UNIVERSITE DE LIMOGES

ECOLE DOCTORALE Sciences la Société, Territoires, Sciences Économiques et de Gestion n°613

FACULTE de Droit et des Sciences Économiques

Laboratoire d'Analyse et de Prospective Économiques (LAPE)

Thèse

pour obtenir le grade de

DOCTEUR DE L'UNIVERSITÉ DE LIMOGES

Discipline / Spécialité : Sciences Économiques

Présentée et soutenue par

Ali Recayi OGCEM

Limoges, le 2 juin 2022 à 9h

"Essays on Trust and Financial Outcomes"

Directeurs de thèse / Supervisors

M. Amine TARAZI, *Professeur, Université de Limoges, Membre Senior Institut Universitaire de France*

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Jury

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M. Ahmet Faruk AYSAN, *Professor, Hamad Bin Khalifa University, Qatar*

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SUMMARY

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General Introduction

The phenomenon of social capital played a decisive role in explaining the regional differences in economic development after the Second World War. According to Knack and Keefer (1997), the most powerful relationship we have encountered in explaining the rapid economic development of countries in recent years is trust (Bjørnskov, 2017). The literature on social capital deals with the indispensable role of trust while examining the mechanisms that constitute the building blocks of economic growth.

There is a strong relationship between trust and economic development in many aspects. Firstly, considering a high investment rate as one of the most important economic development factors, generalized trust, which is trust in "most people" or a person's expectation of the trustworthiness of the general population, directly or indirectly affects the investment rate and thus economic performance (Barro, 1991; Levine and Renelt, 1992; Wacziarg, 2001). One of the essential parts that trust plays in this regard is that generalized trust assumes a risk-reducing function by decreasing the turmoil in the society in a possible economic recession. Therefore, trust results in higher investment rates and thus leads to a more predictable and stable economy (Luhman, 1979). Secondly, taking the example of Nordic countries, it can be observed that trust is closely associated with high welfare levels. Svendsen (2004) purports that countries with high generalized trust are more successful in sustaining their welfare state because high trust excludes society and governance institutions from moral hazards. Thirdly, trust is instrumental in improving governance. Robbins (2012), investigating the relationship between trust and institutional quality, finds that while generalized trust is a factor that supports institutional quality, it is also significantly affected by it. Knack and Keefer (1997) lend credence to the belief that formal institutions such as the rule of law can establish trust. Moreover, corruption leads to a decrease in generalized trust (Rothstein, 2003). In any case, trust is correlated to economic growth, as it is associated with governance institutions, which are fundamental for economic growth.

Along with this vital role of trust in economic development, different forms of trust have been discussed in the literature. The subject of trust is viewed from different perspectives, such as generalized trust, and particularized trust. Particularized trust refers to a person's trust to familiar people, i.e., one's immediate environment. However, there are also conflicts in the literature about the meaning of trust (Bacharach and Gambetta, 2001).

The research literature on trust is extensive and includes different approaches. From an economic perspective, research has focused on how the development of trust takes place. Some studies have defined trust as trusting strangers (Rosenberg, 1956; Mansbridge, 1999). Other researchers have embraced the idea

that trust is a concept felt only with people we know (Brewer,1979; Yamagishi and Yamagishi,1994). Defining the different types of trust avoids ambiguity in the literature. For instance, generalized trust differs from particularized trust and trust in political institutions. Generalized trust is independent of a person or a purpose. Particularized trust, on the other hand, is usually tied to individuals for a specific purpose. Trust in political institutions means confidence in institutions (Uslaner, 2017).

Generalized trust and particularized trust are inherently negatively related, except in a high institutional quality environment. Generalized trust, as a concept, does not seem to be affected by events, positive or negative, with short-term effects. Therefore, generalized trust remains stable over time. However, trust in political institutions depends on performance and is vulnerable to short-run fluctuations of an economy(Uslaner, 2002). We note that we also encounter varying positions about the stability of trust in others. Cook and Santana (2017) assert that trust is based on people's evaluations of whether they can trust others with regard to a certain criteria. Putnam (2007), however, claims that the values that people refer to when making evaluations vary according to the principles inherent to the place where they live. Therefore, trust is not a stable concept.

After the 1970s, research and interest in trust increased rapidly (Uslaner, 2017). According to Putnam (1993, 2000), trust refers to positive behaviors related to social participation. From the earlier point of view of economists, trust is an exchange between people. Accordingly, while positive experiences increase people's level of trust, negative ones lead to the withdrawal of trust (Bjornskov, 2013).

In addition, the level of generalized trust may change over time. Taking post-war Germany as an example, generalized trust in Germany increased steadily after the Second World War. Trust gained stability as the country strengthened economically and left the destruction of the war behind. Additionally, although economic growth increases trust in government, this does not form a sound basis for a strong economy (Uslaner, 2017). An increase in generalized trust is needed for solid economic growth. Firms and individuals will adopt a less protective policy, as increased trust will lower risks (Bjørnskov, 2017).

The literature contains various understandings of foundations and outcomes of trust. According to Warren (1999), good institutions such as democracies are crucial in building generalized trust. However, this strong relationship between democracy and trust may be weak in or weakened by a society with strong ethnic and religious ties (Uslaner, 2002). We also note that some scholars are skeptical of the idea that trust in good institutions will increase generalized trust. In his study of new democracies, Letki (2006) found that new market democracies did not meet people's expectations for higher generalized trust and trust in government institutions.

Some nationwide or worldwide happenings may affect the degree of trust people have. For example, political confidence declined sharply with the demonstrations of the 1960s and the economic crisis in the years that followed. Many questions have arisen afterward. One of them is why we should deal with the issue of trust. This is because trust has some positive consequences, such as improving the sense of well-being. Besides, trust in political institutions provides political stability (Uslaner, 2017). Trust among people helps to reduce conflicts and strengthens agreements (Rothstein, 2005).

This manuscript comprises three chapters that are self-contained and can be read individually. The three chapters are primarily empirical in nature and their outcomes will enable public authorities to have a closer look at the links between trust and financial development and firm financing and the relationship between democracy and economic development.

The first chapter (Trust and Financial Development: Forms of Trust and Ethnic Fractionalization Matter) analyzes the link between trust and financial development. It investigates whether different degrees of wide and narrow trust imply different outcomes for financial development. Specifically, the chapter examines the influence of different forms of trust and their combinations on financial development in the existence of ethnically diverse populations.

Through the first chapter, it is explored how different forms of trust affect regional financial development in the context of a single emerging economy where religion has a strong presence, how interactions between generalized trust and other forms of trust influence financial development, and whether the impact of trust on financial development depends on the level of ethnic fragmentation.

The second chapter (Trust and Firm Financing: Forms of Trust and Institutional Quality Matter) examines the link between trust and external firm financing. Utilizing a detailed cross-country data set, we explore the impact of varying degrees of generalized trust and trust in banks on firm's external finance.

Some studies investigate the effect of formal institutions and cultural factors on different financing behaviors of countries. According to the firm finance literature, firms in transition economies benefit from trust formed due to network ties with other economic parts. The aim is to overcome institutional obstacles and gain preferential access to resources, including financial capital (Ahlstrom and Bruton, 2006; Wu and Chen, 2012; Wu and Peng, 2013;). Dudley and Zhang (2016)'s research reveals how firms' decisions to hold cash in banks vary depending on whether or not banks are in high trust zones. Trust is not only related to firm behavior but also to bank loan decisions because a bank's risk-taking behavior is affected by trust in a country (Jin et

al. (2019)). This chapter therefore concentrates on the effect of different forms of trust on the use of external financing sources and access to financing barriers.

In the third chapter (Democracy and Economic Development: Disentangling the Effect of Elections and Rule of Law), the way political settlements would affect economic development, and economic growth has been underpinned. Empirical evidence is introduced on whether democracy influences the economic convergence of countries via the quality of institutions. The rule of law has an impact on this connection. Institutions are constraints designed by society. Thanks to these restrictions, human interaction is ensured. In addition, the main effects of institutions and structures are emphasized in incentives in economy and politics (North, 1990)). In the third chapter, we mention North's book, where a distinction between 'contract theory' and 'predatory theory' of the state is made. Private contracts need a legal framework to facilitate economic transactions. In 'contract theory,' this framework is provided by government institutions. According to the predatory theory, the responsibility for transferring resources between groups rests with the state. A good institution encourages private contracts and diminishes expropriation. This idea is increasingly accepted by political scientists and economists.

Chapter 1[1]

Trust and Financial Development: Forms of Trust and Fractionalization Matter

Abstract. This chapter examines the relationship between trust and financial development using detailed regional data in Turkey. We distinguish different forms of trust (i.e., generalized, narrow, and wide) and investigate whether varying degrees of generalized and narrow trust, as well as wide and narrow trust imply different financial development outcomes. Moreover, we assess how different forms of trust and their combination affect financial development in the presence of ethnically fragmented populations. We use instrumental variable (IV) estimations to address endogeneity issues and the potential reverse causality between trust and financial development. The main results indicate that wide trust has a significantly positive impact on financial development. Moreover, in regions where narrow trust is relatively high, we find financial development benefits from increasing generalized trust. Our findings also highlight that whereas wide trust leads to more developed financial markets in more ethnically fragmented regions, generalized trust plays a stronger role in less fragmented ones. Further, we also analyze the impact of trust on the proportion of credit backed by stable funds such as deposits. Our findings show that generalized trust plays an important role in mitigating the adverse effects that ethnic fractionalization have on the availability of deposits or stable sources to fund loans. On the whole, our study highlights the importance of distinguishing the impact of different forms and combinations of trust. Generalized trust, which is the focus of most studies, is not an all-encompassing one-size-fits-all solution to enhance economic performance.

