, political participation, public opinion, political attitudes.

Short title: Political trust and political participation.

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Does low political trust cause people to disengage from democratic politics? We know that political trust is positively correlated with electoral turnout (Valgarðsson et al. 2022; Hooghe and Quintelier 2013; Grönlund and Setälä 2007; Hetherington 1998) and institutionalized political participation (Ceka 2013; Hooghe and Marien 2013; Norris 2002; Anderson and Hoff 2001). Indeed, given the declining public trust in democratic institutions and political authorities over the last 50 years (Citrin and Stoker 2018; Dalton and Shin 2014; Zmerli and Van der Meer 2017) this relationship is often seen as a potential cause of low engagement with democratic institutions (Bélanger 2017). But is the positive association between political trust and political participation a causal one? We argue that the nature of the relationship between trust and participation depends on the way in which political trust is formed.

The dominant view is that political trust is a rational and evaluative orientation that people form as a running tally of their perceptions of political reality (Hetherington 1998; Van der Meer and Hakhverdian 2017; Mishler and Rose 1997; Uslaner 2018). Changes in trust are then mostly influenced by people's perceptions of political events and policies. From this perspective, the correlation between political trust and political participation implies that fluctuations in political trust have significant and relatively rapid consequences for democracy. People update their political trust in response to events, and they then update their political participation to reflect this. Low trust is the product of misguided policy, poor economic performance or scandals, and it causes political participation to decline.

Yet there are alternative views on how political trust is formed. Individual-level stability in political trust in long-run panel data suggests that trust is relatively stable. Indeed, Devine and Valgarðsson (2023) use six panel datasets to show that even across quite long time spans people's trust judgements are highly correlated (around 0.5). This may be because political trust is socialized in early life through families, education or early political experiences (Jennings et al. 2009; Mayne and Hakhverdian 2017; Schoon and Cheng 2011). In this case, changes in political trust are primarily generational and trust mainly influences political participation in the long run (Devine and Valgarðsson 2023). Or it may be that political trust is a heritable predisposition rooted in stable personality differences

between people (Mondak et al. 2010; Mondak 2010). Those who are more agreeable and conscientious, and less neurotic and extraverted, are not only more trusting of others but also of political institutions and authorities (Cawvey et al. 2018; Kettlewell and Tymula 2021). If so, trust is to some extent a stable disposition, but it could again be causally related to political participation in the long run.

We re-examine how trust is formed in order to uncover previously unmeasured confounders between trust and participation. Political trust and participation may share common socialized and heritable origins, potentially leading to a spurious correlation between them (Rasmussen et al. 2022; Verhulst et al. 2012; Weinschenk et al. 2021). That is, those predisposed to be politically trusting are also predisposed to be politically engaged, but there is no causal relationship. In this paper, we find evidence for this account. Thus, while existing research debates the direction of the effect of trust on participation (Citrin and Stoker 2018), we instead suggest that there is, at most, a weak causal relationship between political trust and political participation.

Our evidence comes from three twin studies in the United States, Australia and Sweden. Unlike standard designs, we are able to distinguish between common environmental and additive genetic influences on political trust. For example, cross-sectional work on family socialization cannot differentiate between the effects of direct parental influence and shared genetic predispositions when reporting partial correlations between the attitudes of parents and their children (Beck and Jennings 1991; Jennings et al. 2009). More importantly, without accounting for heritable predispositions and early life environments, which may affect both political trust and political participation, existing work that finds a positive association between the two is not causally identified. Using twin data therefore allows us both to directly compare the competing theories of political trust's origins and to account for possible sources of confounding between political trust and participation.

We first show that, to some extent, political trust is a stable predisposition. A third of its variation is explained by heritable factors held constant within twin pairs. In fact, political trust is somewhat more heritable than generalized interpersonal trust and similarly heritable to the Big Five personality traits.[1] Second, we show that common family

[1]It is very important to note that heritability in this context means that a substantial propor-

background confounds the relationship between political trust and participation. Although there is typically a positive correlation between political trust and political participation, this disappears, or is substantially reduced, when accounting for the commmon family background among twin pairs. We also demonstrate that this confounding is probably attributable to heritable predispositions rather than shared environmental factors. In short, our findings suggest that political trust is unlikely to be an important cause of political participation.

In what follows, we first discuss the nature of the relationship between political trust and participation before outlining three different theories of the origins of political trust. We then discuss why twin data is so useful for untangling the relationship between trust and participation before presenting the results of several models that suggest that trust, at best, exerts a limited causal impact on participation. We conclude by discussing the implications of our findings for the conceptualisation of trust and the consequences of trust.

The origins of political trust and political participation

The consequences of political trust are a longstanding concern since trust in political institutions has been low and declining across many democracies over recent decades (Valgarðsson et al. 2024). For example, it has been argued that low political trust reduces compliance with the law (Marien and Hooghe 2011, Devine et al. 2024), hinders governments from long-term policy making (Christensen and Rapeli 2021) and causes collective action problems (Krupenkin 2021; Fairbrother et al. 2019). However, as a recent meta-analysis points out, the vast majority of existing work relies on cross-sectional analysis of observational data and is therefore unable to establish causal relationships (Devine 2024). So despite concerns about the potential negative effects of low political trust, the extent to which we should be worried remains unclear.

One of the main hypothesized consequences of political trust is that it may encourage

tion of the variation in political trust is statistically explained by heritable predispositions shared by twin pairs. It does not imply a deterministic relationship between genes and political trust or a 'Mendelian' parent-to-child heritability as is seen for certain diseases, such as cystic fibrosis or sickle cell disease.

institutionalized political participation and electoral turnout. In a 'civic culture', people are expected both to display positive attitudes toward political authorities and to engage in institutionalized forms of political participation (Almond and Verba 1963). It is generally argued that those with sufficient socioeconomic resources (for example, wealth and education) and psychological resources (for example, a sense of efficacy and of civic duty) will be most able and willing to engage in institutionalized forms of political participation (Brady et al. 1995). For example, those who are wealthier and more educated, and those who feel a stronger sense of efficacy and civic duty, are more likely to vote (Smets and Van Ham 2013). Within this framework, political trust is a psychological resource that reflects a necessary positive attitude toward the state that encourages and enables people to engage in institutionalized forms of political participation.

