Distrust and Political Turnover*

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Abstract

This paper documents an important channel through which culture can affect politics. Using an annual country-level panel that covers six decades, we show that economic downturns are more likely to cause political turnover in countries that have lower levels of generalized trust. The effect is strongest for turnovers occuring through regular procedures and during scheduled election years. The effect is much weaker and generally insignificant in non-democratic countries and for irregular turnovers such as military coups. We replicate our cross-country findings within the United States by looking at cross-county variation in trust, national recessions, and incumbent party vote-share in Presidential elections. Consistent with our cross-national findings, recessions cause a greater decline in the incumbent party vote share in counties with lower levels of generalized trust.

Keywords: Trust, Recession, Political Turnover.

JEL Classification: D72; P16; P17; P51.

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All political history shows that the standing of a Government and its ability to hold the confidence of the electorate at a General Election depend on the success of its economic policy.

– Harold Wilson (British Prime Minister, 1964-70, 74-76)

1 Introduction

Although there is accumulating evidence that cultural traits can play an important role in economic development, we still have a limited understanding of the different ways in which they can matter. This is particularly true of our understanding of the consequences of culture for political outcomes. This paper contributes to this agenda by examining the relationship between one of the most-studied cultural traits in the literature – generalized trust, defined as the extent to which people believe that others can be trusted – and political turnover. Motivated by real-world examples, we test whether generalized trust affects how citizens evaluate their government's performance in the face of severe economic downturns. In societies where trust is low, citizens may be less likely to trust the excuses of leaders and more likely to blame poor economic performance on the decisions made by the leader. In contrast, in societies where trust is high, citizens may be more likely to trust leaders when they argue that the poor economic performance is outside of their control. A consequence of this is that economic recessions may result in leader turnover less frequently in countries with higher levels of generalized trust.

There have been many examples where leaders of higher-trust countries appear to receive greater citizen support than leaders of lower-trust countries when experiencing similar economic downturns. For example, from 1980-2000, Italy and Sweden both experienced a similarly low average growth rate of approximately 0.03%, but dramatically different turnover rates of their prime ministers. Italy, a country with relatively low levels of trust, experienced prime minister turnover in 66.7% of those twenty-one years, while Sweden, which has high levels of trust, experienced prime minister turnover in 23.8% during the same period.[1] If we compare the three European countries in our sample with the lowest levels of trust (Portugal, France, and Greece) to the three with the highest levels of trust (Denmark, Sweden, and Norway), we find that the average rate of political turnover in the former group was 6.35

[1]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.

percentage-points higher than in the latter from 1980-2000.[2] The tone of public rhetoric during economic crises also appears to vary across countries. In low-trust contexts, public figures and citizens tend to place blame on political leaders more frequently than in high-trust countries. In high trust countries, rhetoric more often focuses on cooperation with the government to achieve recovery.

Although these cases are suggestive, they are not conclusive for several reasons. First, they may not be representative and thus may not capture the average relationship between trust and political turnover during recessions. Second, there may be omitted factors that confound our interpretation of these relationships; countries with different levels of trust may also differ in other ways that could affect electoral turnover during recessions. For example, high-trust countries are richer on average. Thus, policies that voters care about, such as public goods provision, may be less vulnerable to transitory economic downturns. At the same time, recessions may coincide with other events, such as military conflict, that can affect political turnover differentially across high and low trust countries.

We address these difficulties and test the hypothesis that generalized trust affects the relationship between economic downturns and political turnover. To this end, we merge several publicly available data sets to construct an annual panel of countries from 1950-2014. Our dependent variable of interest is whether the head of the government is replaced in a given year and country. Our independent variable of interest is the interaction between the presence of an economic recession in a given year and country with the long-run average level of trust in that country. Given that trust is a slow-moving cultural trait, we measure it as a time-invariant country-level variable by creating an average measure using all available surveys that contain the standard trust question. A negative coefficient for the interaction term suggests that recessions lead to less political turnover in countries with higher levels of trust.

Given the differences in political appointment in autocracies and democracies, our analysis distinguishes between these two forms of government. Our analysis initially focuses on democracies because our proposed mechanism is most relevant in a democratic setting where citizens have more influence over leader appointment.[3]

The baseline specification includes country fixed effects, which account for time-invariant

[2]This difference is not due to systematically shorter-term lengths (i.e., more scheduled elections) in higher trust countries. During 1980-2000, Greece and Portugal had six regular elections, France held five elections, and Denmark, Norway, and Sweden had 7, 5, and 6 regularly scheduled elections respectively.

[3]In autocracies, dissatisfied citizens can invoke leader turnover with a revolution. But we believe that the elasticity of a revolution with respect to economic downturns is much more inelastic than for elections in democracies (Klick, 2005; Acemoglu and Robinson, 2005).

differences across countries, as well as year fixed effects, which account for changes over time that influence all countries equally. Despite the inclusion of fixed effects, there remains the concern that trust might be correlated with other factors that could cause political turnover to differ across countries when there is a recession. Similarly, the occurrence of a recession could be correlated with other changes that could cause political turnover to differ across countries with different levels of trust. For example, voters with certain attributes may have less noisy mappings between the politician's effort and policy outcomes (Larreguy and Marshall, 2017). If these attributes are associated with trust, then our preferred interpretation will be confounded. To address such concerns, our baseline specification controls for a set of covariates that vary at the country and year level and are potentially correlated with either a country's level of trust, the occurrence of a recession, or political turnover. The covariates include characteristics of the political leader, the level of democracy, per capita income, and the presence of armed conflict. To avoid endogeneity, we use lagged measures of these variables. We allow these factors to have differential effects on political turnover depending on a country's level of trust by controlling for the interaction of each covariate with country-specific trust. Similarly, we allow these factors to differentially affect political turnover depending on the occurrence of a recession by interacting each covariate with the economic recession indicator. We argue that this rigorous set of interacted controls makes it unlikely that our baseline estimates are confounded by omitted factors correlated with either trust or the presence of recession, and we provide a large number of additional tests to demonstrate the robustness of our results.

We find that when economic growth is low, high-trust democracies are much less likely to experience leader turnover than low trust ones. For example, the presence of a recession (defined as GDP growth below the tenth percentile) 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 large, especially when compared to the mean turnover rate in the democratic sample, which is 24 percentage-points.

These findings are consistent with citizens from low-trust countries being more likely to blame their politicians for a recession and to remove them from office. Since the electoral process plays an important role in this interpretation, we further examine the plausibility of such a mechanism by repeating our estimate for contexts where turnover is presumably less elastic with respect to citizen preferences. The first setting that we examine is in autocratic governments, where there is no systematic voting. We find that in autocracies, trust has a much smaller effect on political turnover. Consistent with this, we also find that across all countries, trust affects turnover that occurs through regular processes, like elections, but has

no effect on turnovers occurring through irregular processes, such as military coups. We also examine the effects of trust on turnover during years with and without regularly scheduled elections in democracies. We find much larger effects during elections years.

There are several potential concerns in interpreting our main results: omitted variables, spurious trends, reverse causality, endogeneity of the trust measure, and the quality of the trust measure. In robustness checks, we address each of these concerns. We show that the results are robust to accounting for additional potentially important covariates, such as regional economic conditions, and to the use of alternative measures of recessions or alternative definitions of democracies and autocracies. We also address the concern of spurious trends and reverse causality by conducting a placebo exercise which shows that the interaction of trust and the occurrence of a recession has no effect on political turnover in the previous year. We undertake a number of sensitivity checks regarding our trust measure, such as using base-year measures of trust, as well as alternative measures from different surveys or experiments. Our results are quantitatively similar across measures.

In addition to the main cross-country analysis, we conduct a within-country analysis with U.S. data. Instead of using nation-level measures of average trust, we use county-level measures and investigate whether support for the incumbent party following a recession varies with trust. We find similar patterns in the U.S. context: counties with high levels of generalized trust are less likely to vote against the presidential candidate from the incumbent party after a recession. These results go against the concern that our main findings are driven by omitted variables in the cross-country setting (e.g., differences in electoral institutions between high and low trust countries), since such features are similar across U.S. counties. They also speak to the generalizability of the insight that trust plays an important role in determining voter responses to poor economic performance.

After we present the main analysis, we explore the importance of our findings by providing descriptive evidence on the influence of trust and political turnover on the 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. The estimates, although not causal, are consistent with higher trust and less leader turnover resulting in quicker recovery from a recession.

