Trust, Growth and Political Stability[*]

(Preliminary Draft)

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Abstract

This paper makes a new observation: that economic recessions are less likely to result in political turnover in high trust societies than in low trust ones. We empirically test this hypothesis by examining the heterogeneous effect of recessions on political turnover across countries. Estimates show that economic downturns are less likely to cause turnover in countries with higher levels of trust. The results are driven by regular entries into office, democracies, contexts without armed conflict and with no recent history of recession. Amongst other explanations, the findings are consistent with the notion that citizens in low trust societies are more likely to blame politicians for recessions, while those in high trust ones are more willing to attribute recessions to "bad luck".

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1 Introduction

Citizens often express dissatisfaction with their political leaders during periods of poor economic performance. This paper begins with the casual observation that the degree of dissatisfaction varies greatly across countries. In particular, citizens in countries with higher social trust seem more willing to support the incumbent government than countries with low social trust. For example, consider the recent economic recession. During 2001 to 2008, Italy and Sweden experienced similar average growth rates of approximately 1.5%. However, political turnover in Italy, which has low levels of social trust, during this period was 38 percentage-points, while in Sweden, which has high levels of social trust, it was 12.5 percentage-points. If we compare the three European and North American countries in our sample with the lowest level of social trust (France, Italy and the United Kingdom) to the three with the highest level of trust (Finland, Sweden, Norway), we find that average political turnover rates in the former were 12.5 percentage-points higher during 2001 to 2008. Similar patterns can be found during other economic downturns and in other regions of the world. We also observe that political and popular rhetoric that one often hears during economic crises also vary widely across countries depending on the level of social trust. For example, in some contexts, the rhetoric focuses on solidarity during difficult times, "sticking together", etc. In other contexts, the rhetoric focuses on placing blame on the political leaders.

Motivated by these observations, this paper postulates that cultural norms, and in particular, social trust – i.e., the belief that other people can be trusted – plays a critical role in how citizens perceive macroeconomic performance. Note that under most standard political economy theories, recessions should increase political turnover either to punish the incumbent for poor economic performance (e.g., Nordhaus, 1989) or because voters interpret the occurrence of a recession as a signal of low ability on the part of the politician (e.g., Rogoff and Sibert, 1988). Both of these mechanisms rely on imperfect information – i.e., voters cannot perfectly observe and map politician effort to economic outcomes.

We view social trust as a mechanisms for potentially reducing the effects of information asymmetry. In societies with low levels of social trust, where the average citizen is less likely to believe that a person she doesn't personally know – the politician – is sincere, citizens are likely to blame poor economic performance on the lack of effort or ability from the politician (or blame the politician for misrepresenting the situation or his/her own abilities). In contrast, in societies with high levels of social trust, the

average citizen is more likely to believe that the politician "tried her best" and attribute poor economic performance to "bad luck" – i.e., factors outside of the control of the politician. It follows that all else equal, recessions are less likely to trigger political turnover in countries with higher levels of social trust.

There are two difficulties that prevent us from drawing conclusions based on anecdotal evidence or case studies. First, the cases may be cherry-picked and not reflect the average relationship between trust and political turnover during recessions. Second, there may be omitted variables that confound the interpretation – i.e., countries with higher levels of trust may differ in other ways that would affect electoral turnover during a recession. For example, high trust countries may be richer on average, such that policies that voters care about like public services are less affected by a transitory macro downturn. At the same time, recessions may coincide with other events, for example, conflict, which can also trigger political turnover.

The empirical analysis of this paper addresses these two difficulties and documents the average causal effect of the interaction of social trust and macroeconomic downturns on political turnover. In our analysis, social trust is a time-invariant measure meant to capture slow-moving long-run cultural norms. The occurrence of recessions vary across countries and over time. We always control for country fixed effects, which control for time invariant differences across countries, and year fixed effects, which control for all changes over time that affect all countries equally. To address the concern of omitted variables discussed earlier, our baseline estimates will control for two sets of interactions terms – the interaction of the occurrence of a recession and lagged measures of potentially important correlates (political leader characteristics, level of democracy, per capita income and armed conflict), and the interaction of trust with the same correlates. Thus our baseline estimates are very unlikely to be confounded by the correlates of either trust or recessions.

Our cross-country analysis uses data from several publicly available sources. These include measures of trust from the *World Value Surveys*, *Afro Barometer*, *Asia Barometer* and *Latin Barometer*; data on the political leadership from the *Archigos* and CHISOLS databases. Our study spans the years 1950 to 2008. Since we are interested in long-standing cultural norms, our measure of trust is the average for each country over time.

The results show that when there is negative macro income growth, high trust countries are much less likely to experience leader turnover. For example, a recession is more likely to cause political turnover in Italy by ten percentage-points than in

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Sweden; and more likely to cause turnover in France by fourteen percentage-points than in Norway. Note that the sample mean turnover rate is 21 percentage-points. These results are very robust since they are conditional on controls for leader characteristics (the number of years in office, gender, the number times previously in office) as well as institutional characteristics (the degree of autocracy and the occurrence of conflict), and the interactions of each variable with social trust, as well as the interactions of each with the occurrence of a recession. We also demonstrate that the results are robust to a large number of potentially important controls and adjustments for quality concerns in the trust measures, and are similar when using alternative measures of trust from existing studies and trust games (Algan and Cahuc, 2010; Johnson and Mislin, 2011).

We also address the concern of spurious trends by conducting a placebo exercise and show that the interaction of trust and the occurrence of a recession has no effect on political turnover in the past year.

While it is beyond the scope of this paper to be conclusive on the mechanisms underlying our results, we do provide several pieces of supplementary evidence that our results are consistent with the presence of asymmetric information and voting. First, we investigate how applicable voting models are to our context by examining whether our results are driven by regular elections and democracies. It turns out that all of our main results are driven by democracies and by regular elections (i.e., not by military coups). Similarly, we find that the results are driven by stable countries that are not experiencing armed conflicts. [1]

Second, we investigate the rationality assumption of standard voting models. To do this, we horserace the interaction effect of trust and national recessions with the interaction effect of trust and "exogenous" economic conditions that are outside of the politician's control. We measure the latter in several ways. First, we follow Acemoglu, Johnson, Robinson, and Yared (2008) and measure it as the trade-share-weighted growth of other countries. Second, we measure it as average growth of the region. Third, we construct a Bartik measure of growth using sector specific growth rates from other countries in the world. Finally, we construct a hybrid Bartik-AJRY measure. We find that the interaction of social trust and national recession is robust to controlling for the interaction of social trust and any of the measures of exogenous growth, and that the latter interaction effects are zero for all four proxies for exogenously driven growth.

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[1]In finding that the effects are more prominent in democracies, our results are consistent with Labonne (2013), which conducted a field experiment in the Philippines to find that the electoral returns to government transfers were higher in regions with more political competition.

This result implies that voters respond only to economic performance that is potentially under the control of the politicians. Thus, the voting behavior in our context is similar to those of the rational voting models discussed earlier and differs from those in studies where citizens irrationally reward/punish politicians for events outside of their control.[2]

We also find that our results are more prominent in countries that have little recent experience of recessions. Amongst other implications, this result suggests that voters in higher trust countries are more likely to attribute heretofore unobserved skills of dealing with recessions in higher trust countries.

