Trust and Democracy: Political Stability in Times of Economic Crisis*

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February 23, 2023

Abstract

We study the relationship between interpersonal trust and political stability in democratic countries. Using a six-decade-long annual country-level panel dataset, we find that recessions are more likely to cause political turnover in countries with lower levels of generalized interpersonal trust. The effect is present in democracies and not autocracies, for turnovers occurring through regular procedures and not coups, and during regularly scheduled election years. We also observe similar patterns in vote shares for incumbent parties in national elections, both across sub-national regions within Europe and counties within the United States. Finally, we find that nations with higher levels of trust, and thus less leader turnover, tend to experience more rapid recovery following economic recessions. Our results highlight the crucial role of generalized trust in ensuring political stability during times of economic turmoil.

Keywords: Interpersonal Trust, Recessions, Leader Turnover, Political Stability.

JEL Classification: D72; P16; P17; P51.

*We thank Ethan Buena de Mesquita and Mike Golosov for theoretical insights; Mitra Akhtari, Monica Martinez-Bravo, Suresh Naidu, Peter Lorentzen, Ameet Morjaria, Torsten Persson, and Luigi Zingales for their suggestions; Maria Carrieri, Jörg Spenkuch and Edoardo Teso for their insights into U.S. data; and the participants at various conferences and seminars for useful comments. We are also grateful to Xialene Chang, Ricardo Dahis, Zhentao Jiang, Joris Mueller, Carlo Medici, Talha Naeem, Zixin Wei, and En Qi Teo for excellent research assistance. Comments and suggestions are very welcome.

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1 Introduction

It has long been hypothesized that a fundamental pillar of economic prosperity is interpersonal trust, defined as the extent to which people believe those around them can be trusted (Arrow, 1972). Recent scholarship has provided emprical support for this long-held belief (Algan and Cahuc, 2010). While the importance of trust in the economic sphere is now well documented, including for trade, investment, finance, and innovation (Guiso, Sapienza, and Zingales, 2004, 2008, 2009; Nguyen, 2022), empirical evidence for its role in the political sphere lags behind. This is not due to a lack of perceived or hypothesized importance (Warren, 2018; Levitsky and Ziblatt, 2019). The goal of this study is to make progress on this important relationship.

We analyze the relationship between trust and political turnover in the face of adverse economic shocks that may create voter dissatisfaction with government performance. While all economies suffer from macroeconomic shocks, the political consequences of downturns appear to vary widely in different countries. The different political experiences of Italy and Sweden in the 1980s and 1990s in the face of similar economic conditions provide one such example. The effect of trust on political turnover is important, not only because it affects political continuity and stability, but also because turnover has important economic consequences (Akhtari, Moreira, and Trucco, 2022; Marx, Pons, and Rollet, 2022).[1]

There are many reasons to believe that generalized interpersonal trust may not only be important in the social and economic realm, but also in the political realm. Casual observation makes clear that trust is an important determinant of whether voters attribute adverse economic events to the decisions of political leaders or to events outside of their control. Low-trust voters may be more likely to place the blame on political leaders and vote them out, while in high trust societies, voters may be more inclined to give leaders the benefit of the doubt – to trust them – and punish them less in the voting booth. While it is nearly tautological and not particularly interesting that trust in a specific political party or leader affects support for that party or leader, our interest is in how general interpersonal trust affects leader turnover.

We explore the relationship between generalized interpersonal trust, economic downturns, and political turnover by looking both across countries and within countries. Our cross-national analysis examines an annual panel of countries from 1951–2014. The dependent variable of interest is whether the head of the government is replaced in a given year and country. The main explanatory variable of interest is the interaction between the occurrence

[1] From 1980–2000, Italy and Sweden both experienced a similarly low average growth rate of approximately 0.03%, but during this time, Italy experienced a turnover rate for the prime minister of 66.7%, while Sweden experienced a much more moderate turnover rate of 23.8%. This difference is not due to systematically shorter term-lengths in Italy. From 1980–2000, Italy's prime minister did not have directly set term-lengths but had to retain support of the Chamber of Deputies, whose members had five-year terms. Sweden's prime minister did not have directly set term-lengths either but had to retain support of the Riksdag, whose members had four-year terms.

of an economic recession in a given year and country and the average level of generalized interpersonal trust in that country. Given that trust is a slow-moving cultural trait, we measure it as a country-level time-invariant variable. Our baseline measure of economic downturns is an indicator variable that equals one if annual GDP growth in a country is below the tenth percentile in our sample. Our interest is in the sign of the interaction between the occurrence of a recession and trust. A negative coefficient implies that recessions lead to fewer political turnovers in countries with higher levels of generalized interpersonal trust, which provides evidence for the importance of this cultural trait on political stability.

The baseline specification includes country fixed effects to account for time-invariant differences across countries and year fixed effects to account for changes over time that influence all countries equally. The two main concerns with the simple fixed effects specification are that trust and/or the occurrence of a recession may be correlated with other factors that could influence turnover. To address such concerns, the baseline specification controls for covariates that vary at either the leader or the country-year level and are potentially correlated with a country's level of trust, the occurrence of a recession, or political turnover. The leader covariates include the leader's age, gender, total number of days in office, and the number of terms previously in office. The country level covariates include one year lags of the country's democracy score, its real GDP, and a conflict indicator. Each of these measures enters the regression interacted with the trust measure and interacted with the recession indicator.

Given our interest in the consequences of trust for voting behavior, our main analysis distinguishes between the effects on democracies and those on autocracies. We focus in particular on democracies, where citizens have multiple low-cost ways to influence turnover relative to autocracies, where the primary mechanism is the threat of revolt (Klick, 2005; Acemoglu and Robinson, 2005). We find that in democracies, when economic growth is low, high-trust countries are much less likely to experience leader turnover than low-trust ones. According to the magnitude of the estimates, the presence of a recession is 43.6 percentage points more likely to cause political turnover in Greece than in Denmark. Similarly, it is 31.5 percentage points more likely to cause turnover in Italy than in Norway. These effects are economically significant, especially when compared to the mean turnover rate in the sample, which is 24 percent. The findings are consistent with our hypothesis that citizens from low-trust countries are more likely to vote leaders out of office than those from high-trust countries.

Given the importance of electoral accountability as a mechanism underlying our estimates for democratic countries, it is also informative to test whether the same relationship exists in autocracies, where accountability is weak and turnover less responsive to citizen preferences. We find that for autocracies, the interaction of interest is never statistically different from zero. Along similar lines, if we examine all countries and estimate differential effects for turnover that occurs through regular means (e.g., elections) and those that occur through irregular means (e.g., coups), we find effects on regular turnovers but not irregular turnovers. Within

democracies, we find that the largest effects occur when recessions coincide with election years, which is when the accountability of incumbent leaders is particularly strong. Overall, the results indicate that trust affects political stability through electoral accountability.

We show that our findings are robust to a host of sensitivity checks, including accounting for additional potentially relevant covariates, such as regional economic conditions. To address concerns of measurement error, we show that our results are robust to the use of different measures of trust and recessions, and alternative definitions of democracies. We find that the estimated effect of generalized trust remains similar when controlling for potential confounders, including country-level correlates of trust (education, income, inequality, urbanization, conflict, ethnic diversity, and institutional quality measures), other cultural traits (risk tolerance, individualism, obedience, locus of control, thrift, and conservatism), macroeconomic characteristics (GDP levels, GDP growth, unemployment, trade openness), and various measures capturing the sectoral composition of the economy.

Our sub-national analysis considers the same relationships looking across sub-national regions in two settings: counties in the United States and regions in Europe. The analyses allow us to observe party vote shares, a more nuanced measure of citizen support for the incumbent than turnover. This continuous variable allows us to detect subtle changes in support from citizens that do not result in a turnover. It is also allows us to trace effects by following parties and not just specific leaders. Moreover, the fact that we find similar results within the United States goes against the concern that our other results are confounded by omitted variables in the cross-country setting (e.g., differences in political cultures, electoral institutions, and expectations of economic recovery between high- and low-trust countries). For both our European and U.S. analyses, we find that the results are robust to alternative definitions of recessions and the omission of outliers.

We end the paper by exploring the potential importance of our findings with descriptive evidence on the relationship between trust, political turnover, and economic recovery from recessions. The data show that immediately following a recession, countries with higher levels of trust, which are also those with less leader turnover, experience faster economic growth. Together with the main findings, these correlations suggest that trust, by moderating voters' reactions to economic crises, can play an important role in long-run economic and political stability.

Our study, by examining the interaction of economic recessions and trust on political turnover, contributes to two literatures. The first includes studies of the role of trust and related cultural values in determining economic and institutional outcomes, such as income levels (Algan and Cahuc, 2010; Butler, Giuliano, and Guiso, 2016), government regulation (Aghion, Algan, Cahuc, and Shleifer, 2010), financial behavior (Guiso, Sapienza, and Zingales, 2004), international trade and FDI (Guiso, Sapienza, and Zingales, 2009), labor market outcomes (Algan and Cahuc, 2009), health behavior (Alsan and Wanamaker, 2017; Martinez-

Bravo and Stegmann, 2017; Lowes and Montero, 2021a), and political institutions (Fischer, 1989; Greif, 1994). Our findings suggest that one of the channels through which trust might affect growth in the long run (Algan and Cahuc, 2010; Butler, Giuliano, and Guiso, 2016) is due to its moderating effect on political instability.

Our finding that the relationship between the economic environment and political stability is mediated by a cultural trait contributes to an emerging body of research showing that the nature of economic and/or political relationships can depend critically on the specific cultural traits of the setting. This includes prior studies showing that cultural traits matter for the relationship between elections and public goods (Martinez-Bravo, Padro-i-Miquel, Qian, and Yao, 2017; Martinez-Bravo, Padro-i-Miquel, Qian, Xu, and Yao, 2017), school construction and educational outcomes (Ashraf, Bau, Nunn, and Voena, 2020), medical interventions and health outcomes (Lowes and Montero, 2021b), pension programs and child outcomes (Moscona and Seck, 2022), female inheritance laws and gender outcomes (Bahrami-Rad, 2021), and the success of land titling programs (Le Rossignol, Lowes, and Montero, 2022).

Several recent studies document a decline in trust during recessions in the United States (Stevenson and Wolfers, 2011), Russia (Ananyev and Guriev, 2019), and Europe (Algan, Guriev, Papaioannou, and Passari, 2017). Our study complements this line of inquiry by focusing on the political consequences of persistent differences in trust across countries, which we find to be an important dimension of interpersonal trust, a cultural trait for which the between-country variance is over three times greater than the within-country variance.

Our findings also advance our understanding of the link between economic performance and re-election, for which the existing empirical evidence is mixed. While many studies find no relationship (Powell Jr. and Whitten, 1993; Paldam, 1991; Strom and Lipset, 1984; Lewis-Beck, 1988), others find a positive relationship (Wolfers, 2007; Leigh, 2009; Cole, Healy, and Werker, 2012; Fair, 1978; Alesina and Rosenthal, 1995). Our findings raise the possibility that this could, in part, arise because average effects obfuscate underlying heterogeneity between high- and low-trust countries. In this sense, our work is closely related to Brender and Drazen (2008), who show that economic growth increases re-election probabilities, but only in less developed economies. Our analysis highlights the simultaneous importance of both forms of heterogeneity.

The paper is organized as follows. Section 2 discusses case studies and the conceptual framework. Section 3 provides an overview of the data and Section 4 describes the empirical strategy. Section 5 reports the cross-country estimates, while Section 6 reports the estimates from the sub-national analyses looking with Europe and the United States. Section 7 presents descriptive evidence on the importance of trust and turnover for economic recovery. Section 8 concludes.

2 Background and Conceptual Framework

2.1 Descriptive Accounts

To illustrate the phenomenon that motivates this study, we provide a few concrete examples that document citizens' propensity to blame leaders for economic problems in low-trust countries, but are more forgiving of leaders during hard times in high-trust countries.

Brazil, the Philippines, and Turkey have, respectively, the third, fourth, and ninth lowest measures of generalized trust in our dataset in our baseline sample of 95 countries. Each of the countries experienced recessions that led to antagonistic political turnovers. During the late 1980s and early 1990s, Brazil suffered severe economic downturns. The media widely reported the unpopularity of then-President Jose Sarney and the fact that he was blamed for the country's economic woes. *The New York Times* reported that "[f]or many Brazilians, Mr. Sarney's biggest failure has been the economy" (Brooke, 1990). Similarly, in the second year of his term, *The Chicago Tribune* noted that "Sarney [is] an easy target for those seeking to assign blame for Brazil's sudden economic decline" (Langfur, 1987).

In the early 2000s, the Philippines experienced poor economic growth and a political turnover when President Joseph Estrada was ousted in favor of Gloria Macapagal Arroyo. *The Economist* reported that "middle-class Filipinos were hoping to avoid an economic catastrophe" (The Economist Editorial Board, 2001). The *BBC* went further to explain how Filipinos blamed the recession on the president: "there has been a growing perception among businessmen that his administration is inept and corrupt. The government failed to use its dominance of Congress to enact crucial economic reforms and presidential cronies began to pop up again everywhere... The opposition believes the economic crisis requires an urgent solution, the immediate resignation of Mr. Estrada" (McLean, 2000).

During Turkey's economic crisis in 2002, *the Economist* echoed the popular opinion that "Mr. Ecevit's [the prime minister] government was fatally weakened by its inept handling of Turkey's economic crisis" (The Economist Editorial Board, 2002). This message was also conveyed by the *BBC*, which reported that "Mr. Erdogan's success came amid widespread anger at the government, whom many Turks blame for the economic crisis of the past two years" (BBC World News Desk, 2002).

In contrast, consider Sweden, which has the second-highest level of trust in our sample. Sweden experienced a severe economic downturn (its worst in fifty years) from 1991-1993. During the Swedish downturn, there were few reports of political unrest, mass accusations against the government, or aggressive calls for political turnover. Instead, media accounts described an environment of relative harmony. An example is the following excerpt, which is from a 1992 *Washington Post* article.

> "Sweden, which for decades has provided its citizens with cradle-to-grave welfare

> services, is mired in its deepest recession in 50 years, and economists expect 1992 to be the third consecutive year of falling output... Officials of Prime Minister Carl Bildt's conservative coalition government said they will hold talks through this weekend with the opposition Social Democrats to try to agree on a bipartisan plan of spending cuts to curb the burgeoning budget deficit and revive the troubled Swedish economy. 'We are looking at this to be settled as soon as possible,' said Bildt's spokesman, Lars Christiansson. 'We know how important it is to move quickly, so we are optimistic.' So were many Swedes, even with an interest rate that appears to be financially insane. 'Yes, it is a crazy rate,' said Hubert Fromlet, chief economist with Swedbank. 'But there is a high degree of acceptance among Swedes, because they realize that this is an emergency'" (Swisher, 1992).

These examples illustrate the difference in political response to economic downturns between low- and high-trust countries. Citizens in low-trust countries appear inclined to quickly decry the current leadership, while citizens in high-trust countries appear more willing to work with the government or to give more time to politicians in office before concluding that the leader should be ousted. The following empirical analysis examines whether this is a systematic pattern in the data.

2.2 Interpretation

The empirical analysis investigates the relationship between trust, economic downturns, and political turnover. We use a simple model to illustrate one potential mechanism behind this finding. We extend the framework of Ashworth, Bueno de Mesquita, and Friedenberg (2017), which builds on Dewatripont, Jewitt, and Tirole (1999) by adding a voting component. We provide a verbal overview of the model here and the formal presentation in the Appendix. We also discuss other possible explanations at the end of this section.

In the model, politicians exert effort and are either high- or low-ability types. Voters are unable to observe effort or ability but do observe the politician's output. The model assumes that effort and ability are complements in producing output. When the politician exerts high effort, high-ability politicians are better able to achieve a high level of output. Thus, when voters observe a high level of output, voters have a stronger posterior that they have a high-ability politician, and the same economic shock, δ, is less likely to change their beliefs. We interpret such a situation as a high-trust equilibrium. In such cases, posterior beliefs are less sensitive to adverse shocks. In other words, voters "trust" that low output is more likely to be caused by an exogenous shock, ε, than by the politician being a bad type. The interpretation is tautological in that we define any equilibrium in which a voter's behavior is less sensitive to shocks as a "high trust" equilibrium. This interpretation has the additional testable empirical implication that high-trust countries have higher average output and low-trust countries have

higher average turnover rates. In the model, for a given set of parameter values, two situations are possible. One in which the country is in a "high-trust" equilibrium, where politicians are less likely to be voted out of office in the face of an adverse shock, and one where the country is in a "low-trust" equilibrium, where politicians are more likely to be voted out of office. The main empirically testable prediction from the simple model is that during a recession, politicians are less likely to be voted out of office in high-trust countries because voters are more likely to attribute the poor outcome to exogenous reasons.

One can also rationalize our empirical analysis with traditional models of retrospective voting (Nordhaus, 1975, 1989) or signaling (Spence, 1974). In these models, politicians are voted out of office during recessions either because voters retrospectively punish politicians or because recessions signal the lower ability of a politician. These theories do not consider trust but can be extended to do so. For example, if trust affects the extent to which citizens are willing to blame the recessions on their politicians, they would be less likely to vote them out of office retrospectively. Trust could also affect the weight that citizens place on the signaling value of a recession. These additional mechanisms would complement the simple model discussed above.

In the model discussed above, low trust does not cause inefficient outcomes. Our study is agnostic about whether the effects of distrust that we estimate are well placed or misplaced. We discuss this more in the conclusion.