[1] This chapter draws from the working paper "Trust and Financial Development: Forms of Trust and Ethnic Fractionalization Matter," co-authored with Ruth Tacneng, from Université de Limoges–LAPE and Amine Tarazi, from Université de Limoges–LAPE and Institut Universitaire de France (IUF). Available at SSRN 3888982.

1. Introduction

Trust plays a crucial role in market and societal development. Putnam (1993), for example, argues that social capital, which encompasses norms, trust, and social networks, determines the performance of an economic system. In particular, an economy with strong interconnected networks of trust enables social collective actions and encourages attitudes that enhance cooperation. Trust also plays an important role in business creation by enabling knowledge spillovers and by improving economic efficiency (Corradini, 2020). Arrow (1972) states that trust is fundamental in every commercial transaction, especially those that require long-term commitments. This is primarily the case for financial contracts, which are trust-intensive. Recent empirical studies, moreover, show the crucial role of trust in promoting efficient contracting by decreasing the need for contract regulation and by providing a viable alternative to formal contract enforcement (Cline and Williamson, 2020).

Trust is essential for a wide range of economic outcomes, including financial development. Several studies show a positive link between trust and the use of formal finance instruments (Guiso et al., 2004), stock market participation and development (Guiso et al., 2008; Ng et al., 2016), investor responsiveness to corporate announcements (Pevzner et al., 2015), lower probabilities of default (Jiang and Lim, 2018), reduced macroeconomic volatility (Sangnier, 2013), total factor productivity growth (Bjørnskov and Méon, 2015), market integration (Tu and Bulte, 2010), and investment rate (Zak and Knack, 2001). We note, however, that there are important challenges in explaining the relationships among trust, finance, and economic development, mainly due to trust measurement problems and identification issues. Guiso et al. (2008) and Algan and Cahuc (2014) argue that trust is different from risk aversion or optimism. Trust has indeed its own distinctive characteristics that interact with financial products in a largely unique manner. They purport that the financial environment, which depends on institutional quality, and trustee characteristics could influence trust.

The literature mainly distinguishes generalized trust from particularized trust, which results in different social and economic outcomes (Coleman, 1990; Fukuyama, 1995; Uslaner, 2002; Delhey et al., 2011). Moreover, we note the growing recent research focusing on the multidimensional nature of trust, as well as on the relationship between different aspects of trust (Freitag and Traunmüller, 2009; Delhey et al., 2011; Braesemann and Stephany, 2021). Particularized trust, or a narrow trust radius, is trust in familiar people or in an individual's inner circle, such as relatives, friends, and close acquaintances (in-group trust). Moreover, generalized trust encompasses one's expectations of the general population's trustworthiness. The concept depends, however, on one's connotation of "most people." Studying the radius of "most people" refers to the standard generalized trust measure from the World Values Survey (WVS), Delhey et al. (2011) find that although "most people" signifies out-groups in the majority of countries they study, the notion in most

Confucian countries is much more restricted. Its inclination toward a narrow or wide trust radius is less clear in countries such as South Africa, Turkey, and Peru. We note that a wide trust radius refers to trust in people not known personally, such as those with different group identities (i.e., nationality, religion, or ethnic affiliation) (out-group trust).

Accordingly, the importance of the trust dimensions could be linked to the level of societal fragmentation. On one hand, ethnic diversity may cause governmental inefficiency, which leads to social conflicts (Alesina and La Ferrara, 2005). Consequently, institutional weakness may result in lack of sufficient interaction in society, thereby increasing the information asymmetry between financial institutions and households. On the other hand, other scholars suggest that ethnic diversity brings various abilities, experiences, flexibility, and know-how that may lead to higher innovation and productivity (Alesina et al., 1999).

The purpose of this chapter is threefold. First, we examine how the different forms of trust (generalized, wide, and narrow) affect regional financial development in the context of a single emerging economy where religion is strongly present, along with significant ethnical heterogeneity. We note that many other institutional factors affect the use and availability of financial contracts across countries; these factors are often difficult to control for in a regression analysis. In this study, we exploit within-country variations to identify how trust affects the use of financial contracts. We study Turkey, which is predominantly composed of Turkish (75%-80%) and Kurdish (15%-20%) ethnic groups and carries significant ethnic heterogeneity across regions with large variations in economic and financial development. Such a setting makes it ideal to investigate the different forms of trust. Moreover, although the literature mostly focuses on generalized trust, we stress the importance of investigating the distinct contributions of narrow and wide trust on financial development.

Second, we analyze how the interactions of generalized trust with narrow trust, and of wide trust with narrow trust affect financial development. More specifically, we investigate whether various trust dimensions are complements or drive one another out. To our knowledge, we are the first to study whether specific combinations of trust forms are linked to better financial development outcomes. Finally, we analyze whether the impact of trust on financial development depends on the level of ethnic fractionalization. As such, our study contributes to the literature by providing a better understanding of the importance of a wide trust radius, such as out-group trust, on financial development outcomes, especially where fragmentation may be high. Indeed, such settings make one's social identity more pronounced and antagonism toward "others" more likely. We also examine further issues and conduct robustness checks by looking into the trust-in-banks dimension and by investigating how trust effects the credit-to-deposit ratio. We thus analyze whether trust affects the need to rely on external, unstable funding sources to finance lending activities.

We address endogeneity concerns with regard to our trust variables by using the instrumental variable estimation method. Using the number of foundations and neighboring regions' trust measures as instruments, our results indicate a positive, significant impact of wide trust on financial development. Moreover, we find generalized trust is complementary to narrow trust in positively affecting the level of financial development. These results confirm that trust matters for financial development, but they also highlight that a better understanding of the different dimensions of trust in a community is key to finding which ones are more likely to support financial development. In terms of the interaction between ethnic heterogeneity or fractionalization and our trust measures, our findings indicate that strengthening generalized trust is crucial for financial development in less fractionalized regions, while increasing wide trust is vital in more fragmented areas. Our findings also indicate the importance of generalized trust and wide trust in enhancing stable fund availability as a proportion of credit in regions where narrow trust is very high. We highlight the positive influence of generalized trust on credit intermediation even in more ethnically fragmented areas.

The rest of the chapter is laid out as follows. Section 2 reviews the related literature and presents our research focus. Section 3 discusses the data used in the econometric analyses. Section 4 presents our empirical methodology and the results. Section 5 is dedicated to robustness checks, and section 6 concludes the chapter.

2. Related Literature and Research Focus

2.1 Forms of Trust

Although trust was initially thought to be a one-dimensional concept that produces only positive outcomes, it is now generally acknowledged that different forms or radii of trust exist that can produce an array of results. Several studies identify a dichotomy of trust according to social scope: generalized trust and particularized trust (Uslaner, 2002), likened respectively to a distinction between two types of social capital: bridging and bonding (Putnam, 2000). While bridging social capital refers to the bonds across diverse social groups, bonding social capital pertains to connections among members of the same group or network. Other scholars (Paxton, 1999) use different terminologies for similar distinctions, such as Freitag and Traunmüller (2009), who categorize trust into abstract and intimate trust. Meanwhile, some scholars emphasize that the radius of trust depends on an individual's cultural background (Delhey et al., 2011) and initial conditions. Regardless of the different terms to categorize trust in a given situation, it is important to recognize that deep-rooted trust based on personal ties is far different from generalized trust, and more particularly, from trust in strangers (wide trust). Narrow-radius trust, also called in-group trust or trust within those in close social proximity, builds on the in-group/out-group boundary. It may also be an aspect of social network support (i.e., a private good stemming from personal relationships rather than a public good) (Torche and Valenzuela, 2011).

Some authors argue that narrow or in-group trust may not necessarily translate into broader social outcomes (Algan and Cahuc, 2014). However, Alesina et al. (2013) highlight the important economic consequences of family trust due to its problem-solving features, which play an important role in economic development. Moreover, Uslaner (2002) categorizes it as strategic trust because it is based on an individual's actual experience and hence involves an informed assessment of the risk of trusting the other person. Consequently, it reduces asymmetric information and transaction costs, and facilitates transactions, including financial ones, between two parties. Uslaner (2002) further adds that this strategic trust may be based on a range of factors such as intimacy, emotional attachment, knowledge about one another's integrity, or informal control through reputation and sanctions in networks.

In contrast, generalized trust, which is trust in "most people," and wide trust, which is trust in people we do not know or who belong to another group, complete the realm of interpersonal trust. Delhey et al. (2011) assert that although the majority of the 51 countries they examine consider "most people" as those belonging to another group or network, some attach a more in-group connotation while it is ambiguous for others. Hence, generalized trust is not necessarily equivalent to having a wide trust radius.

Some distrust in strangers can be healthy in many circumstances. However, when people are unwilling to cooperate with those they do not know personally, they prevent a great deal of productive social interactions. Moreover, anonymous trust is beneficial for firms because large corporations rely on cooperation among strangers (Fukuyama, 1995). Indeed, La Porta et al. (1997) and Cingano and Pinotti (2012) find trust is positively related to large firms' share of the economy and firm size, respectively.