This paper contributes to the political economy literature in several ways. To the best of our knowledge, we are the first to postulate that cultural norms, or social trust, can affect how citizens respond to economic downturns; as well as the first to provide rigorous empirical evidence that social trust can be an important determinant of political stability. As such, we add to recent studies on the economics of culture. In hypothesizing that social trust can help minimize problems of asymmetric information, our study is most closely related to (Bloom and Reenen, 2007) which shows that corporate structures are more decentralized in countries with high trust. This study is also closely related to studies of how social trust can influence outcomes such as growth (Algan and Cahuc, 2010), regulation (Aghion, Algan, Cahuc, and Shleifer, 2010), financial behavior (Guiso, Sapienza, and Zingales, 2004), income (Butler, Giuliano, and Guiso, 2009) and labor market outcomes (Algan and Cahuc, 2009). We add to this literature by examining the heterogenous effects of trust and political turnover as an outcome; and also by demonstrating a new channel through which trust matters.

In investigating the relationship between trust and economic downturns, we are closely connected to the recent work of Stevenson and Wolfers (2011), which documents that trust in the U.S. government institutions declined during the Great Recession. In showing that turnover is higher in low trust countries during economic downturns, our study complements theirs in understanding the role of trust during recessions.[3]

We also add to the empirical evidence on political business cycles, which have mostly

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[2]For example, Cole, Healy, and Werker (2012) finds 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 are therefore irrational.

[3]Note that their results suggest an potential endogeneity problem for our analysis – i.e., low trust could be an outcome of recessions. We address this difficulty by using a measure of average trust. In one of the robustness exercises, we also use a measure of trust measured in the base year.

focused on establishing and explaining the relationship between economic performance and re-election. To the best of our knowledge, earlier studies have not remarked on the heterogeneity in this relationship or the role that social trust can play.[4]

The paper is organized as follows. Section 2 presents the conceptual framework and empirical strategy. Section 3 describes the data. Section 4 presents the main results. Section 5 presents the heterogeneous effects. Section 6 concludes.

2 Conceptual Framework

2.1 Conceptual Framework

This paper postulates that political responses to economic crises vary according to the underlying level of social trust, which is a slow-moving and long-run cultural norm. Specifically, it tests the idea that during recessions, political turnover is higher in countries with low social trust. This empirical hypothesis is consistent with the notion that social trust matters more in the presence of information asymmetry, which has been put forward in papers such as Bloom and Reenen's (2007) study of corporate organization across countries.

The key assumption is that there are information asymmetries between voters and the politician in that the former imperfectly observe the effort and ability of the latter. We posit that social trust mitigates problems of information asymmetry and reduces the probability of turnover. Two canonical voting models can be directly applied to our context. In a model of retrospective voting, voters punish the incumbent for poor economic performance (e.g., Nordhaus, 1989). In countries with low social trust, voters are more likely to believe that the politician shirked or misrepresented the situation in the past, which led to the recession. In countries with high trust, voters are more likely to believe that factors outside of the control of the politician (e.g., region-wide recessions, the economic conditions of trading partners, etc) caused the recession. Thus,

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[4]For example, the well-known study in political science by Kramer (1971) found that high growth rate and low inflation rate helped congressional candidates of the party in control of the White House, while low growth rate and high inflation had the opposite effect. An early study in economics by Fair (1978) find that economic factors are also important for U.S. presidential votes. More recently, Akhmedov and Zhuravskaya (2004) provided evidence of political budget cycles in Russia. Brender and Drazen (2008) finds a positive cross-country relationship between reelection 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).

turnover will be lower in higher trust countries.

In a model with signaling, voters interpret the occurrence of a recession as a signal of low ability on the part of the politician. (e.g., Rogoff and Sibert, 1988). In countries with low social trust, voters are prone to skepticism and thus more likely to interpret the recession as an indicator of the low quality of the incumbent. In countries with high social trust, voters are more likely to believe that the recession is driven by factors outside of the incumbent's control and therefore less likely to be an indicator of her ability. Thus, in this model, turnover will also be lower in higher trust countries. Note that our study does not try to disentangle between these two models.

The main empirically testable hypothesis is therefore that the interaction effect of social trust and poor economic performance on leader turnover is negative.

There are several additional testable hypotheses. Since our mechanism hypothesizes that social trust matters through its influence on voter dissatisfaction, it follows that the interaction effect will be muted in contexts where it is difficult for citizens to change leadership, and more prominent where it is easier to effect change. Thus, we conjecture that the interaction of trust and poor growth will be more prominent in democracies because elections make it easier to change leadership, and less prominent in autocracies, where the costs of leadership change are higher. Similarly, we conjecture that the interaction of trust and economic performance will influence regular turnover, and have less influence on turnovers caused by external military impositions or domestic military coups, since these outcomes are less directly related to citizen dissatisfaction.

Since voting models assume rationality, we conjecture that the magnitude of the interaction effect should be increasing with the degree of discretion that the politician has over the economic performance. In other words, we should find a negative interaction effect for national recessions and a smaller or no interaction effect for economic performance that is outside of the control of the politician.

Since our mechanism relies on the presence of information asymmetries, it follows that the interaction of trust and poor economic performance will be muted where the asymmetry is less severe, and more prominent where asymmetries are larger. We will use several proxies for the degree of information asymmetry to examine whether the interaction effect of social trust and recession is larger in magnitude in contexts with larger asymmetries.

2.2 Empirical Strategy

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 the following

$$y_{it} = \alpha + \beta T_i \times R_{it} + \Gamma X_{it} + \gamma_t + \delta_i + \varepsilon_{irt}. \tag{1}$$

Turnover in country i of region r during year t, denoted y_{it}, is a function of the interaction of a time invariant measure of trust, T_i, an indicator variable that equals one if country i experiences negative growth during year t, R_{it}; a vector of controls that we will discuss later, X_{it}; year fixed effects and country fixed effects. All standard errors are clustered at the country level to correct for serially correlated shocks.

Country fixed effects control for all time-invariant differences across countries. Year fixed effects controls for global trends that affects all countries similarly .

Our hypothesis is that $\beta < 0$: when there is a recession, countries with higher trust will be less likely to experience leader turnover.

Note that to account for the fact that the occurrence of an election is an outcome, our main sample include all years for which data are available, even years when there are no elections.[5]

The main concern for causal identification of the interaction term is that trust is correlated with other factors that could lower political turnover in high trust countries during a recession; or analogously, that the occurrence of a recession is correlated with other country-specific changes that interact with trust to lower turnovers in high trust countries.

The most standard way to address this is for the baseline estimates to control for the interaction of trust and the interaction of the occurrence of a recession with the most concerning correlates. However, the advantages of adding these controls are conceptually unclear since they can potentially alter the meaning of the interaction variable of interest – trust interacted with the occurrence of a recession. This is because many of the correlates of trust may be outcomes of trust in the long run. For example,

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[5]The cost of adding elections off of the regular cycle varies across countries. 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.

high trust may lead to higher levels of institutional quality (which may then lead to higher levels of trust, and so forth in a positive feed back loop over time). This means that if we control for the interaction of institutional quality and the occurrence of a recession, we risk removing meaningful variation from our interaction of interest. In other words, in controlling for the correlates of trust, we tradeoff of the problem of under-controlling with the problem of over-controlling. This is a generic problem for identification. Fortunately for our study, we find that although trust and the occurrence of a recessions are each correlated with many variables (see the next section), adding the interaction of the correlates with the occurrence of a recession and the interaction of the correlates with trust do not change the coefficient for the main interaction term. Thus, the additional controls do not seem to bias the main estimate by over controlling. These results are presented in Section 4.

3   Data

Our main turnover measure is the leader transition variable reported by the Change in Source of Leader Support (CHISOLS) Dataset, which is constructed by Brett Ashley Leeds from Rice University and Michaela Mattes from Vanderbilt University. These data include countries in the Correlates of War (COW) project with population of more than 500,000 for the years 1919 to 2008. CHISOLS uses the same definition of a primary leader as the Archigos database, which is the main source of digitized leader data available to researchers in recent years.[6] Like the Archigos database, the principal source of raw data for CHISOLS come from www.worldstatesmen.org. We choose CHISOLS over Archigos because the former extends the time horizon (Archigos covers 1875 to 2004).