3 Data

3.1 Variables and their Sources

Leader Turnover Our measure of leader turnover is computed from version 4.1 of the *Archigos* database (Goemans, Gleditsch, and Chiozza, 2009). The data cover all independent states and their effective leaders. Coverage extends from 1945–2015, and the number of countries in the sample increases over time. The database identifies the effective ruler of each country on a case-by-case basis. It avoids coding ceremonial monarchs in European countries as heads of state. In parliamentary regimes, the prime minister is coded as the ruler. In presidential systems, the president is coded as the ruler. In dual systems, where there is a president and a prime minister, the president is considered the leader. In communist regimes, the ruler is typically coded as the chairman of the party. We corroborate the *Archigos* data with the *Change in Source of Leader Support* (*CHISOLS*) dataset, constructed by Brett Ashley Leeds and Michaela Mattes. *CHISOLS* uses the same definition of a primary leader as the *Archigos* database and covers the years from 1919–2015. However, CHISOLS provides less information about each leader. Our leader turnover variable is an indicator that equals one when there is a change in the identity of the leader for any reason even if the new leader

is from the same party. Thus, the measure focuses specifically on individual leaders and not party continuity.

In the analysis, we also control for a host of additional characteristics of a leader's spell in office, including the number of years a leader was previously in office, the number of terms/spells they were previously in office, the current age of the leader, and the gender of the leader.

Generalized Trust Our measure of trust is calculated from responses to generalized trust questions in the *World Values Surveys*, the *European Values Surveys*, and surveys from the *Barometer* series, which include the *Latinobarometer* surveys, the *Asiabarometer* surveys, the *Arabbarometer* surveys, and the *Afrobarometer* surveys. In the *World Values Surveys* and the *European Values Surveys*, the trust question is worded as: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? [1] Most people can be trusted. [2] Need to be very careful." In the *Barometer* Surveys, the question is: "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others? [1] You can trust most people. [2] You can never be too careful when dealing with others." Countries are surveyed in different years during 1981–2014. For each country, we aggregate all data sources and calculate a time-invariant measure, which is the fraction of respondents from a country that answers that most people can be trusted (i.e., question [1] from each survey).

Figure 1 reports a map showing the average level of interpersonal trust across countries. The different shades of blue represent varying levels of trust for countries that are democratic at any point in our sample. The different shades of red represent varying levels of trust for countries that are never democratic in the sample. The map shows no obvious geographic clustering in trust and one observes significant heterogeneity in reported trust levels in our sample, even within geographically proximate countries. The trust measures are also reported in Appendix Table A.1. Measured trust ranges from 0.04 (Trinidad and Tobago) to 0.70 (Norway).

Our analysis is interested in the political effects of generalized trust, a cultural trait that we expect to be deeply rooted. An alternative research question is to study the effect trust in political institutions has on leader turnover. Beyond being less intellectually interesting, there are a number of reasons that such an analysis is more difficult. First, institutional trust measures are less commonly asked and, thus, have less coverage than the more-common generalized trust measures. For example, the *World Values Survey* question about trust placed in the central government covers 69 countries and 123 country-years. By comparison, our baseline generalized interpersonal trust measure, is available for 108 countries and 400 country-years. Second, the response rates of institutional trust questions tend to be much lower than that of the generalized trust question, with many more people choosing "don't

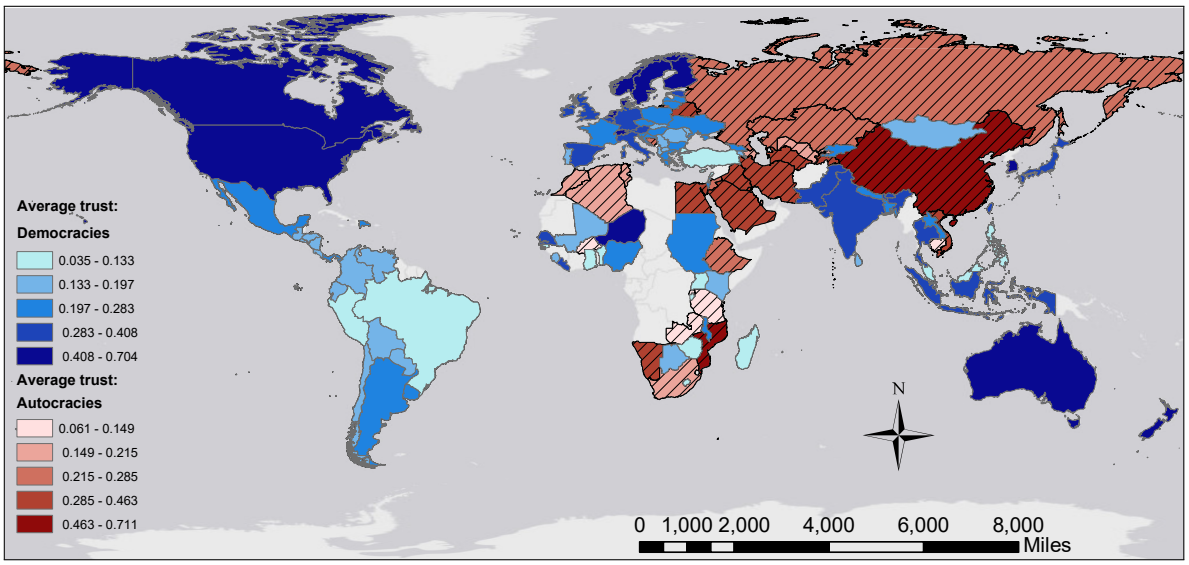


Figure 1: Average Trust Across Countries

know" as a response. For example, in our sample, 16.7% of responses are missing for the question that asks about trust in the central government, whereas only 4.9% of the responses are missing for the generalized trust measure. This is a concern if the non-response is non-random. Third, questions about trust in existing institutions likely primarily reflect one's views of the current leader or political party in power rather than deeper cultural traits, which is the focus of our analysis.

To underscore this point, we present a breakdown of the sources of variation in generalized and institutional trust in Appendix Table A.2. We consider four measures of trust: generalized interpersonal trust, trust in the central government, trust in the president, and trust in the parliament. We then regress these variables on country fixed effects, leader fixed effects, and year fixed effects to understand how much of the underlying variation in the measures is dependent on time-varying factors, like the identity of the leader in power. Panel A considers how much variation is absorbed by country fixed effects only. We find that country fixed effects explain much more variation in the generalized trust than the other measures: the R-squared for generalized trust is 0.75 (column 1), whereas the R-squared for the three institutional trust measures ranges from 0.32 to 0.57.

In Panel B, we add leader fixed effects to gain a sense of the importance of this time varying factor for each trust measure. We find that the leader fixed effects explain much more of the remaining variation for the three institutional trust measures than for the generalized trust measure. Their R-squared values increase by 0.20, 0.31, and 0.22, respectively, while the R-squared for generalized trust increases by 0.11. Finally, in Panel C, we examine the additional explanatory power provided by year fixed effects. We find that year fixed effects

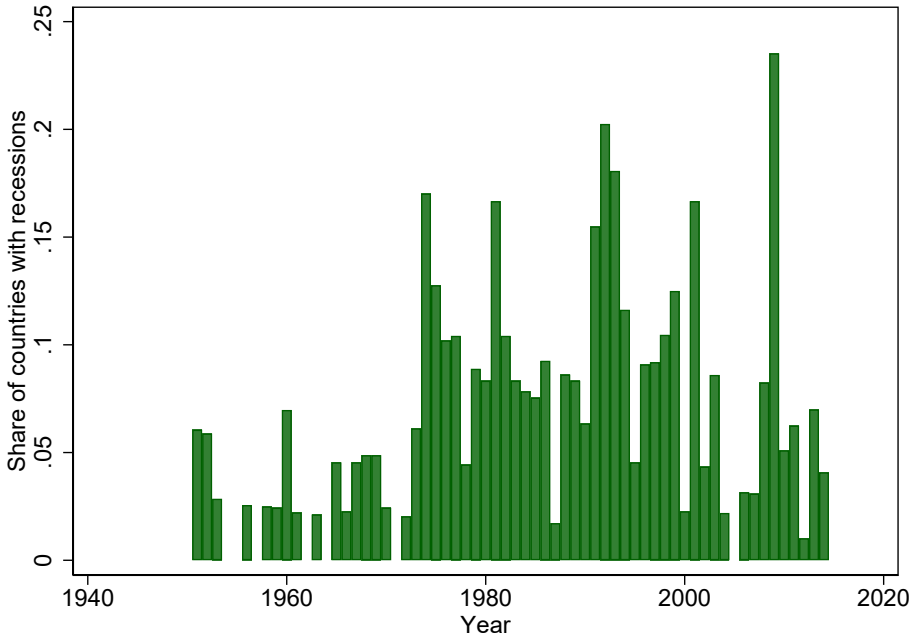


Figure 2: Frequency of Country-Level Recessions Over Time

increase the R-squared for the three trust measures by 0.052, 0.32, and 0.12, while the increase for generalized trust is 0.047.

Overall, the patterns suggest that generalized interpersonal trust is a much more stable and deeply-rooted cultural trait than trust in political institutions. The measure is less dependent on the specific political characteristics of a particular time. It is this fundamental cultural trait, and its consequences, that is the focus of our analysis.

Economic Conditions Our measure of real GDP is taken from the *Penn World Tables* (Feenstra, Inklaar, and Timmer, 2015). We measure income using output-side GDP at current PPPs in millions of 2005 U.S. dollars. We construct an economic downturn indicator variable that equals one if annual growth falls below the 10th percentile of annual GDP growth among all observations in our sample.

Figure 2 reports the distribution of recessions over time by plotting the share of countries in the sample experiencing a recession in each year of the analysis. It shows that there is a lot of variation over time. Thus, it is unlikely that our estimates are driven by one particular recession.

Our baseline measure is meant to capture the presence of severe economic downturns that will be salient in voters' minds. As we show, our findings do not rest on our choice of this particular recession measure. Results are similar across a range of plausible ways of measuring severe economic downturns.

4 Empirical Strategy

Our analysis examines whether generalized trust affects the likelihood of political turnover during periods of poor economic performance. To study this, we estimate the following equation:

$$y_{i,t} = \beta \, \mathit{Trust}_i \times \mathit{Recession}_{i,t-1} + \mathbf{X}_{i,t-1}\mathbf{\Gamma} + \alpha_i + \gamma_t + \varepsilon_{i,t}, \tag{1}$$

where i indexes countries and t indexes years. The sample includes all countries and years where the country is democratic in the previous year. We consider the largest range of years possible given the data limitations, which is 1951–2014. The specification includes country fixed effects, α_i, and year fixed effects, γ_t. The country fixed effects capture time-invariant differences across countries, such as persistent differences in political institutions or corruption. Year fixed effects control for global trends that affect all countries similarly. All standard errors are clustered at the country level to correct for non-independence of observations over time within a country.

Leader turnover in country i at time t is denoted $y_{i,t}$ and is assumed to be a function of the interaction of a time-invariant measure of trust, Trust_i, and an indicator variable that equals one if country i experiences poor economic growth between years $t-1$ and t, $\mathit{Recession}_{i,t-1}$. Our baseline measure defines all observations in the bottom ten-percentile of annual GDP growth as a recession. Our hypothesis of interest is whether $\beta < 0$: when there is a recession, countries with higher trust are less likely to experience leader turnover. Our vector of covariates $\mathbf{X}_{i,t-1}$ always includes the uninteracted recession indicator variable, which varies by time and country. The uninteracted measure of trust is time invariant and is therefore absorbed by country fixed effects.

Since the hypothesized mechanism for turnover is through the electoral process in our baseline regressions, we use a sample of democracies.[2] While we expect our effects to be most pronounced during regularly-scheduled election years, turnovers can, and often do, occur during the middle of a leader's term. Given this, our baseline specification includes all years of a democratic leader's term.

The main challenge for identification of the coefficient of interest, β, is that trust is potentially correlated with other factors that could affect the extent to which recessions lead to political turnover. Or analogously, the occurrence of recessions is correlated with other country-specific changes that also affect turnover and is moderated by the level of trust in the country. To address these issues, the baseline specification includes a vector of covari-

[2] We use the coding from Cheibub, Gandhi, and Vreeland (2010), which was updated by Bjørnskov and Rode (2020). A democratic state is defined as one that holds elections to select the executive and the legislature, has a closed legislature, legally allows multiple political parties, has multiple parties in practice, has a legislature with multiple parties, has seen a rules-based change in leadership, and whose incumbent leader has not consolidated power in a way that violates the above criteria.

ates, $\mathbf{X}_{i,t-1}$, all measured in year $t-1$ to avoid reverse causality. The vector includes four characteristics of the leader in power (gender, current age, days in office, and the number of times previously in office), GDP, democratic strength measured by the polity2 score, and an indicator variable for the presence of any conflict or war. We allow the effects of these covariates on leader turnover to vary depending on a country's level of trust by controlling for each of the measures and their interactions with trust. Similarly, we allow the measures to have differential effects on leader turnover depending on whether the country experienced a recession in year $t-1$ by controlling for each of the measures interacted with the recession indicator variable, $Recession_{i,t-1}$.

5 Results

5.1 Baseline Estimates

Panel A of Table 1 presents the baseline estimates. In this panel, we define a recession as any country-year observation with GDP growth over the previous year that is less than the 10th percentile of all GDP growth values in our sample. We begin by examining the relationship between the occurrence of a recession and leader turnover. Column (1) reports estimates without country fixed effects, while column (2) includes country fixed effects. All other control variables from equation (1) are included in both specifications.

The coefficient for the uninteracted recession indicator is the effect of a recession on leader turnover for an observation that has values of zero for all the controls that are interacted with the recession indicator. To provide an intuitive interpretation of the estimates, Table 1 reports the effect of a recession on leader turnover for an observation with all control variables evaluated at their mean values.

Columns (1) and (2) show that the effect of a recession on leader turnover (with all controls evaluated at their means) is positive and significant in both specifications. Thus, consistent with existing studies, we find that economic downturns lead to a greater likelihood of leader turnover (e.g., Wolfers, 2007; Brender and Drazen, 2008). According to the magnitude of the estimates, a recession results in a thirteen or sixteen percentage-point increase in the probability of leader turnover (depending on the specification). This is sizable given that the mean of leader turnover, shown at the top of the table, is 24 percent.

Column (3) reports the baseline specification, equation (1), which includes the interaction of the recession indicator with the average trust level of a country. The estimated coefficient for the interaction term is negative and significant at the 1% level. Recessions are less likely to result in leader turnover in countries with more trust. To assess the magnitude of the effect, we compute the difference in predicted turnover that results from a one-standard-deviation change in trust. As reported in Appendix Table A.3, the standard deviation of the trust variable is

Table 1: Trust, Recessions, and Turnover – Democracies

	Dependent Variable: Leader Turnover				
	(1)	(2)	(3)	(4)	(5)
			Baseline	Region FE x Year FE	Logit (Odds Ratios)
Mean of Dependent Variable	0.240	0.240	0.240	0.240	0.226
	Panel A. Recessions: GDP growth < global 10th percentile				
Trust x I(Growth<global 10th percentile)			-0.558***	-0.683***	0.0177**
			(0.210)	(0.239)	[0.015]
I(Growth<global 10th percentile)	-0.302	-0.366	-0.350	-0.575	0.0827
	(0.381)	(0.380)	(0.409)	(0.404)	[0.322]
Effect of I(Growth<global 10th percentile) at variable means	*0.128*** (0.035)*	*0.16*** (0.035)*	*0.299*** (0.069)*	*0.324*** (0.072)*	*6.69*** [0.000]*
R-squared	0.047	0.180	0.181	0.252	
	Panel B. Recessions: GDP growth < global 5th percentile				
Trust x I(Growth<global 5th percentile)			-0.823***	-0.967***	0.000636***
			(0.292)	(0.285)	[0.001]
I(Growth<global 5th percentile)	-0.884	-1.303*	-1.236**	-1.475**	*8.41e-09***
	(0.780)	(0.753)	(0.606)	(0.665)	*[0.000]*
Effect of I(Growth<global 5th percentile) at variable means	*0.061 (0.072)*	*0.106 (0.070)*	*0.281*** (0.092)*	*0.323*** (0.094)*	*5.32*** [0.005]*
R-squared	0.042	0.175	0.175	0.247	
	Panel C. Recessions: GDP growth intervals				
Trust x I(Growth 0-10th percentile)			-0.531**	-0.641***	0.0214**
			(0.220)	(0.237)	[0.027]
Trust x I(Growth 10-20th percentile)			-0.136	-0.115	0.441
			(0.182)	(0.195)	[0.466]
Trust x I(Growth 20-30th percentile)			0.210	0.196	4.478
			(0.155)	(0.158)	[0.168]
Trust x I(Growth 30-40th percentile)			0.117	0.0968	2.549
			(0.110)	(0.134)	[0.272]
R-squared			0.189	0.260	
Controls (All Panels):					
Country FE	N	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y
Region FE x Year FE	N	N	N	Y	N
Number of Clusters (Countries)	95	95	95	95	90
Observations	3,255	3,255	3,255	3,255	3,177

Notes: Observations are at the country and year level. Columns (1)-(5) control for lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Columns (2)-(5) control for country and year fixed effects, but column (1) only controls for year fixed effects. Column (4) also controls for region fixed effects times year fixed effects. Column (5) reports odds ratios with p-values reported in brackets. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

0.132. The coefficient for the interaction term, -0.558, implies that when there is a recession, the difference in the probability of leader turnover between two countries with trust levels that are different by one standard deviation is 7.4 percentage-points ($0.132 \times -0.558 = -0.074$), which is 19.4% of a standard deviation of leader turnover ($0.074/0.382 = 0.194$).