As a result, most, but not all[2], previous studies find trust to be positively associated with both institutionalized political participation (Ceka 2013; Hooghe and Marien 2013; Norris 2002; Anderson and Hoff 2001) and electoral turnout (Valgarðsson et al. 2022; Hooghe and Quintelier 2013; Grönlund and Setälä 2007; Hetherington 1998). Although an earlier meta-analysis by Smets and Van Ham (2013) found no consistent effect of trust on turnout, the most recent meta-analysis finds a significant association with a Fisher's Z of 0.06 (Devine 2024)[3], and Hooghe (2018) believes that it can now 'safely be stated' that trust is positively associated with turnout. For other forms of institutionalized political participation, Devine (2024) finds a smaller but still statistically significant positive association with trust.[4]

Nonetheless, there are several reasons to be cautious about interpreting these results causally. For one thing, the relationship may be reciprocal; the act of political participation and especially electoral turnout may itself induce positive feelings toward the democratic process (Quintelier and Hooghe 2012; Hooghe and Stiers 2016). For another,and as with

[2]See for example Ouattara and Steenvoorden (2023) who find a negative effect, while others have argued that the effect may vary with context (Katsanidou and Eder 2018).

[3]This is generally considered to be a small-to-moderate effect size (Doucouliagos 2011) and is comparable to the results of other meta-analyses in political science (Dinesen et al. 2020; Godefroidt 2023; Schwarz and Coppock 2022). Devine notes in addition that there are 'no meaningful differences' based on which object of trust is measured and that the vast majority of previous studies use indices of several different trust questions to limit any measurement heterogeneity.

[4]Fisher's Z = 0.03, which is comparable to the meta-analytic association between ethnic diversity and interpersonal trust (Dinesen et al. 2020).

work on other consequences of political trust, the vast majority of past studies rely on cross-sectional analyses of observational data. We argue that in addition to standard issues with omitted variable bias, this means that past studies on the relationship between political trust and political participation do not account for the confounding role of family background. While both early life conditions (Plutzer 2002; Sandell and Plutzer 2005) and inherited dispositional factors (Gerber et al. 2011; Fowler et al. 2008) are commonly acknowledged as correlates of political participation, these factors have been neglected when thinking about the origins of political trust. This means that we need to go back to the basic question of how political trust is formed.

In Table 1, we summarize the three main theories of the origins of political trust and trace their distinct implications for political participation. The first theory reflects the 'rationalist school', while the second and third reflect 'socialized' or 'dispositional' views (Zmerli and Van der Meer 2017). All predict an association with participation, but, crucially, the socialized and dispositional theories also allow that this association may not be causal since socialization and dispositions could simultaneously cause trust and participation.

Table 1: Three theories of political trust and political participation

Theory	Causes of trust	Origins of trust	Relationship with participation
Running tally	Events, policy change, institutional change	Throughout life	Evaluations of the political context cause trust, which causes participation. This context includes: perceptions of events, economic performance, policy performance and procedural fairness.
Socialised	Family, early education	Childhood	Early life socialization causes trust which causes participation. OR Early life socialization causes both trust and participation.
Dispositional	Genes, personality	Genes	Heritable predispositions cause trust which causes participation. OR Heritable predispositions cause both trust and participation.

All three theories have their advocates, but the running tally is the most commonly accepted view. Here, political trust is deemed to be a rational and evaluative orientation (Hetherington 1998; Mishler and Rose 1997; Uslaner 2018). It is then 'a reflection of [people's] political lives, not their personalities nor even their social characteristics' (Levi and Stoker 2000). People observe the political context and then use this information to form perceptions of the trustworthiness of various actors and institutions (Hardin 2013). The main evidence for the running tally theory is the strong association between economic performance and political trust (Haugsgjerd and Kumlin 2020; Van der Meer 2018; Van der Meer and Hakhverdian 2017) and a similar association between perceived policy congruence and political trust (Ferland 2021; Reher 2015; Stecker and Tausendpfund 2016). Van der Meer and Hakhverdian (2017) also argue that evaluations of performance and process explain a significant proportion of reported political trust. For example, corruption perceptions are strongly related to trust (Anderson and Tverdova 2003; Uslaner 2017) and there is a negative relationship between exposure to information about political scandals and political trust which holds in correlational (Bowler and Karp 2004; Chanley et al. 2000) and experimental designs (Ares and Hernández 2017; Elsas et al. 2020; Sikorski et al. 2020).

If trust is a running tally, then this has important implications for participation. The positive correlation between political trust and political participation implies that people update their political participation to reflect changes in trust. This means that policy failures or scandals undermine public trust in the political system and cause widespread disengagement from the political process. Indeed, this has long been given as an explanation for turnout decline in advanced industrial democracies (Bélanger 2017).

Yet there are problems with the running tally idea. The existing evidence is mostly cross-sectional and given that trust affects how people interpret events and policies, the correlation between the two cannot be interpreted causally (Fairbrother 2019; Peyton 2020). Furthermore, selection on observables designs do not account for confounding due to common family environments or heritable predispositions. For example, previous cross-sectional studies do not control for personality traits that are known to correlate with trust and participation (Cawvey et al. 2018; Freitag and Ackermann 2016). Equally, artificial experimental stimuli in survey experiments do not normally activate the partisan cues that

dampen attitudinal responses in the real world. They also expose people to information that they would not otherwise have seen given their prior participation and trust (Mutz and Reeves 2005; Sikorski and Herbst 2020; Wilson and Eckel 2017).

The idea that people seamlessly update their trust to reflect context also jars with common sense. We know that pervasive cognitive biases limit people's ability to change political attitudes (Flynn et al. 2017; Zaller 1992) and that people's political trust is often very stable over time (Devine and Valgarðsson 2023; Hooghe and Kern 2015; Schoon and Cheng 2011). Political trust is not affected by significant life events such as going to university or losing one's job and political trust exhibits mean reversion after shocks such as election results (Devine and Valgarðsson 2023) and scandals (Kelly and Tilley 2024; Kumlin and Esaiasson 2012; Curtice and Park 2010). Yet, if political trust is not simply a running tally, then from where else does it come?

A second theory is that political trust is, at least partly, socialized in early life. Trust may be socialized in families, with parents exercising a direct influence over their children (for example, through their discussions) and an indirect influence (for example, through the parental choice of media environment). There is a positive correlation between the political trust of parents and their children (Jennings et al. 2009), but the magnitude of this effect is low and far smaller than for party identity (Beck and Jennings 1991; Jennings et al. 2009).[5] Again, this theory has its problems. Most fundamentally, it is unclear whether attitudes are really socialized in the family since within-family correlations for political trust could reflect not only socialization but also the clustering of heritable predispositions toward political trust within families.