Several studies stress the lack of compatibility between particularized trust and generalized trust and between particularized trust and wide trust. Fukuyama (1995) suggests that generalized and particularized forms of trust drive each other out. In addition, Uslaner (2002), analyzing the relationship between particularized trust and generalized trust using factor analysis, finds that the two forms of trust belong to distinct factors. Some authors, however, such as Glanville and Paxton (2007) highlight that in-group trust may not necessarily impede confidence in others. Newton (2001) asserts that different sorts of trust are independent of one another. Freitag and Traunmüller (2009) find that though intimate trust and abstract trust are distinct forms of trust, they are positively correlated, implying that particularized trust enables generalized trust. These studies suggest that it is plausible for individuals to display varying degrees of generalized and particularized trust. Consequently, different combinations of particularized and generalized trust, and particularized trust and wide trust may characterize different societies. Indeed, there may be areas where high in-group or particularized trust may tend to alienate the build-up of generalized trust, out-group trust, and more broadly, trust in strangers, whereas developing all forms of trust may be more plausible in other societies.

2.2. Trust and Financial Development

In the social capital literature, trust is a key trait that enables cooperation between people (Coleman, 1990; Putnam, 1993; Uslaner, 2002) and is a critical driver of economic outcomes (Knack and Kneefer, 1997). Arrow (1972) emphasizes its importance in enabling cooperative behavior and in facilitating transactions in the presence of information asymmetry and incomplete contracts. Indeed, trust is crucial for a well-functioning market as financial transactions involve promises of future payment. Individuals conduct transactions with other parties under the presumption that debtors are largely trustworthy; otherwise, consistently resorting to legal institutions as a recourse mechanism in case of nonrepayment would be very costly. Moreover, through norms and sanctions, trust may substitute for formal institutional mechanisms to ensure repayment. Calderón et al. (2002) provide empirical evidence of a positive correlation between trust and financial development, indicating that countries with higher trust levels tend to have more interconnected financial sectors and more efficient credit markets. Algan and Cahuc (2014) and Cline and Williamson (2016) also find similar positive links between trust and financial development.

In the context of emerging and less developed economies, the literature also investigates the role of trust in access to finance, particularly on microfinance. Group lending, which is the dominant lending technique microfinance institutions adopt, rests on the principle of high trust and strong social ties among group members who are jointly responsible for the group loan repayment. Several studies show that the existence of high levels of social capital and trust determines repayment performance (Postelnicu and Hermes, 2018; van Bastelaer and Leathers, 2006).

These bodies of research suggest that trust, regardless of its form, may positively affect financial development outcomes. To the extent that particularized trust facilitates access to informal loans and small group loans, which is the case in microfinance lending, and that it may enhance relationship-based banking, generalized trust and trust in strangers enable cooperative behavior that is vital in bank lending and formal credit markets. Bowles and Gintis (2004) find that parochial networks or groups that are formed based on cultural distinctions between insiders and outsiders, may foster economic development through increased trust. They argue that trust plays a vital role in the enforcement of informal contracts and consequently offsets benefits from trading with outsiders. Further, they argue that such networks solve economic issues within their groups that the market and the state often find difficult to resolve. Cline and Williamson (2016, 2020) further confirm this; they show that trust enhances contract efficiency by reducing the demand for contract regulation. In addition, they suggest that trust may be an alternative to formal contract enforcement mechanisms. Moreover, Aghion et al. (2010) and Pinotti (2012) find trust attenuates pressures for government intervention and show a negative relationship between trust and business entry barriers.

As more secured, formal credit and unsecured credit cater to different sets of borrowers, which is characteristic of segmented credit markets, it may be argued that high levels of particularized, generalized trust, and wide trust could result in better financial development outcomes, complementing one another in further developing financial markets.

2.3 Link between Trust, Fractionalization, and Financial Development

Social identity theory purports that individuals are more concerned about the welfare of fellow group members or people they share a specific affiliation or identity (i.e., regional, religious, ethnic) with (Tajfel et al., 1971). Antagonism toward others, especially out-group members, deters cooperative behavior, which adversely affects economic and financial development. Indeed, various studies link ethnic fractionalization or fragmentation to lower economic growth and financial development, as well as lower quality of governance (Alesina and La Ferrara, 2005). Coupled with a rational evaluation of another person's trustworthiness (Coleman, 1990; Hardin, 2002) as a basis of trusting others, an individual is more likely to trust in or depend on people he/she knows. Further, repeated interactions due to the high frequency one spends with his/her group develops a reputation mechanism, which is vital in conducting business. For example, as Greif (1993) discusses, most traders formed coalitions on the basis of ethnic identity during medieval times in order to exchange information about opportunistic behavior among market agents. Thus, the more ethnically heterogeneous a community is, the more trust becomes crucial, particularly trust in strangers and/or out-group trust, in order to encourage cooperative behavior and facilitate transactions within the community. Trust in others may, hence, be more vital for better financial development outcomes where ethnic fragmentation may be higher.

Further, several authors suggest that ethnic heterogeneity may influence the formation of out-group trust. Dincer (2011) and Putnam (2007) argue that although the conflict hypothesis implies that diversity drives out trust to others and encourages trusting one's own group, contact hypothesis suggests that the more an individual interacts with an "outsider" due to ethnic heterogeneity, the more they trust others. Empirical studies find mixed results. Although Delhey and Newton (2005) and Alesina and La Ferrara (2002) provide evidence supporting the conflict hypothesis, Stolle et al. (2008) finds that the conflict hypothesis only holds if there is lack of contact between groups. Further, Montalvo and Reynal-Querol (2005) purport that diversity does not necessarily lead to lower trust and conflict. To the extent that an ethnically heterogeneous society may either foster in-group or out-group trust, depending on which effect dominates the other, fragmentation that is coupled with out-group trust or to a broader extent, with wide trust, is expected to induce cooperative behavior that is vital for financial development.

3. The Data

We consider the 12 NUTS statistical regions of Turkey at the NUTS-1 level for 2004-2017[2,3]. Although the relatively high level of aggregation at the regional level considerably reduces the number of observations in our study, a lower level of aggregation (NUTS-2) is less accurate, as Boldrin and Canova (2001) and Basile (2008) argue, due to its sometimes artificial nature. Our approach is consistent with previous studies that investigate the role of trust, for instance in Europe, such as Beugelsdijk and Van Schaik (2005), who also consider the NUTS-1 level. The 12 regions in our study are Istanbul, West Marmara, Aegean, East Marmara, Western Anadolu, Mediterranean, Central Anatolia, West Karadeniz, East Karadeniz, Northeastern Anatolia, Mid-Eastern Anatolia, and Southeastern Anatolia.

3.1 Financial Development Measures

Financial sector development may be measured in a number of ways (Beck et al., 2007; Čihák et al., 2012). In this study, we use four financial development indicators, which are based on either bank deposits or bank loans. We obtain data from The Banks Association of Turkey (TBB). Specifically, we consider the natural logarithm of regional credit per capita (creditpercapita), the natural logarithm of regional deposits per capita (depositpercapita), regional deposits to regional GDP (deposit-to-income), and regional credit to regional GDP (credit-to-income). We use regional consumer price indices (CPI) to deflate per capita domestic income and other financial indicators into real values. We focus on bank deposits and loans, not only because they represent the main services offered by financial institutions as shown in Beck et al. (2007), but also due to data availability at the regional level since 2004. Most studies focus on cross-country analyses; however, for regional-level analyses, the aim is to reflect the density and depth of each region's financial system. Mitra et al. (2002) use the number of bank branch offices per 1,000 inhabitants, as well as deposits and loans as a percentage change in income as proxy variables. Meanwhile, Ghosh and De (2005) use credit/deposits in national banks, share of tax revenue in net state domestic product (NSDP), and number of post offices per 10,000 people.

3.2 Trust Measures

The first step in our empirical study is to identify a reasonable measure of trust at the regional level. Due to the lack of a complete set of statistical data on types of trust within Turkey, our trust measure is from the World Values Survey (WVS) (Inglehart et al., 2014a, 2014b), which is recognized as the reference and possibly the only reliable source for comparisons across regions and countries over time (Guiso et al., 2004; Algan and Cahuc, 2014). The samples are selected using a combination of probability-proportional-to-size

[2] We note that trust data limitations also affect our choice to conduct the study at the NUTS-1 level instead of the more aggregated NUTS-2 level.

[3] NUTS stand for Nomenclature of Territorial Units for Statistics. See http://epp.eurostat.ec.europa.eu

and multistage sampling techniques. Three different types of questions distinguish generalized from particularized or narrow and wide trusts.

To quantify generalized trust, we rely on the respondents' answer to the question "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" Two candidate answers are: (i) Most people can be trusted, and (ii) You need to be very careful in dealing with people. Our measure, generalizedtrust, is the percentage of people in each region who answered "(i) Most people can be trusted."

The question to assess the level of particularized trust (narrowtrust) is: "Could you tell me whether you trust people you know personally completely, somewhat, not very much or not at all?" Moreover, to measure wide trust or trust in people one has never interacted with (widetrust), we rely on the respondents' answer to the question: "Could you tell me whether you trust people who you meet for the first time completely, somewhat, not very much or not at all?" The corresponding narrow trust and wide trust measures, narrowtrust and widetrust, respectively, are the proportion of people in each region who said they completely or somewhat trust people they know personally and people they meet for the first time.