The database attempts to identify the actual effective ruler based on the detailed investigations of each state. 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. In communist regimes, the ruler is typically coded as the chairman of the party. In dual systems, where there is a president and a prime minister, the president is coded as the leader.[7]

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[6]Archigos is constructed by a team of political scientists, H. E. Goemans, Kristian Skrede Gleditsch and Giacomo Chiozza.

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

The data report the start date and end date of office for each leader-spell, the manner which a leader enters office and several additional characteristics of leaders. The most important variables for us include the number of times a leader has previously been in office, the age of the leader when she enters office and gender.

Our measure of trust is the generalized trust measure reported by the *World Value Surveys*, the *Latin Barometer Surveys*, the *Asia Barometer Surveys* and the *Afro Barometer Surveys*. Altogether, there are 235 surveys. Countries are surveyed in different years. The earliest survey is from 1981, and the most recent is from 2014. See the Data Appendix for details. For each country, we calculate a time-invariant measure which is the average across individuals and over time for all of the years for which data are available. The value surveys vary in quality. We address these concerns after we present the main results.

The sample we use for the main analysis includes the years 1950 to 2008. The number of countries in the sample increases from 36 in 1950 to 96 in 2008.[8]

3.1   Descriptive Statistics

We divide countries in our sample into seven regions: *i*) Eastern Europe and the post-Soviet Union, *ii*) Latin America, *iii*) North Africa and the Middle East, *iv*) Sub-Saharan Africa, *v*) Western Europe, North America and the Pacific *vi*) Asia, and *vii*) the Caribbean. Table 1 lists countries according to the level of trust in each country. There is substantial variation across countries, and even within regions. The latter is interesting to note because it means that our estimates are not solely driven by the differences between, for example, European and Latin American countries. The country with the highest level of trust in our sample is Norway. The countries with the lowest level of trust are Cambodia and Lesotho. In Eastern Europe and the Former U.S.S.R., the countries with the highest and lowest levels of trust are Turkmenistan and Macedonia. In Latin America, they are the Dominican Republic and Brazil. In North Africa and the Middle East, they are Saudi Arabia and Turkey. In Sub-Saharan Africa, they are Malawi and Lesotho. In Europe and North America, they are Norway and France. In Asia, they are China and Cambodia.

We note that higher trust countries differ from lower trust countries on observables. The former typically experience fewer regional recessions, are more democratic, are less

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[8]The change in sample size over time is driven by CHISOLS coverage.

likely to experience conflict, are richer and experience higher growth on average. Since the main challenge to the interpretation of our empirical results is that the interaction of trust and regional recession capture the influences of other forces that are correlated with trust during recessions, it will be important for us to control for these correlates.

The main concern for our identification strategy is that trust is correlated with other factors which can affect turnover during recessions; or that recessions are correlated with other variables which can interact with trust to affect recessions. We document the correlates in Table 2. The bivariate correlation coefficients show that countries with higher levels of trust are typically less lightly to suffer recessions, have higher levels of income, higher growth and are less open to trade. Income measures and openness to trade are taken from the *Penn World Tables*. The latter measure is exports plus imports divided by real GDP per capita. Countries with higher trust on average have older political leaders, who are more likely to be female and longer tenures. They have been in office for fewer previous terms. The data on leader characteristics come from the data sources discussed earlier. Countries with higher trust are more likely to be democratic, as measured by the polity2 index, and are less likely to experience armed conflict (where more than 25 combat moralities occur). Both of these measures are reported by the Quality of Governance (QOG) dataset.

In the second column, we examine the correlates with the occurrence of a recession. Not surprisingly, recessions occur more when growth rates are low. Recessions are also more common in countries with lower income levels and that are less open to trade. On average, political leaders during recessions are older, more likely to be female, have less experience both during the current tenure and in terms of the number of times in previously in office. Recessions are more likely to occur in less democratic countries and during armed conflict.

The descriptive statistics show that average levels of trust and the occurrence of recessions are associated with many variables. It will therefore be important for our analysis to control for these potentially confounding influences. Specifically, we will control for the interaction of these variables with trust, and the interaction of these variables with the occurrence of a recession.

4 Results

4.1 Main Results

Table 3 presents the main results. Column (1) estimates an equation similar to the baseline, equation (1), except that we control for the uninteracted trust variable instead of country fixed effects to illustrate the correlation between trust and turnover. We also control for the characteristics of the politician: the age of the leader at office entry, gender, the total number of days in office and the number of times the leader was previously in office. We use lagged measures to avoid endogeneity– specifically, the concern that a recession may cause certain types of leaders to be elected into office. The estimate for the uninteracted trust measure shows that when there is no recession, trust is uncorrelated with turnover. The interaction effect shows that when there is a recession, the country with higher trust is less likely to experience turnover.

In column (2), we replace the uninteracted trust measure with country fixed effects to control for time-invariant difference between countries with high and low trust. The interacted and uninteracted recession variables are similar. In columns (3)-(5), we gradually add controls for lagged democratization, lagged per capita income and lagged conflict incidence. The estimates are very stable as we introduce these additional controls.

One concern for the estimates so far is that the types of leaders who are in office, or the types of institutions in place are different leading up to recessions. In that case, the main interaction of trust and recession is confounded by these other factors. To address this, we control for the interaction of all of the aforementioned controls with trust in column (6). The estimates are very similar.

An analogous concern is that trust is associated with leader characteristics, institutional types and the occurrence of a conflict. This raises the concern that the main interaction effect is confounded by the interaction of these correlates of trust and the occurrence of a recession. To address this, we control for the interaction of the recession indicator with all of the controls in columns (7). The interaction estimate is unchanged.

Note that the uninteracted recession variable is now smaller in magnitude and insignificant. This is because once we add the the interaction of recession and other variables as controls, the meaning of the uninteracted recession terms changes. Taken literally, it now captures the effect of a recession on turnover for a country which has zero values for all of the controls (i.e., the age of the leader upon entering office was

zero). Thus, once we add the interaction of recession and the control variables, the uninteracted recession term is no longer meaningful. However, we continue to report them in the tables for consistency.

In column (8), we control for all of the controls in columns (6) and (7) – the interactions of trust and of the recession indicator with the controls for leader characteristics, democratization, per capita income and conflict. The estimates for the interaction term is similar in magnitude to before and significant at the 5% level. The interacted recession indicator is insignificant. Column (8) is our baseline estimate since it is the most rigorous.

To assess the magnitude of the effect, we can compare the differential effect of a recession on Norway, which has a trust measure of 0.7, and France, which has a trust measure of 0.19. The estimate in column (8) implies that a recession is more likely to cause political turnover in France by fourteen percentage-points. Note that mean turnover in the sample is 0.2. Thus, trust has a sizable effect on turnover probabilities during recessions.

Another way of assessing the magnitude is to note that one standard deviation of trust is 0.14 and of turnover is 0.4. The baseline interaction estimate of -0.228 implies that when there is a recession, the difference in turnover between two countries with trust measures one standard deviation apart is 3.2% ($0.14 \times -0.228 = 0.0319$), which is 10% of one standard deviation of turnover. This magnitude is both sizable and within the realm of possibility.