Our findings contribute to the literature on trust and related cultural values. Several studies document the effects of trust on economic or 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), and health behavior (Alsan and Wanamaker, 2017; Martinez-Bravo and Stegmann, 2017). In hypothesizing that trust can attenuate problems of asymmetric information, our study adds to the literature started by Bloom and Reenen (2007), who document that corporate structures are more decentralized in countries with high trust. In examining political consequences, we add empirical evidence showing how culture can affect political institutions (e.g. Todd, 1983; Fischer, 1989; Greif, 1994; Zerbe and Anderson, 2001; Martinez-Bravo, Padro-i-Miquel, Qian, Xu, and Yao, 2017; Martinez-Bravo, Padro-i-Miquel, Qian, and Yao, 2017). In connecting trust and recessions, we add to studies that document a decline in trust during recessions in the United States (Stevenson and Wolfers, 2011) and in Europe (Algan, Guriev, Papaioannou, and Passari, 2017).

We also contribute to the political business cycles literature, which has focused on understanding the relationship between economic performance and re-election. Work on retrospective voting documents that voters punish leaders for adverse economic outcomes (Fiorina, 1978; Fair, 1978; Kramer, 1971; Akhmedov and Zhuravskaya, 2004; Besley, 2006) and that this electoral response varies with the local institutional context (Powell Jr and Whitten, 1993). For a detailed discussion of the literature, see Alesina, Roubini, and Cohen (1997) and Persson and Tabellini (2002, Ch. 16). A recent branch of this literature has focused on how turnover is positively associated with exogenously determined events, and interprets these relationships as evidence for irrationality (narrowly defined) of voters and the potential importance of emotion (Healy, Malhotra, and Mo, 2010; Bagues and Esteve-Volart, 2016; Liberini, Redoano, and Proto, 2017; Achen and Bartels, 2013). Other studies find that politicians can also be blamed for economic factors even when they are outside of their control (Wolfers, 2007; Leigh, 2009; Cole, Healy, and Werker, 2012).

The paper is organized as follows. Section 2 provides concrete examples to motivate the empirical analysis, as well as a discussion of theoretical mechanisms. We describe the empirical strategy and data in Sections 3 and 4. We report the baseline estimates in Section 5 and their sensitivity and robustness checks in Section 6. We then test for the same mechanism, looking across counties within the United States in Section 7. In Section 8, we explore the importance of the findings by estimating the relationship between trust, leader turnover, and economic recovery. Section 9 concludes.

2 Motivation and Conceptual Framework

2.1 Motivating Examples

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 lower-trust countries, but be more forgiving of leaders during hard times in high-trust countries.

Brazil, the Philippines, and Turkey have respectively the third, fourth and ninth lowest trust measures in our dataset, out of 95 total countries in the baseline sample. Each of these 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 "For 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 captured 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 and Finland, which have the second- and fourth-highest levels of trust in our sample. Sweden experienced a severe economic downturn (its worst in fifty years) from 1991-1993 and Finland experienced a prolonged downturn that began in 2012.[4]

[4] According to World Bank data, GDP growth was -0.94 from 2012 to 2014.

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 exerpt, 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 higher-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 Conceptual Framework

The empirical analysis documents that in countries with lower levels of generalized trust, economic downturns are more likely to lead to political turnover. We now turn to a simple model that illustrates one potential mechanism behind this finding. After discussing the mechanism highlighted by model, we also discuss other possible explanations. We extend the model of Ashworth, Bueno de Mesquita, and Friedenberg (2017), which itself builds on Dewatripont, Jewitt, and Tirole (1999) by adding a voting component. We provide a brief overview of the model here with the formal presentation in the appendix.

In the model, politicians exert effort, and are either high-ability 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. Thus, when the politician exerts high effort, high-ability politicians are better able to achieve a high level of output. Thus, when voters see 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 fact 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.

In the end, the theoretical framework delivers three testable predictions. 1) 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. 2) On average, output is higher in higher-trust countries. 3) In general, the turnover rates of politicians are higher in low-trust countries. The primary focus of our empirical analysis is testing the first prediction. We also verify the second and third predictions with the descriptive statistics.

One can also rationalize our empirical analysis with traditional models of retrospective voting (Nordhaus, 1975, 1989) or of 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. The models 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, then they would be less likely to retrospectively vote them out of office. 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. In fact, our study is agnostic about whether the effects of distrust that we estimate are well-placed or misplaced. Nevertheless, it is an important question to ponder. The answer partly depends on what we think causes the cross-country variation in trust. On the one hand, low trust may be an outcome of bad politicians, which can lead to an equilibrium where low trust is efficient.

On the other hand, one can make the case that if the current levels of trust are at least partly historically determined, then it may be inefficient for the modern political-economic context (even if it was historically efficient). This would be consistent with a large body of evidence which finds that trust is a persistent cultural trait, driven by historical and evolutionary processes that have no relationship with business cycles or political turnover today.

3 Empirical Strategy

The goal of our study is to examine whether generalized trust affects the likelihood of political turnover during periods of poor economic performance. Our main estimating equation is:

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

where i indexes countries and t indexes years. The sample includes all countries and years in which the country is democratic in the previous year. We consider the largest range of years possible given the data limitations, which is 1951-2015. 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, $Recession_{i,t-1}$. 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. We always control for the uninteracted recession indicator variable, which varies by time and country (it is included in the vector of controls, $\mathbf{X}_{i,t-1}$). 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.[5] While we expect our effects to be most

[5] We use the coding from Cheibub, Gandhi, and Vreeland (2010), which was updated by Bjørnskov and Rode (2017), who define a democratic state 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

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, that 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 help address these issues, the baseline specification includes a vector of covariates, all measured in year $t-1$ to avoid endogeneity. The vector $\mathbf{X}_{i,t-1}$ includes four characteristics of the leader in power (gender, current age, days in office, and the number of times previously in office), real per capita GDP, democratic strength measured by the polity2 score, and an indicator variable for the presence of any conflict or war.[6] In addition to controlling for the direct effect of these covariates on leader turnover, we also allow their effects to differ by a country's level of trust by controlling for each of the measures interacted with trust. We allow the measures to have a differential effect 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, $Recession_{i,t-1}$.[7]

4 Data

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. [8] The database identifies the effective ruler of each country on a case-by-case basis.

power in a way that violates the above criteria.

[6]Note that Larreguy and Marshall (2017) finds that educated voters are better able to map policy outcomes to politician's effort. This motivates controlling for average educational attainment of each country. We are unable to do this because of data limitations, and instead control for per capita GDP, which is strongly correlated with average education.

[7]The controls alter the interpretation of the coefficient for interaction variable of interest because some of the correlates of trust may be outcomes of trust in the long run. For example, high trust may lead to higher levels of institutional quality, which may then lead to higher levels of trust, generating a positive feedback loop. If we control for the interaction of institutional quality and recession occurrence, we may remove meaningful variation from our interaction of interest. Hence, we face the standard tradeoff between including too few controls, which may be susceptible to problems from omitted variables, and too many controls, which may eliminate some part of the true effect. In practice, this turns out to be not very important. The results are similar regardless of whether we control for interacted or uninteracted controls. The results with uninteracted controls are available upon request.

[8]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

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.[9]

The data report the start and end date of office for each leader-spell, the manner in which a leader enters office, and several additional leader characteristics. In our baseline estimates, we include the number of years and terms a leader has previously been in office, the age of the leader upon entering office, and the leader's gender.

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 answer that most people can be trusted (i.e., question [1] from each of the survey).[10]

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. With these data, we construct an economic downturn indicator variable that equals one if annual growth falls below the 10th percentile of GDP growth observations.

Archigos database, and covers the years 1919 to 2015. However, CHISOLS provides less information about each leader. The number of democratic countries in the sample ranges from 23 in 1951 to 70 in 2015. The change in sample size over time is driven by a range of factors including coverage in the *Archigos* and *Penn World Tables* datasets and the number of countries that are defined as democratic in a year.

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

[10] In the regressions, we use the generalized trust measure as opposed to a measure of specific institutional trust because of the limited coverage and possible selectivity of the latter set of variables. For example, the World Values Survey question regarding trust placed in the central government covers 69 countries and 123 country-years, compared to our baseline trust measure, which covers 108 countries and 400 country-years. Moreover, the response rates of the specific trust questions are much lower than that of the generalized trust question. For example, in our sample, 16.7% of the individual responses for trust in the central government are missing values, whereas only 4.9% of the responses for generalized trust are missing values. This is a concern if response is non-random.

The cutoff value is computed using all years and countries for which GDP data are available. In the robustness section, we consider numerous alternative cutoffs.

4.1 Descriptive Statistics

Figure 1 maps the country-level average trust measures. 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. In the sample, the country with the highest level of trust is Norway (0.70) and the country with the lowest level of trust is Trinidad and Tobago (0.04).[11]

Figure 2 reports the distribution of recessions over time by plotting the share of countries in the sample that are 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.