Although many cross-country and within-country studies use the WVS, some researchers question its appropriateness, such as translation difficulty, question and data inconsistency, and differential response bias. Nevertheless, after comparisons with independent data sources, it is a valid measure of honesty, trust, and trustworthiness. For example, Knack and Keefer (1997) emphasize that such problems do not introduce noise, but rather capture universal interpersonal trust. Uslaner (2002), Bjørnskov (2007), Sapienza et al. (2013) also provide evidence regarding the appropriateness of this measure from different perspectives.

As of 2017, the WVS comprises six waves in Turkey, published in 1990, 1996, 2001, 2007, and 2012. In the 1990, 1996, and 2001 surveys, the respondent's geographical location is not reported. Consequently, we only use information from the 2007 and 2012 WVS (waves 5 and 6) (Inglehart et al., 2014a, 2014b) covering responses from 1,346 and 1,605 individuals, respectively.

We note that the WVS measure of trust changes very slowly over time. For example, Yang and Shen (2010) argue that the trust levels in different provinces of China remain almost unchanged during the past several years. Knack and Keefer (1997) indicate that for 20 market economies with trust levels reported in 1981 and in 1990, the correlation of trust measured at the two dates is as high as 0.91. Uslaner (2002), Bjørnskov (2007), and Tabellini (2008) also report that trust remains almost unchanged within a very long period of time, and such a period can last for as long as half a century. In this study, we use data from the 2007 WVS wave to measure regional trust levels from 2004 to 2010, and we base the regional trust indicator over 2011-2017 from the 2012 WVS wave.

3.3 Fractionalization Measure

To measure ethnic heterogeneity or fractionalization, we use the regional ethnic fractionalization index defined by Alesina and Zhuravskaya (2011). This indicator captures the probability that two randomly selected individuals in a region belong to different ethnic groups. For each region $j = 1,2,\dots,12$, ethnic fractionalization (fractionalizationj) is calculated as follows:

$$fractionalization_j = \sum_{m=1}^{2} \pi_{jm}(1 - \pi_{jm})$$

where π_{jm} is the fraction of ethnic group m (either Turks or Kurds) in region j. Higher fractionalization indicates higher ethnic fragmentation and, thus, higher incidence of ethnic tensions and conflicts.

3.4 Control Variables

We consider several control variables that are commonly used in the literature. We obtain information from the National Institute of Statistics (TUIK). The first is regional GDP growth, a measure of economic development. Because of possible reverse causality between economic growth and financial development (Peia and Roszbach, 2015), we use initial regional GDP growth, calculated as average regional GDP growth (initialGDPgrowth) before our study period (2000-2004). The second variable indicates the dominant economic sector in the region based on its share of regional GDP. We define a binary variable, sector-services, which is equal to one if the services sector is the dominant sector (or has the highest share in regional GDP) in their region, and zero otherwise. We also include a dummy variable, dummy Istanbul, indicating the country's business and financial center. We note that most financial institutions in Turkey are in Istanbul. We also control for time fixed effects by introducing year dummy variables.

Table 1.1 shows the summary statistics, and table 1. 2 reports the correlation matrix of the variables in our estimations.

Table 1. 1 Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
creditpercapita (‘000)	168	6.56	9.40	0.09	66.07
depositpercapita (‘000)	168	5.92	8.82	0.19	63.77
credit-to-income	168	0.323	.169	0.06	0.87
deposit-to-income	168	0.320	.177	0.11	0.86
credit_over_deposit	168	1.081	0.462	0.26	2.86
generalizedtrust	168	0.071	.055	0	0.19
narrowtrust	168	0.780	.091	0.59	0.96
widetrust	168	0.164	.086	0.04	0.37
initialGDPgrowth	168	94.31	1.706	91.93	96.89
dummy Istanbul	168	0.083	0.277	0	1
fractionalization	168	.074	0.069	0	.2
sector-services	168	0.685	0.466	0	1

Table 1. 2 Correlation matrix

Variables	credit percapita	deposit percapita	credit-to-income	deposit-to-income	generalized trust	narrow trust	widetrust	initial GDPgrowth	fractionalization	sector-services
creditpercapita	1.000									
depositpercapita	0.956	1.000								
credit-to-income	0.920	0.902	1.000							
deposit-to-income	0.586	0.763	0.718	1.000						
generalizedtrust	0.547	0.538	0.641	0.438	1.000					
narrowtrust	0.201	0.216	0.099	0.078	0.268	1.000				
widetrust	0.341	0.306	0.332	0.118	0.367	0.201	1.000			
initialGDPgrowth	0.134	0.233	0.169	0.353	0.143	0.101	-0.213	1.000		
fractionalization	-0.249	-0.377	-0.161	-0.312	0.086	0.040	-0.032	-0.115	1.000	
sector-services	-0.064	-0.064	0.113	0.191	0.183	-0.306	-0.357	0.016	0.321	1.000

3.5 Descriptive Evidence: Stylized Facts and Local Context

The WVS results in 2012 reveal that in terms of generalized trust, Turkey is a relatively distrustful society, with only 11.6% of respondents agreeing with the statement, “Most people can be trusted.” The level of interpersonal trust in Turkey, for instance, is far below the OECD average in 2008 (59% of people expressing a high level of trust in others, on average), with Turkey ranking 29th out of the 30-member states.

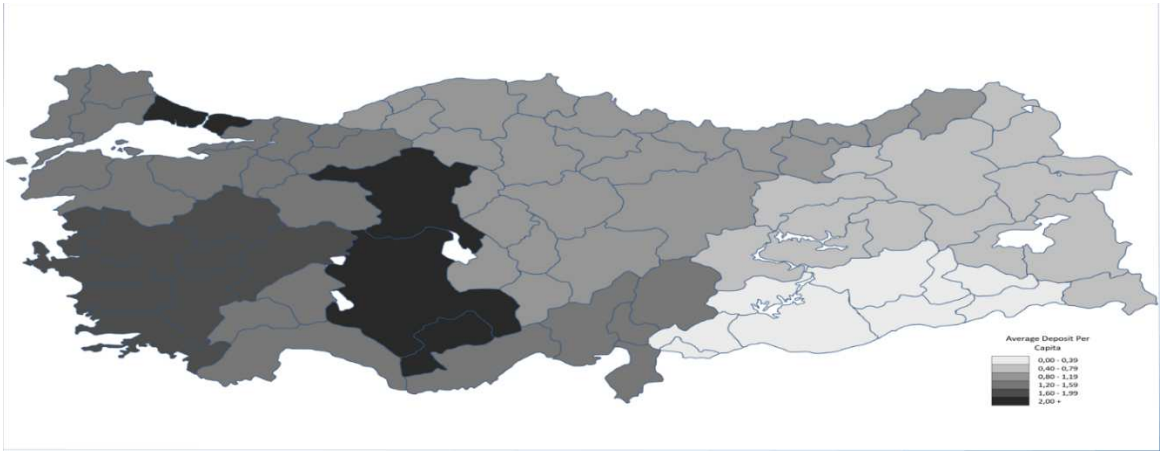
Regardless, Turkey is the 19th largest economy in the world in terms of nominal GDP, as reported in the IMF World Economic Outlook Database in 2019, with a financial development index of 0.537 and a financial markets index of 0.589, ranking 37th and 27th out of 183 economies, respectively, in the 2013 rankings of financial development (Svirydzenka, 2016).

Regional differences in economic activity and trust are prevalent in Turkey. Kayaoglu (2017) purports that regional variations in education levels and income inequality explain trust differences. Moreover, regional trust variations are also related to differences in regional financial development. Figures 1a and 2a show generalized trust levels in 2007 and 2012, respectively, and figures 1b and 2b show average regional deposits per capita between 2004 and 2010, as well as between 2011 and 2017, respectively. Generalized trust, measured as the percentage of respondents who agree to the statement, "Most people can be trusted," is highest in the Mediterranean and East Marmara regions, and it is weakest in Southeastern Anatolia and West Marmara. Moreover, we observe that financial development is relatively high in regions where generalized trust is also relatively high. In addition, we observe increasing generalized trust and financial development over time. For example, in Istanbul, we note that in 2007 when merely 4% of the population agrees that most people can be trusted, credit per capita is 1.990 thousand Turkish Lira (TL) and deposits per capita are 3.840 thousand TL. In 2012, the level of generalized trust increases to 17%, while credit and deposits per capita increase by more than four times to 17.27 thousand TL and 19.81 thousand TL, respectively. Moreover, we observe regional trust and financial development variations. Although eastern regions' average trust levels are 6.9% to 10.4%, from the results of the WVS waves 5 and 6, respectively, and deposits per capita are less than 2.4 thousand TL, central and western regional trust levels are around 14%, and deposits per capita are 12 thousand TL.

Figure 1. 1 Generalized trust across regions in Turkey, 2007.

Note: The darker the shade is, the stronger generalized trust is. Source of data: World Values Survey

Figure 1. 2 Average financial development between regions in Turkey, 2004-2010.



Note: The darker the shade is, the higher the level of financial development is. Source of data: The Banks Association of Turkey

Figure 1. 3 Generalized trust between regions in Turkey, 2012.