4.2   Robustness

4.2.1   Additional Controls

The central concern for our identification strategy is that trust is correlated with other factors that may affect turnover during recessions. Alternatively, recessions may be correlated with other variables that interact with trust to affect turnover. Most of the potential correlates are already controlled for in the baseline – specifically, we control for the interaction of these variables with trust, and the interaction of these variables with the occurrence of a recession. One variable that we have not yet discussed is openness to trade, which is correlated with trust and with the occurrence of a recession. If recessions are more likely to cause political turnover in open countries for reasons unrelated to trust, or if trade openness is more likely to cause turnover in low trust

countries, then our main estimates will be confounded. These possibilities seem unlikely, but nevertheless, we can control directly for lagged openness, its interaction with trust and with the occurrence of a recession and openness. Table 4 columns (2)-(5) show that the estimates are very similar to the baseline, which is restated in column (1).

In columns (6)-(9), we address the concern that trust may be correlated with average turnover rates, average growth, media freedom, or fractionalization, all of which may influence the probability of a turnover during a recession. To control for these potentially confounding influences, we control for the interaction of the recession dummy variable with each of these measures. Note that since all of these variables are time invariant, their interaction with trust is absorbed by country fixed effects. Our main interaction result is very robust.

In column (10), we control for the interaction of trust and year fixed effects. This very rigorous control allows countries with varying level of trust to have different (and fully flexible) evolutions. The interaction effect is very similar to the baseline.

In column (11), we control for region-year fixed effects to address the concern that the main estimates are driven by cross-regional differences, which may be correlated with omitted variables (e.g., the degree of colonialization, legal systems, etc.). The results show that the interaction effect, which is now driven by within region variation, is very similar to the baseline.

4.2.2 Reverse Causality and Spurious Trends

Column (12) examines lagged turnover as the dependent variable. This specification serves two purposes. First, it tests the reverse causal mechanism that leader turnovers are more likely to cause recessions in lower trust countries. If this relationship is true for the current year, then it is very likely that leader turnover last year is also more likely to cause recessions in lower trust countries (although the effect may be slightly muted relative to the contemporaneous effect). Second, it is a placebo test against spurious trends. The estimate shows that the interaction effect on lagged turnover is zero. It is much smaller in magnitude than the baseline and statistically insignificant. This result is evidence against reverse causality and spurious trends.

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4.2.3 Functional Form

To determine whether our linear formulation of trust obscures other patterns, we can create three indicator variables for trust (i.e., we create three equally sized groups of countries depending on the level of trust). Column (13) shows that the interactions of the indicator variables for trust and growth are decreasing (more negative) with the level of trust. The reference group comprises of countries with the lowest levels of trust. The interaction for the highest level groups is statistically significant.

4.2.4 Outliers and the Quality of the Trust Measure

There are several concerns regarding the quality of the trust measure. One concern is that certain high or low trust outliers drive our results, and the patterns we see do not apply to most countries. To address this, we omit countries in the top and bottom percentiles of average trust. Table 5 column (2) shows that this truncation does not change our results.

We also read through the documentation of raw data for trust and manually coded a data quality indicator variable. We coded a survey as low quality if it does not report the survey procedure, is missing the technical report, contains little information, provides no breakdown between urban and rural observations, or we suspected it was self-administered or administered through mail. In light of these measures, we can omit all low quality trust measures and re-calculate the average level of trust for each country. Column (3) uses this recalculated measure of trust. The sample is smaller because several countries have no high-quality trust measures. The result is similar to the full sample estimate in magnitude and sign and is more precisely estimated.

Similarly, we code a survey as representative if the survey documentation specifies explicitly that the sample is nationally representative. In column (4), we re-estimate our baseline using trust measures reported only from representative surveys. In column (5), we use a sample where we omit both low quality and non-representative surveys. The sample size declines as we restrict the sample, but the magnitude of the interaction coefficient remains similar to the full sample results.

In column (6), we check that our results are robust to using only countries included in the World Value Surveys, which have been more commonly used in the economics literature on social trust. The results are similar to the baseline.

Another concern with the trust measure arises from the fact that trust can change

as an outcome of economic downturns. For example, Stevenson and Wolfers (2011) documents that trust declines with economic downturns. If low growth both causes a decline in social trust and higher turnover, then our main measure of average trust will be lower in countries that experience low growth more often and the estimated interaction effect could be spurious. To address this endogeneity, we re-define a trust variable that is based only on the level of trust during the first year that it is reported for each country, and only high-quality trust measure. This procedure slightly reduces the sample size. Column (7) shows the interaction effect of base year trust levels and negative growth. Like the main estimate shown in column (1), it is negative and statistically significant. It is also similar in magnitude. Thus, our results are not an artifact of declines in trust levels during recessions.

4.2.5 Alternative Measures of Trust

Algan and Cahuc Trust Data In (Algan and Cahuc, 2010), the authors test the causal relationship between trust and growth by using a new instrument for trust. Their measure is based on the present-day trust levels of United States citizens with immigrant backgrounds, as well as the origin and timing of their ancestors' move to the United States, as a proxy for the trust levels from their home country at the time of departure. This measure addresses reverse causality and some omitted variables, as past growth and domestic experiences may change trust levels in the home country over time, but the immigrant population already left the home country, and was exposed to U.S. growth and U.S. domestic changes. In this robustness check, we use the immigrant-derived measures of trust from (Algan and Cahuc, 2010) in place of our measure of mean trust in the baseline table. We use the earliest wave of trust measures from 1935, which pre-dates our period of interest. Their sample is smaller than ours. But the result shown in Table 5 column (9) is very similar.[9]

Johnson and Mislin Trust Game Measures Another measure of trust comes from the laboratory experiments discussed in (Johnson and Mislin, 2011), a meta-analysis of trust games. Their paper collects data from over 160 replications of the (Berg, Dickhaut, and McCabe, 1995), commonly known as the "trust game", in which two players take

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[9]The authors merge the trust measure that they constructed with other data to create a larger sample for a 2013 review article in the *Annual Review of Economics*. Our current dataset is a superset of the expanded dataset. Thus, for the robustness check, we examine only the data from their original article.

the role of either sender or receiver. The subjects are endowed with $10, and they may pass any portion of that amount onto the receiver. The amount passed is tripled and given to the receiver. The receiver then may pass any portion of the money back to the sender. The amount passed by the sender is considered a measure of trust, and the amount passed by the receiver is considered a measure of trustworthiness.

We use the average rate of sending as an alternative to our average trust measure, and use the country where each experiment was conducted to assign the laboratory measures to a country. This results in a smaller sample. Table 5 column (10) shows an interaction effect that is very similar to our baseline in column (1). However, it is less precisely estimated.

4.2.6   Alternative measures of recessions

One concern about measuring recessions is that some countries may experience more volatility in growth overall, and citizens are aware of that fact and thus account for it in voting. It may be appropriate in this case to define recessions relative to a country's own growth experience. In order to do so, we compute two new recession dummies based on each country's specific experience. In Appendix Table A.1, we use a recession dummy that equals one when a country realizes a growth rate less than its own 10th or 20th percentile growth over the sample period. The interaction effects is negative, but less precisely estimated.

4.2.7   Region

In Appendix Table A.2, we investigate whether trust is particularly important in any context. For this exercise, we sorted countries into twelve geographical groups. Since the number of observations per region is too small to analyze, we instead examine the importance of each particular region by dropping it from the sample in turn. Column (1) re-states the full sample estimates for comparison. Columns (2)-(12) alternatively drop regions from the sample. The interaction coefficients are all negative and statistically similar to the full sample estimates. Thus, the main results do not seem to be particular to any one region.

5 Heterogeneous Effects

5.1 Regime Type

While it is beyond the scope of our paper to be conclusive about the mechanisms driving the empirical results, we can investigate whether the patterns in the data are consistent with the assumptions underlying our interpretation, as well as with conjectures that follow from the main framework.