A potential threat to our identification strategy is that trust might be correlated with other factors that affect the extent to which recessions result in political turnover. We investigate the bivariate relationship with the most-obvious variables the baseline sample of lagged democracies in Table 1.[12] The correlation coefficients, which are reported in column (1), do show that some characteristics are correlated with generalized trust. Countries with higher levels of trust tend to also have less frequent recessions, higher economic growth, more trade, longer lengths of leader tenure, less ethnic fractionalization, more democracy, and less conflict.[13]

The descriptive statistics support predictions 2 and 3 of the model that was described in section 2.2. Higher-trust countries tend to have higher output (prediction 2) and to experience longer lengths of leader tenure (prediction 3).

We also explore the extent to which economic downturns are correlated with other factors. Column (2) of Table 1 reports the relationship between our recessions indicator variable and a range of other characteristics. We find that the presence of recessions is (mechanically and therefore unsurprisingly) associated with lower rates of economic growth, more trade openness, and less democratic institutions.

[11] The average level of generalized trust for each country is reported in Appendix Table A.1, where countries are grouped into six regions: Eastern Europe and the former Soviet Union; Latin America and the Caribbean; North Africa and the Middle East; sub-Saharan Africa; Western Europe and offshoots; and Asia.

[12] The only coefficients estimated on the full sample are for the democracy indicator.

[13] See the data appendix for the details of these additional variables.

As we will see, our baseline specification and auxiliary regressions flexibly controls for all of these factors.

5 Results

5.1 Baseline Estimates

Panel A of Table 2 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 first 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.

In evaluating the effect of recessions on leader turnover, note that the coefficient for the uninteracted recession indicator is the effect of a recession on leader turnover for an observation that has all values of zero for all the controls (see bottom of the table) because the specification includes the interaction of these variables and the recession indicator. To facilitate interpretation, Table 2 reports the uninteracted 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 percentage-points.

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 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 use the five world regions defined by the United Nations.[14] Our estimates remain very similar.

We next check the sensitivity of our baseline linear probability estimates to the use of a logistic model. Column (5) reports the estimated marginal effects (evaluated at means) from a logit model. The interaction coefficient is negative and significant. Therefore, the main result is not sensitive to the functional form of the estimation model. For the remainder of the paper, we will use the linear probability model.

In Panel B of Table 2, 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 on the interaction of trust and the recession indicator in columns (3), (4) and (5) are always negative and significant at the 1% level. The effect of the main (uninteracted) recession evaluated at the mean is similarly positive and statistically significant at the 1% or 5% levels.

Finally, in Panel C of Table 2, we repeat the same five columns but use a non-parametric set of GDP growth indicators. Specifically, we create indicator variables for country-year observations that fall within one of four percentile categories of all GDP growth values: 0-10th percentile, 10-20th percentile, 20-30th percentile, and 30-40th percentile. What we observe in columns (3)-(5) is that the interaction of trust and recessions is negative and precise only for the lowest category of GDP growth percentiles, from 0-10th percent. The coefficients on the remaining three growth indicators are all imprecisely estimated. This pattern of results is highly nonlinear and suggests that our result is due to electoral performance in years with particularly poor economic performance.

[14] The five regions are Africa, the Americas, Asia, Europe, and Oceania.

5.2 Effects in Non-Democracies

Our analysis focuses on democracies because the main mechanism for political turnover we have in mind is voting. 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 3 reproduces the estimates from Panels A and B of Table 2, but instead of using a sample of democracies, we use a sample of autocracies. As before, we define democracy using the categorization of Cheibub, Gandhi, and Vreeland (2010) and Bjørnskov and Rode (2017).

Panel A reports estimates when recessions are defined using the 10th percentile cutoff and Panel B reports estimates using the 5th percentile cutoff. We find that the coefficients for the interaction of trust and the incidence of a recession are much smaller in magnitude when compared to the estimates for democracies (see Panel A of Table 2). In addition, they are insignificant. The findings are consistent with our interpretation that the mechanism underlying our main results reflect the views of citizens expressed through voting.

5.3 Effects on Regular versus Irregular Turnovers

In this section, instead of estimating equation (1) separately for democracies and non-democracies, we pool all observations and examine the effects of trust and recessions on the probability of a regular turnover occurring and the probability of an irregular turnover occurring. 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 an assassination and is replaced 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.[15] Therefore, we expect that regular turnovers are 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). As such, they are less likely to reflect changes in the extent to which citizens blame politicians for economic downturns. The analysis pools democracies and non-democracies and estimates 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 4. For comparison, column (1) reproduces our baseline OLS estimates for democracies, while

[15]The coding is from the *Archigos* database.

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. The omitted category is for the event of no leader turnover. Column (3a) reports the marginal effect of the trust-recession interaction on the probability of a regular leader turnover (evaluated at the sample means). Column (3b) reports the marginal effect of the trust-recession interaction on the probability of an irregular leader turnover. We find that, following an economic downturn, greater trust reduces the probability of a regular leader turnover, but it does not reduce the probability of an irregular turnover. The results are consistent with the belief that irregular turnovers are 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 do this by dividing our baseline sample into observations that are regularly-scheduled election years and those that are not, and examine the extent to which our results are stronger in 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* dataset (Keefer, 2015) to identify years in a country during which a regular election was scheduled. Using scheduled elections is important because the timing of actual elections can be endogenous. Thus, their use avoids dividing the sample by an endogenous variable. After dividing observations into those that are regular election years and those that are not, we estimate our baseline equation (1) for the two samples.

The estimates are reported in columns (4) and (5) of Table 4. 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. Two coefficients are statistically different: with a seemingly-unrelated regression, the p-value for the test of equality is 0.0202. This pattern is consistent with the hypothesis that voting is an important mechanism underlying the estimated effects.

5.5 Presidential vs. Parliamentary Systems

Given the evidence that the effect of citizens' trust for leader turnover works through the democratic process, we now turn to an examination of differences between democratic systems, namely presidential versus parliamentary systems. There are many differences between the two systems. However, the most relevant for our study is that, due to the vote of no confidence, it is easier to remove a leader in parliamentary systems. In presidential systems, no such institutionalized mechanism exists. Therefore, if our effects are working through leader accountability and the electoral process, we might expect to find larger effects of trust in parliamentary democracies. In such a setting, citizens' trust may be more important and may have a greater effect on leader turnover during recessions (Diermeier and Feddersen, 1998).

To investigate this hypothesis, we divide democratic countries into those that use presidential and parliamentary systems using the coding from Cheibub, Gandhi, and Vreeland (2010) and estimate equation (1) separately for each group. The estimates are reported in columns (6) and (7) of Table 4. The coefficients on the estimated trust interactions are negative in both sub-samples. In contrast to the hypothesis described above, within parliamentary systems, the estimated effect is not larger, but actually smaller, and the difference between the two coefficients is statistically significant (with a seemingly-unrelated regression, the p-value for the test of equality is 0.046).

5.6 Main Results Summary

Thus far, the estimates show that trust attenuates the link between recessions and leader turnover in democracies. The effect is most prominent for regular leader turnovers and during regularly scheduled election years. We find little evidence of a similar effect in autocracies, which is consistent with our hypothesis that voting is the primary channel through which the effect takes place.

6 Robustness

6.1 Additional Control Variables

We now turn to tests of the sensitivity of our baseline estimates. As we discussed above, one of the challenges for our preferred interpretation is that trust may be correlated with other factors that may affect turnover during recessions. Similarly, recessions may be correlated with other variables that interact with trust to affect turnover. We have already included a

large number of potential correlates in the baseline specification. To examine the importance of more omitted variables in the baseline, we check the sensitivity of our estimates to the inclusion of additional control variables.

The first factor that we consider is openness to international trade, measured as exports plus imports divided by GDP. There are many reasons that trade openness could matter for political turnover. For example, it may be harder for voters to understand the relationship between the politician's effort and economic outcomes in open economies (Hellwig, 2007). We estimate equation (1) controlling for three additional variables: lagged trade openness, its interaction with trust, and its interaction with the recession dummy variable. Column (2) of Table 5 reports these estimates, which are very similar to the baseline estimates, which we report in column (1) for comparison.

We next consider a large number of additional factors that can conceivably be correlated with average trust and independently influence the probability of a turnover during a recession: a country's average rate of leader turnover, a country's average growth, a country's average diversity (ethnic, linguistic, or religious), and a country's average citizen support for regulation. We re-estimate equation (1), controlling for the interaction of each factor with the recession dummy variable. The estimates, which are reported in columns (3)–(6), show that the interaction of trust and the occurrence of a recession remains robust.[16]

Next, we check that our estimates are not due to a small number of influential observations. We do this by calculating the influence of each observation using Cook's distance and omitting observations with a distance greater than $4/n$, where n is the number of observations in the sample (Belsley, Kuh, and Welsch, 1980). Column (7) shows that the interaction coefficient for the restricted sample continues to be negative and similar in magnitude to the baseline. Thus, the estimates are robust to removing observations that are outliers.