Note: The darker the shade is, the stronger generalized trust is. Source of data: World Values Survey

Figure 1. 4 Average level of financial development between regions in Turkey, 2011-2017.

Note: The darker the shade is, the higher the level of financial development is. Source of data: The Banks Association of Turkey

Regional inequalities in economic development are also present across Turkey. Provinces in Eastern and Southeastern Anatolia, the eastern Black Sea region, certain parts of Central Anatolia, and even some parts of western Anatolia and the Mediterranean are relatively less developed than others. Several factors explain such variations. First, Srikantan (1973) emphasizes differences in geographic features across regions. Second, ethnic polarization and demographic shocks between 1913 and 1927 due to the Armenian and Muslim conflict resulted in a population decline in eastern Turkey of around 30% (Asik et al., 2020). Moreover, Kurds, who are the largest ethnic group after Turks, mostly live in eastern Turkey. Eastern regions are, hence, more ethnically fragmented. In addition, they are relatively less developed compared with other regions, such as

those in the west. This is consistent with studies indicating that ethnic fractionalization is linked to low economic growth (Alesina and La Ferrara, 2005). Thus, Asik et al. (2020) also find that demographic changes and ethnic fragmentation are important drivers of regional inequalities in Turkey. The migration of younger and generally more educated people from rural to urban areas and from lower-income to higher-income regions also keeps education levels relatively low in the eastern regions. In contrast, the more educated segments of the population are concentrated in the urban areas, especially in the largest metropolitan areas (Tansel and Güngör, 1997). Last, government policies that tend to prioritize some regions and the quality of local governance can also explain regional inequalities. Although the national government implemented regional development programs to improve social welfare and the economy in poor regions, the absence of a shared vision among the planners, the intended beneficiaries, and the local communities impaired the effectiveness of such programs (Mutlu 1996; Carkoglu and Eder, 2005).

4. Empirical Methodology and Results

4.1 Baseline Specification: Instrumental Variable Regression

There is no consensus in the literature regarding causality between trust and economic performance. On one hand, Uslaner (2008) and Algan and Cahuc (2010) indicate that the causality runs from social capital to economic growth because social capital exhibits a time-invariant heritable component that is passed on from generation to generation[4]. On the other hand, some authors argue that trust may not be stable over time but is a product of an individual's environment and experiences; consequently, economic performance is likely to affect trust. For example, Dinesen (2012) finds that immigrants adjust their trust levels to those of the natives in the destination country. In addition, Chan (2007) argues that increases in trade openness may increase trust as long as income inequality is low.

Considering plausible endogeneity concerns with regard to our trust variables, mainly generalized trust and wide trust due to a possibly reverse causal relationship between trust and financial development and measurement error, we use the instrumental variable (IV) regression method. We mainly utilize the average value of neighboring regions' trust measures and the region's number of foundations as instruments for generalized trust and wide trust[5]. We argue that neighboring regions' trust levels are correlated to a region's level of trust, which may be attributed to geographical proximity that increases the incidence of repeated economic and social interactions in the population. In addition, proximity facilitates mobility and migration

[4] Trust is a crucial component of social capital (Putnam et al., 1993). Moreover, Bjørnskov (2006) finds trust is the sole social capital component that explains governance and life satisfaction. Thus, discussion of the relationship between social capital and economic performance is relevant in understanding the link between trust and financial development.

[5] These refer to the new foundations, which independent courts establish after the creation of the Republic of Turkey in 1923. They are distinct from old foundations formed during the Ottoman Empire. The new foundations carry out activities in areas such as education, culture, health, and science. We obtain data on the number of foundations by region from the T.R. Directorate General of Foundations.

between regions, thus affecting a region's trust levels. Moreover, the literature documents the impact of common horizontal networks such as neighborhoods, civic associations, schools, and churches in reinforcing the social capital environment (Li et al., 2018). To test the validity of our instruments and establish that our IV estimators are consistent, we perform the Kleibergen-Paap rk LM test and the Hansen-J test. We also execute the C-statistic test of exogeneity to check whether wide trust and generalized trust are indeed endogenous.

We estimate the following baseline specifications (equations 1 and 2):

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \Lambda X + \varepsilon_{it} \quad \text{(Eq. 1)}$$

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 widetrust_{it} + \Lambda X + \varepsilon_{it} \quad \text{(Eq.2)}$$

where equation 1 is a nested model, considering only generalized trust ($generalizedtrust$), and equation 2 is a broader model, which introduces the two other forms of trust: narrow ($narrowtrust$) and wide ($widetrust$). $FinDev$ represents the four measures covering different financial development aspects, $creditpercapita$, $depositpercapita$, $credit-to-income$, and $deposit-to-income$. X is a vector of region-specific, time-variant, and time-invariant variables that affect regional financial development, such as GDP growth ($initialGDP\ growth$), which is a dummy variable indicating whether the services sector is dominant in the region ($sector-services$), a dummy variable indicating the country's financial center ($dummy\ Istanbul$), and one indicating its regional fractionalization ($fractionalization$).

We note that positive and significant coefficient estimates of trust measures indicate significantly positive relationships between trust (and the different radii/forms of trust) and financial development. Moreover, the estimation results from eq. 2 provide a better understanding of the dynamics of different forms of trust and financial development, considering trust measures at the opposite ends of the spectrum (narrow and wide).

4.2 Links between Different Radii of Trust and Financial Development

We also investigate whether specific combinations of trust, by interacting our various trust measures, are associated with better financial development outcomes. More specifically, we examine the marginal effect of increasing generalized trust and wide trust in enabling more extensive use of financial services at varying levels of narrow trust. We purport that high generalized trust or wide trust in a region where trust in people personally known is very high increases per capita deposits and credit levels. We thus investigate whether generalized trust and narrow trust, and wide trust and narrow trust, are complements in improving financial development outcomes.

We hence, estimate equations 3a and 3b.

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 widetrust + \gamma_1 (generalizedtrust * narrowtrust)_{it} + \Lambda X + \varepsilon\_it \quad \text{(Eq. 3a)}$$

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 widetrust + \gamma_1 (widetrust * narrowtrust)_{it} + \Lambda X + \varepsilon\_it \quad \text{(Eq. 3b)}$$

where $generalizedtrust * narrowtrust$ and $widetrust * narrowtrust$ are the interaction terms between generalized trust and narrow trust, and between wide trust and narrow trust, respectively. We calculate the marginal effect of generalized trust and wide trust on financial development outcomes for different percentile values of narrow trust $(\beta_1 + \gamma_1 * narrowtrust_{it})$, $(\beta_1 + \gamma_2 * narrowtrust_{it})$. A positive and significant coefficient indicates a complementary impact of wide trust and narrow trust, as well as generalized trust and narrow trust, on financial development outcomes.

4.3 Exploring the Link between Trust and Fractionalization

Alesina and Giulano (2015) assert that trust travels less effectively across groups than among group members. We analyze whether the beneficial effects of trust, in terms of higher use of credit and deposit services, depend on ethnic group heterogeneity. We expect a stronger link between generalized trust or wide trust and financial development outcomes in areas where fractionalization is high or in ethnically heterogeneous regions. This is because trust in more fragmented areas, in general, is low (Alesina and La Ferrara, 2000, 2002), especially for "out-group" members (Guiso et al., 2009). Similar observations are in the experimental literature, where participants tend to cooperate more with in-group members than others (Chen and Li, 2009). Moreover, in more ethnically homogeneous regions, we expect high trust levels, in general, to lead to more extensive use of financial services. We thus test whether a specific form of trust achieves better financial development outcomes depending on how distinctions are deeply rooted between ethnic groups. Players of trust games from opposing ethnic affiliations and cultural groups often show mistrust of the other group (Fershtman and Gneezy, 2001) and tend to reciprocate trust accorded to them (Bornhorst et al., 2010).

We hence estimate the following equations (equations 4a, 4b and 4c):

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 wi\det rust_{it} + \beta_4 fractionalization_{it} + \phi_1 (generalizedtrust * fractionalization)_{it} + \Lambda Z + \varepsilon_{it} \quad \text{(Eq. 4a)}$$

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 wi\det rust_{it} + \beta_4 fractionalization_{it} + \phi_2 (narrowtrust * fractionalization)_{it} + \Lambda Z + \varepsilon_{it} \quad \text{(Eq. 4b)}$$

$$FinDev_{it} = \beta_0 + \beta_1 generalizedtrust_{it} + \beta_2 narrowtrust_{it} + \beta_3 wi\det rust_{it} + \beta_4 fractionalization_{it} + \phi_3 (widetrust * fractionalization)_{it} + \Lambda Z + \varepsilon_{it} \quad \text{(Eq. 4c)}$$

where $generalizedtrust * fractionalization$, $narrowtrust * fractionalization$, and $widetrust * fractionalization$ are the interaction terms between generalized trust and fractionalization, between narrow trust and fractionalization, and between wide trust and fractionalization, respectively. We calculate the marginal effects of generalized trust, narrow trust, and wide trust on financial development outcomes for different percentile values of the regional fractionalization measure derived from Alesina and Zhuravskaya (2011) - $\beta\_1 + \phi_1 * fractionalization$, $\beta_2 + \phi_2 * fractionalization$, $\beta_3 + \phi_3 * fractionalization$.