A third view is therefore that trust is not stable due to socialization, but because of dispositional factors. For instance, research has demonstrated the heritability of both generalized interpersonal trust (Hiraishi et al. 2008; Oskarsson et al. 2012; Sturgis et al. 2010) and cooperative behaviour (Cesarini et al. 2008), both of which are strongly linked to political

[5]Another arena in which trust may be socialized is during primary and secondary education, but it is unclear if this effect is positive (Claes and Hooghe 2017; Hooghe et al. 2015) or negative (Catterberg and Moreno 2006; Mayne and Hakhverdian 2017). While formal education may provide the cognitive resources and social capital necessary for people to trust political institutions (Mayne and Hakhverdian 2017; Schoon and Cheng 2011), this cognitive mobilization might reduce political trust by inflating the demands that citizens place on government (Norris 2011).

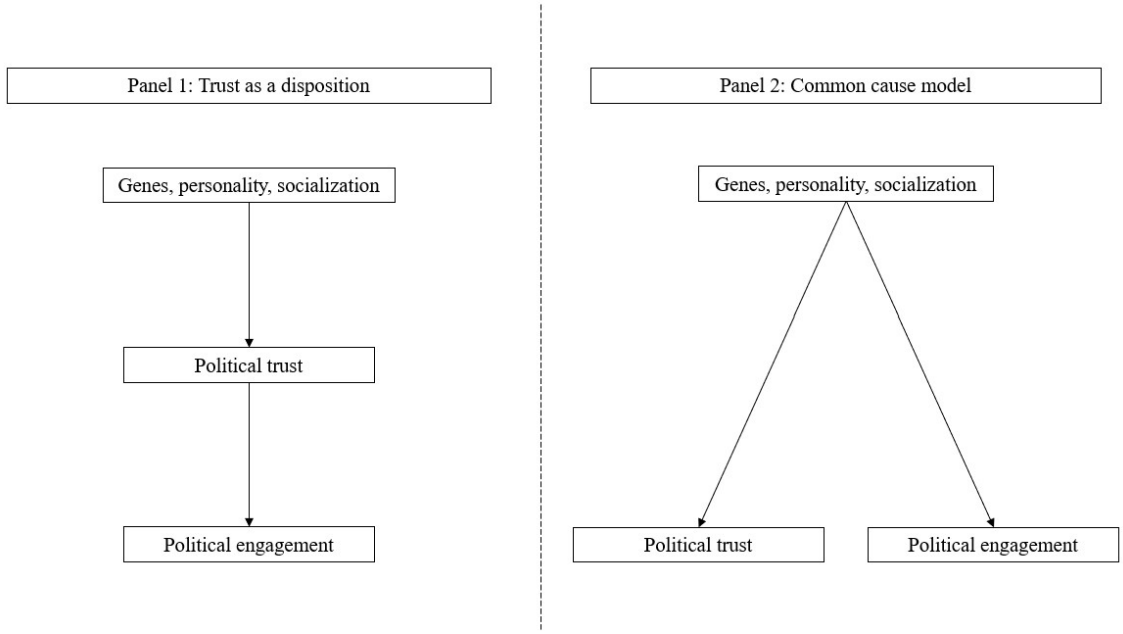
trust (Brehm and Rahn 1997; Sønderskov and Dinesen 2016). However, this does not imply that genetic variants directly determine trust. A more plausible explanation is that trust is influenced by a combination of factors that include heritable personality traits (Bouchard Jr. and McGue 2003; Bouchard et al. 1990). Supporting this idea, cross-sectional studies have shown that individuals with higher levels of agreeableness and conscientiousness tend to be more trusting, while those with higher levels of neuroticism and extraversion tend to be less trusting (Cawvey et al. 2018; Freitag and Ackermann 2016; Mondak et al. 2017). Despite this, very little work considers a dispositional or heritable basis to political trust. Two exceptions are, first, a working paper by Kettlewell and Tymula (2021) who find that over a third of the variation in political trust is explained by heritable genetic factors in a sample of Australian twins and, second, a paper by Ojeda (2016), who similarly estimates between 20 and 40 per cent heritability for political trust in an American sample.

What do these two dispositional theories mean for political participation? There are two options. In the first, political trust is still causally prior to political participation. Political trust is influenced by early life socialization and heritable predispositions, and it then affects political participation. However, because socialized attitudes and heritable predispositions are relatively stable, fluctuations in political trust are less likely to lead to downstream changes in political participation. There is a potentially stronger long-run relationship between trust and participation processed through generational differences in early life socialization, but any short-run relationship is much weaker. Figure 1 shows this relationship in Panel 1.

The second option is that political trust is to some extent influenced by the same early life conditions and heritable predispositions that influence participation. Political participation also has components that are socialized (Jennings et al. 2009) and components that are heritable (Fowler et al. 2008; Klemmensen et al. 2012). And both trust and participation are strongly related to personality traits which are themselves heritable (Dawes et al. 2014; Mondak et al. 2011). To the extent that these components of trust and participation overlap, any correlation between political trust and political participation may be confounded and there is no causal relationship between them. This is Panel 2 of Figure 1. This is plausible since recent work suggests that similar confounders undermine

the association between political knowledge, efficacy, interest and institutionalized political participation (Weinschenk et al. 2021).[6] In this paper, we aim to establish whether the relationship between trust and participation is similarly confounded. Using data from three twin studies, we directly examine the process of attitude formation for political trust and in doing so, we uncover and control for previously unmeasured confounders between trust and participation. This approach allows us to comprehensively examine the origins of political trust and its consequences for political participation.

Figure 1: Political trust as a disposition: Implications for political participation.



Data and measures

We use data from three twin studies, detailed in Table 2: the Minnesota Political Twins Survey (MTPS), the Swedish Twin Registry's Screening Across the Lifespan Twin Young dataset (SALTY), and the Australian Twins Economic Preferences Survey (ATEPS). The samples are restricted to twins for whom we have information on all relevant variables for both siblings in each pair. This includes both monozygotic (MZ) or identical twins and dizygotic (DZ) or fraternal twins. MZ twins are genetically identical (at least at conception), while DZ twins are full siblings born at the same time, on average sharing 50%

[6] Ahlskog and Oskarsson (2023) find in a meta-analysis of Swedish twin data that approximately half of standard observational estimates of the effects of socio-economic factors, moral values, and psychological constructs on political preferences are confounded by the unobserved familial factors held constant within twin pairs.

of their segregating genes.[7] Additionally, twins are typically raised in the same family environment. As discussed in the methods section, this design offers two significant advantages over standard observational studies. First, we can precisely quantify the variation in political trust attributable to genetic differences, the common environment shared by twin pairs, and the unique environments of each twin. Second, we can investigate the relationship between trust and participation while controlling for shared genetic and familial environmental factors.