To assess the possibility that our estimates are biased by other country characteristics, we check the sensitivity of our estimates to controlling for a host of country characteristics interacted with the recession indicator. The first set of characteristics that we consider are other commonly studied cultural traits that might affect how individuals assess the performance of leaders during recessions. These include: risk preferences, thrift, obedience, locus of control, and the importance placed on tradition. The details of each measure are provided in the Appendix. The estimates controlling for these characteristics interacted with the recession indicator are reported in Appendix Table A.4. We find that our estimate of interest remains

[16]The number of observations varies across columns because of differences in the availability of the control variables. Since all of the variables are time-invariant, the main (uninteracted) effect of each variable (as well as the interaction of each with the time-invariant trust variable) is absorbed by the country fixed effects.

very similar when controlling for any of these characterisitcs.

We undertake the same exercise but controlling for a range of economic measures. The first set are measures of a country's economic structure, measured as the share of GDP in agriculture, mining, manufacturing, construction, retail, transport or other. The second set control for the mean and year-to-year variance of a host of economic characteristics including the level and growth of real per capita GDP, the unemployment rate, and trade intensity (exports plus imports divided by GDP). If some countries tend to be less developed or have more volatile economic conditions, the mean and variance of the different characteristic should capture this. The estimates, which are reported in Appendix Tables A.5 and A.6 show that our estimates remain robust to these economic controls. The estimate of interest remains highly significant in all specifications and very stable in magnitude.

6.2 The Validity of the Trust Measure

There are several potential concerns related to our measure of average trust. One is that trust is potentially endogenous to the occurrence of economic downturns (Stevenson and Wolfers, 2011). If trust is more endogenous in countries for which negative economic growth is more likely to lead to leader turnover, then our estimates of interest will be biased.

We address this concern in several ways. First, we redefine the value of trust to be the level of trust observed in the first year for which data are available for the country. Second, we calculate an alternative measure of average trust that omits trust measures from surveys conducted during a recession year in a country (using our baseline definition of recessions). The estimates from the two procedures are reported in columns (2) and (3) of Table 6. The results are similar to the baseline, which is reproduced in column (1) for comparison. In fact, the estimated magnitudes increase slightly with the alternative measures.

Another concern with the trust measure is the quality of the underlying survey data. In an attempt to test the importance of this concern, we have read through the documentation of all of the surveys 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 administered through the mail; or 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. As a second strategy, we also identify surveys for which the documentation reports that the sample is not nationally representative.[17] We also

[17]The list of low quality and unrepresentative surveys is reported in Appendix Table A.2.

construct a trust measure that also omits these surveys. The estimates of equation (1), using these two alternative measures, are reported in columns (4) and (5). We continue to find a negative relationship between the trust-recession interaction and leader turnover. In addition, the magnitude of the estimated effect increases somewhat using the alternative measures. This pattern is consistent with measurement error biasing our baseline estimates downwards.

As a further robustness check, we construct a measure of average trust that uses only the *World Values Surveys* and *European Value Surveys*, which are the most extensively used sources in the cultural economics literature. The estimates are reported in column (6). Despite the sample decreasing to 2,648 observations, the estimate of interest remains robust and the coefficient actually increases in magnitude.

An alternative strategy to using a trust measure based on survey data is to use a measure based on behavior in laboratory-based trust games (Berg, Dickhaut, and McCabe, 1995). In a recent study, Johnson and Mislin (2011) collect data from over 160 implementations of the trust game.[18] Using these data, we construct an experiment-based measure of a country's average level of trust, which is the average fraction sent by player 1 to player 2 in the trust game. The estimates using this alternative measure are reported in column (7). Since lab-based measures of trust are not as widely available as survey-based measures, the sample is much smaller (1,350 observations rather than 3,255) and this leads to a loss of power and precision. However, the magnitude of the point estimate remains very similar to the baseline estimate.[19]

In column (8), we use an alternative trust measure from the *Eurobarometer* Surveys. Unlike the measures we use, the 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 rescale the measure to range from zero to one rather than one to ten. As reported, our findings remain similar when the alternative trust measure is used. Despite having far fewer countries in the sample (29 rather than 95), the coefficient of interest remains negative, similar in magnitude, and statistically significant.

[18]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 of 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.

[19]Interestingly, we find that trustworthiness (the fraction sent back by player 2) is not an important determinant of the effect of recessions on political turnover. This is not reported in the paper and available upon request.

6.3 Robustness to Alternative Measures of Democracy

To check that our main results are robust to the way that we measure democracy, Panels A and B of Table 7 report estimates using alternative measures of democratic and autocratic observations when looking at the two samples. In columns (2)–(5), we 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 a commonly used cutoff in the political science literature (Epstein, Bates, Goldstone, Kristensen, and O'Halloran, 2006). In column (3), we use a cutoff of five, the standard for "full" democracies used by the Polity IV project (Marshall, Jaggers, and Gurr, 2015). In column (4), we use a cutoff of eight, which restricts the sample to very stable democracies. In column (5), we use the median value in the sample Finally, in column (6), we use 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 that have a lagged index above the median value in the sample as democracies.

In columns (7)–(9), we apply the same thresholds as in columns (2), (3), and (5), but use the value of polity2 in the first year that each country appears in the sample. This creates a time-invariant definition for each country. In columns (10)–(12), we apply the same three threshold values to the mean value of democracy for each country over the sample period.

Overall, the interaction coefficients for democracies, reported in Panel A, are all negative and similar in magnitude to the baseline, which is reported in column (1), and statistically significant. The estimates for non-democracies, reported in Panel B, are all small in magnitude. Only the coefficient in column (4) is statistically different from zero, which uses a cutoff of eight for the lagged polity2 score, which assigns all but the strongest democracies into the autocracy group.

6.4 Robustness to Alternative Measures of Recessions

We check the robustness of our findings to different ways of measuring economic recessions. In Table 8, we construct the recession indicator using different GDP growth cutoffs. Recall that in our baseline measure, we defined recessions as any country-year observation with GDP growth less than the global 10th percentile of GDP growth in all years of our sample. We also reported estimates using the 5th percentile of GDP growth. These two estimates are reproduced in columns 1 and 2 of Table 8.

In columns (3) and (4), we undertake a different but similar strategy, which is to compute GDP growth percentiles for each country separately. We then re-define recessions as any year in which a country's GDP growth is less than the 10th percentile or 5th percentile of its own

historical GDP growth experience. Changing the cutoff from a global percentile to a within-country percentile has benefits and costs. One benefit is that countries may be on different growth trajectories, and a country with lower growth overall may be coded as having many more recessions than is true using a global measure. By using a within-country cutoff, we can account for different paths of growth across countries. On the other hand, the within-country measure mechanically forces all countries to have the same proportion of years defined as a recession. This is not desirable if, in reality, there are countries more prone to recessions, perhaps due to lower growth or higher volatility.

In columns (5) and (6), we compute GDP growth percentiles using the five world regions defined by the United Nations: Africa, the Americas, Asia, Europe, and Oceania. These regional cutoff measures present a compromise between the global and within-country measures. In each of the columns (3)-(6), we find that the coefficient of interest remains negative, precise, and of comparable magnitude to the baseline estimate.

In columns (7) and (8), we re-compute the recession cutoff values from columns (1) and (2), but use GDP growth from democracies only. In contrast, the baseline strategy uses a GDP growth cutoff that is defined using the GDP growth of all countries and all years for which we have data. Using this alternative method yields negative and precise coefficients.

The last alternative recession measures that we considercapture economic downturns occurring within a leader's current term in office rather than in the previous year. We use the share of recession years during the leader's current term, the number of recession years during the term, and longest recession spell during the term. Although the length of leader's term at any point in time is endogenous and correlated with other factors, a benefit of these measures is that the experience in other years during a leader's term might affect the public's perception of the job they are doing.

In the Appendix, we also show that 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 would be worried if these particular recessions are driving our results. As reported in Appendix Table A.8, the estimates are very similar when we omit these years from the sample.

7 United States

We now turn to our analysis of trust and voting behavior within the United States. These estimates complement our cross-country analysis in important ways. The country-level es-

timates pool data from countries with different political systems, different political parties, different term limits, and different electoral cycles. Because of this, we are forced to examine annual variation in leader turnover. This is imprecise for a number of reasons. First, most observations in our sample (i.e., years and countries) are not election years, which, as we have seen, tends to reduce the power and precision of our estimates. In addition, our analysis focuses on leaders and ignores parties. Important effects may exist, not working through leader turnover, but through party turnover.

By examining presidential elections in the United States, we are able to provide estimates that make improvements on both of these dimensions. Our analysis only examines election years and considers each county's vote share of the challenger party relative to the vote share of the incumbent party. It is well known that the two important parties in the United States are the left-leaning Democratic Party and the right-leaning Republican Party.