For a concrete example, consider the different effects of a recession between the Western European countries in our sample with the highest and lowest trust measures: Norway, which has a trust measure of 0.70, and Portugal, which has a measure of 0.19. The estimated coefficient of the interaction term implies that the occurrence of a recession is 28 percentage-points more likely to cause political turnover in Portugal than in Norway.

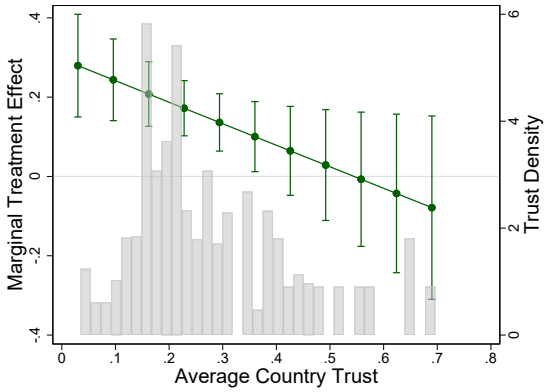
In column (4), we add region fixed effects interacted with year fixed effects to absorb time-varying changes that affect regions of the world differently. We categorize countries into the five regions defined by the United Nations: Africa, the Americas, Asia, Europe, and Oceania. Our estimates remain very similar to the baseline.

In column (5), we check the sensitivity of our baseline linear probability estimates to the use of a logistic model. The estimated odds ratio for the interaction term is less than one and statistically significant, which implies that higher levels of trust reduce the probability that recessions result in leader turnover. This is consistent with the results from the baseline linear probability model, which we will use for the remainder of the paper.

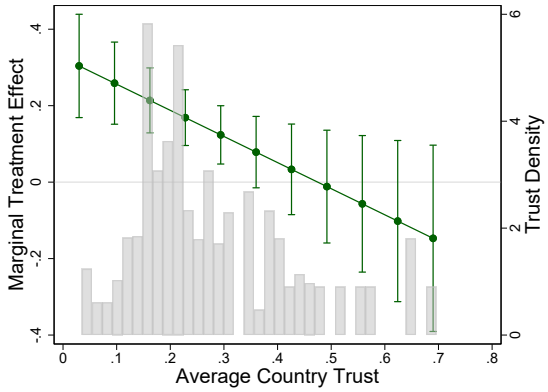
To better understand the interaction coefficient in columns (3), (4), and (5) of Panel A, we plot the average marginal treatment effect of recessions on leader turnover at varying levels of trust in Figure 3. Subfigure (a) corresponds to column (3), subfigure (b) corresponds to column (4), and subfigure (c) corresponds to column (5). In each figure, we also overlay a histogram of trust values in the sample. We see that for subfigures (a) and (b), which are linear probability estimates, recessions precisely increase the probability of turnover for low values of trust. However, at higher values of trust, the treatment effect erodes to a null. In the logit specification, we find that the probability of leader turnover during a recession is greatest at trust values of about 0.2, and erodes to a null for higher values of trust.

In Panel B of Table 1, we repeat the earlier estimates with a different definition of recessions. Instead of using a cutoff value of the 10th percentile of GDP growth observed in all countries and years, we use the 5th percentile of GDP growth observed in all countries and years. Any country-year observation whose GDP growth over the previous year is less than this cutoff is defined as a recession. The coefficients in this panel are very similar to those in Panel A. In particular, the coefficients for the interaction of trust and the recession indicator in columns (3)–(5) are always negative and statistically significant at the 1% level. The effect of the uninteracted recession indicator evaluated at the mean is similarly positive and statistically significant at the 1% level.

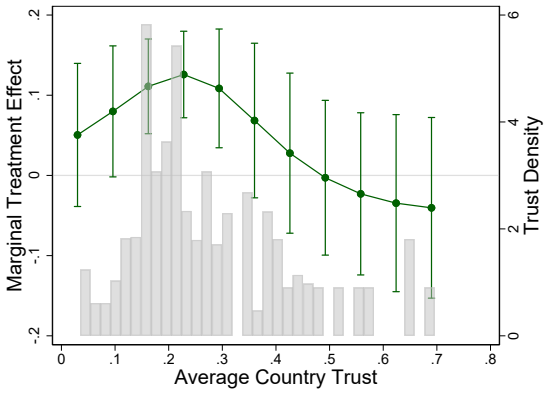
Finally, in Panel C of columns (3)–(5), we repeat these estimates with non-parametric GDP growth indicators to test the a priori expectation that the worst recessions should



(a) Linear Probability



(b) Linear Probability - Region x Year Fixed Effects



(c) Logit

Figure 3: Average Marginal Treatment Effect (and 95% CIs) of Recession at Varying Levels of Trust.

generate the largest electoral consequences and potentially the largest moderating impact of generalized trust. We categorize each observation into one of five groups depending on where the growth rate of the observation falls on the distribution of growth across all country-year observations: 0-10th percentile, 10-20th percentile, 20-30th percentile, 30-40th percentile, and 40th or higher percentile (the reference group). From these five categories, we create four dummy variables and include the interaction of each dummy variable and trust in lieu of the interaction of trust and the baseline recession measure. The estimates show that the interaction is negative and statistically precise only for the lowest category of GDP growth – i.e., the 0-10th percentile group. The coefficients on the remaining three growth indicators are all imprecisely estimated. Thus, our main result is due to electoral performance in years with particularly poor economic performance.

5.2 Effects in Non-Democracies

Our analysis focuses on democracies because the main mechanism for political turnover we have in mind is electoral accountability through voting. Therefore, we expect leader turnover to be less elastic with respect to voters and economic performance in non-democracies (Klick, 2005; Acemoglu and Robinson, 2005). Table 2 reproduces the estimates from Panels A and B of Table 1 for a sample of autocracies. As before, we distinguish democracy from autocracy using the categorization of Cheibub, Gandhi, and Vreeland (2010) and Bjørnskov and Rode (2020).

Panel A reports estimates when recessions are defined using the 10th percentile cutoff and Panel B reports estimates using the 5th percentile cutoff. The interaction coefficients are very close to zero for autocracies. Compared to democracies, the estimated effects are much smaller in magnitude and are statistically insignificant. The findings are consistent with our interpretation that the mechanism underlying our main results reflects citizens' views expressed through voting. To address the possibility that GDP data maybe poorer for autocracies, which are known to often overstate economic performance, we also undertake the same exercise but using the GDP data based on nighttime lights constructed by Martinez (2022). The estimates, which are reported in Appendix Table A.4, are very similar to the baseline estimates.

5.3 Effects on Regular versus Irregular Turnovers

In this section, we examine the effects of trust and recessions on the probability of a regular turnover occurring and the probability of an irregular turnover occurring (as coded in the *Archigos* data). A regular leader turnover is one where the new leader is selected in a manner prescribed by either explicit rules or established conventions, irrespective of the nature of the previous leader's exit. For example, if a president exits due to assassination and is replaced

Table 2: Trust, Recessions & Turnover – Autocracies

	(1)	(2)	(3)
	Baseline	Control for Region FE x Year FE	Logit (Odds Ratios)
Mean of Dependent Variable	0.117	0.117	0.122
	Panel A. Recessions: GDP growth < global 10th percentile		
Trust x I(Growth<global 10th percentile)	-0.117	-0.161	0.362
	(0.145)	(0.149)	[0.589]
R-squared	0.168	0.233	
	Panel B. Recessions: GDP growth < global 5th percentile		
Trust x I(Growth<global 5th percentile)	-0.127	-0.223	0.585
	(0.262)	(0.268)	[0.860]
R-squared	0.167	0.232	
Controls (All Panels):			
Country FE	Y	Y	Y
Year FE	Y	N	Y
Region x Year FE	N	Y	N
Number of Clusters (Countries)	101	101	96
Observations	3,351	3,351	3,227

Notes: Observations are at the country and year level. The sample includes autocratic observations. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Column (3) reports odds ratios with p-values reported in brackets. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 3: Trust, Recessions & Turnover– Regular and irregular entry, election and non-election years

	Dependent Variable: Leader Turnover							
	(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
			Multinomial Logit (Relative Risk Ratios)					
Dependent Variable:	Leader Turnover		Regular Turnover	Irregular Turnover	Leader Turnover			
					Democracies			
Sample:	Democracies	Democracies and Autocracies			Election Years	Non-Election Years	Presidential	Parliamentary
Mean of Dep. Var.	0.240	0.178			0.509	0.150	0.241	0.240
Trust x I(Growth	-0.558***	-0.326***	0.0476***	0.775	-1.413**	0.0566	-1.583**	-0.341
<global 10th percentile)	(0.210)	(0.113)	[0.004]	[0.939]	(0.592)	(0.270)	(0.631)	(0.206)
Observations	3,255	6,611	6,611		521	1,918	1,203	2,051
R-squared	0.181	0.151			0.481	0.254	0.375	0.165
Number of Clusters (Countries)	95	135	135		86	94	53	78

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Column (1) reports our baseline estimate, which is estimated using lagged democracies only. Column (2) reports the baseline regression estimated on the pooled sample of democracies and autocracies. In the multinomial estimates, reported in columns (3a) and (3b), the omitted category is for no political turnover. These coefficients are relative risk ratios with p-values reported in brackets. Columns (4) and (5) estimate the baseline regression on a partition of the baseline democratic sample: those observations from election years, and those observations from non-election years. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

by a vice president, then the turnover is considered regular. For a turnover to qualify as being irregular, there must be a violation of convention by the entrant. For example, if the vice president who is next-in-line obtains power through a coup, then this would be coded as an irregular turnover. The most common causes of irregular turnovers in the data are military coups and foreign military impositions. We expect regular turnovers to be more elastic with respect to voter preferences than irregular turnovers for the same reason that turnovers are less elastic in autocracies with respect to voter preferences. Irregular turnovers are less likely to reflect changes in the extent to which citizens blame politicians for economic downturns.

We examine both democracies and non-democracies, since regular and irregular turnovers can occur in both, and estimate a multinomial logit model, where the potential outcomes in each country or period are: no change in leader, a regular leader turnover, and an irregular leader turnover. The estimates are reported in Table 3. For comparison, column (1) reproduces our baseline OLS estimates for democracies, while column (2) reports our baseline OLS estimates for the pooled sample of democracies and non-democracies. The point estimate in column (2) is smaller in magnitude, which is not surprising given that the sample now includes observations that are non-democracies for which our mechanism of interest is less relevant.

Columns (3a) and (3b) report the multinomial logit estimates for the pooled sample in terms of relative risk ratios. The omitted category includes observations where there is no leader turnover. Column (3a) reports the relative risk of a regular turnover versus no turnover. Since the odds ratio is less than one, regular turnover is less likely during recessions in high

trust countries. Column (3b) reports the analogous relative risk ratio for irregular leader turnover versus no turnover. We find that, following an economic downturn, greater trust reduces the probability of a regular leader turnover but does not reduce the probability of an irregular turnover. The results are consistent with irregular turnovers being less elastic with respect to economic fluctuations.

5.4 Timing of Elections

To further explore the role of the electoral process, we check whether the effects of interest are stronger in election years. We divide our baseline sample of democracies into observations that are regularly scheduled election years and those that are not, and examine if our results are stronger during election years. In countries where early elections can be called, regularly-scheduled elections are defined as those that take place at the *de jure* term limit. Hence, early elections are not treated as regularly-scheduled. We use data from the *Database of Political Institutions* (Keefer, 2015) to identify years in a country during which a regular election was scheduled. We use scheduled elections rather than actual elections because the latter is potentially endogenous.

The estimates are reported in columns (4) and (5) of Table 3. We find that the estimated effect for election years is larger in magnitude than the baseline estimate reported in column (1), while the estimate for non-election years is smaller and statistically insignificant. The two coefficients are statistically different. A Seemingly Unrelated Regression estimates the p-value for the test of equality to be 0.0202 (not reported in the table). This pattern is consistent with the hypothesis that voting is an important mechanism underlying the baseline estimates.

5.5 Type of Democracy

Parliamentary and presidential democracies select leaders in slightly different ways, which may change the extent to which trust modulates the recession-to-turnover link. One can think of reasons why the importance of trust for leader turnover might be more important in either type of regime. On the one hand, in parliamentary regimes, elections are commonly held before the end of a leader's term, resulting in more frequent turnover. If this causes turnover to be more likely in the face of economic downturns, then we might expect trust to have a larger mediating effect in parliamentary systems. On the other hand, in presidential regimes, voters play a more direct role in leader selection, so trust may have a greater effect on the identity of the chosen leader. It may also be the case that citizens attribute economic performance more directly to presidents. The relative importance of trust during recessions on the leader turnover of parliamentary and presidential systems is an empirical question and ambiguous *ex ante*.

To explore this question, we divide the sample of democracies into parliamentary versus

presidential systems and re-estimate the baseline equation for each sub-sample. The estimates are reported in columns (6) and (7) of Table 3. We find that the coefficients are negative in both systems, but it is larger in magnitude and statistically significant in presidential systems. The two coefficients are statistically different. A SUR estimates the p-value for the test of equality to be 0.046 (not reported in the table).

5.6 Robustness

Thus far, the estimates show that trust attenuates the link between recessions and leader turnover in democracies. This section examines the robustness of our baseline findings.

5.6.1 Correlates of Trust

A central challenge for the causal interpretation of our estimates is that trust may be correlated with other factors that also affect turnover during recessions. After extensively reviewing the literature on trust, we identify country characteristics that have been shown to be associated with trust and may be important for leader turnover: average years of education (Knack and Keefer, 1997), primary educated population share (Knack and Keefer, 1997; Tabellini, 2010), income inequality (Delhey and Newton, 2005), urban population share (Fisman and Khanna, 1999), immigrant population share (McShane, 2017), ethnic fractionalization (Knack and Keefer, 1997; Delhey and Newton, 2005), linguistic fractionalization (Knack and Keefer, 1997; Delhey and Newton, 2005), level of democracy, number of armed conflicts, average leader turnover, and the quality of government (measured as the average of three International Country Risk Guide, ICRG, government quality measures: corruption, law and order, and bureaucratic quality).[3]

Table 4, Panel A, column (1) presents the correlation between each of these variables and trust. Amongst the statistically significant correlates, we find that country-level trust is positively associated with the average years of education, urban population share, immigrant population share, level of democracy, and quality of governance; and negatively associated with inequality and ethnic fractionalization.

To check that these characteristics do no bias our estimates of interest, we control for the interaction of each variable with the recession indicator. The resulting coefficient on the interaction between trust and recession is reported in Table 4, Panel A, column (2), and full results are presented in Appendix Table A.5. We find that the baseline result is strongly robust. The sample size varies depending on the availability of the additional controls. We report the number of countries and observations in each sample. In the last row, we also report the coefficient of interest when controlling for all controls times recessions simultaneously.

[3]The ICRG variables were access through The Quality of Government Standard Dataset 2020.

Table 4: Correlates of Trust

	(1)	(2)	(3)	(4)
	Correlation with Trust	Coefficient on Trust x Recession when Controlling for Variable x Recession	Number of Observations	Number of Countries
Baseline Coefficient		-0.558***	3,255	95
Panel A: Correlates of Trust				
Average Years of Education	0.48***	-0.608***	3,122	86
% with Primary Education	0.04	-0.634***	3,122	86
Gini Coefficient	-0.61***	-0.688***	3,173	93
% Urban Population	0.48***	-0.401*	3,237	94
% Immigrant Population	0.40***	-0.549***	3,237	94
Average Conflict Count	-0.14	-0.544***	3,255	95
Ethnic Fractionalization	-0.38***	-0.596***	3,255	95
Linguistic Fractionalization	-0.11	-0.604***	3,202	93
Polity2 Score	0.48***	-0.552***	3,255	95
Leader Turnover	0.11	-0.552***	3,255	95
Quality of Governance	0.68***	-0.657**	1,764	79
All Controls in Panel		-0.900**	1,653	73
Panel B: Cultural Traits				
Self: Avoid Danger	0.61***	-0.859**	1,759	47
Self: Take Risks	0.31***	-0.596**	1,759	47
Self: Value Tradition	0.58***	-0.571**	1,759	47
Child: Thrift	-0.18	-0.682***	2,234	61
Child: Obedience	-0.51***	-0.809***	2,234	61
Locus of Control	0.11	-0.758***	2,234	61
Individualism	0.69***	-0.72**	2,438	53
All Controls in Panel		-1.464***	1,562	35
Panel C: Macroeconomic Characteristics				
Real GDP, mean	0.16***	-0.636***	3,255	95
Real GDP, variance	0.12***	-0.618***	3,255	95
Real GDP Growth, mean	-0.24***	-0.5**	3,255	95
Real GDP Growth, variance	-0.25***	-0.561***	3,255	95
Unemployment Rate, mean	-0.29***	-0.651***	3,217	91
Unemployment Rate, variance	-0.15	-0.615**	3,085	84
Trade Intensity, mean	0.00	-0.599***	3,237	94
Trade Intensity, variance	-0.05	-0.560***	3,237	94
All Controls in Panel		-0.539*	3,085	84
Panel D: Sectoral Shares				
Agriculture (% GDP)	-0.43***	-0.561***	2,990	81
Mining (% GDP)	0.31**	-0.561**	2,990	81
Manufacturing (% GDP)	0.22**	-0.572***	2,990	81
Construction (% GDP)	0.22*	-0.547**	2,990	81
Retail (% GDP)	0.00	-0.595***	2,990	81
Transportation (% GDP)	0.24*	-0.574**	2,990	81
Other (% GDP)	0.27**	-0.55**	2,990	81
All Controls in Panel		-0.556**	2,990	81

Notes: All controls vary at the country-level. Coefficients in column (2) come from a regression at the country-year level, and controls are interacted with the recession indicator. All rows cover 64 years.

