DISTRUST AND POLITICAL TURNOVER

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ABSTRACT

We present findings that document one way in which a society's culture can affect political outcomes. Examining an annual panel of democratic countries over six decades, we show that severe economic downturns are more likely to cause political turnover in countries that have lower levels of generalized trust. The relationship is only found among democracies and for regular leader turnover, which suggests that the underlying mechanism works through leader accountability and the electoral process. Moreover, we find that the effects of trust on turnover are greatest during years with regularly-scheduled elections, and within democracies with a parliamentary system, a fully free media, and greater stability. The estimates suggest that generalized trust affects political institutions by influencing the extent to which citizens attribute economic downturns to the mistakes of politicians.

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1 Introduction

Research is increasingly showing that cultural values and beliefs are important factors for institutional structure, and consequently, for economic development (Algan and Cahuc, 2010; World Bank, 2015; Collier, 2017). However, our understanding of the interplay between cultural factors and institutional or political structures remains limited. Similarly, while we have accumulated some evidence about the effects that different institutional settings have on the evolution of cultural traits (e.g., Tabellini, 2010; Cassar, d'Adda, and Grosjean, 2014; Lowes, Nunn, Robinson, and Weigel, 2017; Becker, Boeckh, Hainz, and Woessmann, 2015), evidence on the effect of cultural traits on political or institutional outcomes remains limited (Martinez-Bravo, Padro-i-Miquel, Qian, Xu, and Yao, 2017; Martinez-Bravo, Padro-i-Miquel, Qian, and Yao, 2017).[1]

This paper attempts to make progress on this important question by examining one particular cultural trait that has been central in the cultural economics literature: generalized trust, defined as the extent to which people believe that others can be trusted. We study the consequences of this for political turnover. Specifically, we posit that 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 poor decisions or low effort from politicians. In contrast, in societies where trust is high, citizens may be more likely to trust leaders when they argue that poor economic performance is outside of their control. This view of the world predicts that all else equal, economic recessions may be less likely to result in leader turnover in countries with higher levels of generalized trust than in countries with lower levels of generalized trust.

Our hypothesis is based on real-world observations. There are many historical periods during which leaders of higher trust countries seem to receive greater citizen support than leaders of lower trust countries, even while the countries experience similar economic growth. For example, from 2001–2014, Italy and Sweden both experienced similar average growth rates of approximately 0.01%. However, political turnover during this period in Italy, a country with low levels of trust, was 43 percentage points, while in Sweden, which has high levels of trust, was fourteen percentage points. If we compare the three European countries in our sample with the lowest levels of trust (France, Italy, and the United Kingdom) to the three with the highest levels of trust (Netherlands, Sweden, and Norway), we find that the average rate of political turnover in the former group was 11.9 percentage points higher than in the

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[1]We discuss these two papers later in the introduction.

latter from 2001–2014.[2] We find similar patterns during other economic downturns and in other regions of the world. The tone of public rhetoric during economic crises also appears to vary across countries in a manner that is correlated with levels of trust. In low trust contexts, public figures and citizens tend to place blame on political leaders more frequently than occurs in high trust countries. In contrast, in high trust countries, rhetoric more often focuses on cooperation with the government to achieve recovery.[3]

Although these cases are instructive, 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 exist 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 may be richer on average, so 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.

The empirical analysis of this paper addresses these difficulties and tests the hypothesis that 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. We interpret economic downturns as periods of negative aggregate GDP growth, which is particularly salient and likely to have similar meaning across countries and times – i.e., at all levels of economic development, negative growth is likely to be viewed as poor economic performance. In addition, citizens seem to be particularly upset by negative growth, a form of "macroeconomic loss aversion" that has been documented by Neve, Ward, Keulenaer, Landeghem, Kavetsos, and Norton (2015).

Given the nature of trust as a slow-moving cultural trait, we measure it as a time-invariant country-specific variable generated by averaging over all available surveys that ask the standard trust question. Our independent variable of interest is the interaction between the presence of an economic recession in a given year and country and the long-run average level of trust in that country. A negative coefficient for the interaction term suggests that recessions lead to less political turnover in countries with high levels of trust. A positive coefficient

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[2]This difference is not due to shorter-term lengths in higher trust countries. For our time period, France elects presidents for five-year terms. Norway holds general elections every four years. Sweden holds general elections every four years, except from 1970-1994, when general elections were held every three years. The United Kingdom, Italy, and the Netherlands allow a maximum of five years between general elections.

[3]We document examples in Section 2.

implies that recessions lead to more political turnover in high trust countries.

In our baseline specifications, we restrict the analysis to countries with a democratic system during the previous year because our proposed mechanism of voter behavior should be the most relevant in a democratic setting.[4] In all estimating equations, we include country fixed effects, which account for time-invariant differences across countries, as well as year fixed effects, which account for changes over time that influence all countries equally. The main caveat for causal identification is that trust is correlated with other factors which would cause political turnover to differ across countries when there is a recession. Similarly, the occurrence of a recession may be correlated with other changes which would cause political turnover to differ across countries with different levels of trust. To address the concern of additional omitted factors, 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. This set of covariates includes 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 given this extensive set of covariates, it is unlikely that our baseline estimates are confounded by omitted factors correlated with either trust or the presence of recession.

Our estimates show that when economic growth is negative, high trust countries are much less likely to experience leader turnover than low trust countries. For example, the presence of a recession is twelve percentage points more likely to cause political turnover in Italy than in Sweden. Similarly, it is 18.5 percentage points more likely to cause turnover in France than in Norway. These effects are large, especially when compared to the mean turnover rate in the sample, which is 24.5 percentage points.

These results are consistent with our hypothesis that in the face of a recession, individuals from low-trust countries are more likely to blame their politicians and remove them from office. Since the electoral process plays an important role in this interpretation, we further examine the plausibility of our preferred mechanism by testing for the same effect among non-democracies in our sample. Consistent with our interpretation, we find no effect among

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[4]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.

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this group. In a complementary strategy, we also examine all countries (democracies and non-democracies) and use a multinomial logit model to estimate the effect of trust on regular and irregular turnovers. Regular turnovers are those that occur through a process that does not violate established conventions, like an election, impeachment, vote of no confidence, etc, while irregular turnovers are ones that violate established conventions, like a coup or military take-over. We find that the interaction of a recession and trust has an effect on regular turnovers, but not irregular turnovers. This pattern is consistent with the claim that the mechanism generating the main results operates through regular leader turnovers, and makes sense if one believes that the relationship between irregular turnovers and economic downturns is relatively inelastic. As final confirmation of the importance of the regular electoral process for our main result, we test whether the effects are different in election years. While we find effects in all years, the magnitude of the effect is much larger and more significant in election years. We also find that our effects are larger for parliamentary democracies than presidential ones, which is likely due to the fact the parliamentary democracies have institutional procedures (i.e., the vote of no confidence) for removing the prime minister during the term. Moreover, the largest effects for democracies that have a fully free media and are more stable. Together, these results show that trust influences political turnover by affecting the outcomes of elections.

We conduct a number of tests to check the robustness and sensitivity of our estimates. The results are robust to accounting for additional potentially important covariates, such as regional economic conditions, and to use 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 also undertake a number of sensitivity checks regarding our trust measure. A potential concern is that trust is measured as an average during the period of study and thus it is potentially endogenous to the occurrence of recessions (because recession may have coincided with the years that some of the surveys were taken). To address this concern, we use trust measured in the base year instead of an average over all years. We also use Algan and Cahuc's (2010) measure of inherited trust, which uses trust measures of descendants of emigrants to measure the persistent component of trust that is not affected by country conditions. Another concern is that survey-based measures may be imprecisely measured. Thus, we also use measures of trust from trust experiments. Our results are robust when using these alternative measures of trust.

The final question that we explore is whether our findings of differential leader turnover following recessions has any economic implications. Examining our sample of democracies,

we find that countries with higher levels of trust experience faster economic growth in the years immediately following a recession. In addition, countries that do not experience leader turnover following a recession also have faster economic growth during this time. These estimates, although not causal, are consistent with higher trust resulting in less leader turnover following a recession, which in turn results in better economic recovery.