Our estimating equation takes the following form:

$$y_{i,t} = \beta\, Trust_i \times Recession_{t-1} + \alpha_i I_{t-1}^{Democrat} + \alpha_i I_{t-1}^{Republican} + \gamma_t + \mathbf{X}_{i,t-1}\mathbf{\Gamma} + \varepsilon_{i,t}, \qquad (2)$$

where i indexes counties and t indexes election years from 1968-2016.[20]

The outcome of interest, $y_{i,t}$, is a county's vote share for the presidential candidate from the incumbent party relative to the total vote share for the two main parties in the United States, the Democratic Party and the Republican Party.[21] $Trust_i$ 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 specification includes year fixed effects γ_t, which capture time varying factors that are similar across counties, including the direcet effect of the recession indicator variable $Recession_{t-1}$. and county fixed effects α_i that are allowed to differ depending on the party of the incumbent party, either $I_{t-1}^{Democrat}$ or $I_{t-1}^{Republican}$. This allows the fixed tendency of a county to vote for the incumbent to differ dependending on the political party of the incumbent. Put differently, it allows the county fixed effects to capture differences in political preferences.

The specification also includes a vector of covariates measured in year $t-1$. The vector $\mathbf{X}_{it-1}$ includes two characteristics of the incumbent leader in power in year $t-1$ (age when he

[20] We begin our analysis in 1968, the first election year after which our recession measure is available.

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

entered office and an indicator for this being his second term).[22] It also includes a measure of national real per capita GDP and the State's real per capita GDP.[23] We also allow their effect to differ by each county's level of trust by controlling for each of the measures interacted with trust. We also allow the measures to have a differential effect on challenger vote share depending on whether the United States experienced a recession in the previous year by interacting each control with the recession indicator variable.

In all specifications, the standard errors are clustered at the county level to correct for within-county correlation.

Our hypothesis of interest is whether $\beta < 0$: when there is an official recession, counties with higher average trust will have a lower share of voters for the presidential challenger. Because presidential vote shares are only observed in election years, we restrict our sample to years for which U.S. presidential elections are held. There are twelve election years in our sample.

We construct county-level trust using a number of different surveys. One is the General Social Survey (GSS), which provides data from 1972-2016 (Smith, 2016), but only provides a county-level identifier beginning in 1993. We also use the 2000 Social Capital Benchmark Survey and 2006 Social Capital Community Survey (Saguaro Seminar, 2000, 2006).[24] 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 will have greater measurement error, we also use a second measure that drops all counties with an average trust measure that is constructed from fewer than ten observations. This variable is available for 415 counties. The two variables are shown in Figure 3. 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 that is constructed with ten or more observations with diagonal lines.

In the United States, there are no Presidential elections that follow a year where GDP growth is less than the global 10th-percentile cutoff that we used in the country-level analysis.[25] In addition, within the U.S.-context, we have a good sense of economic downturns that

[22] We do not include gender as a control, since all American presidents to date have been men.

[23] The presidential demographic variables also come from the Voting and Elections Collection (CQ Press, 2018), while national GDP variable comes from the Federal Reserve Bank of St. Louis (FRED).

[24] 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.

[25] Since we use all years, not just election years, to compute the cutoff, it is not a necessity that some election

are salient to the public: the ones that are officially labelled as being a "recession" by various agencies. Given this context, our U.S. analysis uses indicator variables that equal one if a year is officially-designated as a recession year by one of two common recession indicators. 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. In the years preceding the election years in our sample, there were a total of two FRED recessions and three NBER recessions.[26]

Table 9 reports estimates of equation (2). In columns (1)-(4), we report estimates using the FRED recession measure, while in columns (5)-(8), we report those using the NBER measure. Columns (1)-(2) and (5)-(6) report estimates using all counties, while columns (3)-(4) and (7)-(8) report estimates using the subset of counties that have a trust measure based on ten or more individuals. In the even-numbered specifications, we allow the year fixed effects to differ by four Census regions, thus, capturing time-varying factors that affect the regions of the United States differently.[27]

In all cases, counties with more generalized trust are less likely to vote for the party of the Presidential challenger in the face of an economic recession. All estimates of $\beta < 0$ are negative and statistically significant. To get a sense of the magnitude of the estimated effects, consider the specification from column (1). The estimated coefficient of -0.00952 implies that counties with 25th-percentile trust levels vote for presidential challengers less than counties with 75th-percentile trust levels by $-0.95 \times (0.908 - 0.102) = -0.76$ percentage-points. While such an effect might seem modest, this value is larger than the margin of victory in Michigan (0.3%) and New Hampshire (0.4%) in the 2016 presidential election.[28]

years fall below the cutoff.

[26]The two recession measures differ in their construction. The 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. On the other hand, NBER recessions are defined by the NBER Business Cycle Dating Committee and 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.

[27]We use the United States Census definition of regions. Region 1: Northeast. Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania. Region 2: Midwest. Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. Region 3: South. Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, District of Columbia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas. Region 4: West. Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington

[28]To check the sensitivity of our estimates, we replicate all specifications reported in Table 9 after dropping influential observations, which we identify using Cook's distance. We report the estimates from these regressions

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

8 Trust, Turnover, and Economic Recovery

In this final section, we provide descriptive evidence on how differences in trust levels affect economic recovery following a recession. We first test 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:

$$Growth_{i,t} = \beta_1 Recession_{i,t-j} + \beta_2 Trust_i \times Recession_{i,t-j} + \mathbf{X}_{i,t-1}\mathbf{\Gamma} + \gamma_t + \alpha_i + \varepsilon_{i,t}, \quad (3)$$

where i indexes countries, t indexes years, and j is the number of years since the last recession. $Growth_{i,t}$ is the annual real per capita 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 GDP 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 (gender current age, gender, days in office, and the number of times previously in office), real per capita 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.[29] 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 (3) are reported in Table 10. 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.

in Appendix Table A.9.

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

Thus, the estimates show that countries with higher trust have better recovery in the year after a recession. To get a better sense of 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 -2.4%. For the country in our sample with the highest value of trust (0.70 for Norway), growth in the year immediately following a recession is $-0.0274 + 0.712 \times 0.056 = 0.012$ or 1.2%.

In column (2), we examine differences in growth two periods after a recession.[30] We find that neither β_1 or β_2 are significantly different from zero, although the signs remain similar as column (1). 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 (estimates not reported here), we continue to find estimates that are small in magnitude and not statistically different from zero. In columns (3)-(4), we repeat the analysis but with recessions defined with a 5th-percentile cutoff. The results are similar.

9 Conclusion

This paper documents a new channel through which culture affects political outcomes. Focusing on the importance of a country's average level of generalized trust, we show that severe economic downturns are much more likely to lead to political turnover in low-trust countries than in high-trust countries. The estimates are consistent with citizens in higher-trust countries being less likely to blame poor macroeconomic performance on their politicians. The magnitudes of the estimates are not only statistically significant but also economically meaningful. We find the same patterns when studying differences in incumbent voting in Presidential elections that follow a recession. When recessions occur, countries with lower levels of trust are more likely to vote for the challenging party.

The findings are important for several reasons. First, they advance our understanding of the relationship between the economic environment, culture, and politics. Specifically, we show that longer-run cultural traits can interact with short-run economic shocks to affect political outcomes. Second, our results will allow policymakers to better predict where political instability will occur following recessions.

This paper opens two related avenues for future research. The first is to better understand

[30] 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 very similar although slightly less precise.

the interaction of culture, economics, and institutions, which has received limited attention so far. The second is to understand whether higher or lower trust is efficient. Given the large literature demonstrating the persistence of cultural traits over time, one may reasonably be concerned that even if low-trust was historically efficient, it has become inefficient today. These are important questions for future research.