Table 2: Summary of data

Name	Country	Survey fieldwork	N	MZ pairs	DZ pairs	Age range
Minnesota Twins Political Survey (MTPS)	USA	2008-2009	1349	356	240	53-62
Screening Across the Lifespan Twin (Young) (SALTY)	Sweden	2009	9793	1015	1729	52-67
Australian Twins Economic Preferences Survey (ATEPS)	Australia	2020-2021	1249	401	159	18-66

We measure political trust by asking respondents to rate their trust in a specific political institution or actor. The exact measures differ across the three studies and, to reduce measurement error, we create political trust indices by summing each trust question and then standardizing the scale to run from 0–1.[8] Table 3 gives an overview of how we measure trust in the different datasets (see Appendix A for precise question wordings). Although our measures cover several different objects of trust, and differ in the extent to which they measure diffuse or specific political trust (Easton 1975; Norris 2011), recent research suggests that there is little substantive difference between the various measures (Devine 2024).

Table 3: Measures of political trust

Dataset	Political trust
MTPS	Four-item battery for trust in government from ANES. $\alpha = 0.69$.
SALTY	Single item that asks about trust in politicians (four-point scale).
ATEPS	Four-item battery for trust in politicians. $\alpha = 0.78$.

In terms of participation, we distinguish between electoral turnout and other forms of political participation. We are able to measure both in two of the datasets: MTPS and

[7]For the vast majority of positions across the genome (approximately 99.9%), humans are genetically identical. The remaining positions account for all genetic variation, of which DZ twins (and other full siblings) share 50%.

[8]Before running the analyses, we further standardized all continuous variables by subtracting their mean and dividing by their standard deviation. See Online Appendix 1 for results from factor analyses of the trust variables.

SALTY. We create scales based on a number of questions as shown in Table 4 below (See Online Appendix 3 for full details). Importantly, the SALTY dataset includes validated turnout data from four national elections, which allays standard concerns about biases in self-reported turnout data.

Table 4: Measures of political participation

Dataset	Political participation	Electoral turnout
MTPS	Have you ever: • Attended a political rally or meeting • Worked for a political campaign • Made a financial contribution • Contacted a politician $\alpha = 0.73$.	Turnout (self-reported): • In the 2004 presidential election. • Over one's lifetime in presidential elections (four-point scale). $\alpha = 0.72$.
SALTY	Have you in the past five years: • Contacted a politician. • Contacted a public official. • Attended a protest. • Boycotted a product or business. • Made a financial contribution. • Signed a petition. $\alpha = 0.60$.	Turnout (validated): • 1970, 1994, 2010, 2018 national elections. $\alpha = 0.83$.

Methods

We use twin data in three ways to investigate the causes of political trust and its relationship with political participation. First, we decompose the variance in political trust using the classical twin design (also known as the ACE model). The basic principle of this method is straightforward. Monozygotic (MZ) twins are genetically identical, while dizygotic (DZ) twins share, on average, 50% of their segregating genes. Since both types of twins are the same age, they also share similar family environments. Under certain assumptions, this design allows us to estimate how much of the variation in a trait (such as political trust) is due to genetic or environmental factors.

More specifically, the ACE model separates the variance in the outcome into three components: additive genetic factors (A), shared environmental influences (C) and unique or nonshared environmental influences (E) (Medland and Hatemi 2009; Neale and Cardon 2013). The unique environmental component (E) includes factors that make siblings within a twin pair different from each other, such as external influences, random genetic mutations and measurement error. For example, if MZ twins show a less than perfect correlation on political trust, the difference reflects nonshared environmental factors. On the other hand, any similarity between MZ twins that exceeds the correlation in DZ twins points to the influence of genetic factors (A) and shared environment (C). The extent to which MZ twins are more similar than DZ twins helps decompose the shared variance into genetic (A) and environmental (C) contributions.

Shared environmental factors (C) do not require that twins experience identical environments but acknowledge that living under the same roof typically means sharing early life experiences—such as family, schooling or exposure to common policies. These shared influences are separated from unique environmental factors (E) that affect the twins differently, such as distinct political experiences or behaviours. To the extent that these experiences differ, they contribute to the E component rather than the C component. Thus, socialized influences on political trust are divided between the C and E components. Factors that affect both twins equally—like family upbringing and school environments—are captured by the C component, while those that differ between the twins fall under the E component. Genetic influences, in contrast, are captured exclusively in the A component.

The assumptions of the twin model influence the estimates of heritability. One key assumption is the equal environments assumption (EEA), which holds that MZ and DZ twins are raised in equally similar environments. If MZ twins experience more similar environments than DZ twins, genetic influence (A) may be overestimated, while shared environmental influence (C) may be underestimated. This could lead to the false conclusion that genetic factors drive differences when they are actually due to environmental factors. EEA violations are a common critique of ACE models in political behavior studies (Beckwith and Morris 2008; Charney and English 2013; Felson 2014).[9]

[9]However, see Hatemi et al. (2009), who find that political differences between twins emerge only after adolescence, which is inconsistent with EEA violations. Also, Conley et al. (2013)

Another important assumption is random mating, which suggests that people select romantic partners independently of the trait being studied. If this is violated, and the trait has a genetic basis, the genetic component (A) will be underestimated. Since there is good evidence of assortative mating based on political traits such as party identification (Kandler et al. 2012; McDermott et al. 2014), this could also apply to political trust. Additionally, it is assumed that measurement error in the outcome is minimal. If this assumption is violated, the unique environment component (E) may be overestimated, since measurement error is absorbed into this variance. As with most surveys, the questions we use are not perfect, likely leading to some upward bias in the E component.

Of these assumptions, the EEA is the one we can most directly address. To test it, we compare MZ and DZ twins based on their perceptions of family upbringing (Fowler et al. 2008) and run ACE models with controls for potential EEA violations, such as the frequency of political discussions with parents during childhood (Littvay 2012). While this allows us to partially account for violations that might overestimate heritability, we cannot test for violations that might underestimate it.[10]

In the second stage of our analysis, we explore the relationship between political participation and political trust using discordant twin models (McGue et al. 2010). The advantage of the discordant twin design is that twins are genetically similar (especially MZ twins) and share the same family environment due to their common upbringing. By examining differences within twin pairs—comparing how differences in political trust relate to differences in political participation—we can estimate the relationship between trust and participation while controlling for family-related confounding factors, such as shared genes and early-life environment. In essence, we treat one twin as a credible (though not perfect) counterfactual for the other and ask whether the twin with higher political trust is also

show that heritability estimates for twins whose zygosity was misclassified do not support EEA violations.

[10]In the ACE models, we include only sex and birth year fixed effects as covariates (Medland and Hatemi 2009). This is because ACE models require only the known proportion of shared genes among MZ and DZ twins to separate the proportion of the variation in a trait attributable to genetic and environmental influences. Additional controls are necessary only to prevent violation of the EEA and only the MTPS and ATEPS include relevant variables. The MTPS asks whether each twin pair dressed alike and whether they shared friends, school classes and their bedroom growing up. The ATEPS asks whether the twins were 'as alike as two peas in a pod' as children and whether they were mixed up by parents or teachers while growing up.

more likely to participate.