The finding that less trusting countries are more likely to replace incumbent leaders during economic recessions has potentially important consequences given the existing evidence on the importance of leader identity for growth (Jones and Olken, 2005) and the negative effects of political instability.[5] Our findings contribute to a number of literatures. First, by providing an example of the political consequences of cultural traits, we provide evidence for how culture can affect institutions. Most of the pre-existing evidence on this topic has been historical and descriptive. For example, Fischer (1989) documents how groups of United States settlers possessed different cultural values, which led them to form different political institutions. Zerbe and Anderson (2001) make an analogous argument, but for the groups that first arrived in California during the 19th century Gold Rush. Todd (1983) documents a link between family structure and the nature of emergent political systems, arguing that the extent of egalitarianism and authoritarianism within the family is reflected in political systems. Greif (1994) documents the cultural underpinnings of differential institutional evolution among the Genoese and Maghreb during the medieval period. In contrast to the existing evidence, our findings are more quantitative and include a large cross-section of countries. Our findings relate to recent studies that provide empirical evidence of the institutional consequences of cultural traits like individualism (Gorodnichenko and Roland, 2017), consanguineous marriage (Schulz, 2016; Akbari, Bahrami-Rad, and Kimbrough, 2017), or the tightness of kinship structures (Enke, 2017). In contrast to these studies, which all examine the long-run consequences of different cultural traits, the effects that we estimate are realized over a shorter time horizon and so the consequences are felt immediately.

Our findings also add to recent studies on the economic consequences of different levels of trust. In hypothesizing that trust can attenuate problems of asymmetric information, our study is most closely related to Bloom and Reenen (2007), who show that corporate structures

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[5]Akhtari, Moreira, and Trucco (2017) document the adverse effects of political turnover on educational outcomes in mayoral elections in Brazil. Rauch (1995) examines the history of municipal bureaucracies in the United States and shows that bureaucrats, who faced less turnover than political appointees, invested more in highly beneficial, longer-term projects with lengthy gestation periods. Uppal (2011) examines turnover at the state level within India and finds that extremely frequent turnover is associated with government expenditures that are skewed towards consumption and away from productive investments. Political instability has also been shown, at the cross-country level, to be associated with less private investment (Svensson, 1998), higher inflation (Aisen and Veiga, 2006), and lower economic growth (Devereaux and Wen, 1998; Aisen and Veiga, 2013).

are more decentralized in countries with high trust. This work is also closely related to studies of how trust can influence economic outcomes such as income levels (Algan and Cahuc, 2010; Butler, Giuliano, and Guiso, 2009), government regulation (Aghion, Algan, Cahuc, and Shleifer, 2010), financial behavior (Guiso, Sapienza, and Zingales, 2004), international trade and FDI (Guiso, Sapienza, and Zingales, 2009), and labor market outcomes (Algan and Cahuc, 2009). We contribute to this literature by examining the heterogeneous effects of trust and political turnover as an outcome and by demonstrating a new channel through which trust can interact with economic forces.

In studying the interplay between culture and institutions, our study complements two recent studies using Chinese data. Martinez-Bravo, Padro-i-Miquel, Qian, Xu, and Yao (2017) and Martinez-Bravo, Padro-i-Miquel, Qian, and Yao (2017) find that religious heterogeneity and social capital greatly influences the extent to which the introduction of local elections increases public goods in rural China.

Our work is also closely connected to Stevenson and Wolfers (2011), who document that trust in U.S. government institutions declined during the Great Recession. In contrast to their study, we focus on the longer-run notion of trust by using a measure of a country's average level of generalized trust.[6] Our findings also contribute empirical evidence to the literature on political business cycles, which has mostly focused on documenting and explaining the relationship between economic performance and re-election. To the best of our knowledge, earlier studies have not studied how this relationship varies with the underlying cultural context of the country.[7]

The paper is organized as follows. Section 2 provides concrete examples to motivate the empirical analysis. The empirical strategy is presented in Section 3 and the data are described in Section 4. The baseline estimates are reported in Section 5. Section 6 examines the robustness of the main results. In Section 7, we provide a discussion of the importance of

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[6]Naturally, the results of Stevenson and Wolfers (2011) raise the issue of the potential endogeneity of our trust measure – i.e., low trust could be affected by recessions. We address this concern by using a long-run measure of average trust. As we discussed earlier, we also conduct several robustness checks to rule out this particular channel of reverse causality.

[7]Examples of recent works include Akhmedov and Zhuravskaya (2004), which provides evidence of political budget cycles in Russia. Brender and Drazen (2008) find a positive cross-country relationship between re-election and economic growth for developing countries. For a detailed discussion of the literature, see Alesina, Roubini, and Cohen (1997) and Persson and Tabellini (2002, Ch. 16). A recent related branch of this literature has focused on how turnover is positively associated with exogenously determined events, and interprets these relationships as evidence for the irrationality of voters. For example, Cole, Healy, and Werker (2012) find that Indian voters punish politicians for natural disasters beyond their control as well as for relief efforts. Leigh (2009) finds that voters reward national politicians more for world economic growth than for national economic growth. Wolfers (2007) finds that voters in U.S. oil-producing states are more likely to re-elect their governors when exogenously determined oil prices are high. Achen and Bartels (2013) finds that voters respond to shark attacks and argue that they are therefore irrational.

our findings and their significance for economic growth, including exploratory estimates that suggest that trust, through lower leader turnover, may result in better economic recoveries following recessions. Section 8 concludes.

2 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, as well as citizens' propensity to be more forgiving with leaders during periods of economic hardship in high trust countries.

Brazil, the Philippines, and Turkey have respectively the third, fourth and ninth lowest trust measures in our dataset, out of 79 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 Macagapal Arroyo. *The Economist* reported that "middle-class Filipinos were hoping to avoid an economic catastrophe" (Economist, 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" (Economist, 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, 2001).

By contrast, there are many examples of citizens in high trust countries being much less

inclined to blame political leadership for an economic downturn. There are such examples from Sweden and Finland, countries with the second- and fifth-highest levels of trust in our sample. Sweden experienced a severe economic downturn (its worst in fifty years) from 1991-1993 and Finland a prolonged downturn that began in 2012.[8] During Sweden's 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. For example:

> "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 that is found in the data.

3   Empirical Framework

The goal of our study is to examine whether countries with low trust are more likely to experience political turnover during periods of poor economic performance. Our main estimating equation is:

$$y_{it} = \beta \, Trust_i \times I(Growth < 0)_{it-1} + \mathbf{X}_{it-1}\mathbf{\Gamma} + \gamma_t + \alpha_i + \varepsilon_{it}, \tag{1}$$

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

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.[9] 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. All standard errors are clustered at the country level to correct for non-independence of observations over time within a country.

Turnover in country i at time t is denoted y_{it} 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 negative growth between years $t-1$ and t, $I(Growth < 0)_{it-1}$. Our hypothesis of interest is whether $\beta < 0$: when there is a recession, countries with higher trust will be less likely to experience leader turnover.

We expect our effects to be most pronounced in election years. However, since the timing of elections are potentially endogenous to the explanatory variables of interest, the baseline sample includes all years for which data are available, even non-election years.[10]

The main challenge for causal 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 are correlated with other country-specific changes that also affect turnover and are moderated by the level of trust in the country. To help address these issues, the specification also includes a vector of covariates, all measured in year $t-1$. The vector $\mathbf{X}_{it-1}$ includes four characteristics of the leader in power (age when she entered office, 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 a conflict or war. Note that the controls are lagged to avoid endogeneity. In addition to controlling for the direct effect of these covariates on leader turnover, we also allow their effect to differ by a country's level of trust by controlling for each of the measures interacted with trust. Analogously, we allow the measures to have a differential effect on leader turnover depending on whether the country experienced a recession

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[9]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.

[10]In some countries, the cost of changing leadership has similar costs in any year (particularly in parliamentary systems). In other countries, such as the United States, the electoral cycle is relatively rigid and it is uncommon to change leadership in a year off the regular cycle. We investigate the notion that the results may differ according to the nature of office entry later in the paper by separating leader turnover according to regular and irregular entry into office.

(i.e., negative economic growth) in the previous year. Thus, we also control for each of the measures interacted with the recession indicator variable.[11]

4   Data

Our turnover measure 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 included countries increases in the latter parts of the sample.[12] The database identifies the actual effective ruler of each state on a case-by-case basis. For example, 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. [13]

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 *Latinobarometer Surveys*, the *Asiabarometer 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

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[11]These controls potentially alter the meaning of the interaction variable of interest – trust interacted with the occurrence of a recession, because many 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, in principle, we face the generic 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. However, in practice, this is not very important for us. The results are quite similar regardless of whether we control for interacted or uninteracted controls. The results with uninteracted controls are available upon request.

[12]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. However, CHISOLS provides less information about each leader.

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

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.[14]

Our measure of real GDP is taken from the *Penn World Tables* (Feenstra, Inklaar, and Timmer, 2015). We measure income using expenditure-side real GDP at chained PPPs in millions of 2005 U.S. dollars. With these data, we construct an economic downturn indicator variable that equals one if annual growth is negative – i.e., real GDP is lower in period t than in $t-1$.

4.1 Descriptive Statistics

The average level of generalized trust for each country is reported in Table 1, where countries are grouped into seven 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. The table shows the known fact that there is significant heterogeneity in reported trust levels, even within geographically proximate countries (Algan and Cahuc, 2013). The country with the highest level of trust in our sample is Norway (0.79). The country with the lowest levels of trust is Cape Verde (0.03).