5.6.2 Other Cultural Traits

Another alternative hypothesis is that trust is correlated with another cultural trait that is the true driver of heterogeneity. We consider seven measures, each measured as a country level average. The first three measures are taken from *World Values Survey* questions that ask respondents whether the traits describe them. The traits are: (1) Danger avoidance: "Living in secure surroundings is important to this person; to avoid anything that might be dangerous;" (2) Willingness to take risks: "Adventure and taking risks are important to this person; to have an exciting life;" and (3) Valuing tradition: "Tradition is important to this person; to follow the customs handed down by one's religion or family." The next two measures are from a question that asks respondents to choose up to five traits that children should be taught. The measures record if the trait was mentioned by the respondent. The two traits we consider are "thrift" and "obedience."

The next measure is the perception of how much control one generally has over life. This perception is commonly referred to as the *locus of control* (Rotter, 1980). The extent to which citizens believe that people in general (including politicians) have control over outcomes will affect the extent to which they hold politicians responsible for economic recessions and therefore affect leader turnover. We measure the locus of control using the *World Values Survey* question: "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "no choice at all" and 10 means "a great deal of choice" to indicate how much freedom of choice and control you feel you have over the way your life turns out."

Finally, we consider country-level averages of individualism, which is constructed by Hofstede (2001).[4] This measure captures the extent to which a culture's prevailing norm is that individuals should look after only themselves and their immediate family, in lieu of larger cohesive groups. Recent work by Ezcurra (2021) finds that individualism is associated with political instability.

In Table 4, Panel B, column (1), we report these cultural values and trust. We then control for each of these cultural traits interacted with the recession indicator and report the resulting coefficient of interest in column (2). Full results are presented in Appendix Table A.6. We also report the coefficient of interest when controlling for all controls interacted with recessions simultaneously. The result remains negative and precise.

[4]We use the updated measures, which are available from:
`https://geerthofstede.com/research-and-vsm/dimension-data-matrix/`.

5.6.3 Macroeconomic Characteristics

Next, we test whether macroeconomic characteristics correlated with trust drive our results, as research has found a negative correlation between economic volatility and trust (Sangnier, 2013). In Table 4, Panel B, column (1), we report the correlation between the means and variances of four macroeconomic indicators with trust. We use real GDP, real GDP growth, the unemployment rate, and trade intensity $((exports + imports)/GDP)$. We average over our sample period for all variables and compute the annual variance.

To test whether these characteristics bias our baseline coefficient, we control for each measure interacted with the recession indicator in our baseline estimating equation. We report the resulting coefficient of interest in Table 4, Panel C, column (2), and we report full results in Appendix Table A.7. The results remain similar in sign, precision, and magnitude, even when we add all controls interacted with recessions simultaneously.

5.6.4 Sectoral Shares

Finally, we perform the same exercise for each country's base year sectoral shares, which may be correlated with trust but affect how countries recover from recessions. Data on national GDP by sector come from the United Nations Statistics Database (United Nations Statistical Division, 2018), and we use the earliest year available, 1970, as the base year. The sectors are agriculture, mining and extraction, manufacturing, construction, retail, transportation, and others. We report the correlations between these measures and trust in Table 4, Panel D, column (1). We control for these shares interacted with recessions and report the coefficient of interest in Table 4, Panel C, column (2). Full results are in Appendix Table A.8.

5.6.5 Additional Checks

We conduct several additional sensitivity tests in Table 5. In column (2), we test whether a small number of observations drive the main relationship of interest. To do so, we identify high leverage observations – namely, influential observations that have the greatest effect on the regression coefficient – using Cook's distance and the standard cutoff of $4/n$, where n is the number of observations in the sample (Belsley, Kuh, and Welsch, 1980). We omit these identified outliers from the sample and re-estimate equation (1). The coefficient of interest is negative and larger in magnitude than the baseline estimate.

In column (7), we present a parsimonious specification that includes only recessions, recessions interacted with trust, year fixed effects, and country fixed effects (which absorb the direct effect of generalized trust). We continue to cluster standard errors at the country level. The magnitude, sign, and precision of the result are very similar to column (1), suggesting that the baseline controls do not drive the main result.

Table 5: Robustness to Additional Controls and Omitting Outliers

	Dependent Variable:			
	Leader Turnover			Turnover, Two-year Lag
	(1)	(2)	(3)	(4)
	Baseline	Omitting Influential Obs.	Parsimonious Specification	
Mean of Dependent Variable	0.240	0.192	0.240	0.245
Trust x I(Growth	-0.558***	-0.854***	-0.482***	0.0131
<global 10th percentile)	(0.210)	(0.161)	(0.174)	(0.186)
Observations	3,255	3,036	3,255	3,003
R-squared	0.181	0.280	0.149	0.247
Number of Clusters (Countries)	95	90	95	91

Notes: Observations are at the country and year level. The sample includes democratic observations. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Outliers defined using Cook's Distance. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

We next consider the possibility that our results could be driven by spurious trends. To check for this, we re-estimate a version of equation (1) with leader turnover in period $t-2$ (rather than in period t) as the outcome variable. We use a two-year lag rather than a one-year lag because the recession indicator is based on the change in economic growth from year $t-1$ to year t. Thus, a two-year lag provides the cleanest placebo test. As reported in column (4), the interaction coefficient is small in magnitude, statistically insignificant, and positive rather than negative. This estimate helps alleviate the concern that spurious trends drive our results. The differential effect of economic downturns depending on a country's level of trust does not explain past leader turnover.

5.6.6 The Validity of the Trust Measure

There are several potential concerns related to our measure of average trust. Given that trust may be eroded by economic downturns (Stevenson and Wolfers, 2011), the average measure we use, which includes trust measured in year t, may suffer from reverse causality. We address this concern by showing that our estimates are robust to several alternative measures of trust. The first is the level of trust observed in the first year for which data are available for the country. The second measure is average trust, which omits data from surveys conducted during a recession year in the country (using our baseline definition of recessions).

The third measure additionally omits surveys that are within two years following a recession. Columns (2)–(4) of Table 6 show that the results using these alternative measures are similar to the baseline, which is re-stated in column (1) for comparison. If anything, the estimated magnitudes increase slightly with the alternative measures.

Another concern with the trust measure is the quality of the underlying survey data. To address this concern, we read through the documentation of each survey from which the trust measures are taken and manually coded a measure of data quality. We code a survey as "low-quality" if it does not report the survey procedure; has a missing or incomplete technical report; appears to be self-administered or through the mail; covers only urban or only rural areas; or does not specify that the coverage is representative. Using this information, we recreate our average trust measure after omitting all low-quality trust surveys. Column (4) presents the estimates using a measure of average trust when we omit such low-quality surveys.

Alternatively, we identify surveys that are not nationally representative according to the documentation. Column (5) presents the estimates using a measure of average trust when we omit these surveys.[5] Column (6) reports estimates when we omit both types of low-quality surveys. The main interaction coefficient is negative and statistically significant in all three samples. If anything, the magnitude is slightly larger than the baseline sample.

As a further robustness check, we construct a measure of average trust that uses only the *World Values Surveys* and *European Values Surveys*, which are the most extensively used sources in the cultural economics literature. The estimates are reported in column (7). The sample decreases to 2,648 observations. The interaction coefficient of interest is similar to the baseline.

Instead of measuring trust with survey data, one can also measure it via individual behavior in laboratory-based trust games (Berg, Dickhaut, and McCabe, 1995). In a recent study, Johnson and Mislin (2011) compile the results from over 160 implementations of the trust game.[6] Using these data, we construct an experiment-based measure of a country's average level of trust, which is the average fraction of money sent by player 1 to player 2 in the trust game. The estimates using this alternative measure are reported in column (8). Since lab-based measures of trust are less widely available than survey-based measures, the sample is much smaller (1,350 observations rather than 3,255) and this leads to a loss of statistical power. However, the interaction coefficient is negative and the magnitude is larger than the baseline estimate. This goes against concerns that our estimates are driven by measurement error in how survey data assess trust.

[5]The list of low-quality and unrepresentative surveys is reported in Appendix Table A.9.

[6]The game is a strategic game that involves two players. Player 1 is endowed with a sum of money (e.g., $10) and chooses how much of this sum to send to player 2. The amount is increased by some multiple (e.g., doubled or tripled), and player 2 then decides how much of the increased amount to send back to player 1. The amount that is sent to player 2 by player 1 is a measure of player 1's trust in player 2. The amount sent back by player 2 to player 1 is a measure of player 2's trustworthiness. We use the average proportion sent by player 1 in trust games in each country as a measure of average trust in the country.

Table 6: Robustness to Alternative Measures of Trust

	Dependent Variable: Leader Turnover								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Omit Trust Surveys from:						
	Baseline	Base Year Trust	Recession Years	Recession Years and Two Years Following	Unreliable Surveys	Unreliable and Unrepresent-ative Surveys	Use only WVS and EVS Surveys	Johnson & Mislin: Experiment-Based Trust	Use only Surveys with 1-10 scale
Mean of Dep. Var.	0.240	0.240	0.242	0.242	0.240	0.239	0.252	0.282	0.280
Trust x I(Growth	-0.558***	-0.805	-0.605***	-0.621***	-0.647***	-0.753***	-0.530**	-0.969	-0.738*
<global 10th percentile)	(0.210)	(0.769)	(0.201)	(0.199)	(0.214)	(0.257)	(0.222)	(1.441)	(0.395)
Observations	3,255	3,255	3,179	3,179	3,171	2,991	2,648	1,350	1,341
R-squared	0.181	0.180	0.186	0.185	0.181	0.190	0.192	0.257	0.265
Number of Clusters	95	95	91	91	83	80	68	27	29

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Information about the definition of trust is provided in column headings and in the text. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

In column (9), we use an alternative trust measure from the *Eurobarometer* Surveys. This survey question asks respondents to report their level of trust on a ten-point scale. For comparability with the estimates using other trust measures, we re-scale the measure to range from zero to one. Despite having far fewer countries in the sample (29 rather than 95), the coefficient of interest remains negative, similar in magnitude, and statistically significant.

The results in Table 6 show that our main results are unlikely to be an artifact of measurement error in the baseline measure of trust.

5.6.7 Alternative Measures of Democracy

We now examine the robustness of our finding of the effect of trust on leader turnover in the face of economic downturns in democracies but not autocracies. To assess the stability of this finding, we re-estimate our baseline equation (1) for the democracy and non-democracy samples using alternative definitions of democracy. The estimates are summarized in Table 7, where Panel A reports estimates for democracies and Panel B for autocracies. Column (1) reproduces our baseline estimates for comparison. Columns (2)–(5) report alternative estimates that use the polity2 measure from the *Polity IV* dataset, which ranges from -10 to +10. In column (2), we use a cutoff of zero, which is common in the political science literature (Epstein, Bates, Goldstone, Kristensen, and O'Halloran, 2006). In column (3), we use a cut-off of five, the standard threshold of "full" democracies used by the *Polity IV* project (Marshall, Jaggers, and Gurr, 2015). In column (4), we use a cut-off of eight, which restricts the sample to very stable democracies. In column (5), we use the median value in the sample, four. In column (6), we identify democracies and autocracies using the electoral democracy index from the *Varieties of Democracy* (V-Dem) database (Coppedge, Gerring, Skaaning, Teorell, Altman, Bernhard, and Zimmerman, 2018). We define countries and years with a lagged index above the median value in the sample as democracies. All alternative democracy-autocracy definitions, generate the same finding. Trust has a mediating effect on leader turnover during recessions in democracies but not autocracies.

A remaining concern is that interpersonal trust might change the extent to which a country remains a democracy when an economic downturn is experienced. To check the extent to which our findings are influenced by this, we use time-invariant measures of democracy to divide the sample into democracies and autocracies. Thus, the categorization of a country remains the same for the full sample period. We first use a country's polity measure in the first year of the sample period to classify them. We report estimates using three different cutoffs, zero, five, and the median. These are reported in columns (7)-(9). A second strategy that we employ is to undertake the same procedure but to use the average polity score of a country during our sample period rather than the initial score. The estimates using the same three cut-offs are reported in columns (10)-(12). We find that our conclusion remains unchanged. Trust

Table 7: Robustness to Alternative Definitions of Democracy

	Dependent Variable: Leader Turnover											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Alternative definitions of democracy:										
		Using an observation's lagged value					Using a country's initial year value			Using a country's average value		
	Baseline (Cheibub et al, 2010)	Lag Polity2>0	Lag Polity2>5	Lag Polity2>8	Lag Polity2> median	V-Dem democracy index> median	Initial year Polity2>0	Initial year Polity2>5	Initial year Polity2> median	Average Polity2>0	Average Polity2>5	Average Polity2 > median
	Panel A. Democracies											
Mean of Dep. Var.	0.240	0.227	0.234	0.242	0.231	0.209	0.217	0.209	0.236	0.246	0.239	0.216
Trust x I(Growth	-0.558***	-0.476***	-0.594***	-0.556**	-0.474**	-0.568***	-0.503**	-0.568***	-0.568***	-0.679***	-0.578***	-0.439**
<global 10th percentile)	(0.210)	(0.177)	(0.186)	(0.210)	(0.202)	(0.179)	(0.198)	(0.179)	(0.170)	(0.205)	(0.172)	(0.213)
Observations	3,255	3,682	3,033	1,898	3,273	3,172	2,105	3,172	3,608	2,275	3,333	3,954
R-squared	0.181	0.175	0.198	0.239	0.187	0.177	0.216	0.177	0.151	0.199	0.161	0.178
Number of Clusters (Countries)	95	112	98	58	103	63	42	63	70	43	64	121
	Panel B. Non-Democracies											
Mean of Dep. Var.	**0.117**	**0.116**	**0.130**	**0.152**	**0.126**	**0.149**	**0.160**	**0.149**	**0.108**	**0.142**	**0.116**	**0.121**
Trust x I(Growth	-0.117	-0.0239	-0.122	-0.217	-0.109	-0.147	-0.0577	-0.147	-0.161	-0.0721	-0.173	0.0234
<global 10th percentile)	(0.145)	(0.158)	(0.149)	(0.133)	(0.148)	(0.172)	(0.141)	(0.172)	(0.153)	(0.147)	(0.156)	(0.140)
Observations	3,351	2,929	3,578	4,713	3,338	3,439	4,506	3,439	3,003	4,336	3,278	2,657
R-squared	0.168	0.176	0.153	0.134	0.163	0.142	0.127	0.142	0.129	0.118	0.128	0.183
Number of Clusters (Countries)	101	97	105	116	102	72	93	72	65	92	71	97

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

matters for leader turnover in democracies but not autocracies.

5.6.8 Alternative Measures of Recessions

We next examine the sensitivity of our findings to our definition of a recession. Table 8 presents estimates of the baseline equation where we use several other definitions of recessions. Column (1) re-states the baseline measure, where the recession indicator takes the value of one for any country-year observation with growth less than the 10th percentile of GDP growth of all observations in the sample (-4.1%). Column (2) reports estimates using the 5th percentile of GDP growth (-8.8%). The estimate is statistically significant, negative, and larger in magnitude than the baseline. This is consistent with the non-parametric estimates which show that our baseline estimates are driven by the deepest recessions.

To take into account that popular perceptions of what constitutes a recession may depend on each country's economic history, we alternatively define the recession as any year when a country's growth is less than the 10th percentile or 5th percentile of the country-specific growth distribution. The estimates in columns (3) and (4) are similar to the baseline. Note that the within-country percentile definition has advantages and disadvantages relative to the global measure used in the baseline. Using a within-country cutoff accounts for the fact that people may benchmark current economic performance against the historical performance of their country rather than the world. However, the within-country measure mechanically forces all countries to have the same proportion of years defined as a recession. This may obfuscate relevant cross-country differences in economic growth and may be why the coefficient changes little when we reduce the threshold from the 10th to 5th percentile in columns (3) and (4).

Similarly, we consider the possibility that citizens benchmark a country's economic performance on regional economic performance rather than just one's own country or global performance. We define a different recession indicator that equals one any year a country's growth is less than the 10th or 5th percentile of the region-specific growth distribution, using the five UN region definitions. The estimates in columns (5) and (6) are similar to those in columns (1) and (2). Finally, we define recessions based on the growth of all democracies in the sample. The estimates reported in columns (7) and (8) are negative, statistically significant and slightly smaller in magnitude than the estimates in columns (1) and (2). The decline in magnitude is due to higher average growth among democracies. Hence, the recession indicators include more moderate downturns.

In columns (9) and (10), we return to a global percentile cutoff and instead of aggregate GDP growth, we use per capita GDP growth. We find a precise negative relationship as well, which is not surprising given the fact that GDP growth and per capita GDP growth are very highly correlated.