First, we investigate how applicable voting models are to our context by examining whether our results are driven by regular elections and democracies. We divide the sample according to the nature of the turnover. Archigos codes transfers of power as *regular* or *irregular* depending on the political institutions and selection mechanisms in place.[10] A regular turnover is one where the next leaders are 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. Common causes of irregular turnovers in the data are military coups and foreign military impositions. Our prior is that turnovers are less likely to reflect changes in citizen dissatisfaction than regular turnovers. 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 have over-riding importance.

Table 6 Panel A column (2) shows that our interaction effect is negative, large in magnitude and statistically significant at the 1% level for regular turnovers. Column (7) finds that there is no effect of irregular turnovers. These results support our interpretation.

Given that the results are driven by regular entries, we explore the mechanisms further by dividing regular entry into years which are an election year and those that are not. This asks to what extent our main results are driven by turnover in elections that were supposed to have been held, versus elections that came up out of the regular cycle (albeit by legal means). The latter is particularly interesting since the occurrence

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[10]Archigos codes regularity for both leader entry and leader exit. Our discussion is about leader entry and we treat "turnover" as a synonym for "entry".

of an election may also be an outcome of political dissatisfaction. We use the Quality of Governance dataset ((et al., 2016)) to create an indicator for years in which a regular election is allowed.[11] Columns (3) and (4) of Panel A show that the negative interaction effect is present and significant in both subsamples. The magnitude is larger in the election year subsample in column (3).

In column (5) and (6), we divide regular entries into presidential and parliamentary systems. We use the coding of democratic systems in CHISOLS, which is in turn based on that of (Cheibub, Gandhi, and Vreeland, 2010). In presidential systems, the effective leader of the country is the president, while in parliamentary systems, the prime minister or chancellor is the person ultimately responsible for domestic and foreign policy. For the purposes of our study, one may argue that the mapping between outcome and politician effort is noisier in parliamentary systems, and thus trust would matter more there. The interaction effects in the two samples are almost identical. Only the estimate in parliamentary systems is statistically significant. This is probably because the sample size is much larger.

Next, we consider the type of regime. It is widely believed that the costs of political turnover (to citizens) is much lower in democracies than autocracies (e.g., Labonne, 2013). This is because in the former, citizens can use electoral mechanisms to affect leader turnover, while in the latter, citizens typically have to resort to costlier measures such as revolts. It follows that if citizens cannot easily cause leader turnover, then social trust (or other factors which influence citizen dissatisfaction) should not matter during economic downturns. Thus, we expect that the interaction of social trust and negative growth to be more prominent in democracies.

To investigate whether the results are more prominent in democratic regimes, we divide the sample according to the degree of autocracy in the preceding year. Panel B column (2) restricts the sample to observations where the lagged polity2 variable has a value of greater than zero, which is often used in the literature as the threshold for democracy. Panel B column (7) restricts the sample to observations where the lagged polity2 variable is less than or equal to zero. We find that the interaction coefficient for democracies in column (2) negative, large in magnitude and statistically significant. In contrast, we find no effect for autocracies in column (7). The interaction coefficient is positive, small in magnitude and statistically zero. These results support our hypothesis.

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[11]The QoG codebook defines the election year is defined as the time of the next regularly scheduled election. The clock resets in the case of an early election.

As we did earlier, we now delve deeper into the democratic subsample. We first compare regular election and irregular election years. Panel B columns (3) and (4) show that the interaction effect is negative in both subsamples, but neither are statistically precise. Similarly, columns (5) and (6) show that the estimates are similar in presidential and parliamentary systems.

Together, the estimates in Table 6 show that the main result are driven by regular entries and democracies, and mostly during regular election years.

5.2 Media, Political Stability

Another factor which could affect our results is free media. The effect is ambiguous ex ante. On the one hand, a history of free media may allow voters to monitor their politicians better, which makes trust less important. This would suggest that the interaction effect is smaller in countries with freer media. On the other hand, government-controlled media could minimize negative news about economic recessions and reduce the salience of the recession. This would suggest that the interaction effect is larger in countries with freer media. To examine this, we divide observations into country years with and without free media. This variable is provided by Freedom House, which reports whether a country-year has free media, some free media or no free media. We divide the data up into two groups: free media versus some and no free media.[12] Table 6 columns (2) and (3) show that the results are quite similar in the two subsamples, with better statistical precision in the larger no free media sample.

Next, we explore the idea that political stability can influence our main result. We have two measures, average political turnover and armed conflict. We view higher average political turnover as capturing a moderate increase in instability and do not have strong prima facie beliefs about whether it affects the influence of trust during a recession. We include it to be thorough. We view armed conflict as capturing a very large increase in stability relative to a country with no armed conflict. In this case, we do not expect trust to be an important factor in how turnover responds to recessions. Since we believe that trust should matter more in contexts where it is less costly for citizens to affect leader change, it makes sense to think that the results should be more prominent during peacetime, where the institutions put in place for citizens to change leadership are functioning well.

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[12]This variable is available from 1979-2008.

Columns (4) and (5) show that the interaction effect is very similar between countries with high and low average turnover rates. To measure conflict, we use the UCDP data on armed conflict that incur 25 or more combat fatalities and divide observations into those that experienced no conflict of any type and those that experienced conflict. The estimate in column (6) for the subsample of no conflict is similar to our full sample results in column (1). The estimate in column (7) for the subsample where there is conflict is small in magnitude and statistically insignificant. These results suggest that trust does not influence the response of turnover to recessions in contexts of extreme instability.

5.3   Recent history of recessions

Information asymmetry may also vary with recent economic experience. High economic growth in recent years could mean that citizens have a noisier mapping between policies and the occurrence of a recession such that trust is more important for politician turnover. Positive recent economic growth could also mean that citizens believe that the current politician does not have the adequate skills for dealing with recessions (e.g., the qualities of a good leader during booms may differ from those during recessions). If citizens are more likely to believe that politicians have heretofore unobserved abilities in higher trust countries, then this will also mean that our main interaction effect is larger in countries that have little recent experience of recessions.

We measure the recent history of growth in several ways. Table 9 columns (2) and (3) divide the sample between observations that have a below or above sample median measure of average five-year lag growth. Columns (4) and (5) divide the same into countries that have a below or above sample median measure of mean recession rate. Columns (6) and (7) divide the sample into observations that have not had any recession in the past ten years and those have had experienced at least one year of recession. Columns (8) and (9), and (10) and (11) use similar measures with shorter windows of five and three years, respectively. In all cases, we find that the results are more prominent in countries that have had less experience with recessions.

5.4   Size of the economy and openness to trade

Another underlying assumption of our preferred interpretation is that there are information asymmetries between voters and leaders. We can investigate this claim by dividing

the sample into contexts where such asymmetries are likely to be more severe and those where they are likely to be less severe. If information asymmetries are important, then we should find more prominent effects in economies with large information asymmetries. Of course, we cannot directly measure information asymmetries, so we proxy for them using measures of economic complexity from the literature. The first is the size of the economy. The second is the degree or openness to trade.[13] We reason that it is more difficult for voters to attribute macroeconomic outcomes to specific policies in larger and more open economies, which means that information asymmetries are greater in such contexts.

Whether social trust matters more or less in more complex economies is *ex ante* ambiguous. On the one hand, more complexity may make it harder for voters to infer the politician's ability, and therefore they rely more on trust (e.g., voters in high-trust societies are less likely to update away from their generally positive priors). On the other hand, voters in complex economies may believe that their politicians have little control over macroeconomic performance, which would attenuate the interaction term toward zero.