A potential concern with 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 correlation of the most obvious candidates in Table 2. The pairwise correlation coefficients show that countries with higher levels of trust tend to have higher incomes, have lower average growth, trade less, have less ethnic diversity, have more media freedom, are more democratic and have a lower incidence of conflict.[15] While all of these correlations are statistically significant, the strength of the correlations is fairly modest in each case. All correlation coefficients are 0.36 or less.

We also consider the possibility that periods of negative economic growth could be correlated with other factors. The second column of Table 2 reports the relationship between recessions and a range of factors. We find that the presence of recessions is (mechanically)

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[14]Our choice to use the generalized trust measure, as opposed to a measure of specific institutional trust, is due to the limited coverage 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, there is likely to be non-random selection into the sample of country-years that reports central government trust.

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

associated with lower average growth rates, but uncorrelated with the other factors except that it is positively correlated with being democratic.

5 Results

5.1 Baseline Estimates

Since the hypothesized mechanism for turnover is through the electoral process in our baseline regressions, we use a sample of democracies. We use the coding from Cheibub, Gandhi, and Vreeland (2010), 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 power in a way that violates the above criteria. In auxiliary regressions, we will examine effects on autocracies, and in robustness tests, we will check the sensitivity of our estimates to alternative definitions of democracy and autocracy.

Table 3 presents the baseline estimates. 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, it is important to recognize that the estimated coefficient for the recession indicator itself is uninformative. This is because the specification also includes, as controls, the recession indicator interacted with a number of other variables, namely leader age, gender, tenure, previous times in office, lag polity2 score, lag per capita income, and lag conflict incidence. The estimated coefficient for the recession indicator simply tells you the predicted effect of a recession on leader turnover for an observation that has all values of the interacted variables equal to zero. Therefore, in addition to the estimated coefficient, Table 3 also reports the calculated effect of a recession on leader turnover for an observation with all control variables evaluated at their mean values. The effect of a recession on leader turnover (with all controls evaluated at their means) is positive and significant in both specifications. That is, negative economic growth results in leader turnover. According to the magnitude of the estimates, a recession results in a seven- or nine-percentage point increase in the probability of leader turnover (depending on the specification). This is sizable given that the mean of leader turnover is 24.5 percentage points.

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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 5% level. That is, the positive effect of recessions on leader turnover is lower 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 0.14 (the standard deviation of turnover is 0.39). The coefficient for the interaction term, -0.341, implies that when there is a recession, the difference in the probability of leader turnover between two countries that have trust levels one-standard-deviation apart is 5.3 percentage points $(0.15 \times -0.354 = -0.050)$, which is 12.8% of a standard deviation in turnover $(0.050/0.39 = 0.128)$.

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 0.71, and France, which has a measure of 0.19. The estimated coefficient of the interaction term implies that the occurrence of a recession is 17.9 percentage points more likely to cause political turnover in France than in Norway. These effects are large given that the mean turnover rate in the sample is 24.5 percentage points.

We next turn to some simple regression diagnostics and 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 (4) shows that the interaction coefficient for this restricted sample is negative and similar in magnitude. Thus, the estimates are robust to removing observations that are potential outliers.

We next check the sensitivity of our baseline estimates to the use of a logistic model instead of a linear probability model. Column (5) reports the estimated marginal effects (evaluated at means) from a logit model. The interaction coefficient is negative and significant at the 5% level. 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 column (6), we investigate whether the effect of trust on turnovers is symmetric for recessions and booms. We do this by dividing the data into three categories: (1) recessions (negative growth), (2) moderate growth (zero to three percent growth) and high growth (greater than three percent growth).[16] The omitted category is the middle category for

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[16]Our results are very similar if we narrow or widen the range of the middle group. These results are available upon request.

moderate growth. The results show that the influence of trust is not symmetric. Trust only affects the likelihood of political turnover during recessions. Relative to periods of moderate economic growth, higher trust countries are less likely to experience turnover during recessions – the interaction of recession and trust is negative and significant at the 5% level. However, higher trust and lower trust countries experience similar turnover rates during periods of high growth – the interaction effect of trust and high economic growth is small in magnitude and statistically insignificant. The two reported interaction coefficients are statistically different from each other. The *p*-value, reported at the bottom of the table, shows that the difference is significant at the 5% level.

This asymmetric result is consistent with the particular sensitivity of citizens to negative economic growth, which has been documented by studies such as Neve, Ward, Keulenaer, Landeghem, Kavetsos, and Norton (2015). The authors combine data on the economic performance of the macro-economy and self-reported individual-level subjective well-being. They document a striking discontinuity in the relationship between economic growth and life satisfaction at zero. Measures of life-satisfaction are more than twice as sensitive to negative economic growth as they are positive economic growth.

5.2   Effects in Non-Democracies

Our analysis focuses on democracies because the main mechanism for political turnover we have in mind is voting. For obvious reasons, leader turnover should be less elastic with respect to economic performance in non-democracies. In this sense, non-democracies serve as a useful placebo exercise against alternative mechanisms – i.e., if we find a similar effect in non-democracies, we would be suspicious that our results reflect alternative mechanisms. Table 4 column (1) estimates the baseline for both democracies and autocracies. As before, column (1) defines democracy using the categorization from Cheibub, Gandhi, and Vreeland (2010). Panel A re-states the baseline estimate for democracies presented earlier. Panel B examines the effect for non-democracies. As we had anticipated, the interaction effect is small in magnitude, positive in sign and statistically insignificant.

To ensure that this finding is not due to the particular measure of democracy that we have chosen, in the remaining columns of the table we report estimates using alternative measures of democracy and autocracy. In columns (2)–(5), we use the composite polity2 measure from the Polity IV dataset. The measure 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, which is

a 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 to create two groups of approximately the same size. The sample median is coincidentally five. Thus, the estimates in columns (3) and (4) are equivalent.[17] In columns (6)–(8), we apply the same thresholds as in columns (2)–(4) but to polity2 measured in the first year that the country is in the sample (as opposed to the previous year). This procedure creates a time-invariant definition for each country. Finally, in columns (9)–(11), we apply the same thresholds for democracy to the mean value for each country over the sample period.

The interaction coefficients in panel A of columns (2)–(11) are all negative, statistically significant and similar in magnitude to the baseline in column (1). In addition, the estimates for non-democracies, reported in Panel B, are all positive in sign, small in magnitude and not statistically different from zero.

5.3   Effects on Regular versus Irregular Turnovers

An alternative strategy to estimating equation (1) separately for democracies and non-democracies is to study all observations, but to examine the effects of trust and recessions on the probability of a regular turnover occurring and the probability of an irregular turnover occurring.[18] 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. To qualify as an irregular turnover, there needs to be a strict violation of convention by the entrant. For example, if the vice president who is next-in-line obtains power through a coup, then this will be coded as an irregular turnover. The most common causes of irregular turnovers in the data are military coups and foreign military impositions. Therefore, we expect that irregular turnovers are less likely to reflect changes in the extent to which citizens blame politicians for economic downturns. Since we postulate that trust matters during economic downturns through its influence on citizen dissatisfaction, it follows that the interaction effect of trust and negative growth should matter less in contexts where other factors may drive turnover.

Since there are very few irregular turnovers in democracies, we pool democracies and non-

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[17]Note that the two groups are not exactly the same size because the polity2 measure only takes on integer values.

[18]Archigos codes transfers of power as *regular* or *irregular,* depending on the political institutions and selection rules in place in each state.

democracies to estimate a multinomial logit 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 5. For comparison, column (1) reproduces our baseline OLS estimates for democracies, while column (2) reports our baseline OLS estimates for the pooled sample of democracies and non-democracies. The point estimate in column (2) is smaller in magnitude and it is less precisely estimated, which is not surprising given that the sample pools observations of non-democracies for which our mechanism of interest is not 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 mean of all other covariates in the regression). Column (3b) reports the marginal effect of the trust-recession interaction on the probability of an irregular leader turnover. We find that greater trust reduces the probability of a regular leader turnover in the face of a recession, but it does not reduce the probability of an irregular turnover. These results are consistent with the divergence in estimates from the sample of democracies and the sample of non-democracies (reported in Table 4). They also suggest that on average, the elasticity of turnover with respect to economic performance is larger for regular entries.

5.4   Timing of Elections

To further explore the importance of the electoral process as a mechanism, we check whether the effects of interest are stronger in election years. We do this by dividing our baseline sample into observations that are election years and those that are not, and examine the extent to which our results are stronger in years of regularly-scheduled elections. We use data from the *Database of Political Institutions* dataset (Keefer, 2015) to identify years in a country during which a regular election is scheduled. We then divide observations into those that are regular election years and those that are not and estimate our baseline equation (1) for each sub-sample.