In practical terms, we compare two types of models: first, a naïve model in which we regress political participation on political trust while controlling only for age and sex; second, a model that also includes fixed effects for twin pairs. By incorporating twin-pair fixed effects, we focus solely on within-pair variation in both trust and participation, isolating the relationship from confounding factors related to unobserved genetic predispositions and shared environments. In other words, the twin-pair fixed effects control for unobserved family-level influences. If the relationship between trust and participation is confounded by these factors, the coefficient for political trust should decrease in the fixed-effects model (Ahlskog and Oskarsson 2023). Since MZ twins share 100% of their genetic information, and DZ twins share, on average, 50% of their segregating genetic variants, we expect more confounding in the MZ models. Therefore, we use MZ twins as the baseline comparison (following Weinschenk et al. (2021)).

It is not possible to pinpoint the exact sources of confounding in a discordant twin model. If the relationship between political trust and participation weakens when twin-pair fixed effects are included, this suggests that the confounding is due to genetic factors, shared environmental factors (such as parental upbringing), or both. To better understand the relative importance of these factors, a key next step is to assess whether genetic or environmental factors are primarily driving the confounding. A straightforward method is to use the bivariate twin model. The logic of the univariate ACE model—where variation in a single trait is decomposed into genetic (A), shared environmental (C), and unique environmental (E) components—can be extended to two or more traits (e.g., political trust and participation) using a technique called Cholesky decomposition. In the bivariate case, we estimate how much of the covariation between two traits can be attributed to shared genetic and environmental factors. This allows us to quantify whether the relationship between trust and participation is confounded primarily by shared genetic influences or shared environmental influences.[11]

[11]The decomposition of covariation relies on cross-twin cross-trait correlations, which measure the correlation between one trait (e.g., political trust) in one twin and the other trait (e.g., political participation) in the co-twin. The interpretation of these correlations follows the same principles as in the univariate case. For instance, if the cross-twin cross-trait correlation is higher for MZ twins than for DZ twins, this indicates that genetic factors contribute to both traits and, therefore, account for some of the covariation between them.

Analysis

Our first step is to test whether political trust is heritable. To do that, we decompose the variance in the political trust scales in each dataset into their additive genetic, common environment and unique environment components using univariate ACE models. Figure 2 plots the point estimates and 95 per cent confidence intervals[12] from the best fitting models across each of the three datasets.[13] There is a statistically significant heritable (additive genetic) component to political trust in every case. The highest heritability estimate is observed in Sweden, where 36 percent of the variation in political trust can be attributed to heritable factors. We also find substantial heritability estimates of 35 percent in Australia and 32 percent in Minnesota. This mirrors the findings of Kettlewell and Tymula (2021) and Ojeda (2016) who estimate between 20 and 40 per cent heritability of political trust. To provide some perspective, heritability estimates for personality traits typically fall within the range of 20 to 50 percent (Dawes et al. 2014; Weinschenk and Dawes 2017), placing the estimates for political trust in the upper half of this range.

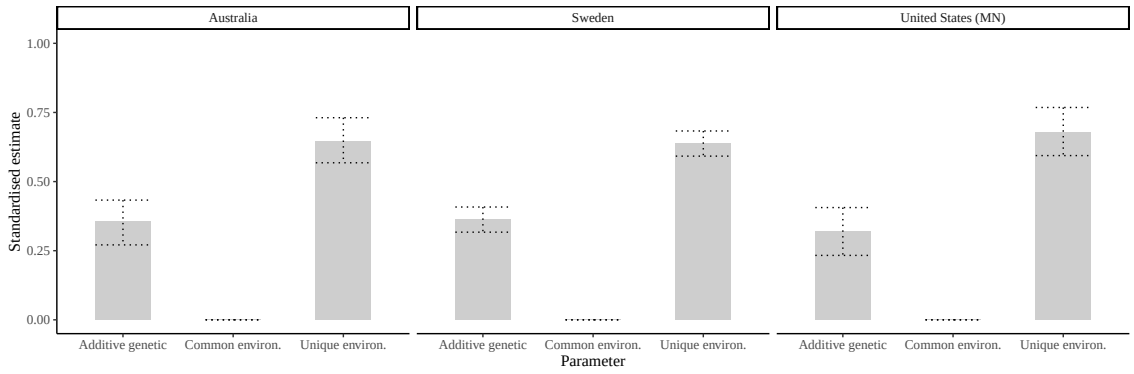
Equally, as Figure 3 shows, political trust appears, if anything, more heritable than generalized interpersonal trust.[14] In all three cases, we estimate lower heritability of generalized interpersonal trust compared to political trust, although this difference is only really marked in the Minnesota data and for the behavioural measure of generalized interpersonal

[12]Maximum-likelihood (ML) point estimates are explicitly bounded on the interval [0, 1] and therefore ML confidence intervals are not always symmetric (Neale and Cardon 2013).

[13]For each dependent variable, we ran a full ACE decomposition alongside models which dropped the common environment component (AE) and models which dropped the additive genetic component (CE). Where possible (in the MTPS and ATEPS data), we also ran the full ACE decomposition model with additional controls for equal childhood environments. See Online Appendix 2 for full details. In each case, we report the likelihood-minimizing model.

[14]Generalized interpersonal trust (Uslaner 2002) is measured in the MTPS and ATEPS using a standard question which asks "generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?". In SALTY, this has been combined with another question that asks "Do you think that most people would try to take advantage of you if given the opportunity, or do you think that most people would treat you correctly?". In ATEPS, generalized interpersonal trust was also measured using a trust game, in which participants were invited to send a dollar amount between 0 and 10 to another (hypothetical) participant. Participants receive a multiple of the original amount and can either keep it or send a fraction back to the original participant. The average amount originally sent is the behavioural measure of trust.

Figure 2: Variance decomposition models for political trust.



Note: Point estimates and 95 per cent confidence intervals. Models include data on MZ and DZ twins, from SALTY, MTPS and ATEPS. The dependent variables are trust in politicians (SALTY) and three different political trust indices (MTPS and ATEPS). All models control for age and sex. Best fitting (likelihood-minimising) models were chosen after comparison among ACE (with and without controls for equal childhood environments in MTPS and ATEPS), AE and CE models. See Online Appendix 2 for full details.

trust in Australia. The lower heritability of interpersonal trust may be because political trust causes interpersonal trust (for example, see Sønderskov and Dinesen 2016; Dinesen et al. 2022), although it is also possible that there is simply greater measurement error for interpersonal trust. Either way, it is clear that political trust seems at least as heritable as similar attitudes.