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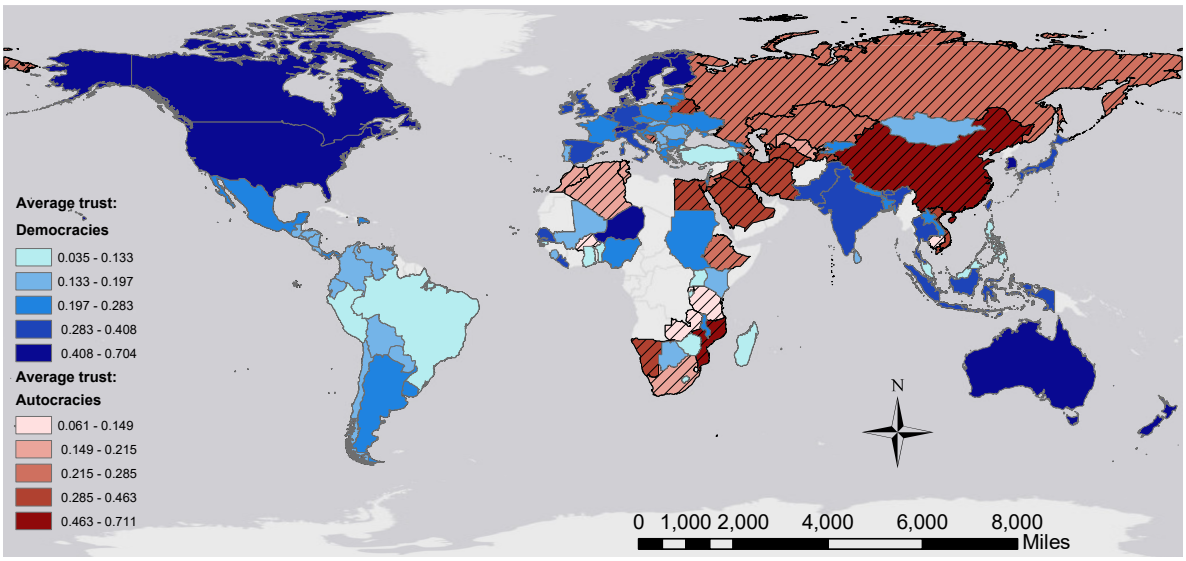


Figure 1: Average Trust Across Countries

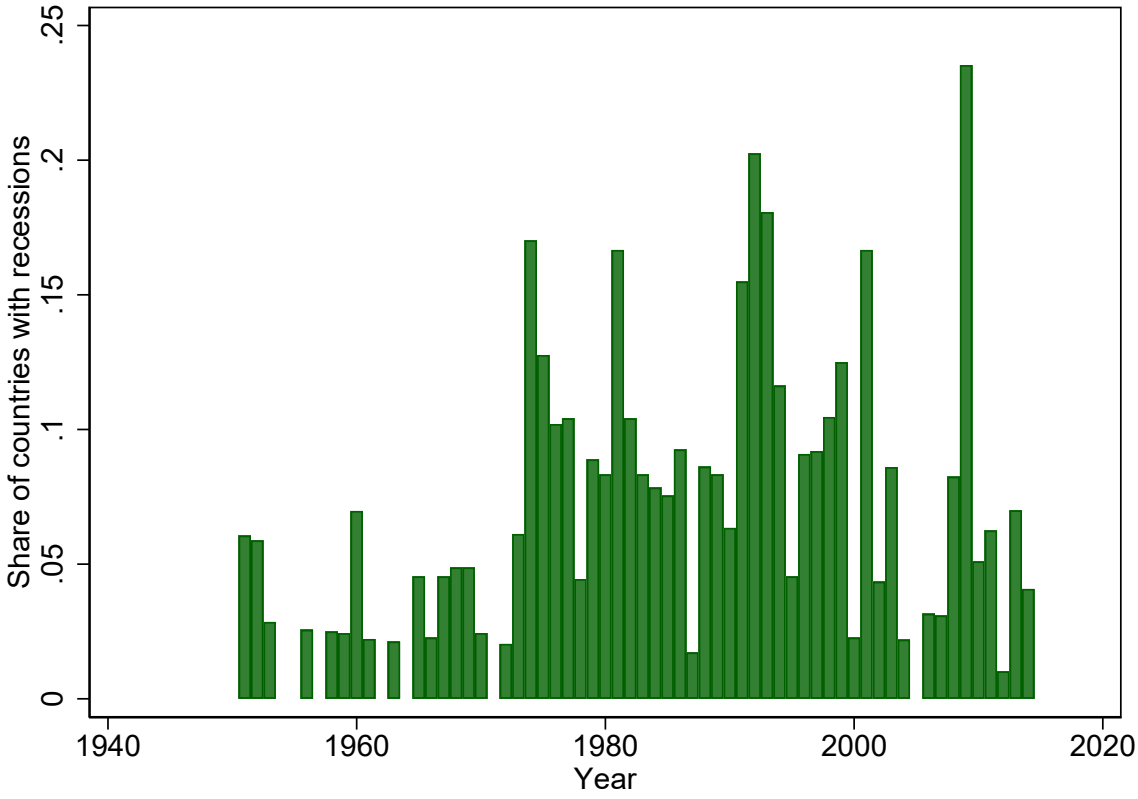


Figure 2: Frequency of Country-Level Recessions Over Time

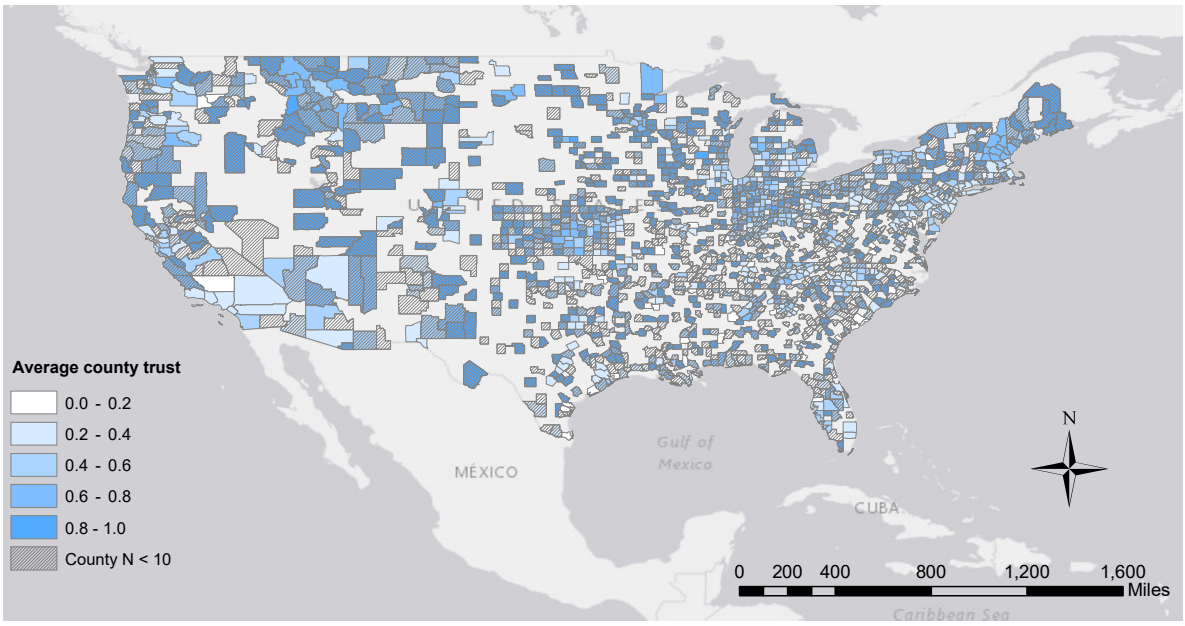


Figure 3: Average Trust Across U.S. Counties

Table 1: Correlates of Trust and of Recessions

	(1)	(2)
	Trust	**I(Growth < global 10th percentile)**
Economic Characteristics		
I(Growth < global 10th percentile)	-.061***	
Log nominal per capita GDP	.289***	-.150***
Growth in nominal per capita GDP	-.063**	-.528***
Trade openness: (X+M)/Y	-.161**	.102***
Leader Characteristics		
Turnover during election year	.031	-.006
Leader's age	.017	.022
Leader's gender	-.001	-.029
Days in office since entry	.073**	.018
Previous times in office	.007	.027
Institutional Characteristics		
Country-level variables:		
Ethnic fractionalization	-.379***	-.005
Religious fractionalization	.084	.055
Linguistic fractionalization	-.121	-.026
Country-year level variables:		
Polity2	.350***	-.076**
Conflict incidence	-.143**	-.030
Democracy (all observations)	.172**	-.102***

Notes: Correlation coefficients are presented with standard errors,adjusted for clustering at the country level, in parentheses. The sample is for democracies only except for the democracy variable. The unit of observation is generally at the country and year level. The unit of observation for the correlations between Trust and Ethnic Fractionalization, Religious Fractionalization, and Linguistic Fractionalization is a country. The Growth measures are for growth from period t to $t+1$. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 2: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Democracies