The estimates are reported in columns (4) and (5) of Table 5. 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. Thus, our main results are disproportionately due to turnovers that take place during regular election years, although turnovers during non-election years appear to also be affected.

Taken together, the estimates from Tables 4 and 5 are consistent with voters in higher trust

countries being less likely to blame poor economic performance on their leaders, which leads to less political turnover. Moreover, they suggest that the relationship between turnover and economic downturn is more elastic during regular election years. This pattern is consistent with the hypothesis that voting is an important driver of the results.

5.5   Type of Democracy

Given the evidence that the effect of citizens' trust for leader turnover works through the prescribed 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 difference 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, then we would expect to find larger effects of trust in parliamentary democracies. In such a setting, citizens' trust becomes more important and has a greater effect on leader turnover during recessions.

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 5. The coefficients on the estimated trust interactions are negative in both sub-samples. However, the magnitude and statistical significance are greater among parliamentary democracies. This is consistent with trust being more important within systems for which leaders can be more easily removed from office during their term.

5.6   Media Freedom

A factor that is important in well-functioning democracies is media freedom. Given the importance of the media for allowing democracies to function effectively, we now turn to an examination of how the presence of free media affects our relationship of interest. The expected effect is ambiguous *ex ante*. On the one hand, greater media freedom may allow voters to monitor their politicians better, which decreases uncertainty and the need for trust. Thus, we would expect the estimated trust-recession interaction effect to be smaller in countries with more media freedom. On the other hand, government-controlled media could minimize or distort negative news about economic recessions and therefore reduce the importance of trust in informing citizens' views. This would suggest that trust is more important in countries with more media freedom. We will explore the net effect of these two opposing forces.

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We compute a long-run measure of media freedom using a variable from Freedom House. The raw categorical variable takes three values: free media, some free media, and no free media. From this variable, we construct the long-run average for each country, and then define two binary categorizations of media freedom. For the first, we define a country as having free media if they have been coded as such for the entire observed period. These results are reported in columns (2) and (3) of Table 6. For the second, we define a country as having free media if their long-run average is freer than the fiftieth percentile of long-run averages of all the countries. These results are reported in columns (4) and (5) of Table 6.

We find that the main effects are present when there is fully free media (column 2) or if media freedom is above the sample median (column 4). For other contexts, the estimated effect is very close to zero (columns 3 and 5). This pattern suggests that the ability of government-controlled media to control information flow, which implies that trust is more important where there is more media freedom, outweighs the role that free media plays in mitigating asymmetric information between the voters and politicians, which would imply that trust is less important where there is more media freedom.

5.7 Stability

An additional source of heterogeneity that we examine is stability, which we measure in two different ways. The first is political: the frequency of leader turnover in a country. We divide the sample into two groups depending on whether a country's frequency of leader turnover during the sample period is above or below the country median. The second is conflict-based: whether a country experienced any type of conflict during the previous year.[19] The estimates in columns (6) and (7) show that the estimated interaction effect is much larger in magnitude for countries with less frequent leader turnover. That is, the effects are much larger for countries that are typically more stable. We also come to a similar conclusion when we use conflict as a proxy for stability. The estimates of columns (8) and (9) show that the negative interaction effect is only found for observations without conflict in the previous period. For observations that experienced conflict in the previous year, the coefficient is actually positive, although with very large standard errors and it is not statistically different from zero.

Overall, the estimates suggest that our findings are strongest amongst democratic countries that have full media freedom and which are politically stable.

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[19]The data are from the UCDP PRIO conflict database.

6   Sensitivity and Robustness Checks

6.1   Additional Control Variables

We now turn to tests of the sensitivity of our baseline estimates. A potential concern with our estimates 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. Although we have already included many potential correlates in the baseline specification, we now examine the robustness of our estimates to the inclusion of additional control variables.

The first factor that we consider is an observation's openness to trade. There are may be many reasons that trade openness matters for political turnover. For example, it may be harder for voters to understand the relationship between the politician's effort and domestic economic outcomes in large and open economies.[20] Although trade openness is uncorrelated recessions (recall Table 2), we nevertheless estimate equation (1) controlling for lagged trade openness, as well as the variable interacted with trust and the variable interacted with the occurrence of a recession. Column (2) of Table 7 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 alternative factors, all of which could 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 media freedom, and diversity (ethnic, linguistic, or religious). We re-estimate equation (1), while controlling for each factor, one at a time, interacted with the recession indicator variable. Since all of the variables are time-invariant, the uninteracted effect of each variable is absorbed by the country fixed effects. The estimates, which are reported in columns (3)–(6), show that the interaction of trust and the occurrence of a recession remains robust. The number of observations varies across columns because of differences in the availability of the control variables.

The final factor that we consider is a country's average perception of how much control one generally has over life. This 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

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[20]Past studies have found evidence that turnover is more sensitive to economic slowdowns in small or closed economies, where it is easier to ascribe outcomes to specific policies (e.g., Hellwig, 2007). As before, we measure trade openness with the trade openness measure provided by the *Penn World Tables.*

using information from the following *World Value 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. 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 Table 7. The main interaction between trust and recession is robust.

6.2   Reverse Causality and Spurious Trends

We consider the possibility that our estimates are biased by reverse causality or spurious trends. To investigate this possibility, we re-estimate a variant of equation (1) that has the one-year lag of the leader turnover indicator as the dependent variable. The specification tests for the possibility of reverse causality: leader turnover may cause recessions in lower trust countries. If this reverse causal relationship is present, then we would expect that leader turnover last year will be associated with a recession this year, and more so in lower trust countries. In addition, the specification also serves as a placebo test to detect spurious trends. The estimates are reported in column (8) of Table 7. The coefficient is positive, very small in magnitude, and statistically insignificant. This result provides evidence that reverse causality and spurious trends are not driving our results.

6.3   The Quality and Endogeneity 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 affected 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 potential 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 recessions. The estimates from the two procedures are reported in columns (2) and (3) of Table 8. The results are similar as in the baseline, which is re-stated in column (1) for comparison purposes. The magnitude of the effects actually increases slightly

with the alternative measures.

The issue of the endogeneity of trust to economic conditions was recently addressed in a series of papers by Algan and Cahuc (2010) anAlgan and Cahuc (2013). These paper develop a strategy of measuring a country's average level of trust that is independent of economic conditions in that country. (Their interest was in estimating the causal effect of trust on economic growth). They do this by using the trust levels of individuals who were born in the United States but have immigrant backgrounds (e.g., their parents or grandparents were born in a foreign country). Although these individuals would have never been exposed to the economic conditions in the origin country, the levels of trust from the origin country would have been vertically transmitted to them. Their procedure uses individual-level data from the *General Social Survey* (Davis and Smith, 2014) on reported trust levels, country or region of origin, and the number of generations a person's family has been in the United States. The authors construct measures of inherited trust for two periods: 1935-1938 and 2000-2003. The first measure is designed to capture the trust of individuals whose ancestors first immigrated to the United States before 1910.[21] The second measure is designed to capture the trust of individuals whose ancestors first immigrated to the United States after 1910.[22] Following their methodology, we use all available data and calculate the average level of inherited trust across all individuals. The estimates are reported in column (4). The sample size using the Algan and Cahuc (2010) trust measure is much smaller; 754 observations rather than 2,770. The data cover 14 countries, as opposed to the 79 countries included in our baseline sample. Since the sample size for this trust measure is dramatically smaller, there is a significant reduction of statistical power and an imprecise coefficient of -0.188. In light of the small sample, and the potential for a small number of outliers having disproportionate influence on the coefficient, we check the sensitivity of this finding to the omission of observations with disproportionate leverage measured by a Cook's distance greater than $4/n$, where n is the number of observations in the sample (Belsley, Kuh, and Welsch, 1980). Estimates from this smaller sample of 686 observations is reported in column (5). The point estimate remains negative and becomes slightly larger in magnitude, -0.257.

Another concern with the trust measure is the quality of the underlying survey data. In

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[21]The authors define a set of people whose ancestors likely immigrated to the US prior to 1910. These individuals fall into three categories: (1) second-generation Americans born before 1910, (2) third-generation Americans born before 1935, and (3) fourth-generation Americans born before 1960.

[22]The authors identify people whose ancestors immigrated to the United States after 1910 in the following way. They are either (1) second-generation Americans born after 1910, (2) third-generation Americans born after 1935, and (3) fourth-generation Americans born after 1960. A small data note: while the text of Algan and Cahuc (2010) claims only second-generation individuals born after 1910 and prior to 1975 were included in the group used to calculate post-1910 immigrant trust, their published code includes all second-generation individuals born after 1910. We follow their code.