4.4 Empirical Results

4.4.1 Results: Baseline Specification

We present the IV estimation results of equations 1 and 2 in tables 1. 3 and 1. 4, respectively, examining the relationship between generalized trust (generalizedtrust) and the two radii of trust at the opposing ends of the spectrum (narrowtrust and widetrust) and financial development. We reject the null hypothesis of exogeneity of the variables generalizedtrust in equation 1 and generalizedtrust and widetrust in equation 2 as indicated by the C-statistic test of exogeneity. Moreover, both the Kleibergen Paap rk LM and Hansen J statistics confirm the validity of our instruments.

Table 1. 3 The relationship between generalized trust and financial development in Turkey using regional data, 2004-2017.

	IV regression			
	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
generalizedtrust	15.61***	21.51***	2.860***	5.510***
	(7.69)	(6.90)	(11.51)	(7.39)
sector-services	-0.436***	-0.529***	-0.0231	-0.0577
	(-3.91)	(-3.49)	(-1.17)	(-1.45)
dummy_Istanbul	1.419***	1.519***	0.238***	0.313***
	(9.05)	(7.89)	(13.43)	(7.77)
fractionalization	-5.328***	-7.108***	-0.572***	-1.083***
	(-8.38)	(-9.35)	(-4.05)	(-5.06)
initialGDPgrowth	-0.0906***	-0.0774**	-0.0168***	-0.0169*
	(-3.47)	(-2.15)	(-3.51)	(-1.69)
Year dummies	yes	yes	yes	yes
Constant	7.249***	6.666**	1.616***	1.696*
	(2.95)	(1.97)	(3.57)	(1.80)
Obs	168	168	168	168
F-stat	66.44***	29.54***	54.33***	12.84***
Kleibergen-Paap LM stat	29.23***	29.23***	29.23***	29.23***
Hansen J statistic	2.678	3.620	1.762	1.572
p-value	0.102	0.0571	0.184	0.210
Endogeneity test	17.91***	1.909	29.05***	11.35***

This table displays OLS and IV regression estimates of equation 1. The financial development indicators are: creditpercapita, which

is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variable of interest is generalizedtrust, which is the proportion of people in each region who responded that most people can be trusted. This measure ranges from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments of generalizedtrust: Neighboring regions' average wide trust and the region's number of foundations.

Table 1. 4 The relationship between generalized trust, different forms of trust, and financial development in Turkey using regional data, 2004-2017.

	IV regression			
	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
generalizedtrust	-3.156	0.293	-0.735	-0.0805
	(-0.57)	(0.04)	(-0.62)	(-0.04)
narrowtrust	1.334	1.407	0.0816	0.170
	(1.57)	(1.46)	(0.44)	(0.63)
widetrust	13.89***	15.89***	2.740***	4.287***
	(2.94)	(2.87)	(2.74)	(2.80)
sector-services	1.122**	1.241*	0.271**	0.404**
	(2.16)	(1.92)	(2.44)	(2.25)
dummy_Istanbul	0.880***	0.892***	0.119**	0.128
	(3.74)	(3.03)	(2.19)	(1.58)
fractionalization	-6.230***	-8.123***	-0.714***	-1.316***
	(-6.59)	(-7.49)	(-3.96)	(-4.52)
initialGDPgrowth	0.168*	0.219*	0.0359*	0.0649**
	(1.76)	(1.94)	(1.78)	(2.11)
Year dummies	yes	yes	yes	yes
Constant	-20.17**	-24.65**	-3.811*	-6.770**
	(-2.06)	(-2.14)	(-1.84)	(-2.14)
Obs	168	168	168	168
F-stat	39.23***	30.02***	11.58***	12.10***
Kleibergen Paap LM stat	7.589**	7.589**	7.589**	7.589**
Hansen J stat	1.236	0.319	1.471	0.300
p-value	0.266	0.572	0.225	0.584
Endogeneity test	33.97***	30.07***	36.07***	31.85***

This table displays OLS and IV regression estimates of equation 2. The financial development indicators are: creditpercapita, which is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and widetrust or the proportion of people in each region who responded that they trust people they meet for the first time somewhat or completely. These measures range from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments of generalizedtrust and widetrust: neighboring regions' average level of narrow trust, generalized trust, and the number of foundations (average for 2004-2011 and 2012 to 2017).

In table 3a, we find a positive and significant link between generalized trust and financial development. This indicates that individuals in regions with relatively higher generalized trust tend to use credit and deposit

services more extensively. We obtain such findings after controlling for population (creditpercapita and depositpercapita) and average income (credit-to-income and deposit-to-income). For equation 2, controlling for specific trust measures (narrow and wide trust), our findings show that, in general, more trust-intensive regions with high wide trust are relatively more financially developed. We note, however, that the positive relationship between generalized trust and financial development disappears after controlling for the two radii of trust at the opposite ends of the spectrum (narrow trust and wide trust). This possibly indicates that generalized trust in equation 1 partially captures the impact of wide trust on financial development. Overall, our findings suggest that an increase in wide trust, which consists of trust in strangers, enables cooperation among different economic agents in society, hence improving financial development outcomes. Moreover, our results indicate that more fragmented regions tend to be less financially developed. Such findings are consistent with scholars who show that fractionalized communities tend to experience political and economic challenges, leading to low-quality government and hence poor provision of public goods and services (Alesina and Ferrara, 2005). In terms of our control variables, we find that the region where the financial and economic capital city is located, Istanbul, is more financially developed than other regions.

4.4.2 Results: Interaction between Different Radii of Trust and Financial Development Outcomes

Table 1. 5 presents the estimation results of equations 3a and 3b. The aim is to investigate whether there are complementary effects between generalized trust and narrow trust, and between wide trust and narrow trust. We show the computed marginal effects of generalized trust and wide trust at different percentile levels (low, median, and high) for narrow trust in tables 4b and 4c.

Table 1. 5 Impact of the interactions between narrow trust and generalized trust, and between narrow trust and wide trust on financial development in Turkey using regional data, 2004-2017.

	Instrumental Variable Regression							
	Eq. 3a				Eq. 3b			
generalizedtrust	-45.24	-73.83	-9.484**	-21.37*	20.52***	28.02***	2.695***	5.683***
	(-1.24)	(-1.39)	(-2.00)	(-1.79)	(3.98)	(3.70)	(2.98)	(2.98)
narrowtrust	-8.085**	-12.12**	-1.471***	-3.091***	-13.60*	-20.38**	-3.375**	-5.793**
	(-2.55)	(-2.56)	(-3.43)	(-2.81)	(-1.88)	(-1.98)	(-2.34)	(-2.18)
generalizedtrust*narrowtrust	89.20*	138.1*	16.47***	36.67**				
	(1.82)	(1.92)	(2.61)	(2.27)				
widetrust	-5.444	-8.816	-0.646	-2.016*	-63.56*	-97.40*	-15.97**	-28.16**
	(-1.38)	(-1.57)	(-1.30)	(-1.68)	(-1.73)	(-1.86)	(-2.28)	(-2.15)
widetrust*narrowtrust					77.31*	118.0*	19.97**	34.58**
					(1.70)	(1.83)	(2.33)	(2.16)
sector-services	-1.718***	-2.436***	-0.185***	-0.454**	-0.767**	-0.968**	0.00652	-0.0560
	(-3.05)	(-2.95)	(-2.63)	(-2.53)	(-2.30)	(-2.04)	(0.10)	(-0.47)
dummy_Istanbul	1.745***	2.071***	0.284***	0.453***	1.052***	1.004**	0.131***	0.156*
	(4.34)	(3.59)	(5.82)	(3.77)	(3.43)	(2.40)	(2.76)	(1.68)
initialGDPgrowth	-0.133	-0.154	-0.0170	-0.0309	0.0191	0.0798	0.0190	0.0357
	(-1.52)	(-1.21)	(-1.44)	(-1.10)	(0.22)	(0.68)	(1.25)	(1.31)
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Constant	18.24*	24.48*	2.880**	5.742*	7.382	7.680	0.823	1.252
	(1.81)	(1.65)	(2.16)	(1.74)	(1.15)	(0.86)	(0.66)	(0.56)
Obs	168	168	168	168	168	168	168	168
F-stat	28.50***	12.99***	35.26***	12.24***	21.51***	8.403***	21.88***	7.192***
Kleibergen Paap LM stat	11.45***	11.45***	11.45***	11.45***	6.938**	6.938**	6.938**	6.938**
Hansen J test	0.117	0.107	3.695	0.658	0.878	1.199	0.0156	0.596
p-value	0.732	0.744	0.0546	0.417	0.349	0.273	0.901	0.440
Endogeneity test	37.16***	33.06***	30.85***	28.88***	31.23***	25.32***	42.13***	24.64***

This table displays IV regression estimates of equations 3a & 3b. The financial development indicators are: creditpercapita, which is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and widetrust or the proportion of people in each region who responded that they trust people they meet for the first time somewhat or completely. These measures range from 0 to 1. We also include the interaction terms between generalizedtrust and narrowtrust (generalizedtrust*narrowtrust) and between widetrust and narrowtrust (widetrust*narrowtrust). We also consider regional ethnic fractionalization (fractionalization) in our regressions. Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul

is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments of generalizedtrust, widetrust, and generalizedtrust*narrowtrust in equation 3a and widetrust, generlaizedtrust, and widetrust*narrowtrust in equation 3b: neighboring regions' average level of wide trust, narrow trust, interaction between neighboring regions' average level of wide trust and narrow trust, and interaction between neighboring regions' average level of narrow trust and narrow trust.