Table 6. Column (1) restates the baseline. Columns (2) and (3) divide the sample according to whether lagged GDP is below or above the sample median (in the past year). The coefficient is larger and more precisely estimated for smaller economies. As before, we measure trade openness with the trade openness measure provided by the *Penn World Tables.* Columns (4) and (5) divide the sample according to whether lag trade openness is below or above the sample mean (in the past year). The results are similar. The results provide no evidence that trust matters more in complex economies.

5.5 "Exogenous" Economic Performance

Another assumption of the standard voting models which underlie our interpretation is that voters are rational.[14] We can investigate this assumption by conducting a horse race of the interaction effect of trust and national recessions with the interaction effect of trust and "exogenous" economic conditions that are outside of the politician's control. Rationality implies that exogenous economic conditions should matter less for turnover.

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[13]Past studies have found some 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).

[14]Rationality in this case assumes salience – i.e., the causes of the recession are salient.

We measure the latter in several ways. First, we follow Acemoglu, Johnson, Robinson, and Yared (2008) (AJRY) and measure it as the trade-share-weighted growth of partner countries. Second, we measure it as average growth of other countries in the same region (i.e., regional growth rates). Third, we construct a Bartik measure of growth using sector-specific global growth rates. Finally, we combine the two methods to construct a Bartik-AJRY measure. This is the Bartik measure constructed from the sector-specific global growth rates of trade partners. See the Appendix for details about the construction of the AJRY and Bartik growth measures. From each measure, we construct a measure of recession which equals one if the exogenous growth measure is negative.

The assumptions we make for interpreting our results is that domestic politicians have less discretion over exogenous measures of growth than national growth, and that the two are correlated. This claim is very similar to the assumptions that studies such as Acemoglu, Johnson, Robinson, and Yared (2008) make when using plausibility exogenous measures of economic performance to instrument for domestic economic performance. Our methodology differs in that we do not use these measures as instruments for domestic performance, and instead use them as a proxy for exogenous growth factors, which our model suggests should have little impact on turnover.

Table 6 presents the results. Column (1) re-states the baseline. Column (2) controls for the interaction of trust and the AJRY measure of recession. Columns (3)-(4) controls for the interaction of trust and the occurrence of a regional recession. Column (3) defines a regional recession as when regional growth rates are less than zero. Column (4) defines it as when regional growth rates are less then the 10th percentile growth for each region over time. Column (5) controls for the interaction of trust and Bartik growth rates. Column (6) controls for the interaction of trust and Bartik-AJRY growth rates.

While the coefficient on the interaction of trust and domestic growth is very robust to the inclusion of this new control, the coefficient on the plausibly exogenous growth variable is small and statistically zero. These results are consistent with the rationality assumption.

5.6 Additional Interpretations

It is beyond the scope of this paper to be conclusive about the mechanisms. Hence, we briefly discuss the two main alternative interpretations for our results. The first is the possibility that voters in high trust countries are less irrational and therefore

less likely to retrospectively punish their politicians. This alternative is consistent with retrospective voting, but asserts that voters are not fully rational. However, additional assumptions are needed to reconcile this explanation with our finding that voters behave rationally in distinguishing between national shocks that are more likely to be endogenous and AJRY, Bartik and Bartik-AJRY shocks that are more likely exogenous. See section 6.

The second is the possibility that the leaders elected in high trust and low trust countries differ such that the former are suited for governing during boom as well as bust years, where as the latter are good for one or the other but not both. This alternative is consistent with rational voters, but departs from retrospective voting (because the voters do not vote the incumbent out of office to punish her for causing the recession). Since leader ability is unobservable, we cannot conclusively rule out this possibility. However, it seems unlikely given that we control for the characteristics of the incumbent (including proxies for experience such as tenure) as well as past economic conditions. A closely related and more likely possibility is that citizens in higher trust countries are more willing to attribute heretofore unobserved skills to the politician. Recall the discussion and results from Section 9.

6   Conclusion

This paper makes a new observation: poor economic performance is more likely to cause political turnover in countries with low social trust. We provide evidence for this hypothesis by comparing leader turnover in countries with high social trust to countries with low social trust, between years of positive and negative growth. As our hypothesis predicts, negative growth is more likely to cause turnover in countries with low social trust. Amongst other explanations, the main results together with a large body of supplementary evidence that we provide are consistent with the notion that citizens in high trust countries are less likely to blame poor macroeconomic performance on their politicians than citizens in low trust economies.

Our findings provide a concrete example of the integral role of cultural norms and social trust in the political economy. Moreover, the results allow policy makers to better anticipate where political instability will occur during a regional economic downturn.

The results prompt future research to study the importance of social trust in determining political stability. To the best of our knowledge, this question has not been

raised in the existing literature and seems like an important one to explore further.

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Table 1: Trust by Region

E. Europe & Former USSR	Trust	Latin America	Trust	W. Europe, N. America, Pacific	Trust	S. Saharan Africa	Trust	Asia	Trust
Macedonia	0.11	Brazil	0.06	France	0.19	Lesotho	0.04	Cambodia	0.04
Kazakhstan	0.16	Peru	0.11	Italy	0.29	Rwanda	0.05	Philippines	0.10
Slovenia	0.17	Paraguay	0.14	United Kingdom	0.30	Uganda	0.08	Malaysia	0.10
Kyrgyzstan	0.18	Venezuela	0.16	Spain	0.32	Tanzania	0.08	Sri Lanka	0.18
Moldova	0.18	Colombia	0.16	U.S.A.	0.37	Ghana	0.09	Laos	0.22
Georgia	0.18	Chile	0.18	Canada	0.40	Zimbabwe	0.12	Singapore	0.23
Azerbaijan	0.21	Honduras	0.19	Switzerland	0.44	Burkina Faso	0.15	Bangladesh	0.23
Uzbekistan	0.21	El Salvador	0.19	Netherlands	0.44	Botswana	0.15	Nepal	0.27
Estonia	0.22	Guatemala	0.19	Australia	0.45	Mali	0.15	India	0.33
Lithuania	0.22	Argentina	0.20	New Zealand	0.50	Zambia	0.16	Thailand	0.33
Bosnia and Herzegovina	0.22	Costa Rica	0.20	Finland	0.55	Nigeria	0.19	Bhutan	0.35
Poland	0.24	Bolivia	0.20	Sweden	0.65	South Africa	0.21	Taiwan	0.36
Belarus	0.24	Ecuador	0.21	Norway	0.70	Ethiopia	0.24	Indonesia	0.36
Armenia	0.25	Panama	0.22	N. Africa and Middle East		Namibia	0.35	Vietnam	0.37
Latvia	0.25	Mexico	0.27	Turkey	0.10	Malawi	0.45	Pakistan	0.37
Croatia	0.25	Uruguay	0.28	Cyprus	0.13			Japan	0.42
Bulgaria	0.25	Dominican Republic	0.31	Morocco	0.18			China	0.55
Russia	0.25	Carribean		Israel	0.23				
Albania	0.26	Trinidad and Tobago	0.04	Egypt	0.28				
Slovakia	0.27			Jordan	0.29				
Hungary	0.28			Iran	0.38				
Ukraine	0.30			Iraq	0.44				
Tajikistan	0.31			Saudi Arabia	0.53				
Turkmenistan	0.37								

Table 2: Correlates of Trust and Recessions

	Trust	Growth<0
Economic Characteristics		
Growth<0	-0.0689**	
Log GDP	0.3699**	-0.0590**
Growth	0.0135**	-0.6324**
Trade Openness	-0.0843**	-0.0096**
Leader Characteristics		
Age	0.1281**	0.0042**
Sex	0.0526**	0.0173**
Total days in office since entry	0.0341**	-0.0165**
Previous times in office	-0.0019**	-0.0162**
Institutional Characteristics		
Polity2	0.1450**	-0.0525***
Conflict Incidence	-0.0894***	0.0581**

Notes: Bivariate correlation coefficients are presented in the table. ** indicates 5% level statistical significance.