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, provides no breakdown between urban and rural observations, appears to be self-administered, or administered through the mail. Using this information, we recreate our average trust measure after omitting all low-quality trust surveys.[23] As a second strategy, we also identify surveys for which the documentation specifies explicitly that the sample is not nationally representative.[24] We also construct an alternative trust measure that omits these trust surveys. The estimates of equation (1) using these two alternative measures are reported in columns (6) and (7). We continue to estimate a negative relationship between the trust-recession interaction and leader turnover. In addition, the magnitude of the estimated effect increases noticeably using the revised measures. This is consistent with measurement error biasing our baseline estimates downwards.

As a final robustness check related to the quality of the trust survey data, we construct a measure of average trust that uses only the *World Values Surveys*, which is the most widely used source in the cultural economics literature.[25] The estimates are reported in column (8). Despite the sample decreasing to 1,780 observations, the estimate of interest remains robust. Again, we find that the magnitude of the estimated effect increases noticeably.

An alternative strategy to using a trust measure based on survey data is to use a measured based on behavior in laboratory experiments of the Berg, Dickhaut, and McCabe (1995) trust game. Such data have not been collected as widely as survey-based measures of trust. In a recent study, Johnson and Mislin (2011) collect data from over 160 implementations of the trust game.[26] 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 (9). Using this measure results in a sample size that is much smaller (1,311 observations rather than 2,770), which leads to a loss of power and precision. However, the magnitude of the point estimate remains very similar to our baseline estimate.[27]

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[23]We report the list of low-quality surveys and countries in Appendix Table A.1.

[24]The list of unrepresentative countries, by survey, is reported in Appendix Table A.1.

[25]The list of countries covered by the WVS is reported in Appendix Table A.2.

[26]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.

[27]Interestingly, we find that trustworthiness (the fraction sent back by player 2) is not an important deter-

6.4   Alternative Measures of Recessions

We now turn to different ways of measuring economic recessions. It is possible that the salience of negative growth is different in different countries. For example, negative growth may be less important in countries that generally experience more economic volatility. Thus, it may be more appropriate to define recessions relative to a country's typical growth experience. To do so, we construct recession indicators that equal one when a country experiences growth that is lower than its own 5th or 10th percentile growth over the sample period. Estimates using these alternative recession measures are reported in columns (2)–(3) of Table 9. The coefficients for the interaction of interest are both negative, while the interaction of trust and growth below the 10th percentile is larger in magnitude and statistically significant.

It is also possible that it is not only economic growth in the current year that matters for a leader's turnover, but perhaps economic growth during his/her entire tenure. Motivated by this, we construct an alternative recession variable that measures the share of years during the current leader's tenure that experienced negative growth. Column (4) presents estimates with this alternative measure. The coefficient of the interaction term remains negative and statistically significant.[28]

6.5   Controlling for External Recessions

Finally, we consider the fact that economic downturns in a country are sometimes correlated with economic downturns in economically connected countries. One may therefore be concerned that our main results are partly driven by voters' response to recessions in other countries. While this would still be a very interesting result, it would open the door to other mechanisms, since it is unclear why domestic politicians would be blamed for economic performance elsewhere. To investigate this possibility, we control for the economic performance of foreign countries. We measure this using two different proxies of economic connectedness. First, we compute the average growth of all countries in the same geographic region, excluding the country in question. We use the region definitions from Table 1.[29] Second, we compute the trade-share-weighted growth of a country's trading partners. Trade is measured as the sum of real exports and imports all divided by real GDP.

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minant of the effect of recessions on political turnover.

[28]When we include the interaction using our baseline negative growth indicator variable together with an interaction using one of the alternative recession indicators, we find that the estimates generally load on the baseline negative growth interaction, rather than the alternative interaction. This is consistent with the salience of negative economic growth.

[29]We first calculate the total real GDP of all other countries in the region and then calculate the aggregate annual growth rate for each year.

Table 10 presents the estimates. Column (1) re-states the baseline estimates for comparison. Columns (2) and (4) report estimates that control for negative external growth (using either regions or trade-weighted averages), as well as its interaction with a country's average trust. In both specifications, we find that our interaction of interest is nearly identical to the baseline estimate. In contrast, the coefficient for the external recession and trust interactions are small in magnitude and statistically insignificant.

Finally, we test whether there is any interaction between domestic and external recessions. We do this by estimating a version of equation (1) that includes a triple interaction of trust, the domestic recession measure, and an external recession measure (as well as all of the relevant double interactions). Columns (3) and (5) show that the triple interaction is not statistically different from zero using either variable. Thus, external recessions do not appear to affect the relationship between domestic recessions, trust and leader turnover.

7 Significance and Interpretation of Findings

The main finding of this study is that lower trust countries are more likely to experience political turnover during a recession. The supplementary estimates are consistent with voting and the regular democratic electoral process being the main channel through which the results manifest. In terms of policy implications, it is important to note that our findings are agnostic about whether the effects of distrust that we estimate are well-placed or misplaced. In other words, they are silent on whether the higher probability of turnover in low trust countries during recessions is inefficient. Although this issue is beyond the scope of our analysis, we now provide a discussion based on the insights from the recent theoretical literature.

The recent model developed by Ashworth, Bueno de Mesquita, and Friedenberg (2017) examines the relationships between political accountability, electoral selection, and voter welfare. They show that the relationship between these objects is complex and not necessarily intuitive. They show how higher levels of accountability can hinder voters' ability to learn about a politician's type, which in turn can worsen leader selection and voter welfare. In the model, accountability is parameterized as the benefit to the politician of being re-elected. One consequence of low trust is that it decreases this benefit. A leader that experiences a recession will be blamed for it whether or not it was his/her fault, lowering the benefit of being re-elected. Thus, according to the mechanisms in Ashworth, Bueno de Mesquita, and Friedenberg (2017), lower levels of trust, decrease accountability (i.e., the benefit of re-election), which can improve leader selection and voter welfare. Viewed through the lens of

this model, distrust is not necessarily inefficient.

Traditional models of retrospective voting (Nordhaus, 1975, 1989) and of signaling (Spence, 1974) can also be used to understand the link between trust, recessions, and political turnover. In these models, politicians are voted out of office during recessions either because voters retrospectively punish politicians or because recessions signal the lower ability of a politician. These models do not allow these mechanisms and associated behavior to vary by trust. Nevertheless, the mechanisms could play a role in our context. For example, trust could affect the extent to which citizens are willing to blame the recessions on their politicians, and thus are less likely to retrospectively vote them out of office. Or, it could affect the weight that citizens place on the signaling value of a recession. Whether trust is too high or too low depends on how this affects the weight citizens place on the signaling value of a recession and whether this is too high or low. Interesting, Butler, Giuliano, and Guiso (2016) have provided empirical evidence suggesting that there may be an optimal level of trust, at least in terms of individual-level income.

The discussion above makes clear that it is important to understand the source of the variation in trust across countries. There is ample evidence that cross-country variation is due to historical and evolutionary processes that have no relationship with business cycles or political turnover today. This is primarily due to the persistence of trust as a cultural trait. This has been shown in studies that use immigrants and their children to examine persistence (Algan and Cahuc, 2010, 2013). Others have found evidence of deep historical factors being important for trust today. For example, Durante (2010) provides evidence that variation in trust within Europe can be explained by historical temperature variability (across space and time) during the growing season prior to the industrial revolution. Nunn and Wantchekon (2011) argue that variation in trust within the African continent can be explained by a history of the slave trade. Francois, Fujiwara, and van Ypersele (2010) provide theory and evidence that the presence of greater inter-group competition increases the level of trust in a society. Martinez-Bravo, Padro-i-Miquel, Qian, Xu, and Yao (2017) document that trust in rural China is partly rooted in the historical presence of voluntary associations (village temples). Given that the current levels of trust are at least partly historically determined, then there is no reason to expect it to be at a level that is optimal for the modern political-economic context.

We now turn to an exploratory empirical investigation of this question and examine whether more or less trust (and more or less leader turnover) is better for economic recovery following a recession.