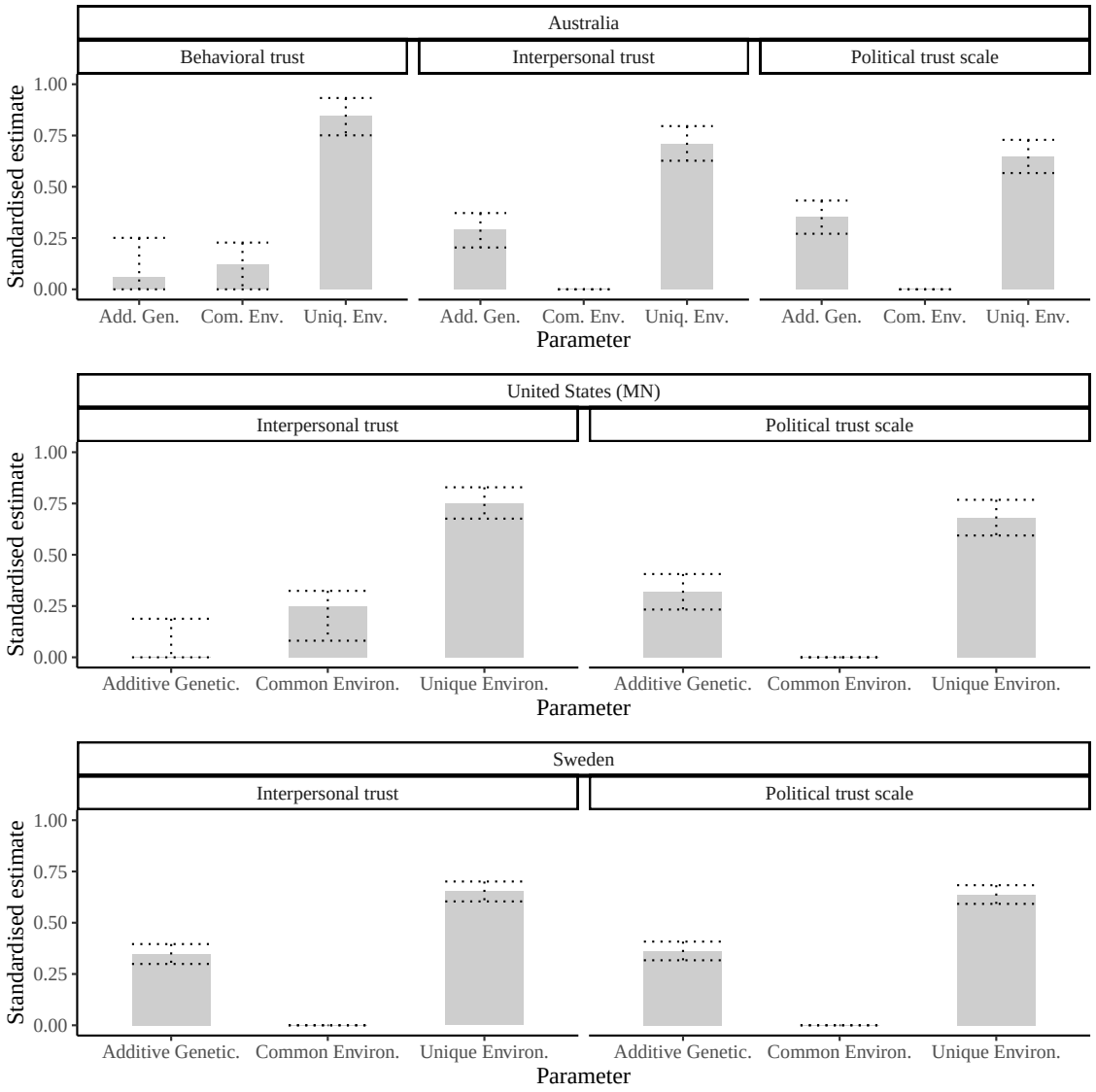
Overall, our findings suggest that political trust is, at least in part, a heritable trait. In contrast, across all datasets, the estimate for the shared environment component (C) is consistently zero. This indicates that factors such as family upbringing have little influence on individual differences in political trust. However, it is important to emphasize that these results do not imply that political trust is unaffected by external experiences. The largest component in each model is the unique environment (E), which includes non-shared social influences on political trust. In that sense, political trust is both dispositional and a response to external factors.

The next step is to look at the relationship between political trust and participation. Here we use the two datasets that measure both participation and trust (MTPS and SALTY) to see whether that relationship is affected by the substantial heritable component to political trust.[15] Figure 4 shows the standardized[16] point estimates and their 90 and

[15]We report summary statistics and full results for the discordant twin analyses in Online Appendix 3.

[16]Both the dependent and independent variables have been standardized in all models for ease

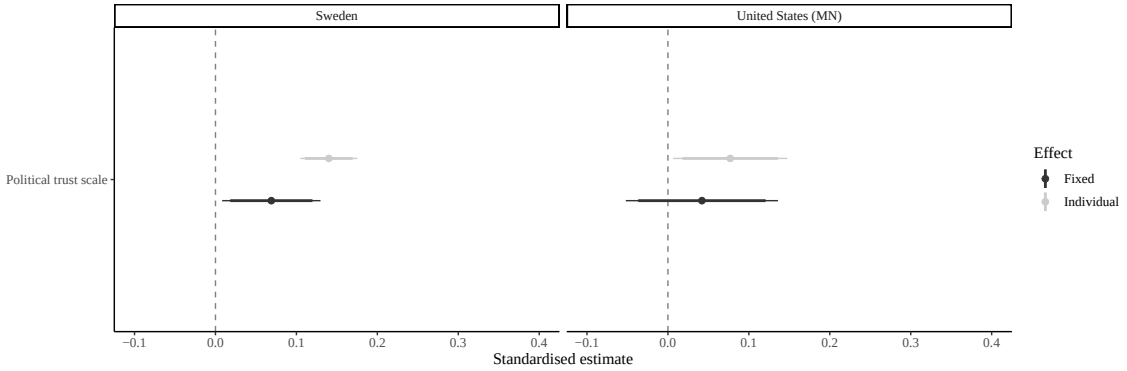
Figure 3: Variance decomposition models for political and interpersonal trust.



Note. Point estimates and 95 per cent confidence intervals. Models include data on MZ and DZ twins from SALTY, MTPS and ATEPS. The dependent variables are trust in politicians (Sweden) and two different political trust indices (MTPS and ATEPS). All models control for age and sex. Best fitting (likelihood-minimising) models chosen after comparison between ACE (with and without controls for equal childhood environments in MTPS and ATEPS), AE and CE models. See Online Appendix 2 for full details.