The next exercise that we undertake uses the global cutoff to define recessions and system-

Table 8: Alternative Definitions of Recession

	Dependent Variable: Leader Turnover									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Global		Within Country		Within Region		All Democracies		Global, per capita GDP	
	10th percentile (Baseline)	5th percentile	10th percentile	5th percentile	10th percentile	5th percentile	10th percentile	5th percentile	10th percentile	5th percentile
Mean of Dep. Var.	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240
Trust x Recession Indicator	-0.558***	-0.823***	-0.478**	-0.556***	-0.611***	-1.026***	-0.363**	-0.593***	-0.332**	-0.433**
	(0.210)	(0.292)	(0.189)	(0.190)	(0.159)	(0.203)	(0.138)	(0.173)	(0.160)	(0.216)
Observations	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255
R-squared	0.181	0.175	0.179	0.178	0.148	0.177	0.145	0.146	0.178	0.177
Number of Clusters (Countries)	95	95	95	95	95	95	95	95	95	95
Number of Recessions	175	62	345	192	223	89	368	217	338	189

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

atically changes the threshold that is used to define a recession. We create thirty quantiles of one-year GDP growth using all countries and years. We define quantile 1 to be observations with the lowest growth rates and quantile 30 to be those with the highest. We then create ten recession indicator variables, the first with the lowest possible growth threshold and each with a successively higher threshold. That is, the first measure is a recession indicator that takes the value of one if growth rates are within the first quantile. The second is a recession indicator that takes the value of one if growth rates are within the first two quantiles. The highest threshold we consider is using the first ten quantiles – i.e., the 10th recession indicator takes the value of one if growth rates are within the first ten (of the thirty) quantiles.

Table 9 reports the estimates. We find that our estimated effect of interest is systematically stronger, both in terms of magnitude and statistical significance, for deeper recessions (i.e., lower growth percentile cutoffs). The lowest six cutoffs, reported in columns (1)-(6), yield precise and negative coefficients for the interaction of trust and recession. As the cutoffs increase, the estimates steadily decline in magnitude and precision. For reference, for each specification, the one-year growth rate associated with the cutoff used is reported in the bottom row of the table. We also undertake the same exercise but use thirty within-country growth quantiles. The estimates, which are reported in Appendix Table A.10, show that the same pattern emerges. The estimated effect of interest is stronger for deeper recessions.

The last check we undertake is whether our results are robust to omitting years with global recessions as defined by the International Monetary Fund (negative real per capita world GDP growth): 1975, 1982, 1991, and 2009 (International Monetary Fund, 2009). We might be worried if these particular recessions were driving our results. As reported in Appendix Table A.11, the estimates are very similar when we omit these years from the sample.

The results in this section show that our main baseline estimate is not an artifact of how we define recessions. Moreover, trust matters more for the deepest recessions, which are also likely to be the most salient for citizens.

5.6.9 New Democracies and Less Developed Countries

In an influential paper, Brender and Drazen (2008) (henceforth BD) examine the relationship between macroeconomic performance and re-election probabilities. They find no average relationship across countries, but a strong positive relationship between growth and re-election for "new" democracies and less developed economies. Our study and theirs examine heterogeneity in the relationship between low economic growth and political turnover. To understand whether these dimensions matter independently, we include our explanatory variable and theirs in the same regression.

The estimates are reported in Table 10, where column (1) restates our baseline estimates of equation (1) for comparison. Column (2) replicates the BD estimates as closely as possi-

Table 9: Robustness to Recessions Defined via Rolling Cutoffs

	Dependent Variable: Leader Turnover									
	Recession Defined as Bottom # of 30 Global Quantile Categories									
	1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10
Trust x Recession Indicator	-0.672***	-0.807***	-0.558***	-0.486***	-0.333**	-0.321*	-0.219	-0.185	-0.0982	-0.0488
	(0.201)	(0.242)	(0.210)	(0.160)	(0.138)	(0.168)	(0.160)	(0.137)	(0.118)	(0.109)
Observations	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255
R-squared	0.174	0.177	0.181	0.180	0.182	0.181	0.179	0.180	0.179	0.179
Number of Clusters (Countries)	95	95	95	95	95	95	95	95	95	95
Number of Recessions	38	98	175	267	382	496	621	749	876	1013
Cutoff	-0.126	-0.0700	-0.0413	-0.0246	-0.0131	-0.00360	0.00426	0.0111	0.0173	0.0220

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the relevant recession indicator variable. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

ble using our data. We follow their definition of developed economies: countries that were members of the OECD between 1960 and 2003, which is the sample period of their study. Additionally, we use a similar, though not identical, definition of a new democracy. The difference is because our observations are at the country-year level rather than the country-election level, as in the BD analysis. We code an observation as a new democracy if it is within eighteen years from when the country's Polity 2 scores switched from negative to non-negative values. For comparison purposes, we interact the BD variables with our recession indicator instead of a continuous measure of growth, as in the original BD study. This does not change the conclusion. Note that our dependent variable, an indicator for turnover, is the inverse of theirs, an indicator for the re-election of the incumbent.

Following the analysis of BD, we include the interaction of the recession and democracy indicators; the triple interaction of the old democracy, recession, and developed economy indicators; and the triple interaction of the old democracy, recession, and less-developed economy indicators. As in BD, we also control for a developed economy indicator and an indicator that equals one if the election occurs under majoritarian electoral rules rather than proportional representation. The limited availability of this control reduces our sample size in columns (2), (3), and (5).[7] Introducing the trust variable slightly reduces our sample size further in columns (4) and (6).

Column (2) reports estimates from a specification that follows BD, excluding country and year fixed effects. The results are consistent with BD. Recessions increase the probability of turnover in new democracies and in old democracies that are less developed. In column (3), we add country and year fixed effects, as in our baseline specification. The BD results are robust to this inclusion. In column (4), we add the interaction of recession and trust to estimate the main explanatory variables of interest from the two papers in one regression. The interaction of recession and trust is slightly less precise than in column (1), which is likely due to the sample size being smaller than in our baseline, but the magnitude is almost identical. The interaction of the recession and new democracy indicators, as well as the triple interaction of the old democracy, recession, and less developed indicators, continue to be statistically significant and positive. The two triple interactions: old democracy, developed economy, and recession indicators; and old democracy, less developed economy, and recession indicators are very similar in magnitude. However, the former triple interaction, which is insignificant in BD, is not robust to the inclusion of lower-order interaction terms.

The original BD analysis does not include the double interactions of the developed economy and recession indicators, the developed economy and old democracy indicators, or the uninteracted old democracy indicator. In columns (5) and (6), we re-estimate the specifications from columns (3) and (4) including these variables. The estimates are again consistent

[7] If we deviate from the BD specification and do not control for the majoritarian indicator, we are able to maintain our sample size. The estimates are qualitatively identical to those we report.

Table 10: Comparison with Brender and Drazen (2008)

	Dependent Variable: Leader Turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Brender-Drazen				
Mean of Dep. Var.	0.240	0.220	0.220	0.224	0.220	0.224
Trust x I(Growth <global 10th percentile)	-0.558***			-0.589*		-0.582*
	(0.210)			(0.339)		(0.339)
New Democracy x I(Growth <global 10th percentile)		0.112**	0.124**	0.278***	0.118**	0.273***
		(0.0542)	(0.0556)	(0.0922)	(0.0580)	(0.0943)
Old Democracy x Developed x I(Growth <global 10th percentile)		0.0612	0.0782	0.333**	-0.115	0.183
		(0.0781)	(0.0780)	(0.167)	(0.230)	(0.278)
Old Democracy x Less Developed x I(Growth <global 10th percentile)		0.106**	0.135***	0.259***	0.131***	0.251***
		(0.0451)	(0.0476)	(0.0853)	(0.0477)	(0.0855)
Developed		-0.0137				
		(0.0181)				
Controls:						
Country FE	Y	N	Y	Y	Y	Y
Year FE	Y	N	Y	Y	Y	Y
Majoritarian	N	Y	Y	Y	Y	Y
Developed x Recession, Developed x Old Democracy	N	N	N	N	Y	Y
Old Democracy	N	N	N	N	Y	Y
Observations	3,255	2,487	2,487	2,304	2,487	2,304
R-squared	0.181	0.011	0.131	0.140	0.132	0.141

Notes : Observations are at the country and year level. The sample includes democratic observations. New Democracies are defined as any democracy that is within 18 years of a switch from negative to non-negative Polity 2 values. Developed nations are defined as members of the OECD during 1960-2003, the sample period in Brender and Drazen (2008). In column (2), the regression follows the specification of Brender Drazen's (2008) Table 5. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

with BD's original findings. Recessions reduce the probability of re-election, but only in new democracies and old democracies with less developed economies. In addition, as in columns (3) and (4), the inclusion of our trust interaction increases the magnitude and significance of the BD variables.

In summary, our main result is robust to the inclusion of the BD variables. Similarly, the BD results are robust to the inclusion of our main variable of interest – trust interacted with the recession indicator – as well as lower order interaction terms and fixed effects. Moreover, the BD variables become more economically significant (i.e., larger in magnitude) after accounting for heterogeneity in trust. Thus, accounting for the influence of trust enriches our understanding of the nuanced relationship between political turnover and economic shocks.

6 Subnational Analyses

6.1 Europe

The main cross-country analysis has advantages and disadvantages. On the one hand, it is more globally representative and offers substantial variation in economic performance, leader turnover, regimes, and the nature of turnover, which allow us to shed light on the mechanisms underlying the results. On the other hand, because we are considering a range of political systems, the coding of political support for those in power is an indicator variable for leader turnover. Thus, it does not capture changes in support for the incumbent or opposition parties that are not large enough to result in turnover. In addition, we measure leader turnover, which is not synonymous with a change in the ruling party.

To help address these limitations, we examine how vote shares for opposition parties in 23 European countries during national elections from 1990 to 2014 respond to economic downturns and how this depends on the level of interpersonal trust in the region.[8] The names and political systems of the countries in our sample are reported in Appendix Table A.12. They are reported at the sub-national region (henceforth, *region,* for brevity) level by the *European Election Database* (Norwegian Social Science Data Services, 2014), which enables us to conduct a region-level analysis with a sufficient sample size. Regional definitions correspond closely, though not exactly, to level 3 of the Nomenclature of Territorial Units for Statistics (NUTS 3) (Eurostat, 2016). For each country, we observe region-level vote shares in the election year. All of the countries are democracies according to the definition we used earlier in the paper. We construct region-level measures of trust using data from the *European Social Survey* (Norwegian Centre for Research Data, 2018), which measures trust using a zero to ten integer scale. For comparability with our previous trust measures, we rescale the measure

[8] We follow Cheibub, Gandhi, and Vreeland (2010) in identifying the relevant leader and election, as the president in presidential systems, prime minister in parliamentary systems, president in dual systems.

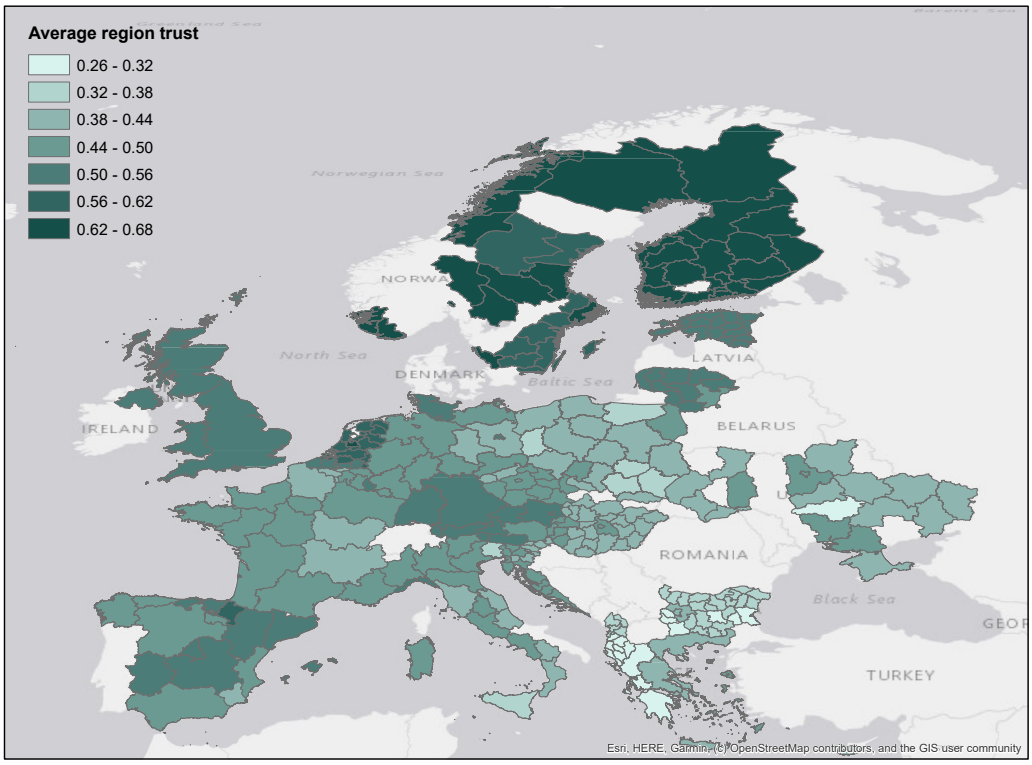


Figure 4: Average Trust Across European Regions

so that it ranges from zero to one. The average measure of trust for each region is shown in Figure 4.

We estimate the following equation

$$y_{i,c,t} = \beta\, Trust_{i,c} \times Recession_{c,t-1} + \alpha_i I^{Party}_{c,t-1} + \mathbf{X}_{c,t-1}\mathbf{\Gamma} + \gamma_t + \varepsilon_{i,c,t}, \tag{2}$$

where $y_{i,t}$ is the share of votes in region i, country c, year t, for all politicians other than the incumbent. $Trust_{i,c}$ is a time-invariant measure of the average level of trust in region i of country c. $Recession_{c,t-1}$ is an indicator variable that equals one if a given country c experienced poor economic growth between years $t-1$ and t. We define a country as experiencing a recession if its GDP growth is lower than the 10th- or 5th-percentile of growth among all European countries during the sample period.[9]

The specification includes year fixed effects γ_t, which capture time varying factors that are similar across countries, as well as region fixed effects $\alpha_{i,c}$, which are allowed to vary depending on the alignment of the incumbent party. $I^{Party}_{c,t-1}$ is an indicator variable that equals one if

[9]Using this definition, 6.2 and 3.7% of election years follow recessions.

the incumbent party of country c is left-leaning and zero if it is right-leaning, as coded by the *ParlGov* database.[10] The interacted fixed effects capture the average tendency of a region to vote for incumbent parties that are more or less liberal. The equation also accounts for a vector of covariates, $\mathbf{X}_{i,c,t-1}$, which includes the natural log of a country's real per capita GDP in year $t-1$ interacted with each region's measure of average trust and interacted with the recession indicator. We cluster the standard errors at the region level.

The coefficient β is our estimate of interest. If regions with a higher level of average trust are more likely to vote for the incumbent politician following a recession, then $\beta < 0$.

Estimates of equation (2) are reported in Table 11. Columns (1) and (2) report estimates using the 10th and 5th percentile definitions of a recession. Using either definition of a recession, we find that regions with higher levels of trust are less likely to vote for the electoral challengers (i.e., more likely to vote for the incumbent) in the face of an economic recession. The estimates of β are both negative and significant at the 1% level. To assess the magnitude of the estimates, consider two regions, one with a level of trust at the 25th percentile of the sample distribution and the other at the 75th percentile. The estimated coefficient of -78.58 in column (1) implies that the lower-trust region will vote for political challengers by 7.9 percentage-points less than the higher-trust region ($-78.58 \times (0.53 - 0.43) = -7.9$). As a robustness check, in columns (3) and (4), we report estimates when we restrict the sample to countries with parliamentary systems, which is the most common system in Europe. The estimates are very similar to those from the full sample. Lastly, we also check that the results are not driven by a small number of outliers by dropping influential observations identified using Cook's distance. The estimates, which are reported in Appendix Table A.13, show that the findings remain robust to this check.

These results show that the patterns we observe across countries can also be found when looking across European regions. The increased statistical precision is likely a result of the fact that regions within Europe are more comparable to each other than countries across the world (i.e., lower variance). Because we often have very few regions within a country, we do not have enough variation to control for country-year fixed effects. Thus, the estimates here capture within-*and* cross-country variation. In the next section, we isolate within-country variation by examining counties within the United States, a large country with rich cross-sectional variation in county-level trust.

[10] We code the alignment of European parties using the ParlGov database (Döring and Manow, 2019), where parties are assigned to one of eight "families": conservative, right-wing, Christian democracy, agrarian, social democracy, green, liberal, and communist/socialist. We broadly categorize these eight families into two groups: "left" (first four families) and "right" (latter four families).

Table 11: Trust, Recessions, and Turnover in Europe

	(1)	(2)	(3)	(4)
Dependent Variable:	Fraction of a region's votes for presidential or parliamentary challenger			
	All Systems		Parliamentary Only	
	I(Growth<Europe 10th percentile)	I(Growth<Europe 5th percentile)	I(Growth<Europe 10th percentile)	I(Growth<Europe 5th percentile)
Mean of Dependent Variable	65.46	65.46	68.17	68.17
Trust x Recession Indicator	-77.86***	-93.86***	-68.40***	-70.68***
	(14.00)	(16.05)	(10.06)	(14.00)
Controls:				
Recession Indicator	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Region FE x Incumbent Party Alignmen	Y	Y	Y	Y
Lag controls				
Lag National GDP	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y
Recession indicator x all lag controls	Y	Y	Y	Y
Observations	804	804	718	709
R-squared	0.904	0.903	0.941	0.938
Number of Clusters	180	180	177	171

Notes: This table uses European election and trust data to test the main hypothesis. Observations are at the sub-national region and election year level. All regressions control for region fixed effects, region fixed effects times incumbent party alignment fixed effects (left or right), year fixed effects, the uninteracted recession indicator variable, as well as the lag country GDP. We also include the interaction of lag national GDP with trust and the interaction of lag national GDP with the recession indicator variable. Standard errors are clustered at the sub-national region level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

6.2 United States

Exploiting within-U.S. variation allows us to hold constant observable differences in institutions and unobservable differences in factors such as culture and expectations of economic recovery. As with the within-Europe analysis, we examine subnational (i.e., county-level) vote shares for the challenger to the incumbent party as the outcome and restrict the sample to election years. We analyze both presidential and House of Representatives elections.