7.1 Do Trust and Turnover Matter for Economic Recovery?

In this final section, we provide suggestive evidence on how differences in trust levels affect the economic recovery from recessions. We first test whether countries with higher levels of trust recover faster after recessions than countries with lower levels of trust. We examine this question by estimating the following equation:

$$Growth_{i,t} = \beta_1 \, I(Growth < 0)_{i,t-j} + \beta_2 \, Trust_i \times I(Growth < 0)_{i,t-j} \tag{2}$$

$$+ \, \mathbf{X}_{it-1}\mathbf{\Gamma} + \gamma_t + \alpha_i + \varepsilon_{i,t},$$

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 usual measure of trust and $I(Growth < 0)_{i,t-j}$ is an indicator variable that equals one if there was a recession 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 $\mathbf{X}_{it-1}$ includes four leader characteristics (age when she entered office, 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 a conflict or war, each measured in the previous year.[30] The standard errors are clustered at the country level. Our coefficient of interest is in the sign of 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 (2) are reported in Table 11. Column (1) examines the differential growth experience of countries (by trust) one year after they experience a negative-growth year. Both coefficients are statistically significant. The estimate of β_1 is -0.0344 and that of β_2 is 0.0508. According to the estimates, for a country with the lowest value of trust in our baseline sample, 0.035, average growth in the year immediately following a recession is $-0.0344 + 0.035 \times 0.0508 = -0.033$ or -3.3%. For the country in our sample with the highest value of trust, 0.712, the estimated effect is $-0.0344 + 0.712 \times 0.0508 = 0.002$ or 0.2%. More generally, the estimates show that countries with higher trust are more likely recover

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

(or recover more) in the year after a recession.

In columns (2)-(4), we examine differences in growth in periods that are two, three, and four years after a recession.[31] Although the magnitudes and precision of the coefficient estimates vary slightly across the different periods, in each case, we find a negative estimate of β_1 and a positive estimate of β_2. This suggests that countries with higher trust experience faster growth in the years following a recession relative to countries with lower trust.

Having shown that high trust countries have less leader turnover in the face of a recession with negative growth and that they also have better economic performance in the years immediately following a recession, we now turn to the obvious question of whether countries that have less turnover following a recession also experience better economic growth. We do this by estimating a variant of equation (3) where, instead of allowing economic growth following a recession to differ by a country's level of trust, we allow it to differ depending on whether the country has experienced leader turnover since the recession period. Specifically, we estimate the following equation:

$$Growth_{i,t} = \gamma_1 \, I(Growth < 0)_{i,t-j} + \gamma_2 \, I(No \, Turnover)_{i,t-j} \times I(Growth < 0)_{i,t-j} \quad (3)$$

$$+ \, \gamma_3 \, I(No \, Turnover)_{i,t-j} + \mathbf{X}_{it-1}\mathbf{\Gamma} + \eta_t + \zeta_i + \epsilon_{i,t},$$

where $I(No \, Turnover)_{i,t-j}$ is an indicator variable that takes a value of 1 if no leader turnover has taken place place between the period of the recession, $t - j$, and the present period, t. It takes on the value of 0 if there was at least one leader turnover during that period. Equation (3) includes the same lagged control variables as equation 2, as well as country fixed effects and year fixed-effects.

Estimates of equation (3) are reported in Table 12. The four columns of the table report the same specifications as in Table 2, reporting effects, 1, 2, 3, and 4 years following a recession. In general, we find that following a recession, growth is consistently negative and significant for countries that experience at least one leader turnover subsequent to the recession. This effect is given by the estimate of γ_1. However, we also find that (in all years except the year immediately following the recession) countries that did not experience turnover have higher economic growth. This differential effect is given by the estimate of γ_2.[32] Examining the

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[31]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.

[32]In column (1), the estimate of γ_2 is essentially zero. This is perhaps not surprising given that leader turnovers are uncommon in the data during the year immediately following a recession. We only observe 139

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magnitude of the effects 3 or 4 years following a recession – columns (3) and (4) – we see that while countries that experience leader turnover tend to have growth of about -1.2%, for countries that do not experience leader turnover, growth is close to zero (either slightly above or slightly below depending on the specification).

With the caveat that the estimates reported in Tables 11 and 12 are merely conditional correlations, and so should be interpreted with caution, they do provide some evidence towards the question of whether higher trust is more or less optimal (at least in terms of economic growth following a recession). They seem to suggest that countries with higher trust tend to have faster economic growth following a recession, and that countries that do not experience leader turnovers following a recession also tend to have faster economic growth. This pattern, combined with the paper's primary finding that higher trust countries have lower leader turnover following recessions, suggests the potential that higher trust, by resulting in less leader turnover following recessions, is better for economic growth, at least during the recovery periods following recessions.

8 Conclusion

This paper has documented 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 (defined as periods of negative growth) are much more likely to lead to political turnover in low trust countries relative to high trust countries. The main estimates, along with supplementary evidence, are consistent with citizens in high trust countries blaming poor macroeconomic performance on their politicians with a lower probability relative to citizens in low trust countries. The magnitudes of our estimated effects are sizable. For example, according to our estimates, the occurrence of a recession is 18.6 percentage points more likely to result in leader turnover in France (where 19% of people believe "most people can be trusted") than in Norway (where the same figure is 71%).

In addition to providing an example of the effect that culture can have on political institutions, our findings also allow policy-makers better anticipate where political instability will occur during a regional economic downturn. They also suggest the potential for future research that studies the importance of trust in determining political stability. To the best of our knowledge, this question has not been raised in the existing literature. Future research should try to make progress on understanding the mechanisms to address the question of

leader changes during this period in our sample.

whether low trust creates socially inefficient outcomes.

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Table 1: Trust by Region

E. Europe & Former USSR	Trust	Latin America & Caribbean	Trust	W. Europe and Offshoots	Trust	S. Saharan Africa	Trust	Asia	Trust
Country	Trust	Country	Trust	Country	Trust	Country	Trust	Country	Trust
Macedonia	0.11	Trinidad and Tobago	0.04	France	0.19	Cape Verde	0.03	Philippines	0.09
Armenia	0.17	Brazil	0.06	Italy	0.29	Tanzania	0.10	Malaysia	0.11
Slovenia	0.18	Peru	0.11	United Kingdom	0.30	Kenya	0.10	Sri Lanka	0.18
Georgia	0.18	Paraguay	0.13	Spain	0.31	Lesotho	0.10	Bangladesh	0.23
Moldova	0.19	Ecuador	0.14	U.S.A.	0.38	Botswana	0.10	Nepal	0.27
Lithuania	0.22	Colombia	0.15	Canada	0.40	Ghana	0.11	India	0.33
Kyrgyzstan	0.23	Chile	0.16	Switzerland	0.44	Uganda	0.12	Thailand	0.33
Poland	0.24	Venezuela	0.17	Australia	0.48	Zambia	0.13	Indonesia	0.35
Bulgaria	0.24	Costa Rica	0.17	New Zealand	0.52	Nigeria	0.17	Bhutan	0.35
Latvia	0.25	El Salvador	0.18	Finland	0.55	Mali	0.18	Taiwan	0.35
Slovakia	0.25	Honduras	0.19	Netherlands	0.56	Malawi	0.26	Pakistan	0.37
Croatia	0.25	Nicaragua	0.19	Sweden	0.63	Senegal	0.27	Japan	0.42
Albania	0.26	Guatemala	0.20	Norway	0.71	Benin	0.27		
Ukraine	0.28	Argentina	0.20			Madagascar	0.33		
Hungary	0.28	Bolivia	0.20	N. Africa and Middle East					
Estonia	0.31	Panama	0.21	Turkey	0.10				
		Mexico	0.26	Lebanon	0.11				
		Uruguay	0.26	Cyprus	0.11				
		Dominican Republic	0.27	Tunisia	0.16				
				Israel	0.23				

Our measure of trust is calculated from the responses to generalized trust questions in the World Values Surveys, the Latinobarometer Surveys, the Asiabarometer 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 2: Correlates of Trust and Recessions

	(1) Trust	(2) I(Growth<0)
Economic Characteristics		
I(Growth < 0)	-.02	
Log real per capita GDP	.33***	-.01
Growth in real per capita GDP	-.10***	-.64***
Trade Openness: (X+M)/Y	-.17**	-.03
Leader Characteristics		
Leader's Age	-.01	.01
Leader's Gender	-.03	-.02
Days in office since entry	.06	.02
Previous times in office	.05	.01
Institutional Characteristics		
Country-level variables:		
Ethnic Fractionalization	-.25**	.02
Religious Fractionalization	.02	.02
Linguistic Fractionalization	-.08	-.04
Country-year level variables:		
Media Freedom	.36***	.02
Polity2	.35***	.01
DD Democracy	.07***	.06***
Conflict Incidence	-.14*	.01

Notes: Bivariate correlation coefficients are presented in the table. The unit of observation is generally at the country and year level. The table reports correlation coefficients and statistical significance adjusted for clustering at the country 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 3: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover

				Dependent Variable: Leader Turnover		
	(1)	(2)	(3)	(4)	(5)	(6)
			Baseline	Omitting Influential Obs.	Logit	Logit
Mean of Dependent Variable	**0.245**	**0.245**	**0.245**	**0.195**	**0.228**	**0.245**
Trust x I(Growth<0)			-0.341** (0.157)	-0.421** (0.174)	-2.457** (1.088)	-0.357** (0.163)
Trust x I(Growth>3%)						-0.0297 (0.0898)
I(Growth<0)	-0.168 (0.265)	-0.140 (0.256)	-0.182 (0.281)	-0.247 (0.266)	-1.211 (1.729)	
[I(Growth<0) evaluated at the mean]	0.074*** [0.024]	0.091*** [0.023]	0.18*** [0.057]	0.19*** [0.065]	1.2*** [0.36]	0.17*** [0.062]
Controls:						
I(Growth<0)	Y	Y	Y	Y	Y	Y
Growth>3%	N	N	N	N	N	Y
Year FE	Y	Y	Y	Y	Y	Y
Country FE	N	Y	Y	Y	Y	Y
Lag controls						
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y
Observations	2,770	2,770	2,770	2,589	2,696	2,770
R-squared	0.056	0.198	0.199	0.306	0.1369	0.199
Trust x I(Growth<0)= Trust x I(Growth>3%)						0.045

Notes: The sample is comprised of democratic country-year observations. 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 when she entered office, 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.