Table 4b. Marginal effects of generalized trust according to different levels of narrow trust in Turkey using regional data, 2004-2017.

	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
Low narrow trust (P10)	15.410** (6.682)	20.109** (9.608)	1.713** (0.857)	3.561* (2.132)
Median narrow trust (P50)	23.437*** (6.368)	32.542*** (9.382)	3.195*** (0.781)	6.861*** (2.097)
High narrow trust (P90)	37.709*** (11.392)	54.645*** (16.961)	5.830*** (1.408)	12.728*** (3.819)

*delta standard errors in parentheses

Table 4c. Marginal effects of wide trust according to different levels of narrow trust in Turkey using regional data, 2004-2017.

	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
Low narrow trust (P10)	-10.99* (6.397)	-17.180* (9.392)	-2.387* (1.269)	-4.647* (2.424)
Median narrow trust (P50)	-4.030 (3.296)	-6.562 (4.877)	-0.589 (0.682)	-1.535 (1.289)
High narrow trust (P90)	8.339 (6.337)	12.313 (8.664)	2.606** (1.174)	3.997* (2.098)

*delta standard errors in parentheses

Our findings reveal a significant impact of the interaction between generalized trust and narrow trust on financial development. An increase in generalized trust is most significant in regions exhibiting extremely high narrow trust. These results also suggest that particularized trust is important for financial development as long as generalized trust is also high. In contrast, we find the interaction effect between wide trust and narrow trust is less striking, only showing a significantly positive impact on credit-to-GDP and deposit-to-GDP ratios. These findings indicate that the role of generalized trust in improving financial development depends on the degree of specific (in-group) trust. The benefits from generalized trust are larger in areas where the formation of social networks outside the bounds of familial and familiar ties is less likely, which is the case in regions where narrow trust is high. This suggests that positive complementary effects occur when improving both generalized and particularized trust for financial development.

4.4.3 Results: Interaction between the Different Radii of Trust and Ethnic Heterogeneity, and Financial Development Outcomes

We present in tables 5a and 5b the regression results and the calculated marginal effect of generalized trust on financial development at varying degrees of fractionalization using regional data.

Table 1. 6 Link between generalized trust and financial development dependent on regional fractionalization in Turkey, 2004-2017.

	Instrumental variable (IV) regression			
	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
generalizedtrust	20.01***	29.62***	2.677***	6.298***
	(4.49)	(4.41)	(5.23)	(4.24)
fractionalization	-2.334**	-2.038	0.113	0.158
	(-2.56)	(-1.64)	(0.98)	(0.62)
generalizedtrust*fractionalization	-48.45***	-82.62***	-10.51***	-19.49***
	(-2.85)	(-3.65)	(-4.60)	(-4.05)
widetrust	-2.580	-4.238	-0.630**	-1.050*
	(-1.34)	(-1.55)	(-2.57)	(-1.85)
narrowtrust	-0.0429	-0.0584	0.00738	-0.0474
	(-0.07)	(-0.06)	(0.10)	(-0.26)
Control variables	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Constant	10.85**	12.79*	2.096***	2.798*
	(2.33)	(1.93)	(3.11)	(1.89)
Obs.	168	168	168	168
F-stat	60.60***	34.51***	88.63***	14.90***
Kleibergen Paap LM stat	19.70***	19.70***	19.70***	19.70***
Hansen J stat	1.208	0.622	3.224	0.363
p-value	0.272	0.430	0.0726	0.547
Endogeneity test	34.01***	41.27***	18.23***	25.84***

This table displays IV regression estimates of equation 4a. The financial development indicators are: creditpercapita, which is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and widetrust or the proportion of people in each region who responded that they trust people they meet for the first time somewhat or completely. These measures range from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. We include the interaction term between generalizedtrust and fractionalization (generalizedtrust*fractionalization). Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments of generalizedtrust, widetrust and generalizedtrust*fractionalization: neighboring regions' average level of wide trust, narrow trust, interaction between neighboring regions' average level of wide trust and narrow trust with fractionalization.

Table 5b. Marginal effect of generalized trust according to different levels of ethnic fractionalization using regional data in Turkey, 2004-2017.

Ethnic fractionalization	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
Low (P10)	19.529***	28.798***	2.572***	6.103***
	(4.327)	(6.529)	(0.495)	(1.447)
Median (P50)	17.349***	25.080***	2.099***	5.226***

	(3.799)	(5.741)	(0.432)	(1.277)
High (P90)	10.324***	13.100***	0.576	2.399***
	(2.922)	(3.995)	(0.374)	(0.882)

*delta standard errors in parentheses

Our findings show that increasing generalized trust leads to better financial development outcomes in less fragmented or more ethnically homogeneous regions than in highly fractionalized societies. Although we find that generalized trust has a positive impact on financial development even in regions with very high ethnic fractionalization, this beneficial effect is lower than in more ethnically homogeneous regions. Moreover, we find that an increase in generalized trust does not increase credit-to-GDP ratios in more ethnically fragmented regions. These results indicate that the positive impact of increasing generalized trust is less binding in fragmented societies, where divergence from norms and values could ultimately hinder the formation of trust. Moreover, we note that the local environment may affect individual responses to the generalized trust survey question. To better understand how ethnic heterogeneity or fractionalization affects the relationship between trust and financial development, we look into the interaction between the two radii of trust at each end of the spectrum (narrow trust and wide trust) and fractionalization. We report the estimation results of equations 4b and 4c in table 1. 6.

Table 1. 7 Impact of wide and narrow trust on financial development depending on regional ethnic fractionalization in Turkey using regional data, 2004-2017.

	Instrumental variable (IV) regression							
	creditper capita	depositper capita	credit-to-income	deposit-to-income	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
generalizedtrust	17.96***	24.82***	3.045***	5.140***	-1.897	0.147	-1.952	0.0738
	(5.36)	(5.10)	(6.71)	(5.87)	(-0.71)	(0.04)	(-1.24)	(0.08)
widetrust	-3.042	-4.458*	-0.218	0.0718	5.153*	9.674***	2.229*	2.366**
	(-1.55)	(-1.83)	(-0.71)	(0.15)	(1.92)	(2.68)	(1.88)	(2.57)
fractionalization	18.25	28.06*	3.035	2.107	-16.65***	-16.25***	-2.684***	-3.402***
	(1.55)	(1.95)	(1.61)	(0.72)	(-5.94)	(-4.54)	(-3.12)	(-3.56)
widetrust* fractionalization					72.39***	56.17**	13.16**	14.57**
					(4.11)	(2.45)	(2.24)	(2.31)
narrowtrust	1.152	1.784	-0.000287	-0.0542	2.901***	2.746***	0.496**	0.514**
	(1.25)	(1.40)	(-0.00)	(-0.19)	(3.74)	(2.86)	(2.11)	(2.08)
narrowtrust* fractionalization	-31.03**	-46.30**	-4.718*	-4.165				
	(-2.00)	(-2.44)	(-1.94)	(-1.08)				
Control variables	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Constant	7.942**	7.527	1.233**	0.749	-25.62***	-30.10***	-6.919**	-7.649***
	(2.23)	(1.62)	(2.22)	(0.86)	(-3.72)	(-3.30)	(-2.36)	(-3.27)
Obs	168	168	168	168	168	168	168	168
F-stat	56.55***	24.84***	49.41***	12.49***	38.08***	27.18***	7.857***	14.50***
Kleibergen Paap LM stat	24.68***	24.68***	25.17***	43.51***	18.62***	18.62***	5.286*	18.62***
Hansen J stat	0.831	1.263	2.127	5.525	0.343	0.410	0.344	2.797
p-value	0.362	0.261	0.145	0.0631	0.842	0.815	0.557	0.247
Endogeneity test	37.26***	46.03***	33.02***	20.68***	50.41***	55.97***	33.50***	23.10***
generalizedtrust	17.96***	24.82***	3.045***	5.140***	-1.897	0.147	-1.952	0.0738

This table displays the IV regression estimates of equations 4b & 4c. The financial development indicators are: creditpercapita, which is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and widetrust or the proportion of people in each region who responded that they trust people they meet for the first time somewhat or completely. These measures range from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. We include the interaction terms between narrowtrust and fractionalization (narrowtrust*fractionalization) and between widetrust and fractionalization (widetrust*fractionalization). Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments of generalizedtrust, widetrust, and

widetrust*fractionalization: neighboring regions' average level of narrow trust, generalized trust, the region's number of foundations (average for 2004-2011 and 2012 to 2017), the interaction between the number of foundations and fractionalization, and the interaction between neighboring regions' average level of generalized trust and fractionalization.