95 per cent confidence intervals from the discordant twin models for the effect of political trust on political participation. We report the results for the MZ twins here, because MZ twins allow for the most direct control for confounding by shared environments and heritable predispositions (see Online Appendix 3 for the DZ twin results. The naïve (no twin pair fixed effects) models are in a lighter shade and the fixed effects estimates are in a darker shade. In both the Swedish and Minnesotan data, there is a statistically significant relationship between political trust and political participation in the naïve models. Trust is positively associated with political participation. The size of the effect is moderate, a one standard deviation increase in trust is associated with an increase in political participation of around 0.1 of a standard deviation. This is consistent with prior work which typically finds a small but statistically significant relationship between political trust and political participation (Devine 2024; Hooghe and Marien 2013).

Figure 4: The effects of political trust on political participation.

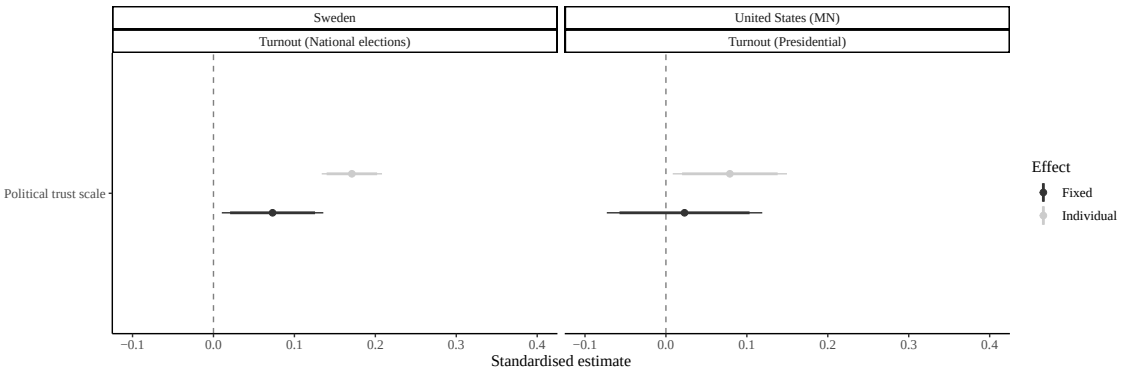


Note. Point estimates (in standard deviations), 95 per cent confidence intervals (thin lines) and 90 per cent confidence intervals (thick lines). The models include data on MZ twins only, from SALTY and MTPS. The dependent variables are participation indices, and the independent variables are trust in politicians (SALTY) and political trust indices (MTPS). The fixed effects estimates include twin pair fixed effects. All models control for sex, birth year fixed effects, and interactions between sex and the birth year fixed effects. See Online Appendix 3 for full details.

Yet when twin pair fixed effects are added, the effect size falls. In the Swedish case, the effect of trust on participation more than halves: it appears that the relationship between political trust and political participation is confounded by family factors shared by the twin pairs. In the Minnesotan case, while we can reject the null hypothesis of no relationship between trust and participation in the naive model, once we add the fixed effects we cannot reject the null as the estimates are inconclusive: both negative and positive

of comparison across the datasets. All coefficients are therefore interpreted in terms of standard deviation changes in both variables.

Figure 5: The effects of political trust on electoral turnout.



Note. Point estimates (in standard deviations), 95 per cent confidence intervals (thin lines) and 90 per cent confidence intervals (thick lines). The models include data on MZ twins only, from SALTY and the MTPS. The dependent variables are turnout indices, and the independent variables are trust in politicians (SALTY) and political trust indices (MTPS). The fixed effects estimates include twin pair fixed effects. All models control for sex, birth year fixed effects, and interactions between sex and the birth year fixed effects. See Online Appendix 3 for full details.

correlations are consistent with the data.[17] As Figure 5 shows, there are similar findings for electoral turnout. There is clear evidence of an initial correlation between political trust and electoral turnout as there is a statistically significant and positive estimate in the naïve models. In the Swedish sample, the association between political trust and voter turnout is more than halved in the fixed effects model. In the Minnesotan sample, once we add fixed effects the estimates are again inconclusive, and both small negative and positive correlations are consistent with the data.[18]

These results are robust in a number of ways, and we report robustness tests in Online Appendix 3. First, we disaggregate the results by the individual components of the political trust index in the Minnesotan data and show that in each case, the relationship falls very close to zero when accounting for the twin pair fixed effects. Second, we break down the individual measures of political participation, and replicate the Swedish turnout results for regional and municipal elections, and show that in the fixed effects models the coefficient estimates substantially reduce in magnitude and previously statistically significant relationships tend to lose their significance.

[17] To test the equality of the coefficients between the fixed effects and individual models, we apply the test suggested by Clogg et al. (1995) and Paternoster et al. (1998). The difference between the fixed and individual estimates is statistically significant at the 5 per cent level for the Swedish model but not in the Minnesotan case.

[18] Applying the same formal test for the equality of coefficients between the two models suggests that the difference between the fixed and individual estimates is significant at the 5 per cent level in the Swedish case, but not in the Minnesotan case.

Our results thus far suggest that the relationship between political trust and political participation is confounded by family background. However, they do not provide direct evidence as to whether the confounding is primarily due to shared heritable predispositions or shared environmental factors. Using data from bivariate Cholesky models, Table 5 shows the proportion of the correlation between trust and the participation index in the Swedish data[19] which can be attributed to shared heritable predispositions (%Rg) and the shared early life environment in which the twins were raised (%Rc). For completeness, we also report (%Re), which does not provide further information about confounding but indicates the covariation between trust and participation attributable to factors other than the common heritable predispositions and early life environment shared by the twins (and therefore the covariation that was used to estimate the relationship between trust and participation in the fixed effects model in Figure 4).

Table 5: The proportional genetic (%Rg), common environmental (%Rc) and unique environmental (%Re) correlation between political trust and political participation in Sweden

Dataset	Dependent variable	%Rg	%Rc	%Re
SALTY	Participation scale	70.0 [63.9; 80.8]	00.0 [-06.3; 02.5]	30.0 [19.2; 36.1]

Note. Point estimates and (bootstrapped) 95 per cent confidence intervals derived from a bivariate Cholesky decomposition model. The model includes data on MZ and DZ twins from SALTY. The independent variable is trust in politicians. The model controls for age and sex. All point estimates and confidence intervals are rounded to one decimal place. The point estimate for %Rc is above zero, but negligible. See Online Appendix 4 for full details.