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Table 4: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Democracies vs. Autocracies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Dependent Variable: Leader Turnover									
		Cutoffs Based on Polity2 Score. Definition for Democratic Samples:									
	Cheibub et. al. (2010) demo vs. auto classification	Lag Polity2>0	Lag Polity2>5	Lag Polity2>8	Lag Polity2> sample median	Initial year Polity2>0	Initial year Polity2>5	Initial year Polity2> sample median	Country avg Polity2>0	Country avg Polity2>5	Country avg Polity2> sample median
					Panel A. Democratic Samples						
Mean of Dep. Var.	**0.245**	**0.232**	**0.242**	**0.257**	**0.242**	**0.240**	**0.251**	**0.238**	**0.240**	**0.251**	**0.238**
Trust x I(Growth<0)	-0.341**	-0.366**	-0.415**	-0.388*	-0.415**	-0.362**	-0.406***	-0.357**	-0.264*	-0.546***	-0.373**
	(0.157)	(0.146)	(0.160)	(0.197)	(0.160)	(0.137)	(0.144)	(0.142)	(0.150)	(0.144)	(0.145)
Observations	2,770	3,145	2,590	1,507	2,590	2,673	1,874	2,610	3,155	1,882	2,636
R-squared	0.199	0.190	0.216	0.278	0.216	0.191	0.238	0.194	0.164	0.224	0.187
					Panel B. Non-Democratic Samples						
Mean of Dep. Var.	**0.123**	**0.122**	**0.135**	**0.159**	**0.135**	**0.156**	**0.162**	**0.155**	**0.110**	**0.152**	**0.136**
Trust x I(Growth<0)	0.0122	0.0340	0.0892	0.00656	0.0892	0.171	0.185	0.169	-0.00404	0.113	0.0541
	(0.148)	(0.185)	(0.175)	(0.153)	(0.175)	(0.155)	(0.151)	(0.156)	(0.186)	(0.149)	(0.170)
Observations	2,534	2,165	2,720	3,803	2,720	2,637	3,436	2,700	2,155	3,428	2,674
R-squared	0.175	0.189	0.147	0.131	0.147	0.144	0.124	0.142	0.153	0.119	0.140
Controls:											
I(Growth<0)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag controls											
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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 (the age of the leader when she entered office, 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.

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Table 5: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Multinomial Estimates on Regular vs. Irregular Turnover

	(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
			Dependent Variable: Leader Turnover					
			Multinomial Logit Estimates					
Dependent Variable:	All		Regular Leader Turnover	Irregular Leader Turnover	All			
					Democracies		Democracies	
Sample:	Democracies	Democracies and Autocracies			Election Years	Non-Election Years	Presidential	Parliamentary
Mean of Dep. Var.	**0.245**	**0.187**	**0.164**	**0.023**	**0.536**	**0.153**	**0.245**	**0.246**
Trust x I(Growth<0)	-0.341**	-0.198*	-0.151**	0.050	-1.301**	-0.145	-0.121	-0.396**
	(0.157)	(0.110)	(0.073)	(0.041)	(0.509)	(0.176)	(0.371)	(0.168)
Controls:								
I(Growth<0)	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Lag controls								
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,770	5,310	5,310		442	1,658	1,176	1,593
R-squared	0.199	0.160	0.2275		0.526	0.267	0.368	0.188

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 when she entered office, 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 6: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Heterogeneity by Media Freedom and Frequency of Leader Turnover

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Dependent Variable: Leader Turnover					
	Baseline	Always Free Media	Some or No Free Media at Any Point	Free Media - 50th Percentile	Some or No Free Media - 50th Percentile	Mean Turnover < Median	Mean Turnover > Median	Lag Conflict=0	Lag Conflict=1
Mean of Dep. Var.	**0.245**	**0.256**	**0.240**	**0.259**	**0.234**	**0.162**	**0.349**	**0.247**	**0.239**
Trust x I(Growth<0)	-0.341**	-0.543**	-0.0204	-0.531***	-0.0117	-0.472**	-0.0141	-0.273*	0.193
	(0.157)	(0.202)	(0.490)	(0.185)	(0.489)	(0.177)	(0.299)	(0.150)	(1.308)
Controls:									
I(Growth<0)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag controls									
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,770	1,064	1,691	1,318	1,437	1,532	1,238	2,243	422
R-squared	0.199	0.341	0.156	0.280	0.167	0.116	0.248	0.221	0.356

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 when she entered office, 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. A description of each sample is provided in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 7: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Robustness to additional controls

| | | | | Dependent Variable: | | | | |
| | | | | Leader Turnover | | | | Lag Leader Turnover |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mean of Dependent Variable	**0.245**	**0.248**	**0.245**	**0.245**	**0.234**	**0.248**	**0.256**	**0.245**
Trust x I(Growth<0)	-0.341**	-0.424**	-0.293*	-0.233	-0.383**	-0.469***	-0.496***	0.0533
	(0.157)	(0.169)	(0.157)	(0.155)	(0.182)	(0.173)	(0.153)	(0.133)
Controls:								
I(Growth<0)	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Lag controls								
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y
Additional Controls:								
Lag Trade Openness	N	Y	N	N	N	N	N	N
Trust x Lag Trade Openness	N	Y	N	N	N	N	N	N
Growth<0 x Lag Trade Openness	N	Y	N	N	N	N	N	N
Growth<0 x Mean Turnover	N	N	Y	N	N	N	N	N
Growth<0 x Mean Growth Rate	N	N	N	Y	N	N	N	N
Growth<0 x Media Freedom	N	N	N	N	Y	N	N	N
Growth<0 x Ethnic, Ling, Rel Fractionalization	N	N	N	N	N	Y	N	N
Growth<0 x Locus of Control	N	N	N	N	N	N	Y	N
Observations	2,770	2,361	2,770	2,770	1,697	2,492	2,187	2,665
R-squared	0.199	0.219	0.174	0.175	0.205	0.212	0.217	0.358

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 when she entered office, 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.

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Table 8: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Robustness to quality of trust measure

	(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(7)	(8)
				Dependent Variable: Leader Turnover					
	Baseline	Base Year Trust	Omit Trust Surveys from Recession Years	Algan & Cahuc: Inherited Trust Pooled Measure	Algan & Cahuc: Inherited Trust Pooled Measure, Dropped Outliers	Omit Unreliable Trust Surveys	Omit Unreliable or Unrepresentative Trust Surveys	Use only WVS Surveys	Johnson & Mislin: Experiment-Based Trust Measure
Mean of Dep. Var.	**0.245**	**0.245**	**0.242**	**0.288**	**0.230**	**0.254**	**0.246**	**0.243**	**0.287**
Trust x I (Growth<0)	-0.341**	-0.374**	-0.450***	-0.188	-0.257	-0.451***	-0.550***	-0.597***	-0.282
	(0.157)	(0.159)	(0.155)	(0.748)	(0.448)	(0.159)	(0.174)	(0.179)	(0.352)
Controls:									
I (Growth<0)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag controls									
Lag Characteristics of the Leader	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
I (Growth<0) x all lag controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,770	2,770	2,675	754	686	2,546	2,269	1,862	1,311
R-squared	0.199	0.199	0.198	0.394	0.607	0.197	0.209	0.230	0.264

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 when she entered office, 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. Column (2) defines the long-run trust measure as the first year trust is observed for each country. Column (3) omits trust observations measured during recession years. Column (4a) uses Algan and Cahuc's pooled measure of inherited trust. Column (4b) uses the same measure, but we Identify and drop outliers according to Cook's distance using the cutoff of 4 divided by the sample size. Column (5) omits unreliable trust surveys, and column (6) omits unreliable or unrepresentative surveys. Column (7) uses trust measures from the World Value Surveys only. Column (8) uses Johnson and Mislin's measure of trust that is constructed from trust experiments. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 9: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Robustness to Alternative Measures of Recession

	Dependent Variable: Leader Turnover			
	(1)	(2)	(3)	(4)
		Recession Defined Relative to Country's Average Growth:		Share of Years with Growth<0 during Leader Tenure
	Baseline (Growth <0)	<5th Percentile	<10th Percentile	
Dep Variable Mean	**0.245**	**0.245**	**0.245**	**0.245**
Trust x Recession Measure	-0.341**	-0.235	-0.389**	-0.443*
	(0.157)	(0.303)	(0.188)	(0.246)
Controls:				
Recession Measure	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Lag controls				
Lag Characteristics of the Leader	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y
Recession Measure x all lag controls	Y	Y	Y	Y
Observations	2,770	2,770	2,770	2,770
R-squared	0.199	0.194	0.196	0.197

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 when she entered office, 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.