We construct county-level trust using a number of surveys. One is the *General Social Survey* (GSS), which provides data from 1972-2016 (Smith, 2016), but only contains county-level identifiers beginning in 1993. We also use the *2000 Social Capital Benchmark Survey* and *2006 Social Capital Community Survey* (Putnam, Robert D., 2000, 2006).[11] In our baseline regressions, we include all counties for which we have a trust measure, even if the county-level average is based on only one person. These include 1,665 counties, and we refer to this variable as "Aggregate Trust (All counties)." To address the fact that counties with few observations have greater measurement error, we also use a second measure that drops all counties with an average trust measure constructed from fewer than ten observations. With this restriction, this measure of trust is available for 415 counties. The two unrestricted and restricted measures are shown in Figure 5. The average trust for all available counties is shown by a color gradient, with deeper blue (darker) hues corresponding to greater average trust. We indicate the counties with a measure of average trust constructed with ten or fewer observations with diagonal lines.

We use two common indicators to define recessions. The first is the GDP-based Recession Indicator Index from the Federal Reserve Bank of St. Louis. We refer to this as the FRED recession measure. The second is a measure from the National Bureau of Economic Research's official designation of U.S. expansions and contractions. We refer to this as the NBER measure. The two measures are highly correlated but are not identical.[12] More importantly for our study, they are very salient to the American public because they are used by both the U.S. government and major media outlets. We do not use the global 10th-percentile cutoff to

[11] We construct a measure of average trust, combining data from the different sources, using the following procedure. We first use the sampling weights provided by each source to construct a (representative) measure of the share of people in that county who believe that people can be trusted in general. We then take the weighted average county measures from each of the surveys, where the number of observations in each survey and county is used as weights.

[12] The two recession measures differ in their underlying construction. FRED is based on an index of economic performance, and a recession occurs when this index falls below a given cutoff. This index is solely based on quarterly GDP data and it is computed immediately for the quarter just preceding the most recently available GDP numbers. Once the index is calculated for that quarter, it is never subsequently revised. NBER recessions are defined by the NBER Business Cycle Dating Committee and are based on a subjective assessment of a set of indicators, like GDP and unemployment. The set of indicators changes over time and the relative weight placed on different indicators also changes over time. It defines peaks and troughs in economic activity and refers to the period between a peak and a trough as a contraction or recession. The NBER recessions are a subset of the FRED recessions.

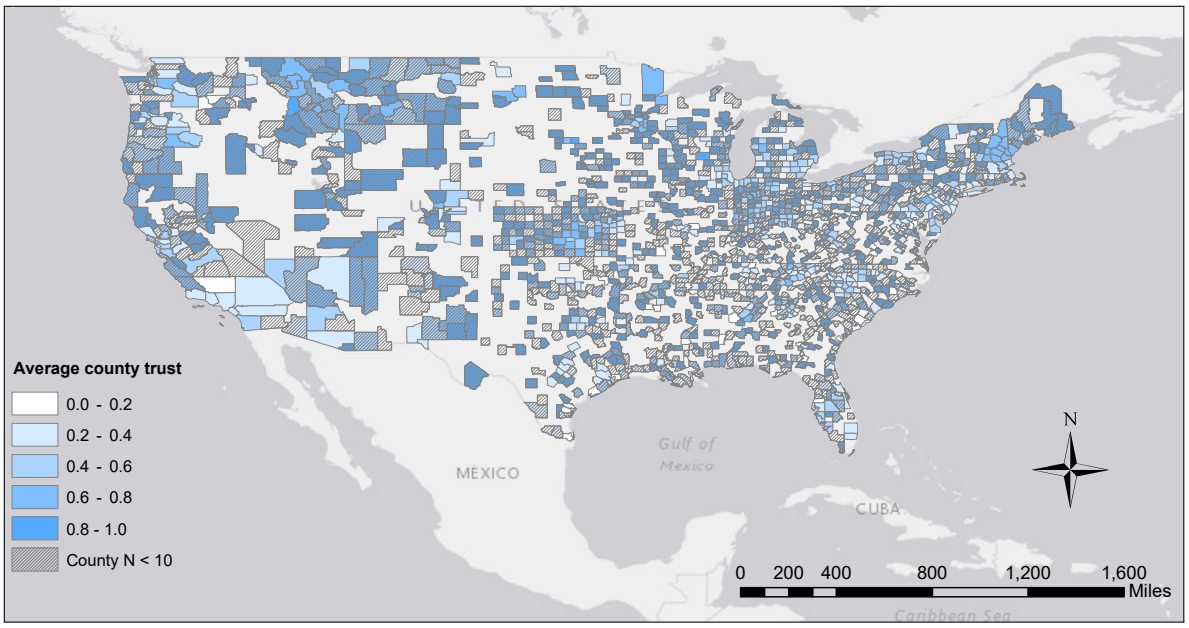


Figure 5: Average Trust Across U.S. Counties

define U.S. recessions as there would be no recessions in our sample.

We estimate the following equation:

$$y_{i,t} = \beta\, Trust_i \times Recession_{t-1} + \alpha_i I_{t-1}^{Party} + \gamma_t + \mathbf{X}_{i,t-1}\mathbf{\Gamma}_t + \varepsilon_{i,t}, \tag{3}$$

where i indexes U.S. counties and t indexes election years. The outcome of interest, $y_{i,t}$, is a county's vote share for the presidential or House challenger from the opposing party.[13] $Trust_i$ is a time-invariant measure of the average level of trust in county i. $Recession_{t-1}$ is an indicator variable that equals one if the United States experienced a recession at any point during the twelve months prior to the election, i.e., between November of year t and November of year $t-1$. The sample starts in 1967, the first year for which the FRED recession measure is available, and ends in 2018. During this period, there are twelve election years and four elections for which $Recession_{t-1}$ equaled one.

The estimate includes year fixed effects γ_t, which capture time-varying factors that are similar across counties, including the direct effect of the recession indicator variable $Recession_{t-1}$. It also includes county fixed effects α_i that are allowed to differ depending on the party of the incumbent. I_{t-1}^{Party} is an indicator variable that equals one if the incumbent is a Democrat and zero if Republican. This captures the fact that some counties are always more likely to vote against a Democratic incumbent, while others are more likely to vote against a Republican incumbent.

[13]The variable is constructed using data from the *Voting and Elections Collection* (CQ Press, 2018) and can range from zero to one.

The vector $\mathbf{X}_{i,t-1}$ includes two characteristics of the incumbent president in power in year $t-1$: age when he entered office and an indicator for whether he is completing his second term. (Since all American presidents have been men, gender is not present as a control.) It also includes measures of national real GDP.[14] We allow their effects to differ by each county's level of trust, as well as by whether there is a recession, by interacting each variable with trust and with the recession indicator variable. We cluster the standard errors at the county level.

We hypothesize that when there is an official recession, counties with higher average trust will have a lower share of voters for the presidential or House challenger, i.e. $\beta < 0$.

Panel A of Table 12 reports the results for presidential elections. Columns (1)–(4) report estimates using the FRED recession measure, while columns (5)–(8) report those using the NBER measure. Columns (1)–(2) and (5)–(6) use the full sample, while columns (3)–(4) and (7)–(8) restrict the sample to counties for which we have raw measures of trust for ten or more individuals. In the even-numbered specifications, we allow the year fixed effects to differ by the four Census regions, which controls for time-varying factors that affect the regions differently (e.g., if the magnitude of the economic decline varies across regions and is correlated to trust).

The results show that counties with more generalized trust are less likely to vote for the party of the Presidential challenger in the face of an economic recession. The estimates are negative and statistically significant at the 1% level in all columns. To assess the magnitude, consider two counties, one with trust levels at the 25th percentile of the sample distribution and the other at the 75th percentile. The coefficient in column (1) of -0.00952 implies that these two counties will differ in vote shares for the presidential challenger by $-0.952 \times (0.908 - 0.102) = -0.76$ percentage-points after a recession. This is an economically significant effect given the narrow victory margins in U.S. elections (e.g., 0.3% in Michigan and 0.4% in New Hampshire in 2016).

Panel B of Table 12 reports results for House elections with the same columns as Panel A. We find negative coefficients for all specifications, but the magnitude and precision of these results are smaller than those of the presidential results. We find this pattern consistent with the perception that Congressional representatives hold less sway over the economy as a whole. The coefficient of -0.00455 in column (1) implies that a county with 25th percentile trust will see a $-0.455 \times (0.908 - 0.102) = -0.37$ percentage point greater vote share for a House challenger after a recession.

As a final robustness check, we also re-estimate our specification after omitting influential observations identified using Cook's distance. The estimates, which are reported in Appendix Table A.14, show that our findings are not driven by a small number of outliers. The reported estimates are very similar to our baseline estimates.

Overall, the evidence indicates that the effect of trust on voting in U.S. Presidential

[14] The presidential demographic variables are also reported by the *Voting and Elections Collection* (CQ Press, 2018). National GDP is reported by Federal Reserve Bank of St. Louis (FRED).

Table 12: Trust, Recessions & Turnover in the U.S.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FRED recession measure				NBER recession measure			
	All counties		Counties with trust variable based on N>10		All counties		Counties with trust variable based on N>10	
	Panel A. Dependent Variable: Fraction of a county's votes for the presidential challenger							
Mean of Dependent Variable	0.463	0.463	0.457	0.457	0.461	0.461	0.454	0.454
Trust x Recession Indicator	-0.00952***	-0.00662***	-0.0419***	-0.0254***	-0.0166***	-0.00665***	-0.0701***	-0.0217**
	(0.00212)	(0.00207)	(0.00939)	(0.00921)	(0.00248)	(0.00207)	(0.0120)	(0.0100)
Observations	21,339	21,339	5,319	5,319	22,956	22,956	5,723	5,723
R-squared	0.350	0.434	0.208	0.301	0.330	0.414	0.203	0.299
Number of Clusters (Counties)	1665	1665	415	415	1665	1665	415	415
	Panel B. Dependent Variable: Fraction of a county's votes for the House challenger							
Mean of Dependent Variable	0.344	0.344	0.354	0.354	0.342	0.342	0.352	0.352
Trust x Recession Indicator	-0.00455	-0.00733*	-0.0188	-0.0215	-0.00544	-0.00617	-0.0318*	-0.0402**
	(0.00434)	(0.00444)	(0.0156)	(0.0162)	(0.00505)	(0.00523)	(0.0179)	(0.0197)
Observations	34,983	34,983	8,568	8,568	33,313	33,313	8,160	8,160
R-squared	0.329	0.345	0.352	0.363	0.333	0.349	0.359	0.370
Number of Clusters (Counties)	1739	1739	436	436	1739	1739	436	436
Controls:								
County FE x Incumbent Party FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE (Absorbs Recession Indicatc	Y	n/a	Y	n/a	Y	n/a	Y	n/a
Region FE x Year FE	N	Y	N	Y	N	Y	N	Y
Lag controls (Listed in table notes)	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y
Recession indicator x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y

Notes: This table uses United States election and trust data to test the main hypothesis. Observations are at the county and year level. All regressions control for county fixed effects, county fixed effects times incumbent party fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the president when he entered office and the number of times he was previously in office), lag state GDP, lag United States GDP. We also include the interaction of each lag control variable with trust and the interaction of each lag control variable with the recession indicator variable. Standard errors are clustered at the county level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

elections is consistent with the effects found in our cross-country analysis. When a recession occurs, counties with lower levels of trust are more likely to vote against incumbent leaders.

7 Trust, Turnover, and Economic Recovery

In this final section, we provide descriptive evidence on the association between trust and economic recovery following a recession. We first investigate whether countries with higher levels of trust recover faster following a recession relative to countries with lower levels of trust. We do this with the following equation:

$$\begin{aligned} Growth_{i,t} = \beta_1 \, Recession_{i,t-j} + \beta_2 \, Trust_i \times Recession_{i,t-j} \\ + \mathbf{X}_{i,t-1}\mathbf{\Gamma} + \gamma_t + \alpha_i + \varepsilon_{i,t}, \end{aligned} \tag{4}$$

where i indexes countries, t indexes years, and j is the number of years since the last recession. $Growth_{i,t}$ is the annual GDP growth rate during period t (i.e., from period t to $t+1$). $Trust_i$ is our baseline measure of trust and $Recession_{i,t-j}$ is an indicator variable that equals one if growth was in the bottom global 10th percentile during period $t-j$. The specification includes country fixed effects α_i and year fixed effects γ_t. The country fixed effects capture any time-invariant differences across countries, such as persistent differences in political institutions or corruption. Year fixed effects control for global trends that affect all countries similarly. The vector $\mathbf{X}_{i,t-1}$ includes four leader characteristics (current age, gender, days in office, and the number of times previously in office), GDP, democratic strength measured by the polity2 score, and an indicator variable for the presence of any conflict or war, each measured in the previous year.[15] The standard errors are clustered at the country level. Our coefficient of interest is β_2. A positive estimate suggests that countries with higher trust experience faster GDP growth in the years following a recession, while a negative estimate suggests that they experience slower GDP growth.

The estimates of equation (4) are reported in Table 13. Column (1) examines the differential growth experience of countries (by trust) one year after they experience a recession. Both coefficients are statistically significant. The estimate of β_1 is -0.0274 and that of β_2 is 0.056. Thus, the estimates show that countries with higher trust have better recovery in the year after a recession. To better understand the implications of this, consider the country with the lowest value of trust in our sample (0.035 for Trinidad and Tobago). For this country, average growth in the year immediately following a recession is $-0.0274 + 0.035 \times 0.056 = -0.025$ or -2.5%. For the country in our sample with the highest value of trust (0.70 for Norway),

[15] All estimates that we report are similar if we omit the set of controls and just examine differences in the raw data.

Table 13: Trust and Economic Recovery

Dependent Variable:	GDP growth from year t to year $t+1$			
Recession Measure:	I(Growth<global 10th percentile)		I(Growth<global 5th percentile)	
	(1)	(2)	(3)	(4)
Mean of Dependent Variable	0.0404	0.0404	0.0404	0.0404
Recession last year (t-1 to t)	-0.0274***		-0.0296***	
	(0.00741)		(0.00707)	
x Trust	0.0556**		0.0559***	
	(0.0217)		(0.0207)	
Recession two years prior (t-2 to t-1)		-0.0133		-0.0148*
		(0.00894)		(0.00871)
x Trust		0.0306		0.0319
		(0.0231)		(0.0221)
Observations	3,161	3,161	3,161	3,161
R-squared	0.266	0.262	0.265	0.258
Number of Clusters (Countries)	78	78	78	78

Notes: The sample is comprised of democratic country-year observations. Observations are at the country and year level. Leader characteristics include the age of the leader in the current year, gender, the total number of days in office and the number of times he/she was previously in office. The "I" followed by a parenthetical inequality represents an indicator variable that equals one if the interior statement is true. The standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

growth in the year immediately following a recession is $-0.0274 + 0.712 \times 0.056 = 0.012$ or 1.2%.

Second, in column (2), we investigate differences in growth two periods after a recession.[16] We find that neither β_1 nor β_2 are significantly different from zero. Although their signs are consistent with the estimates from column (1), their magnitudes are also much smaller. This suggests that the growth advantage of high-trust countries in the years following a recession is only felt in the year that immediately follows. If we look beyond two years after a recession, we find estimates that are small in magnitude and not statistically different from zero (they are not reported in the paper). In columns (3) and (4), we repeat the analysis but with recessions defined with a 5th-percentile cutoff. The findings are similar.

Our findings of the effects of leader turnover can be contrasted to other estimates of the effects of leader turnover, either using a close-election RD design (Marx, Pons, and Rollet, 2022) or using unanticipated deaths of leaders (Jones and Olken, 2005). Our finding that leader stability helps to speed economic recovery contrasts with the evidence from Marx, Pons,

[16] In the specifications we report here, we include one lag at a time, which facilitates easier interpretation given the temporal autocorrelation in the data and collinearity between the independent variables. However, the estimates including all lags at once are similar although slightly less precise.

and Rollet (2022) that, more generally, leader turnover is associated with better economic performance, and the evidence from Jones and Olken (2005) that leader turnover does not have any effect on economic outcomes in democratic regimes. It is very likely that the consequences of leader turnover in response to economic downturns are different from the effects of leader turnover in general.

In general, we remain agnostic about whether lower generalized trust, and increased leader turnover, is inefficient. The estimates here are merely associations and should not be interpreted causally. However, the patterns that we identify are noteworthy and highlight the potential importance of leader turnover for economic stability.

8 Conclusion

We studied the effect that generalized interpersonal trust has on political stability in times of economic crisis. We showed that severe economic downturns are much more likely to lead to political turnover in countries with low levels of interpersonal trust relative to countries with high levels of trust. We found that the effects are present in democracies and not autocracies, for turnovers that occur through regular processes (i.e., not coups) and that occur through regularly scheduled elections. We also examined found similar patterns when studying support for incumbent parties in national elections across either sub-national regions within Europe or counties within the United States. The findings are consistent with citizens in higher-trust countries being more willing to allow politicians to blame poor macroeconomic performance on bad luck.

We then turned to an exploration of the economic consequences of higher trust and greater leader stability. We found that following economic downturns, higher trust countries, with greater political stability, tended to achieve faster economic recovery. The empirical patterns, taken together, suggest that trust, by moderating voters' reactions to economic crises, can play an important role in long-run economic and political stability.