Around 70 per cent of the correlation between trust and political participation is attributable to shared heritable factors, and none of the correlation is attributable to environmental conditions shared by the twins, indicating that the former are likely responsible for all of the confounding between trust and engagement. This tallies with the univariate models, in which there was little evidence that shared environmental factors influence trust. It appears therefore that the relationship between trust and participation is confounded by common heritable predispositions.

[19]Only in this case was the phenotype correlation large enough to permit a reliable decomposition of the shared variance between trust and the dependent variable. See Online Appendix 4 for phenotype correlations and full results for the bivariate Cholesky decompositions.

Conclusion

There is an association between political trust and political participation, but existing research cannot determine whether this is causal. By re-evaluating the origins of political trust, we have shown that it may not be. Once we account for family background, the relationship between trust and participation is either absent or radically reduced. This finding is robust to various operationalizations of political trust and political participation, and to both regression and variance decomposition approaches. While past work has debated the direction of causation between trust and participation (Hooghe and Stiers 2016), and whether the relationship is negative or positive (Citrin and Stoker 2018), neither endeavour may bear much fruit. It seems more likely that there is little causal relationship between trust and participation in either direction. It also appears that almost all the confounding is due to heritable predispositions rather than shared environmental factors. Indeed, we show that political trust is, at least partially, a heritable predisposition although most of the variation in political trust is not attributable to genetic factors. Our point here is not to downplay the importance of the relationship between political trust and participation. Rather, our primary goal has been to better understand the underlying sources of the connection. In fact, the discovery that the overlap between political trust and participation stems from a shared dispositional pathway is noteworthy and warrants further investigation (Friesen and Ksiazkiewicz 2015; Ksiazkiewicz and Friesen 2021).

Our findings have more general implications as well. First, they suggest that an important component of trust is a diffuse underlying disposition reflecting the perceived legitimacy of the political system (Easton 1975). This may help to explain why political trust tends to be less responsive to events and often reverts to its average level after shocks. Second, there are other potential consequences to trust apart from participation. It seems plausible that voluntary law compliance and policy attitudes have components that are socialized in early life or related to inherited dispositions. To the extent that these overlap with the correlates of political trust, the previously identified associations between trust and its hypothesized consequences may not be causal in nature.

Of course, there are, as always, caveats to our findings. First, the boundary between heritable predispositions and early life socialization can be ambiguous. Young people

likely inherit attitudes that make them more trusting and politically active, but parental behaviour also contributes to their levels of trust. Parents to some extent share heritable predispositions with their children and these predispositions influence parental behaviour. Given that parental behaviour also influences young people's political activity (for example, the extent to which parents discuss politics in the home) some of the confounding between trust and participation may be attributable to parental behaviour rather than directly to heritable predispositions. Nonetheless, given the consistency of the results, it does appear that shared environmental factors such as early life socialization have a much weaker effect on trust than heritable predispositions and that the latter accounts for most of the confounding between trust and participation.

Second, each of the twin datasets only observes a single cohort. Variance decomposition models can therefore account for environmental differences within the cohorts, but not differences across cohorts. The zero common environment estimates suggest that within-cohort environmental differences have no effect on political trust, but it is possible that across-cohort environmental changes cause generational trends in trust. A classic example of this is the Flynn Effect (Pietschnig and Voracek 2015). Generational changes in IQ are environmental in nature (improved childhood nutrition, for example), but standard variance decomposition methods using single-cohort twin data cannot pick up on this. A similar process could equally be driving long-run changes in trust. Increased media focus on political scandals and declining societal deference, for example, are likely to be associated with observed cross-cohort declines in trust. This is thus socialization in a wider sense than simply parental influence.

Finally, we cannot test precisely why heritable predispositions cause political trust. It could be that heritable personality traits are correlated with political trust (Cawvey et al. 2018; Mondak et al. 2017). Perhaps more agreeable people are more trusting of others and of political authorities. Equally, generalized interpersonal trust is known to be heritable (Sturgis et al. 2010) and it is plausible that people may rely on interpersonal trust as a heuristic when forming political trust (although see Dinesen et al. (2022) and Sønderskov and Dinesen (2016)). Further research could investigate these mechanisms in more detail and provide micro-foundational support for the nature of the heritability of political trust.

These caveats aside, we think that our findings are important to fully understand political trust and participation. Given that a substantial proportion of trust is explained by stable predispositions, we should take more seriously the idea that political trust both reflects a 'diffuse' underlying disposition toward the legitimacy of the political system and a more volatile and rationally updated judgment of 'specific' support for incumbents (Norris 2011). Equally, there are policy implications. A larger stable, dispositional component to political trust implies both that trust has fewer consequences and that stronger policy interventions are required to boost levels of trust (Quilter-Pinner et al. 2021). In that sense, policy interventions to change trust may be less likely to work and less likely to matter.

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Appendix A - full question wordings

Table A1a: Question wordings for political trust

Dataset	Operationalisation
MTPS	How much of the time do you think you can trust the government in Washington to do what is right? (Four-point scale)
	Would you say the government is pretty much run by a few big interests looking out for themselves or that it is run for the benefit of all the people? (Two-point scale)
	Do you think that people in government waste a lot of the money we pay in taxes, waste some of it, or don't waste very much of it? (Three-point scale)
	Do you think that quite a few of the people running the country are crooked, not very many are, or do you think hardly any of them are crooked? (Three-point scale)
SALTY	Generally speaking, how much trust do you have in Swedish politicians? (Four-point scale)
ATEPS	Responses: "true", "somewhat true", and "false" to the following statements:
	"Most politicians care more about staying in power than about the interests of the people."
	"Most politicians make a lot of money by misusing public office."
	"Most politicians do not care what happens to people like me."
	"Most politicians do their job well most of the time."

Table A1b: Question wordings for generalized interpersonal trust

Dataset	Operationalisation
MTPS	Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? (Binary)
SALTY	Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? (0-10 scale). [interpersonal_1]
	Do you think that most people would try to take advantage of you if given the opportunity, or do you think that most people would treat you correctly. (0-10 scale). [interpersonal_2]

Table A1c: Question wordings for political participation

Dataset	Operationalisation
MTPS	"Have you ever done each of the following, or isn't this something you have done?" • Attended a political rally or meeting? • Worked for a political campaign in any capacity even if it was for no pay? • Contributed money to a political party or candidate or to any other political cause? • Communicated thoughts or requests to a government official? "In the 2004 election for president, did you happen to vote for John Kerry or for George W. Bush?" (Options include 'someone else' and 'did not vote').
SALTY	"During the last five years, have you done any of the following to express your political opinions?" • Contacted a politician personally or in writing or in some other way? • Contacted a public sector official? • Participated in a protest action or demonstration? • Boycott, of for instance certain goods? • Made financial contributions? • Signed a petition? Validated turnout data for several national elections (binary).