	Dependent Variable: Leader Turnover				
	(1)	(2)	(3)	(4)	(5)
			Baseline	Control for Region FE x Year FE	Logit
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***	-4.037**
			(0.210)	(0.239)	(1.659)
I(Growth<global 10th percentile)	-0.302	-0.366	-0.350	-0.575	-2.493
	(0.381)	(0.380)	(0.409)	(0.404)	(2.515)
Effect of I(Growth<global 10th percentile) calculated at the variable means	*.128***	*.16***	*.299***	*.324***	*1.9***
	(0.035)	*(0.035)*	*(0.069)*	*(0.072)*	*(0.498)*
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***	-7.361***
			(0.292)	(0.285)	(2.126)
I(Growth<global 5th percentile)	-0.884	-1.303*	-1.236**	-1.475**	-18.59***
	(0.780)	(0.753)	(0.606)	(0.665)	(4.276)
Effect of I(Growth<global 5th percentile) calculated at the variable means	*.061*	*.106*	*.281***	*.323***	*1.672***
	(0.072)	*(0.070)*	*(0.092)*	*(0.094)*	*(0.599)*
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***	-3.844**
			(0.220)	(0.237)	(1.735)
Trust x I(Growth 10-20th percentile)			-0.136	-0.115	-0.818
			(0.182)	(0.195)	(1.121)
Trust x I(Growth 20-30th percentile)			0.210	0.196	1.499
			(0.155)	(0.158)	(1.087)
Trust x I(Growth 30-40th percentile)			0.117	0.0968	0.936
			(0.110)	(0.134)	(0.853)
R-squared	0.053	0.187	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 per capita 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. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 3: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Autocracies

	Dependent Variable: Leader Turnover				
	(1)	(2)	(3)	(4)	(5)
			Baseline	Control for Region FE x Year FE	Logit
Mean of Dependent Variable	**0.117**	**0.117**	**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	-1.017
			(0.145)	(0.149)	(1.881)
R-squared	0.063	0.168	0.168	0.233	
	Panel B. Recessions: GDP growth < global 5th percentile				
Trust x I(Growth<global 5th percentile)			-0.127	-0.223	-0.536
			(0.262)	(0.268)	(3.039)
R-squared	0.062	0.167	0.167	0.232	
Controls (All Panels):					
Country FE	N	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y
Region x Year FE	N	N	N	Y	N
Number of Clusters (Countries)	101	101	101	101	96
Observations	3,351	3,351	3,351	3,351	3,227

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 per capita 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. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 4: Effects in Different Political Environments

	Dependent Variable: Leader Turnover							
	(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
			Multinomial Logit					
Dependent Variable:	Leader Turnover		Regular Turnover	Irregular Turnover	Leader Turnover			
					Democracies		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***	-3.045***	-0.255	-1.413**	0.0566	-1.583**	-0.341
<global 10th percentile)	(0.210)	(0.113)	(1.059)	(3.310)	(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 per capita 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. The coefficients reported are marginal effects evaluated at control variable means. 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. Columns (6) and (7) estimate the baseline regression on a different partition of the baseline democratic sample: those observations from presidential versus parliamentary democracies. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 5: Robustness to Additional Controls, Robustness to Dropping Outliers, and a Placebo Test

	Dependent Variable: Leader Turnover						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Recession x Lag Trade Openness	Recession x Mean Turnover	Recession x Mean Growth Rate	Recession x Ethnic, Linguistic & Religious Fract.	Recession x Support for Regulation	Omitting Influential Obs.
Mean of Dependent Variable	**0.240**	**0.242**	**0.240**	**0.240**	**0.241**	**0.259**	**0.192**
Trust x I(Growth	-0.558***	-0.564**	-0.453**	-0.409**	-0.745***	-0.824***	-0.854***
<global 10th percentile)	(0.210)	(0.221)	(0.206)	(0.203)	(0.225)	(0.249)	(0.161)
Observations	3,255	2,856	3,255	3,255	3,021	2,106	3,036
R-squared	0.181	0.195	0.161	0.161	0.190	0.227	0.280
Number of Clusters (Countries)	95	92	95	95	91	59	90

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 per capita 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.

Table 6: Robustness to Quality Concerns of the Trust Measure

	Dependent Variable: Leader Turnover							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Baseline	Base Year Trust	Omit Trust Surveys from Recession Years	Omit Unreliable Trust Surveys	Omit Unreliable and Unrepresentative Trust 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**	**0.241**	**0.240**	**0.239**	**0.251**	**0.282**	**0.279**
Trust x I(Growth	-0.558***	-0.805	-0.656***	-0.647***	-0.753***	-0.530**	-0.969	-0.738*
<global 10th percentile)	(0.210)	(0.769)	(0.216)	(0.214)	(0.257)	(0.222)	(1.441)	(0.395)
Observations	3,255	3,255	3,172	3,171	2,991	2,648	1,350	1,341
R-squared	0.181	0.180	0.180	0.181	0.190	0.192	0.257	0.265
Number of Clusters	95	95	83	83	80	68	27	29

Notes: The sample is comprised of democratic country-year observations. 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 per capita 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.

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 <global 10th percentile)	-0.558*** (0.210)	-0.476*** (0.177)	-0.594*** (0.186)	-0.556** (0.210)	-0.474** (0.202)	-0.568*** (0.179)	-0.503** (0.198)	-0.568*** (0.179)	-0.568*** (0.170)	-0.679*** (0.205)	-0.578*** (0.172)	-0.439** (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 <global 10th percentile)	-0.117 (0.145)	-0.0239 (0.158)	-0.122 (0.149)	-0.217 (0.133)	-0.109 (0.148)	-0.147 (0.172)	-0.0577 (0.141)	-0.147 (0.172)	-0.161 (0.153)	-0.0721 (0.147)	-0.173 (0.156)	0.0234 (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 per capita 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.

Table 8: Robustness to Alternative Definitions of Recession

	Dependent Variable: Leader Turnover							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Recession indicator equals one if GDP growth is less than:							
	Global		Within Country		Within Region		All Democracies	
	10th percentile (Baseline)	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**	**0.243**	**0.240**	**0.243**	**0.243**
Trust x Recession Indicator	-0.558***	-0.823***	-0.478**	-0.556***	-0.623***	-1.026***	-0.366***	-0.592***
	(0.210)	(0.292)	(0.189)	(0.190)	(0.157)	(0.203)	(0.133)	(0.167)
Observations	3,255	3,255	3,255	3,255	3,400	3,255	3,400	3,400
R-squared	0.181	0.175	0.179	0.178	0.143	0.177	0.141	0.141
Number of Clusters (Countries)	95	95	95	95	98	95	98	98

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 per capita 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.

Table 9: The Effect of Trust on United States Elections

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: Fraction 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	0.463	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)	(0.0094)	(0.0092)	(0.0025)	(0.00207)	(0.0120)	(0.0100)
Controls:								
Recession Indicator	Y	Y	Y	Y	Y	Y	Y	Y
County FE x Incumbent Party FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	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								
Lag President Age	Y	Y	Y	Y	Y	Y	Y	Y
Lag Indicator for Second Term	Y	Y	Y	Y	Y	Y	Y	Y
Lag National Real Per Capita GDP	Y	Y	Y	Y	Y	Y	Y	Y
Lag State Real Per Capita GDP	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
Observations	21,339	21,339	5,319	5,319	22,956	22,956	5,723	5,723
Number of Clusters (Counties)	1,665	1,665	415	415	1,665	1,665	415	415
R-squared	0.764	0.830	0.749	0.802	0.721	0.788	0.722	0.773

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 per capita state GDP, lag per capita 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.

Table 10: The Effect of Trust on Recession 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 Dep. Var.	**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.

Appendix

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 surveys that are low-quality or unrepresentative. Table A.2 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.[31] 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

[31]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.

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. In dual systems, where there is a president and a prime minister, the president is considered the leader.[32]

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 that represents the 10th percentile of observed values. We then generate an indicator which 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 which equals 1 if a leader is male, and equals 0 if

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

not. Second, we include age, which is a continuous variable that records the age of the leader 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 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.

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 consider 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

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

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 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

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

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. Note that 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 $\bar{y}_1(a^{*}) < \bar{y}_1(a^{**})$) and that the average turnover of politicians is higher in the "low trust" equilibrium. In the data, trust and GDP are positively correlated with $p < 0.05$. Within election years, negative trust countries are more likely to experience leader turnover. The latter implication arises from the probability of a politician being fired, which is expressed by:

$$F(a) \equiv \Pr(fire|a) = \pi\Phi\left(\hat{y}(a) - f(a,\theta_h)\right) + (1-\pi)\,\Phi\left(\hat{y}(a) - f(a,\theta_l)\right).$$

We claim that F is decreasing in a. Indeed, we find that

$$\begin{aligned}
F'(a) &= \pi\phi\left(\hat{y}(a) - f(a,\theta_h)\right)\left[y'(a) - f_a(a,\theta_h)\right] + (1-\pi)\,\phi\left(\hat{y}(a) - f(a,\theta_l)\right)\left[y'(a) - f_a(a,\theta_l)\right] \\
&= \pi\phi\left(\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2}\right)\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2} \\
&\quad - (1-\pi)\,\phi\left(-\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2}\right)\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2} \\
&= \underbrace{\phi\left(\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2}\right)}_{\text{symmetry of } \phi}\underbrace{(2\pi - 1)}_{>0 \text{ by incumbence adv}}\underbrace{\frac{f_a(a,\theta_l) - f_a(a,\theta_h)}{2}}_{<0 \text{ by complementarity}} \\
&< 0.
\end{aligned}$$

Thus, $\Pr(fire|a^*) < \Pr(fire|a^{**})$.