Table 3: The Interaction Effect of *Trust* × *Negative Growth* on Leader Turnover

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Dependent Variable: Leader Turnover				Baseline
Trust x Growth<0	-0.198**	-0.153	-0.161*	-0.160*	-0.156*	-0.205**	-0.170	-0.228**
	(0.0944)	(0.0930)	(0.0935)	(0.0931)	(0.0929)	(0.0973)	(0.106)	(0.109)
Growth<0	0.0832**	0.0864***	0.0914***	0.0892***	0.0868***	0.102***	0.0323	0.0279
	(0.0325)	(0.0324)	(0.0325)	(0.0324)	(0.0324)	(0.0333)	(0.146)	(0.145)
Trust	0.164							
	(0.122)							
Additional Controls:								
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	N	Y	Y	Y	Y	Y	Y	Y
Lag Leader Characteristics	Y	Y	Y	Y	Y	Y	Y	Y
Lag Polity2	N	N	Y	Y	Y	Y	Y	Y
Lag GDP PC	N	N	N	Y	Y	Y	Y	Y
Lag Conflict	N	N	N	N	Y	Y	Y	Y
all controls x Trust	N	N	N	N	N	Y	N	Y
all controls x Growth<0	N	N	N	N	N	N	Y	Y
Observations	4,519	4,519	4,407	4,407	4,407	4,407	4,407	4,407
R-squared	0.040	0.155	0.160	0.160	0.161	0.164	0.163	0.166

Notes: Leader characteristics inlcude 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. The standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 4: The Interaction Effect of *Trust* × *Negative Growth* on Leader Turnover – Robustness to additional controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12) Lag Leader Turnover	(13)
	Baseline												
Trust x Growth<0	-0.228**	-0.236**	-0.243**	-0.254**	-0.263**	-0.207*	-0.205*	-0.213**	-0.253**	-0.192*	-0.200*	-0.00878	
	(0.109)	(0.110)	(0.111)	(0.111)	(0.111)	(0.105)	(0.104)	(0.106)	(0.110)	(0.108)	(0.105)	(0.102)	
Medium Trust x Growth<0													-0.0311
													(0.0412)
High Trust x Growth<0													-0.0638
													(0.0386)
Additional Controls:													
Lag Trade Openness	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Trust x Lag Trade Openness	N	N	Y	Y	Y	N	N	N	N	N	N	N	N
Growth<0 x Lag Trade Openness	N	N	N	Y	Y	Y	N	N	N	N	N	N	N
Growth<0 x Mean Turnover	N	N	N	N	N	Y	Y	N	N	N	N	N	N
Growth<0 x Mean Growth Rate	N	N	N	N	N	N	Y	N	N	N	N	N	N
Growth<0 x Media Freedom	N	N	N	N	N	N	N	Y	N	N	N	N	N
Growth<0 x Ethnic, Ling, Rel Fractionalization	N	N	N	N	N	N	N	N	Y	N	N	N	N
Trust x Year FE	N	N	N	N	N	N	N	N	Y	Y	N	N	N
Region x Year FE	N	N	N	N	N	N	N	N	N	N	Y	N	N
Observations	4,407	4,238	4,238	4,238	4,238	4,407	4,407	4,407	4,207	4,407	4,304	4,407	4,407
R-squared	0.166	0.168	0.169	0.169	0.170	0.149	0.149	0.151	0.170	0.177	0.185	0.190	0.165

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 5: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – Robustness to quality of trust measure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Dependent Variable: Leader Turnover					
	Full Sample	Omit Trust Measured in Recession Years	Omit Top and Bottom 1% Trust	Omit Unreliable Trust Measures	Omit Unreliable Unrepresentative Surveys	Omit Unreliable Trust Measures, Unrepresentative Surveys	Only WVS	Base Year Trust	Algan and Cahuc Inherited Trust (Expanded)	Johnson and Mislin Trust
Trust x Growth<0	-0.228**	-0.248**	-0.185	-0.344***	-0.268**	-0.328***	-0.387***	-0.357***	-0.231**	-0.203
	(0.109)	(0.116)	(0.112)	(0.116)	(0.117)	(0.118)	(0.127)	(0.106)	(0.0994)	(0.292)
Observations	4,407	3,950	4,364	3,613	3,661	3,231	2,644	3,613	1,192	1,566
R-squared	0.166	0.168	0.166	0.180	0.177	0.183	0.205	0.180	0.271	0.227

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. Sample restrictions are stated in column headings. Column (2) omits measures of trust from surveys that coincide with recessions. Column (3) omits omits countries with average trust that is above the 99 percentile or below the 1 percentile in the sample. Column (4) calculates average trust after dropping trust measures with quality concerns. Column (5) calculates average trust after dropping trust measures from non-representative surveys. Column (6) calculates average trust after dropping trust measures with quality concerns and those from non-representative surveys. Column (7) only uses trust measures from the World Value Surveys. Column (8) measures trust using trust from the first year that data are available. Column (9) uses Algan and Cahuc's measure of inherited trust. Column (10) uses Johnson and Mislin's measure of trust that is constructed from the results of trust games. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

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Table 6: The Interaction Effect of *Trust × Negative Growth* on Leader Turnover – National versus "exogenous" economic performance

	Dependent Variable: Leader Turnover					
		"Exogenous" growth measures				
	AJRY (2008)	Regional Growth< 0	Regional Growth < 10th Percentile	Bartik	Bartik-AJRY
	(1)	(2)	(3)	(4)	(5)	(6)
Trust x Growth<0	-0.228** (0.109)	-0.241** (0.109)	-0.233** (0.109)	-0.232** (0.110)	-0.227** (0.108)	-0.227** (0.110)
Trust x "Exogenous" Growth<0		0.167 (0.154)	0.0574 (0.132)	0.0533 (0.138)	-0.309 (0.712)	0.208 (0.572)
"Exogenous" Growth<0		-0.0389 (0.0477)	-0.0116 (0.0331)	-0.0300 (0.0378)	0.00175 (0.205)	-0.00498 (0.135)
Observations	4,407	4,407	4,407	4,407	4,407	4,407
R-squared	0.166	0.166	0.166	0.166	0.166	0.166

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 7: The Interaction Effect of *Trust* × *Negative Growth* on Leader Turnover – by Regime

	Full Sample	Regular Entry					Irregular Entry
				Not Election			
		All	Election Year	Year	Presidential	Parliamentary	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Dependent Variable: Leader Turnover			
				Panel A. Regular vs. Irregular Entry			
Trust x Growth<0	-0.228**	-0.318**	-0.597*	-0.289**	-0.297	-0.294**	0.211
	(0.109)	(0.131)	(0.321)	(0.145)	(0.528)	(0.135)	(0.374)
Observations	4,407	3,561	425	3064	743	2734	846
R-squared	0.166	0.183	0.558	0.204	0.363	0.162	0.354
				Panel B. Democracies vs. Autocracies			
				Lag Polity2>0			Lag Polity2<=0
Trust x Growth<0	-0.307*		-0.516	-0.224	-0.295	-0.179	-0.0933
	(0.169)		(0.371)	(0.195)	(0.483)	(0.192)	(0.160)
Observations	2591		381	2142	728	1787	1816
R-squared	0.185		0.557	0.206	0.382	0.158	0.191