These findings advance our understanding of the relationship between economic conditions, culture, and politics. They show how deeply-rooted cultural traits can interact with short-run economic shocks to affect political outcomes. They also prompt several avenues of future research. Our findings suggest the possibility that high levels of interpersonal trust can support an equilibrium of more political stability and economic well-being, both of which could facilitate higher levels of trust. Scenarios like these highlight the potential importance of better understanding the interactions between culture, economics, and politics.

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Appendix (Not for Publication)

A Variable Definitions and Sources

A.1 Generalized Trust

The generalized trust questions from the *World Values Survey*, the *European Values Survey* and the different *Barometer* series are formulated to produce binary measures. In the *Barometer* series, the following waves contain questions regarding generalized trust: *Afrobarometer* 2004, *Afrobarometer* 2008, *Asiabarometer* 2003-2007, *Latinobarometer* 1996-1998, and *Latinobarometer* 2000-2010.

In the *World Values Survey* and the *European Values Survey*, the question is worded as: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? [1] Most people can be trusted. [2] Need to be very careful."

In the *Barometer* Surveys, the question is: "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others? [1] You can trust most people. [2] You can never be too careful when dealing with others."

In robustness checks, we omit data from low-quality or unrepresentative surveys. Table A.9 lists the countries and number of years for which the trust survey questions were deemed low-quality or nationally unrepresentative. We code a survey as low-quality if it does not report the survey procedure, has a missing or incomplete technical report, provides no breakdown between urban and rural observations, appears to be self-administered, or administered through mail. A survey is unrepresentative if the documentation explicitly states that the sample is not nationally representative.

A.2 Leader Turnover Indicator

Our turnover measure is computed from leader data from version 4.1 of the *Archigos* database (Goemans, Gleditsch, and Chiozza, 2009). The data cover all independent states and their effective leaders. Each country is included each year from 1945-2015.[17] The database identifies the actual effective ruler of each state on a case-by-case basis. For example, it avoids coding ceremonial monarchs in contemporary European countries as heads of state. In parliamentary regimes, the prime minister is coded as the ruler; in presidential systems, the president is coded as the ruler. In communist regimes, the ruler is typically coded as the chairman of the party.

[17]The principal sources of raw data for *Archigos* are www.rulers.org and www.worldstatesmen.org. We corroborate the *Archigos* data with the *Change in Source of Leader Support* (*CHISOLS*) Dataset, constructed by Brett Ashley Leeds and Michaela Mattes. *CHISOLS* uses the same definition of a primary leader as the *Archigos* database and covers the years 1919 to 2015.

In dual systems, where there is a president and a prime minister, the president is considered the leader.[18]

The data report the start date and end date of office for each leader-spell, the manner in which a leader enters office, and several leader characteristics. We define our main dependent variable as an indicator for whether a leadership transition occurred in a given year: a value of 0 represents no leadership transition, and a value of 1 represents a leadership transition.

A.3 Recession Indicator

Our measure of recessions is defined using data on national GDP from version 9.0 of the *Penn World Tables* (Feenstra, Inklaar, and Timmer, 2015). We use output-side GDP at current PPPs. From a sample of all countries and years for which we have GDP data, we construct a cutoff representing the 10th percentile of observed values. We then generate an indicator that equals 0 if a country's GDP growth is larger than this cutoff, and equals 1 if a country's GDP is smaller than this cutoff.

A.4 Democracy Measure

Our baseline sample includes only country-years for which the country was democratic in the last period. We use the coding system of Cheibub, Gandhi, and Vreeland (2010) to define democracy for the baseline inclusion criteria. In that dataset, the definition of a democratic state is one that holds elections to select the executive and the legislature, has a closed legislature, legally allows multiple political parties, has multiple parties in practice, has a legislature with multiple parties, has seen a rules-based change in leadership, and whose incumbent leader has not consolidated power in a way that violates the above criteria.

A.5 Baseline Controls

Our baseline regression contains seven additional controls: four controls for leader characteristics, and three controls for national characteristics. The four leader characteristic controls come from version 4.1 of the *Archigos* database Goemans, Gleditsch, and Chiozza (2009). First, we include gender, a binary variable that equals 1 if a leader is male, and equals 0 if not. Second, we include age, a continuous variable that records the leader's age in years. Third, we include the tenure of the leader in days during the current, uninterrupted leadership spell. For example, if a president is voted into office for two consecutive terms, the tenure variable includes the number of days since the start of the first term. If a president is in office for two non-consecutive terms, then the tenure variable will include the number of days since the start of the most recent term. Finally, we include a categorical variable that encodes the

[18] Goemans, Gleditsch, and Chiozza (2009) discuss the details of each country and exceptions to the usual coding rules for *Archigos*.

number of times a leader has previously held the same office. This variable takes values from 0 to 4 in our sample.

The three national controls are conflict incidence, GDP, and political regime. To measure armed conflict, we use version 4 of the UCDP/PRIO Armed Conflict Dataset Codebook (Themnér, 2014) and generate an indicator variable that takes a value of 0 if a country experiences no armed conflict in a given year and takes a value of 1 if a country experiences any kind of conflict in a given year. An armed conflict is defined as "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths." To measure GDP, we use the output-side GDP at current PPPs from version 9.0 of the *Penn World Tables* (Feenstra, Inklaar, and Timmer, 2015). To measure political regime, we use the Polity 2 variable from the Polity IV Project (Marshall, Jaggers, and Gurr, 2015). The Polity scale ranges from -10, which represents strongly autocratic states, to $+10$, which represents strongly democratic states.

A.6 Other Cultural Traits

Six of the seven controls for other cultural traits are from the *World Values Survey*.

Three of the variables are from a series of questions that start with the following text. "Now I will briefly describe some people. Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you."

Self: Avoid Danger. "Living in secure surroundings is important to this person; to avoid anything that might be dangerous." [V72] 1 Very much like me; 2 Like me; 3 Somewhat like me; 4 A little like me; 5 Not like me; 6 Not at all like me; -1 Don't know; -2 No answer; -3 Not applicable.

Self: Take Risks. "Adventure and taking risks are important to this person; to have an exciting life." [V76] 1 Very much like me; 2 Like me; 3 Somewhat like me; 4 A little like me; 5 Not like me; 6 Not at all like me; -1 Don't know; -2 No answer; -3 Not applicable.

Self: Value Tradition. "Tradition is important to this person; to follow the customs handed down by one's religion or family." [V79] 1 Very much like me; 2 Like me; 3 Somewhat like me; 4 A little like me; 5 Not like me; 6 Not at all like me; -1 Don't know; -2 No answer; -3 Not applicable.

Two of the variables that we used are from questions that are preceded by the following: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!"

Child: Thrift. "Thrift, saving money and things." [V17] 1 = Mentioned; 0 = Not mentioned; -1 Don't know; -2 No answer; -3 Not applicable.

Child: Obedience. "Obedience." [V21] 1 = Mentioned; 0 = Not mentioned; -1 Don't know; -2 No answer; -3 Not applicable.

Our measure of an individual's 'Locus of Control' is from the following question. "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "no choice at all" and 10 means "a great deal of choice" to indicate how much freedom of choice and control you feel you have over the way your life turns out." [V55] 1 = No choice at all to 10 = A great deal of choice.

For all measures, we code answers such as 'don't know,' which are reported above with negative integers, as missing and we then calculate country-level averages of responses using the numeric values reported above.

The final trait that we use is Hofstede's (2001) measure of individualism, which we access from: `https://geerthofstede.com/research-and-vsm/dimension-data-matrix/`. This index captures the extent to which a country's prevailing norm is that individuals should look after only themselves and their immediate family rather than the wellbeing of the larger community.

B Model

The goal of the model is to provide a simple framework that helps to understand the main empirical finding, which is that recessions are less likely to result in political turnover in countries with higher levels of trust. The model we present here is based on Ashworth, Bueno de Mesquita, and Friedenberg (2017), which, in turn, builds on Dewatripont, Jewitt, and Tirole's (1999) well-known paper by adding a voting component.

B.1 A two-action model

There are two periods. In period 1, nature picks a politician, who is a high ability type, θ_h, with probability π, and a low ability type, θ_l, with probability $1-\pi$. During their time in office, the politician exerts effort $a \in A$, where A is a set of feasible effort levels with $0 \in A$. Output, y, is given by

$$y = f(a, \theta) + \varepsilon,$$

where ε is a mean-zero standard normal random variable with a pdf ϕ and cdf Φ. The function f satisfies

$$f(a, \theta_h) > f(a, \theta_l) \geq 0 \text{ for all } a.$$

The politician does not know his/her type when they choose their action. Voters are unable to observe the politician's type θ or their effort a, and can only observe output, y.

We assume that θ and a are complements, i.e., the cross-partial is positive: $f_{a\theta}(a,\theta) \geq 0$ for all a, θ. This means that high type politicians have higher returns on effort than low type politicians. Given that this seems to be the most natural setting to study, DJT only considers this case in their paper. However, Ashworth, Bueno de Mesquita, and Friedenberg (2017), also consider the alternative case where $f_{a\theta} < 0$.

The assumption $f_{a\theta} \geq 0$ implies that $f_a(a,\theta_h) > f_a(a,\theta_l)$ for all a, and therefore, that $f(\cdot,\theta_h) - f(\cdot,\theta_l)$ is an increasing function. One example that satisfies these assumptions, which we will use later, is

$$f(a,\theta) = \theta\left[x_0 + (x_1 - x_0)\, a\right],$$

for some $x_1 > x_0 > 0$.

At the end of period 1, voters decide whether to keep the current politician or to replace the politician, in which case they take another draw from the same pool. Voters' welfare is given by y.

In period 2, output y is again produced using the same technology. Since this is the last term in office and effort is costly, the politician exerts no effort. Since $f(0,\theta_h) > f(0,\theta_l)$, having a high type politician is better for voters than having a low type.

The politician gets a benefit $B = 1$ from being in office and their cost of effort is $c(a)$.

For some combinations of parameter values, the game has multiple equilibria, characterized by different equilibrium values of effort chosen by politicians a, e.g., a^{**} and a^*, $a^{**} > a^*$. We will interpret a^{**} as the high trust equilibrium and a^* as the low trust equilibrium for reasons that are explained below. Let us now see how voting behavior varies, depending on the equilibrium level of a.

B.2 Voting

Suppose in equilibrium, voters believe that the politician has chosen an effort level a. If they observe output y, their posterior beliefs about the politician's type are given by

$$\begin{aligned}
\Pr(\theta = \theta_h | y, a) &= \frac{\pi\phi(y - f(a,\theta_h))}{\pi\phi(y - f(a,\theta_h)) + (1-\pi)\,\phi(y - f(a,\theta_l))} \\
&= \frac{\pi}{\pi + (1-\pi)\,\frac{\phi(y - f(a,\theta_l))}{\phi(y - f(a,\theta_h))}}.
\end{aligned}$$

From here, we see that $\Pr(\theta = \theta_h | y, a) \geq \pi$ if and only if $\frac{\phi(y - f(a,\theta_l))}{\phi(y - f(a,\theta_h))} \leq 1$ or

$$\begin{aligned}
\exp\left(-\frac{(y - f(a,\theta_l))^2}{2}\right) &\leq \exp\left(-\frac{(y - f(a,\theta_h))^2}{2}\right) \\
(y - f(a,\theta_l))^2 &\geq (y - f(a,\theta_h))^2 \\
(f(a,\theta_h) - f(a,\theta_l))(2y - f(a,\theta_l) - f(a,\theta_h)) &\geq 0 \\
y &\geq \hat{y}(a) \equiv \frac{f(a,\theta_l) + f(a,\theta_h)}{2}.
\end{aligned}$$

The voter has a choice of either retaining the current politician and receiving the expected output $\bar{y}_2 = \Pr(\theta = \theta_h | y, a) f(0, a_h)$ or of drawing a new politician and receiving the expected output $\bar{y}_2 = \pi f(0, a_h)$. Thus, the incumbent will be kept in power if $y \geq \hat{y}(a)$ and replaced if $y < \hat{y}(a)$.

The expected output in period 1, $\bar{y}_1$, is given by

$$\bar{y}_1 = \pi f(a,\theta_h) + (1 - \pi) f(a,\theta_l).$$

We assume that if $y = \bar{y}_1$, then the politician is not replaced, which can be interpreted as an incumbency advantage. Thus, politicians are not replaced if

$$\begin{aligned}
\bar{y}_1 &> \hat{y}(a) \\
\pi f(a,\theta_h) + (1 - \pi) f(a,\theta_l) &> \frac{f(a,\theta_l) + f(a,\theta_h)}{2} \\
(2\pi - 1)(f(a,\theta_h) - f(a,\theta_l)) &> 0 \\
2\pi &> 1.
\end{aligned}$$

Thus, as long as the politician is more likely than not to be of the high type ($\pi > 1/2$), then they are not replaced on average, in any equilibrium.

Now, suppose that output is $\delta > 0$, but is below mean output levels. Then the politician is kept in power if

$$\begin{aligned}
\bar{y}_1 - \delta &> \hat{y}(a) \\
(2\pi - 1)(f(a,\theta_h) - f(a,\theta_l)) &> 2\delta.
\end{aligned}$$

Thus, there exists a cut-off output value, $\hat{\delta}(a)$, (defined so that the relationship above holds as an equality), such that if $\delta \leq \hat{\delta}(a)$, then the politician is kept in power. Otherwise, she is kicked out of office. Since $f(\cdot,\theta_h) - f(\cdot,\theta_l)$ is an increasing function, $\hat{\delta}(a)$ is increasing in a.

Lemma Consider two equilibria in which the politician selects a^{**} and a^{*}. Then, $\hat{\delta}(a^{**}) > \hat{\delta}(a^{*})$.

The economic intuition for the lemma above is as follows. When the politician exerts high effort, due to the complementarities between θ and a, it is harder for a bad politician to achieve the expected level of output, $\bar{y}_1(a)$. Thus, conditional on seeing $y \geq \bar{y}_1(a)$, the voters have a stronger posterior that they have a high ability politician, and the same shock, δ, is less likely to change it.

We interpret a^{**} as the high trust equilibrium and a^* as the low trust one. The rationale is as follows. Posterior beliefs, $\Pr(\theta = \theta_h | y, a)$, are less sensitive to shocks, δ, when $a = a^{**}$. Thus, voters "trust" that low output is more likely to be caused by an exogenous shock, ε, than by the politician is being a bad type.

The interpretation is tautological as it simply defines any equilibrium in which voter's behavior is less sensitive to shocks as a "high trust" equilibrium. This interpretation is meaningful in that it implies that "high trust" places have higher average output (since $\bar{y}_1(a^*) < \bar{y}_1(a^{**})$). In our sample, trust and GDP are positively correlated with $p < 0.01$.

B.3 The existence of multiple equilibria

Proposition 3 in Ashcroft et. al. (2011) shows that one can construct equilibria that support both a^* and a^{**} for appropriate choices of the effort set, A, and the cost function, $c(a)$, under our assumptions.

Table A.1: Trust by Region

E. Europe & Former USSR		Latin America & Caribbean		W. Europe & Offshoots		Sub-Saharan Africa		Asia	
Country	Trust	Country	Trust	Country	Trust	Country	Trust	Country	Trust
Macedonia	0.13	Trinidad and Tobago	0.04	Portugal	0.19	Cape Verde	0.04	Philippines	0.08
Moldova	0.16	Brazil	0.07	Malta	0.21	Mauritius	0.11	Malaysia	0.10
Albania	0.16	Peru	0.14	Greece	0.22	Guinea-Bissau	0.13	Sri Lanka	0.16
Slovakia	0.17	Paraguay	0.14	France	0.24	Ghana	0.13	Bangladesh	0.19
Georgia	0.19	Colombia	0.16	Luxembourg	0.30	Lesotho	0.13	Nepal	0.19
Armenia	0.19	Costa Rica	0.16	Italy	0.30	Kenya	0.15	Pakistan	0.27
Latvia	0.20	Chile	0.16	Belgium	0.31	Uganda	0.16	India	0.28
Croatia	0.21	Venezuela	0.18	Austria	0.34	Botswana	0.16	Indonesia	0.28
Slovenia	0.21	Nicaragua	0.18	Spain	0.35	Sierra Leone	0.16	Thailand	0.31
Hungary	0.24	Honduras	0.18	United Kingdom	0.38	Nigeria	0.17	Bhutan	0.35
Bulgaria	0.24	Bolivia	0.19	Ireland	0.41	Zambia	0.18	Taiwan	0.37
Poland	0.24	Ecuador	0.19	U.S.A	0.41	Benin	0.19	Japan	0.38
Lithuania	0.27	El Salvador	0.21	Iceland	0.42	Burundi	0.19	Maldives	0.46
Kyrgyzstan	0.28	Panama	0.21	Canada	0.44	Mali	0.20	North Africa & Middle East	
Ukraine	0.29	Guatemala	0.21	Switzerland	0.46	Malawi	0.21		
Estonia	0.29	Argentina	0.21	Australia	0.47	Liberia	0.22	Cyprus	0.12
		Mexico	0.25	New Zealand	0.52	Madagascar	0.23	Turkey	0.12
		Dominican Republic	0.25	Netherlands	0.56	Sudan	0.28	Lebanon	0.12
		Uruguay	0.28	Finland	0.58	Mauritania	0.29	Tunisia	0.23
				Denmark	0.64	Comoros	0.35	Israel	0.25
				Sweden	0.64	Senegal	0.37		
				Norway	0.70	Central African Rep.	0.38		
						Niger	0.43		

Notes: Our measure of trust is calculated from the responses to generalized trust questions in the World Values Surveys, the Latinobarometer Surveys, the Asiabarometer Surveys, the Eurobarometer Surveys, the Asian Barometer Surveys, the Arabbarometer Surveys, and the Afrobarometer Surveys. In the World Values Survey, the question is worded as: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? [1] Most people can be trusted. [2] Need to be very careful". In the Barometer Surveys, the question is: "Generally speaking, would you say that you can trust most people, or that you can never be too careful when dealing with others? [1] You can trust most people. [2] You can never be too careful when dealing with others". Countries are surveyed in different years ranging from 1981–2014. For each country, we aggregate all data sources and calculate a time-invariant measure, which is the fraction of respondents from a country that answer that most people can be trusted.