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.

C Additional Details of Robustness Checks

C.1 Additional Controls: Cultural Traits

One alternative explanation of our baseline results is that trust is correlated with some other cultural trait that is the true driver of heterogeneity. In table A.4, we control for six other country-level measures of cultural values interacted with the recession indicator in the baseline regression in order to test whether any of them absorb the variation from the trust and recession interaction variable.

In column (2), we control for country-average danger avoidance using the *World Values Survey* question: "Living in secure surroundings is important to this person; to avoid anything that might be dangerous". In column (3), we control for the willingness to take risks using the *World Values Survey* question: "Adventure and taking risks are important to this person; to have an exciting life". In column (4), we control for value placed on traditions using the *World Values Survey* question: "Tradition is important to this person; to follow the customs handed down by one's religion or family". Each of these three questions is answered on a scale from 1 to 10, 1 implying "least important" and 10 implying "most important".

In columns (5) and (6), we control for country-level averages in *World Values Survey* prompts about values that should be taught to children. Column (5) controls for whether children should be taught "thrift, saving money and things" and column (6) controls for whether children should be obedient. The responses to these questions are binary.

In column (7), we consider is a country's average 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". Subjects then choose an integer ranging from one to ten. We construct a time-invariant measure of the average locus of control score in each country. The cross-country correlation between trust and the locus of control is 0.10 and is statistically insignificant (not presented in tables). We re-estimate equation (1) while controlling for the interaction of locus of control and the recession indicator variable. The estimates are reported in column (7) of Appendix Table A.4. The main interaction between trust and recession is robust.

C.2 Additional Controls: Economic Characteristics

In Appendix Table A.5, we report the baseline regression column (1). In columns (2)-(8), we control for the base year sectoral composition of each country's economy interacted with year fixed effects, which absorb any differential time paths in leader turnover traversed by countries with different sectoral compositions. 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. sectors are agriculture, mining and extraction, manufacturing, construction, retail, transportation, and other. In column (9), we control for each sector shares interacted with year fixed effects. Across columns (2)-(9), the coefficient of interest remains negative, precise, and stable.

In Appendix Table A.6, we flexibly control for other country-level economic characteristics that may differentially vary with trust. We compute eight time-invariant economic measures (average real GDP per capita levels, variance in real GDP per capita levels, average GDP

growth, variance in GDP growth, average percent unemployment, variance in percent unemployment, average total trade flows (imports plus exports) divided by real GDP levels, and variance in total trade flows divided by real GDP levels) and control for their interactions with year fixed effects. Column (1) reports the baseline estimate. Columns (2)-(9) report the estimates when we add each of these controls interacted with year fixed effects. Column (10) reports the estimate from the regression where we include all shares and their interactions. Across columns (2)-(10), the coefficient of interest remains negative, precise, and very similar in magnitude.

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	United States of Americ	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		
Ukraine	0.29	Guatemala	0.21	Switzerland	0.46	Malawi	0.21	North Africa & Middle East	
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: Reliability and Representativeness of Trust Surveys

Barometer Surveys				**World Values Survey**			
Total country-years	330			Total country-years	225		
Unrepresentative countries	Years	Low Quality countries	Years	Unrepresentative countries	Years	Low Quality countries	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.3: Summary Statistics

	(1) Mean	(2) Standard Deviation	(3) Minimum	(4) Maximum	(5) 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 sample is that of our baseline regression, reported in Column (3) of Table 3. The unit of observation is the country-year.

Table A.4: Robustness Controlling for Country Cultural Characteristics

	Dependent Variable:						
	Leader Turnover						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Recession x Self: Avoid Danger	Recession x Self: Take Risks	Recession x Self: Value Tradition	Recession x Child Qualities: Thrift	Recession x Child Qualities: Obedience	Recession x Locus of Control
Mean of Dependent Variable	**0.240**	**0.252**	**0.252**	**0.252**	**0.258**	**0.258**	**0.258**
Trust x I(Growth	-0.558***	-0.859**	-0.596**	-0.571**	-0.682***	-0.809***	-0.758***
<global 10th percentile)	(0.210)	(0.402)	(0.241)	(0.244)	(0.250)	(0.295)	(0.219)
Observations	3,255	1,759	1,759	1,759	2,234	2,234	2,234
R-squared	0.181	0.231	0.233	0.231	0.212	0.212	0.213
Number of Clusters (Countries)	95	47	47	47	61	61	61

Notes: The sample is comprised of democratic country-year observations. 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 per capita 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.

Each cultural trait is computed by taking the country average of a World Values Survey question.

Self: Avoid Danger. "Living in secure surroundings is important to this person; to avoid anything that might be dangerous."

Self: Take Risks. "Adventure and taking risks are important to this person; to have an exciting life."

Self: Value Tradition. "Tradition is important to this person; to follow the customs handed down by one's religion or family."

Child Qualities: Thrift. "Child value: Thrift, saving money and things"

Child Qualities: Obedience. "Child value: Obedience"

Locus of Control: "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."

Table A.5: Robustness to Controlling for Initial Sector Composition Times Year Fixed Effects

	Dependent Variable: Leader Turnover								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Controlling for the following sector shares, measured in the country's initial year, interacted with year FE:							
	Baseline	Agriculture	Mining	Manuf.	Construction	Retail	Transport.	Other	All sector shares
Mean of Dep. Var.	**0.240**	**0.240**	**0.240**	**0.240**	**0.240**	**0.240**	**0.240**	**0.240**	**0.240**
Trust x I(Growth	-0.558***	-0.563**	-0.522**	-0.598***	-0.634***	-0.614***	-0.601***	-0.577**	-0.741***
<global 10th percentile)	(0.210)	(0.215)	(0.223)	(0.213)	(0.202)	(0.221)	(0.219)	(0.222)	(0.230)
Observations	3,255	2,990	2,990	2,990	2,990	2,990	2,990	2,990	2,990
R-squared	0.181	0.205	0.201	0.204	0.206	0.202	0.206	0.202	0.289
Number of Clusters (Countries	95	95	95	95	95	95	95	95	95

Notes: Observations are at the country and year level. Base year GDP shares are from 1970 and come from 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 per capita 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.

Table A.6: Robustness to Controlling for Country Economic Characteristics Times Year Fixed Effects

	Dependent Variable: Leader Turnover									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Controlling for the following country characteristics, measured during the sample period, interacted with year FE:								
		Real per capita GDP		One-year real per capita GDP growth		Unemployment rate		Trade intensity		
	Baseline	Mean	Annual variance	Mean	Annual variance	Mean	Annual variance	Mean	Annual variance	All controls
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 I(Growth <global 10th percentile)	-0.558*** (0.210)	-0.603*** (0.225)	-0.542** (0.271)	-0.567*** (0.203)	-0.495** (0.224)	-0.836*** (0.222)	-0.801*** (0.224)	-0.577*** (0.206)	-0.598*** (0.210)	-0.817*** (0.308)
Observations	3,255	3,255	3,255	3,255	3,255	3,132	3,027	3,228	3,225	3,027
R-squared	0.181	0.196	0.198	0.199	0.192	0.201	0.202	0.203	0.194	0.342
Number of Clusters (Countries	95	95	95	95	95	95	95	95	95	95

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 per capita 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.

Table A.7: Robustness to Controlling for Alternative Leader Recession Measures

	Dependent Variable: Leader Turnover			
	(1)	(2)	(3)	(4)
	Baseline	Share of recession years during leader tenure	Number of recession years during leader tenure	Longest recession spell during leader tenure
Dep Variable Mean	**0.240**	**0.240**	**0.240**	**0.240**
Trust x I(Growth	-0.558***	-0.495**	-0.614***	-0.554**
<global 10th percentile)	(0.210)	(0.234)	(0.223)	(0.233)
Trust x New Recession Measure		-0.124	-0.00225	-0.0465
		(0.410)	(0.185)	(0.122)
Observations	3,255	3,255	3,255	3,255
R-squared	0.181	0.181	0.219	0.184
Number of Clusters (Countries)	95	95	95	95

*Notes: The sample is comprised of democratic country-year observations. 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 per capita GDP, lag conflict incidence; the interaction of each variable with trust, and the interaction of each variable with the recession indicator variable. The definition of recession is shown 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.8: 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 <global 10th percentile)	-0.558*** (0.210)	-0.564*** (0.210)	-0.639*** (0.203)	-0.511** (0.218)	-0.510* (0.272)	-0.558** (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.9: The Effect of Trust on United States Elections – 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 per capita state GDP, lag per capita 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.