Table 10: The Moderating Effect of Trust on the Relationship between Recessions and Leader Turnover: Controlling for External Recessions

	Dependent Variable: Leader Turnover				
	(1)	(2)	(3)	(4)	(5)
		External Recession Measure. Negative Growth of:			
	Baseline	Countries in the same Region		Trading Partners	
Mean of Dependent Variable	**0.245**	**0.245**	**0.245**	**0.245**	**0.245**
Trust x I(Growth<0)	-0.341**	-0.349**	-0.362**	-0.342**	-0.339**
	(0.157)	(0.156)	(0.180)	(0.156)	(0.162)
Trust x External Recession		0.066	0.059	0.018	0.083
		(0.119)	(0.150)	(0.161)	(0.205)
External Recession		-0.0410	-0.0355	-0.0202	-0.0810
		(0.0374)	(0.0456)	(0.0616)	(0.0741)
Trust x I(Growth<0) x External Recession			0.0341		-0.160
			(0.338)		(0.438)
I(Growth<0) x External Recession			-0.024		0.147
			(0.104)		(0.164)
Controls:					
I(Growth<0)	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Lag controls					
Lag Characteristics of the Leader	Y	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y	Y
Trust x all lag controls	Y	Y	Y	Y	Y
I(Growth<0) x all lag controls	Y	Y	Y	Y	Y
Observations	2,770	2,770	2,770	2,770	2,770
R-squared	0.199	0.199	0.200	0.199	0.201

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 when she entered office, 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.

Table 11: The Effect of Trust on Recession Recovery

	Dependent Variable: GDP growth from year t to year t+1			
	(1)	(2)	(3)	(4)
Mean of Dep. Var.	**0.0411**	**0.0411**	**0.0413**	**0.0412**
I(GDP Growth t-1 to t < 0)	-0.0344***			
	(0.00847)			
x Trust	0.0508**			
	(0.0231)			
I(GDP Growth t-2 to t-1 < 0)		-0.0158*		
		(0.00799)		
x Trust		0.0262		
		(0.0187)		
I(GDP Growth t-3 to t-2 < 0)			-0.0180**	
			(0.00691)	
x Trust			0.0370**	
			(0.0177)	
I(GDP Growth t-4 to t-3 < 0)				-0.0113**
				(0.00479)
x Trust				0.0208
				(0.0133)
Controls:				
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Lag controls				
Lag Characteristics of the Leader	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y
Observations	2,619	2,619	2,596	2,573
R-squared	0.309	0.295	0.296	0.296

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 when she entered office, 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.

Table 12: The Effect of Leader Turnover on Recession Recovery

	Dependent Variable: GDP growth from year t to year t+1			
	(1)	(2)	(3)	(4)
Mean of Dep. Var.	**0.0411**	**0.0414**	**0.0415**	**0.0415**
I(GDP Growth t-1 to t < 0)	-0.0202***			
	(0.00454)			
x I(No leader turnover t-1 to t+1)	-0.000287			
	(0.00804)			
I(GDP Growth t-2 to t-1 < 0)		-0.0102**		
		(0.00469)		
x I(No leader turnover t-2 to t+1)		0.00188		
		(0.00612)		
I(GDP Growth t-3 to t-2 < 0)			-0.0128***	
			(0.00417)	
x I(No leader turnover t-3 to t+1)			0.00972*	
			(0.00576)	
I(GDP Growth t-4 to t-3 < 0)				-0.0116***
				(0.00364)
x I(No leader turnover t-4 to t+1)				0.0160**
				(0.00737)
Controls:				
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Lag controls				
Lag Characteristics of the Leader	Y	Y	Y	Y
Lag Polity2 Score	Y	Y	Y	Y
Lag Real per capita GDP	Y	Y	Y	Y
Lag Conflict Incidence	Y	Y	Y	Y
Observations	2,619	2,518	2,420	2,327
R-squared	0.308	0.293	0.292	0.298

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 when she entered office, 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.

Data Appendix

A Variable Definitions and Sources

A.1 Trust Measure

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

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."

Table A.1 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.

Table A.1 lists the countries and number of years covered by the *World Values Survey*.

A.2 Leader Turnover Measure

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.[33] The database identifies the actual effective ruler of each state on a case-by-case basis. For example, it avoids coding ceremonial monarchs in contemporary European countries as heads of state. In parliamentary regimes, the prime minister is coded as the ruler; in presidential systems, the president is coded as the ruler. In communist regimes, the ruler is typically coded as the chairman of the party.

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[33]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

Table A.1: Reliability and Representativeness

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.2: Coverage of World Values Survey

World Values Survey			
Country	Years	Country	Years
Albania	2	Mali	1
Algeria	2	Mexico	7
Andorra	1	Moldova	3
Argentina	5	Montenegro	3
Armenia	2	Morocco	3
Australia	4	Netherlands	2
Azerbaijan	2	New Zealand	3
Bangladesh	2	Nigeria	4
Belarus	3	Norway	2
Bosnia and Herzegovina	2	Pakistan	3
Brazil	2	Peru	4
Bulgaria	2	Philippines	3
Burkina Faso	1	Poland	4
Canada	2	Qatar	1
Chile	5	Romania	3
China	5	Russia	4
Colombia	4	Rwanda	2
Croatia	1	Saudi Arabia	1
Cyprus	2	Singapore	2
Czech Republic	1	Slovakia	2
Dominican Republic	1	Slovenia	3
Ecuador	1	South Africa	4
Egypt	3	South Korea	6
El Salvador	1	Spain	5
Estonia	2	Sweden	5
Ethiopia	1	Switzerland	3
Finland	3	Taiwan	2
France	1	Tanzania	1
Georgia	2	Thailand	1
Germany	3	Trinidad and Tobago	2
Ghana	2	Tunisia	1
Guatemala	1	Turkey	5
Hungary	3	Uganda	1
India	4	Ukraine	3
Indonesia	2	United Kingdom	2
Iran	2	United States of America	5
Iraq	3	Uruguay	3
Israel	1	Uzbekistan	1
Italy	1	Venezuela	2
Japan	5	Vietnam	2
Jordan	3	Yemen	1
Kazakhstan	1	Zambia	1
Kuwait	1	Zimbabwe	2
Kyrgyzstan	2		
Latvia	1		
Lebanon	1		
Libya	1		
Lithuania	1		
Macedonia	2		
Malaysia	2		

In dual systems, where there is a president and a prime minister, the president is considered the leader.[34]

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 additional 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 Measure

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 expenditure-side real GDP at chained PPPs and generate an indicator which equals 0 if a country's GDP is larger than its GDP in the previous year, and equals 1 if a country's GDP is smaller than its GDP in the previous year.

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   Controls in Baseline

Our baseline regression contains seven additional controls: four controls for leader character-istics, 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 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

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

Table A.3: Summary Statistics

	(1) Mean	(2) Standard Deviation	(3) Minimum	(4) Maximum	(5) Observations
			Full Sample		
Trust	0.2511581	0.1379823	0.0349878	0.7120841	5304
I(Growth < 0)	0.1813726	0.3853629	0	1	5304
Trust * I(Growth < 0)	0.0442497	0.1098524	0	0.7120841	5304
Leader Turnover Indicator	0.1870287	0.3899713	0	1	5304
			Lagged democracies only		
Trust	0.273	0.156	0.035	0.712	2770
I(Growth < 0)	0.156	0.363	0	1	2770
Trust * I(Growth < 0)	0.042	0.114	0	0.712	2770
Leader Turnover Indicator	0.245	0.430	0	1	2770
			Lagged non-democracies only		
Trust	0.227	0.111	0.035	0.559	2534
I(Growth < 0)	0.209	0.407	0	1	2534
Trust * I(Growth < 0)	0.047	0.105	0	0.559	2534
Leader Turnover Indicator	0.123	0.329	0	1	2534

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.

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 expenditure-side real GDP at chained 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 democratic states, to -10, which represents strongly autocratic states.