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. 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 8: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – by Media Freedom, Political Instability

	Full Sample	Free Media	No Free Media	Mean Turnover < Median	Mean Turnover > Median	Lag Conflict= 0	Lag Conflicts =1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust x Growth<0	-0.228**	-0.299	-0.234*	-0.164	-0.234	-0.274**	-0.0519
	(0.109)	(0.303)	(0.122)	(0.148)	(0.184)	(0.126)	(0.326)
Observations	4,407	1,018	3,389	1,965	2,442	3,612	795
R-squared	0.166	0.284	0.182	0.098	0.139	0.183	0.280

Dependent Variable: Leader Turnover

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. Sample restrictions are stated in the column headings. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table 9: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – Heterogeneous effects according to the the occurrence of recent recessions

	Full Sample (1)	Average lag 5-year growth > Median (2)	Average lag 5-year growth < Median (3)	Mean Recession Rate < Median (6)	Mean Recession Rate > Median (7)	No Recessions in Past 10 Years (8)	1+ Recessions in Past 10 Years (9)	No Recessions in Past 5 Years (10)	1+ Recessions in Past 5 Years (11)	No Recessions in Past 3 Years (12)	1+ Recessions in Past 3 Years (13)
					Dependent Variable: Leader Turnover						
Trust x Growth<0	-0.228**	-0.129	-0.308*	-0.386**	-0.0984	-0.502*	-0.117	-0.551***	-0.00777	-0.238*	-0.128
	(0.109)	(0.144)	(0.176)	(0.169)	(0.123)	(0.295)	(0.132)	(0.183)	(0.145)	(0.134)	(0.163)
Observations	4,407	1,918	2,489	2,109	2,298	1,145	3,262	2,145	2,262	2,916	1,491
R-squared	0.166	0.219	0.192	0.199	0.154	0.265	0.186	0.217	0.185	0.190	0.213

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. 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 10: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – Heterogeneous effects according to the lag income level and openness to trade

	Dependent Variable: Leader Turnover				
	Full Sample	Lag GDP<50%	Lag GDP>50%	Lag Trade Openess <50%	Lag Trade Openess >50%
	(1)	(2)	(3)	(4)	(5)
Trust x Growth<0	-0.228**	-0.371*	-0.173	-0.168	-0.206
	(0.109)	(0.212)	(0.122)	(0.124)	(0.188)
Observations	4,407	2,183	2,224	2,131	2,276
R-squared	0.166	0.166	0.208	0.157	0.235

Notes: All regressions control for the uninteracted recession dummy variable and the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. 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.

APPENDIX

A   Trust Measure

The generalized trust questions from the *World Values Survey* and the Barometer series are both formulated to produce binary measures.

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? (Code one answer): 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".

B   Construction of "Exogenous" Growth Measures

B.1   AJRY Growth

This is based on Acemoglu, Johnson, Robinson, and Yared (2008), which used trade-weighted-growth rates of other countries to instrument for one's own growth rate. This measure uses the growth rates of partner countries, which is related to growth rates of ones own country, but less likely to be driven by one's own politician (and her policies). We construct the instrument as the following.

$$z_{it-1} = \sum_{i \neq j}^{N} \omega_{ij} y_{jt-1},$$

$$\omega_{ij} = \frac{1}{I_{ij}} \sum_{s=1948}^{2014} \left(\frac{X_{ijs}}{Y_{is}^*} \right).$$

X_{ijs} is the two-way trade flow between countries i and j, where $X_{ijs} = exports_{ijs} + exports_{jis}$. Y_{is}^* is the expenditure-side real GDP at chained PPPs in millions of 2005 USD. ω_{ij} is the weight. I_{ij} is the number of years for which data are available for a

given dyad in the data's time frame.

The trade data are from *IMF Direction of Trade Statistics* (DOTS). GDP data from the *Penn World Tables.*

B.2   Bartik Growth

This measure of growth is based on industry-specific global growth rates. It is similar to a standard Bartik instrument, which is often used in the labor economics literature to instrument for growth of region i. The assumption in such studies is that the Bartik growth rate is correlated with growth rates in region i, but plausibly exogenous to policies and conditions in region i.

The measure is constructed as the following:

$$\hat{Y}_{it} = \hat{\alpha} + \sum_{s=1}^{6} \hat{\delta}_s \% share_{st} * growth_{st},$$

where the parameter estimates come from the regression

$$Y_{it} = \alpha + \sum_{s=1}^{6} \delta_s \% share_{st} * growth_{st} + \epsilon_{it}.$$

The variable $share_{st}$ is the percent of GDP contributed by sector s in year t. The data allow us to construct six consistent sectors: "Agriculture, hunting, forestry, fishing (ISIC A-B)", "Mining, Manufacturing, Utilities (ISIC C-E)", "Construction (ISIC F)", "Wholesale, retail trade, restaurants and hotels (ISIC G-H)", "Transport, storage and communication (ISIC I)", and "Other Activities (ISIC J-P)". The variable $growth_{st}$ is the growth rate of GDP in percent. Both measures are taken from the *United Nations National Accounts Main Aggregates Database.*

B.3   Bartik-AJRY

- The data used are the same as in AJRY and Bartik: the do-file has detailed comments about the construction process

- The instrument is:

$$\hat{Y}_{it} = \hat{\alpha} + \sum_{s=1}^{6} \hat{\delta}_s \left(\%share_{st} * \sum_{partners} growth_{pst} \right)$$

where the parameter estimates come from the regression

$$Y_{it} = \alpha + \sum_{s=1}^{6} \delta_s \left(\%share_{st} * \sum_{partners} growth_{pst} \right) + \epsilon_{it}.$$

Table A.1: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – Robustness to alternative measures of recession

	Dependent Variable: Leader Turnover		
	Define recession relative to country i's historical growth		
	(1)	(2)	(3)
	Baseline	<10th Percentile	<20th Percentile
Trust x Growth<0	-0.228**	-0.228	-0.0613
	(0.109)	(0.149)	(0.0927)
Observations	4,407	4,407	4,407
R-squared	0.166	0.166	0.165
Mean Growth		-0.0475	-0.0240

Notes: All regressions control for the uninteracted recession dummy variable and 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 with a dummy variable for if growth<0; and country and year fixed effects. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.

Table A.2: The Interaction Effect of $Trust \times Negative\ Growth$ on Leader Turnover – by Region

						Dependent Variable: Turnover						
	(1) Full Sample	(2) Omit E. Europe and the Ex U.S.S.R.	(3) Omit Latin America	(4) Omit N. Africa and the Middle East	(5) Omit Sub-Saharan Africa	(6) Omit W. Europe	(7) Omit E. Asia	(8) Omit SE Asia	(9) Omit South Asia	(10) Omit the Carribean	(11) Omit N. America	(12) Omit Pacific
Trust x Growth<0	-0.228**	-0.195*	-0.287**	-0.184*	-0.277**	-0.225	-0.255**	-0.209*	-0.260**	-0.185	-0.215*	-0.214*
	(0.109)	(0.115)	(0.115)	(0.110)	(0.117)	(0.137)	(0.120)	(0.113)	(0.112)	(0.112)	(0.110)	(0.111)
Observations	4,407	4,002	3,477	3,993	3,636	3,599	4,247	4,110	4,151	4,364	4,297	4,297
R-squared	0.166	0.169	0.197	0.169	0.168	0.125	0.166	0.168	0.173	0.166	0.169	0.170

Notes: All regressions control for 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 with a dummy variable for if growth<0; and country and year fixed effects. Standard errors are clustered at the country level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level.