Table A.2: Sources of Variation in Generalized and Institutional Trust

	(1)	(2)	(3)	(4)
	Generalized Trust	Trust in Cent. Gov.	Trust in President	Trust in Parliament
	Panel A: Country FE			
R^2	0.747	0.567	0.321	0.493
Observations	935	498	221	871
Y Mean	0.269	0.446	0.434	0.394
Countries	152	121	52	142
	Panel B: Country FE and Leader FE			
R^2	0.860	0.762	0.631	0.710
R^2 difference from Panel A	0.113	0.195	0.31	0.217
Observations	919	484	221	854
Y Mean	0.269	0.446	0.434	0.394
Countries	148	117	52	139
	Panel C: Country FE and Year FE			
R-squared	0.794	0.619	0.637	0.612
R^2 difference from Panel A	0.047	0.052	0.316	0.119
Observations	935	498	221	871
Y Mean	0.269	0.446	0.434	0.394
Countries	152	121	52	142

Notes: Observations are at the country and year level.

Table A.3: Summary Statistics

	(1)	(2)	(3)	(4)	(5)
	Mean	Standard Deviation	Minimum	Maximum	Observations
			Full Sample		
Trust	0.258	0.132	0.035	0.696	6611
I(Growth<global 10th percentile)	0.090	0.286	0	1	6611
Trust * I(Growth<global 10th percentile)	0.021	0.075	0	0.696	6611
Leader Turnover Indicator	0.178	0.382	0	1	6611
			Lagged democracies only		
Trust	0.285	0.155	0.035	0.696	3255
I(Growth<global 10th percentile)	0.054	0.226	0	1	3255
Trust * I(Growth<global 10th percentile)	0.013	0.063	0	0.696	3255
Leader Turnover Indicator	0.240	0.427	0	1	3255
			Lagged non-democracies only		
Trust	0.232	0.099	0.044	0.555	3351
I(Growth<global 10th percentile)	0.124	0.330	0	1	3351
Trust * I(Growth<global 10th percentile)	0.029	0.085	0	0.555	3351
Leader Turnover Indicator	0.117	0.322	0	1	3351

Notes: The table reports summary statistics for the primary variables of the analysis. The unit of observation is the country-year.

Table A.4: Robustness to Nighttime Lights GDP Measure – Autocracies

	(1)	(2)	(3)
	Baseline	Control for Region FE x Year FE	Logit (Odds Ratios)
Mean of Dependent Variable	0.117	0.117	0.122
	Panel A. Recessions: GDP growth < global 10th percentile		
Trust x I(Growth<global 10th percentile)	0.325	0.206	6.230
	(0.374)	(0.362)	(13.47)
R-squared	0.188	0.252	
	Panel B. Recessions: GDP growth < global 5th percentile		
Trust x I(Growth<global 5th percentile)	0.429	0.391	11.20
	(0.353)	(0.360)	(24.16)
R-squared	0.186	0.251	
Controls (All Panels):			
Country FE	Y	Y	Y
Year FE	Y	N	Y
Region x Year FE	N	Y	N
Number of Clusters (Countries)	93	93	88
Observations	2,330	2,330	2,282

Notes: Observations are at the country and year level. The sample includes autocratic observations. GDP is measured using the nighttime lights method in Martinez (2002). All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Column (3) reports odds ratios with p-values reported in brackets. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.5: Robustness to Correlates of Trust

	Dependent Variable: Leader Turnover						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Panel A					
	Baseline	Average Years of Education	% with Primary Education	Gini	% Urban	% Immigrant	Average Conflict Count
Mean of Dependent Variable	0.240	0.242	0.242	0.242	0.241	0.241	95
Trust x I(Growth	-0.558***	-0.608***	-0.634***	-0.688***	-0.401*	-0.549***	-0.544***
<global 10th percentile)	(0.210)	(0.218)	(0.226)	(0.248)	(0.222)	(0.201)	(0.203)
Control x I(Growth		-2.10e-05	-0.00262	-0.00926*	-0.00356**	-0.00336	0.286***
<global 10th percentile)		(0.0160)	(0.00198)	(0.00489)	(0.00156)	(0.00394)	(0.0902)
Observations	3,255	3,122	3,122	3,173	3,237	3,237	3,255
R-squared	0.181	0.185	0.185	0.184	0.181	0.180	0.182
Number of Clusters (Countries)	95	86	86	93	94	94	95
		Panel B					
		Ethnic Fractionalization	Linguistic Fractionalization	Polity2 Score	Average Leader Turnover Rate	Quality of Governance	Panel x Recession
Mean of Dependent Variable		0.240	0.242	0.240	0.240	0.222	0.223
Trust x I(Growth		-0.596***	-0.604***	-0.552**	-0.552**	-0.657**	-0.900**
<global 10th percentile)		(0.222)	(0.203)	(0.211)	(0.211)	(0.297)	(0.383)
Control x I(Growth		-0.0871	0.291**	-0.00780	-0.0734	0.122	
<global 10th percentile)		(0.149)	(0.143)	(0.0138)	(0.228)	(0.347)	
Observations		3,255	3,202	3,255	3,255	1,764	1,653
R-squared		0.181	0.184	0.181	0.181	0.216	0.225
Number of Clusters (Countries)		95	93	95	95	79	73

Notes: Observations are at the country and year level. All controls are measured at the country level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.6: Robustness to Additional Controls – Cultural Traits

	Dependent Variable: Leader Turnover								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Controlling for the following country-level cultural characteristics, interacted with the recession indicator:							
	Baseline	Self: Avoid Danger	Self: Take Risks	Self: Value Tradition	Child Qualities: Thrift	Child Qualities: Obedience	Locus of Control	Individualism	All controls
Mean of Dependent Variable	0.240	0.252	0.252	0.252	0.258	0.258	0.258	0.261	0.261
Trust x I(Growth	-0.558***	-0.859**	-0.596**	-0.571**	-0.682***	-0.809***	-0.758***	-0.720**	-1.464***
<global 10th percentile)	(0.210)	(0.402)	(0.241)	(0.244)	(0.250)	(0.295)	(0.219)	(0.322)	(0.471)
Control x I(Growth		0.0767	-0.213**	-0.138	0.225	-0.170	-0.0494	0.000868	
<global 10th percentile)		(0.145)	(0.102)	(0.167)	(0.410)	(0.297)	(0.0354)	(0.00254)	
Observations	3,255	1,759	1,759	1,759	2,234	2,234	2,234	2,438	1,562
R-squared	0.181	0.231	0.233	0.231	0.212	0.212	0.213	0.199	0.242
Number of Clusters (Countries)	95	47	47	47	61	61	61	53	53

Notes: Observations are at the country and year level. All controls are measured at the country level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.7: Robustness to Additional Controls – Macroeconomic Characteristics

	Dependent Variable: Leader Turnover									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Real GDP		One-year real GDP growth		Unemployment rate		Trade intensity		All controls
	Baseline	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance	
Mean of Dependent Variable	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240
Trust x I(Growth	-0.558***	-0.636***	-0.618***	-0.500**	-0.561**	-0.651***	-0.615**	-0.599***	-0.560**	-0.532*
<global 10th percentile)	(0.210)	(0.214)	(0.209)	(0.207)	(0.214)	(0.222)	(0.279)	(0.220)	(0.214)	(0.308)
Control x I(Growth		2.41e-07**	0.001***	3.025	-0.254	0.000370	0.00490	-0.000619	3.24e-05	
<global 10th percentile)		(1.10e-07)	(0)	(1.948)	(2.670)	(0.00553)	(0.00438)	(0.000931)	(6.37e-05)	
Observations	3,255	3,255	3,255	3,255	3,255	3,217	3,085	3,237	3,237	3,085
R-squared	0.181	0.182	0.182	0.182	0.181	0.180	0.183	0.180	0.180	0.185
Number of Clusters (Countries)	95	95	95	95	95	95	95	95	95	95

Notes: Observations are at the country and year level. All controls are measured at the country level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.8: Robustness to Additional Controls – Sectoral Shares

	Dependent Variable: Leader Turnover								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Controlling for the following country-level sector shares, interacted with the recession indicator:							
	Baseline	Agriculture	Mining	Manuf.	Construction	Retail	Transport.	Other	All controls
Mean of Dependent Variable	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240	0.240
Trust x I(Growth	-0.558***	-0.561**	-0.561**	-0.572**	-0.547**	-0.595***	-0.574**	-0.550**	-0.556**
<global 10th percentile)	(0.210)	(0.216)	(0.217)	(0.218)	(0.235)	(0.221)	(0.221)	(0.221)	(0.262)
Control x I(Growth		0.00372	-0.000944	-0.00204	0.00546	-0.0103	-0.00224	-0.00234	
<global 10th percentile)		(0.00483)	(0.00390)	(0.00481)	(0.0169)	(0.0101)	(0.0139)	(0.00640)	
Observations	3,255	2,990	2,990	2,990	2,990	2,990	2,990	2,990	2,990
R-squared	0.181	0.186	0.186	0.186	0.186	0.187	0.186	0.186	0.187
Number of Clusters (Countries	95	95	95	95	95	95	95	95	95

Notes: Observations are at the country and year level. GDP shares vary at the country level and reflect 1970 values reported in United Nations Statistics. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each leader demographic variable with the recession indicator variable. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.9: Reliability and Representativeness of Trust Surveys

Barometer Surveys				**World Values Survey**			
Total country-years	330			Total country-years	225		
Unrepresentative Samples	Years	Low Quality Surveys	Years	Unrepresentative Samples	Years	Low Quality Surveys	Years
Bhutan	1	Benin	1	Argentina	2	Algeria	1
Bolivia	2	Botswana	2	Australia	2	Argentina	2
Brazil	3	Cape Verde	1	Bangladesh	1	Australia	1
Cambodia	2	Ghana	1	Belarus	1	Belarus	1
Colombia	3	Kenya	1	Canada	1	Brazil	1
Costa Rica	3	Lesotho	2	Chile	3	Chile	3
El Salvador	2	Madagascar	1	China	2	China	4
Guatemala	2	Malawi	2	Colombia	3	Colombia	3
Honduras	2	Mali	2	Cyprus	1	Czech Republic	1
India	2	Mozambique	1	Ecuador	1	El Salvador	1
Laos	2	Namibia	2	Egypt	1	Finland	1
Malaysia	2	Nigeria	2	El Salvador	1	Guatemala	1
Maldives	1	Senegal	1	Germany	1	India	3
Mongolia	1	South Africa	2	Guatemala	1	Indonesia	1
Myanmar	3	Tanzania	2	India	2	Iraq	1
Nepal	1	Uganda	2	Indonesia	1	Japan	1
Nicaragua	2	Zambia	2	Israel	1	Jordan	1
Panama	2	Zimbabwe	1	Italy	1	Mexico	2
Paraguay	3			Jordan	1	Moldova	1
Philippines	2			Kyrgyzstan	1	New Zealand	1
Singapore	2			Lebanon	1	Nigeria	3
South Korea	1			Mexico	1	Norway	1
Sri Lanka	2			Montenegro	1	Pakistan	1
Taiwan	1			Netherlands	1	Philippines	2
Uzbekistan	2			New Zealand	2	Poland	1
Vietnam	3			Nigeria	2	Russia	1
				Norway	2	Saudi Arabia	1
				Pakistan	1	Slovakia	1
				Peru	1	South Africa	2
				Philippines	2	South Korea	1
				Saudi Arabia	1	Spain	1
				Slovakia	1	Sweden	1
				Slovenia	2	Switzerland	1
				South Africa	2	Tanzania	1
				South Korea	2	Turkey	2
				Spain	2		
				Sweden	2		
				Taiwan	1		
				Tanzania	1		
				Thailand	1		
				Tunisia	1		
				Turkey	3		
				Uruguay	1		
				Uzbekistan	1		
				Venezuela	1		
				Vietnam	2		
Total	52	Total	28	Total	66	Total	51

Table A.10: Robustness to Recessions Defined via Rolling Cutoffs

	Dependent Variable: Leader Turnover									
	Recession Defined as Bottom # of 30 Within-Country Quantile Categories									
	1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10
Trust x Recession Indicator	-0.436**	-0.481**	-0.478**	-0.292*	-0.262	-0.132	-0.108	-0.0751	-0.0610	-0.102
	(0.218)	(0.191)	(0.189)	(0.175)	(0.168)	(0.148)	(0.135)	(0.131)	(0.116)	(0.103)
Observations	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255	3,255
R-squared	0.177	0.177	0.179	0.177	0.178	0.178	0.179	0.181	0.180	0.180
Number of Clusters (Countries)	95	95	95	95	95	95	95	95	95	95
Number of Recessions	137	239	345	453	549	659	766	908	1012	1102

Notes: Observations are at the country and year level. All regressions control for country fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the leader in the current year, gender, the total number of days in office and the number of times she was previously in office), lag polity2, lag GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the relevant recession indicator variable. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.11: Robustness to the Omission of Global Recession Years

	Dependent Variable: Leader Turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Omit 1975	Omit 1982	Omit 1991	Omit 2009	Omit 1975, 1982, 1991, 2009
Mean of Dependent Variable	0.240	0.241	0.239	0.241	0.241	0.241
Trust x I(Growth	-0.558***	-0.564***	-0.639***	-0.511**	-0.510*	-0.558**
<global 10th percentile)	(0.210)	(0.210)	(0.203)	(0.218)	(0.272)	(0.274)
Observations	3,255	3,222	3,218	3,202	3,168	3,045
R-squared	0.181	0.181	0.180	0.182	0.181	0.182
Number of Clusters (Countries)	95	95	95	95	95	95

Notes: The sample is comprised of democratic country-year observations. Global recession years defined by IMF Global Economic Outlook (2009). Observations are at the country and year level. The dependent variable is an indicator that equals one if there was a leader turnover in that country and year. Leader characteristics include the age of the leader in the current year, gender, the total number of days in office and the number of times he/she was previously in office. The standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.12: European Sample

Country	System
Austria	Parliamentary
Belgium	Parliamentary
Bulgaria	Parliamentary
Croatia	Parliamentary
Czech Republic	Parliamentary
Denmark	Parliamentary
Estonia	Parliamentary
Finland	Parliamentary
France	Mixed
Germany	Parliamentary
Greece	Parliamentary
Hungary	Parliamentary
Ireland	Parliamentary
Italy	Parliamentary
Norway	Parliamentary
Portugal	Mixed
Romania	Parliamentary
Slovakia	Parliamentary
Spain	Parliamentary
Sweden	Parliamentary
Switzerland	Parliamentary
Turkey	Parliamentary
United Kingdom	Parliamentary

Table A.13: Trust, Recessions & Turnover in Europe – Robustness to the omission of outliers

	(1)	(2)
	Dependent Variable: Fraction of a region's votes for the presidential or parliamentary challenger	
	I(Growth<Europe 10th percentile)	I(Growth<Europe 5th percentile)
Mean of Dependent Variable	66.17	66.15
Trust x I(Growth <global 10th percentile)	-68.64*** (9.557)	-68.65*** (14.40)
Observations	715	713
R-squared	0.941	0.935
Number of Clusters (Countries)	171	176

Notes: This table uses European election and trust data to test the main hypothesis. Observations are at the region and year level. All regressions control for region fixed effects, region fixed effects times incumbent party fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the lag country GDP. We also include the interaction of lag country GDP with trust and the interaction of each lag control variable with the recession indicator variable. Standard errors are clustered at the county level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.14: Trust, Recessions & Turnover in the U.S. – Robustness to the omission of outliers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: Percent of a county's votes for the presidential challenger							
	FRED recession measure				NBER recession measure			
	All counties		Counties with trust variable based on N>10		All counties		Counties with trust variable based on N>10	
Mean of Dependent Variable	0.462	0.461	0.456	0.456	0.460	0.459	0.454	0.453
Trust x Recession Indicator	-0.00875***	-0.00627***	-0.0361***	-0.0239**	-0.0150***	-0.00465**	-0.0508***	-0.0111
	(0.00223)	(0.00205)	(0.0100)	(0.00948)	(0.00250)	(0.00217)	(0.0113)	(0.0106)
Controls:								
Region FE x Year FE	N	Y	N	Y	N	Y	N	Y
Observations	19,793	19,811	4,950	4,932	21,510	21,516	5,372	5,353
R-squared	0.873	0.904	0.857	0.891	0.853	0.885	0.837	0.871
Number of Clusters (Counties)	1665	1665	415	415	1665	1665	415	415

Notes: This table uses United States election and trust data to test the main hypothesis. Observations are at the county and year level. All regressions control for county fixed effects, county fixed effects times incumbent party fixed effects, year fixed effects, the uninteracted recession indicator variable, as well as the full set of baseline controls, which include: lag leader characteristics (the age of the president when he entered office and the number of times he was previously in office), lag state GDP, lag United States GDP. We also include the interaction of each lag control variable with trust and the interaction of each lag control variable with the recession indicator variable. Standard errors are clustered at the county level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.