We find contrasting signs of the interaction terms between narrow trust and fractionalization (narrowtrust*fractionalization) and between wide trust and fractionalization (widetrust*fractionalization). On one hand, we find that an increase in narrow trust exacerbates the pervasive effects of fractionalization on financial development. Indeed, an increase in narrow trust leads to lower financial development outcomes in more ethnically fragmented regions. On the other hand, our findings show that, in highly fractionalized regions, wide trust has positive and significant mitigating effects. The marginal effects of narrow and wide trust, at varying levels of ethnic fractionalization (shown in tables 6b and 6c), confirm our results. Indeed, reinforcing narrow trust in highly fractionalized regions tends to harm financial development. The negative marginal effects of narrow trust in highly fragmented regions support this. In contrast, we find that the marginal benefit from increasing wide trust, or trust in people one meets for the first time, is strongest in regions with high ethnic heterogeneity. As mentioned, ethnic heterogeneity or diversity tends to foster trust, particularly toward in-group members (Alesina and Giuliano, 2015). Increasing wide trust, hence, could enhance cooperation in these regions, which is vital for financial development. Moreover, our results support studies finding that strong interpersonal trust is important in developing credit markets where institutional quality is poor or where contract enforcement is weak at the country level (Knack and Keefer, 1997; Guiso et al., 2004), which is more likely the case in highly fractionalized societies where quality of government or provision of public goods and services is poor (Alesina and La Ferrara, 2005).

Table 6b. Marginal effect of narrow trust according to different levels of ethnic fractionalization using regional data in Turkey, 2004-2017.

Ethnic fractionalization	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
Low (P10)	0.531	0.858	-0.095	-0.138
	(0.7183)	(1.033)	(0.111)	(0.230)
Median (P50)	-0.555	-0.762	-0.260***	-0.283
	(0.620)	(0.887)	(0.101)	(0.188)
High (P90)	-5.055**	-7.475**	-0.944**	-0.887
	(2.473)	(3.008)	(0.395)	(0.595)

*delta standard errors in parentheses

Table 6c. Marginal effect of wide trust according to different levels of ethnic fractionalization using regional data in Turkey, 2004-2017.

Ethnic fractionalization	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
Low (P10)	6.601***	10.797***	2.492**	2.658***
	(2.550)	(3.484)	(1.164)	(0.883)
Median (P50)	9.135***	12.763***	2.953***	3.168***

	(2.431)	(3.408)	(1.152)	(0.862)
High (P90)	19.631***	20.907***	4.862***	5.281***
	(3.395)	(4.818)	(1.454)	(1.277)

*delta standard errors in parentheses

5. Robustness Checks

We perform several robustness checks by exploring further issues. First, we investigate whether regional variations in the trust-in-banks indicator affect financial development outcomes. Second, we analyze how trust affects the extent of financial intermediation more specifically by using the credit-to-deposit ratio. As in our main empirical specifications, we use the instrumental variable regression method. We present the results of our estimations in the appendix.

5.1 Specific Trust in Banks and Financial Development

Fungáčová et al. (2019) discuss the importance of trust in banks in fostering economic growth via financial inclusion and financial stability. We thus examine the link between specific trust in banks and financial development. We note, however, that measurement errors may plague trust in institutions due to cultural biases and different perceptions of the efficiency of these institutions (Alesina and Giuliano, 2015). Consequently, we analyze the relationship during a period where GDP growth is relatively stable in Turkey (more than $10,000 GDP per capita, between 2011 and 2017) and interpret our results with caution.

To measure trust in banks, we construct a dummy variable, bank in trust, which is equal to one if WVS survey respondents said they had a great deal of confidence or quite a lot of confidence in banks. We note, however, that this question was only available from the sixth wave of the WVS in Turkey, more precisely from 2012, and thus, we only estimate our model using the 2011-2017 study period. We note that around 56% of the respondents said they did not have very much confidence or had no confidence at all in banks. We present the estimation results of equation 2[6] in appendix 1. We use average values of the generalized trust, bank trust, and wide trust indicators of neighboring regions as instruments for generalized trust and bank trust. The Hansen J and Kleibergen-Paap rk LM tests of overidentification and under identification, respectively, both indicate that our instruments are valid. The C-statistic test of exogeneity indicates that bank trust and generalized trust are indeed endogenous. Our findings indicate that regions where bank trust is high also have more developed financial markets. We also note that narrow trust is positively linked to financial development

[6] We note a very high correlation between wide trust and trust in banks; thus, we only include trust in banks in our estimation.

during the 2011-2017 period. Meanwhile, generalized trust is not positively associated with better financial development outcomes, consistent with our baseline results.

[Insert Appendix 1]

5.2 Trust and Credit Availability from Stable Funds Using the Credit-to-Deposit Ratio

We examine how trust relates to credit backed by stable funds or to the potential for credit intermediation. We use the ratio of credit to total deposits (credit_over_deposit) to measure credit intermediation potential. A number of studies use this measure (Disalvo and Johnston, 2017). Higher total credit in relation to total deposits (credit_over_deposit >1) indicates higher reliance on nondeposit (relatively unstable) funding sources to finance lending activities or strong credit demand that deposits cannot match. We note that the average regional credit-to-deposit ratio has been increasing in Turkey from 0.51 in 2004 to 1.45 in 2017, with an average of 1.08 during our study period. This indicates that bank assets, particularly loans, grow at a higher rate than do key stable funding sources such as deposits. We hence, analyze the role trust plays in increasing stable funding to fund loans. More particularly, we investigate whether regions that have higher trust levels have higher credit intermediation potential and, thus, have lower credit_over_deposit values. In, other words, do these regions have funds (deposits) stable enough to finance personal and firm credit? Can the public back increasing credit demand by increasing deposits? In terms of the interpretation of the coefficients, a negative coefficient of the trust variables (generalizedtrust, narrowtrust, and widetrust) implies a positive link between trust and the potential for credit intermediation. We present our estimation results in appendix 2.

[Insert Appendix 2]

The findings in table B1 indicate that regions with stronger generalized and narrow trust have higher credit intermediation potential or a larger deposit base to fund lending activities. Moreover, in terms of the interaction between generalized trust and narrow trust, and between wide trust and narrow trust, our results indicate that higher generalized trust and higher wide trust are associated with larger available credit supply from stable sources but only in regions with median to high levels of narrow trust (see table B2). This further confirms our previous findings indicating that generalized trust and narrow trust might be complements. We also find better credit intermediation potential in regions with higher wide trust, given high particularized or narrow trust.

Assessing the role trust plays in credit intermediation given varying degrees of regional ethnic fractionalization, our results in table B3 show a significantly positive relationship between all trust measures (generalized, narrow, and wide) and credit intermediation (lower credit-to-deposit ratio) in regions where

fractionalization is low. Moreover, we find that although generalized trust increases credit intermediation, albeit to a lower degree where ethnic fractionalization is high, our findings indicate that an increase in narrow trust in these regions tends to diminish credit intermediation potential. This indicates that ethnically fragmented regions characterized by high narrow trust levels have higher credit demand compared to available stable funds such as deposits. Moreover, in terms of the interaction effects between wide trust and fractionalization, our results indicate that regions with relatively high wide trust levels have more stable funds to finance lending activities, but only in areas with low to median ethnic fractionalization. In regions where ethnic fragmentation is high, an increase in wide trust increases credit more than deposits.

6. Conclusion

The principal objective of this chapter is to analyze the link between trust and financial development by considering two important dimensions. First, by examining three radii or forms of trust (generalized, narrow, and wide), we investigate whether specific combinations of trust result in better financial development outcomes. Second, we study whether regional ethnic heterogeneity affects the mechanism by which trust affects financial development. Our aim is, hence, to determine which types of trust are vital for financial development in highly fractionalized or fragmented societies and whether they are different from what may be considered crucial in more ethnically homogeneous societies.

Our findings indicate that trust, particularly wide trust, is positively associated with the level of financial development. Wide trust encourages cooperative behavior among economic agents, especially in the intermediation process where the lender/saver and borrower do not know each other. Moreover, our results show that increasing generalized trust improves financial development where narrow trust is high, thus highlighting that generalized and narrow trust complement each other. Further, we find wide trust plays a more important role for financial development in fractionalized societies, but generalized trust is more crucial in less ethnically heterogeneous communities. Our results also indicate the importance of trust, notably generalized trust, in increasing stable funds such as deposits to fund loans. On the whole, our analyses show that trust is a crucial element in achieving financial development, particularly by increasing the use of formal credit and deposit services that are essential to achieving small-enterprise growth and enabling consumption smoothing. Our findings also highlight that although trust matters for financial development, identifying which sorts of trust support financial development is more crucial. Moreover, our results suggest that increasing trust in individuals we do not personally know goes hand in hand with curbing out-group antagonism, which often enables ethnic heterogeneity's adverse effects on economic outcomes. Overall, our findings imply that establishing an environment that is conducive to cooperation, by increasing trust, is important for financial development.

Chapter 2[7]

Trust and Firm Financing: Forms of Trust and Institutional Quality Matter

Abstract. This chapter examines the impact of different forms of trust on firm external financing using a sample of 25 countries worldwide. Using instrumental variable regression to address endogeneity issues, generalized trust and trust in banks are found to be complements in explaining firms' more extensive use of external finance. Indeed, higher generalized trust leads to a higher proportion of bank and non-bank financing only in countries where trust in banks is also high. The results also highlight the importance of generalized trust in mitigating the obstacles that firms face due to external finance constraints, particularly in countries with poor institutional quality, as well as for small-sized firms. Overall, these results suggest that both generalized trust and trust in banks are crucial for achieving financial inclusion.

[7] This chapter draws from the working paper "Trust and Firm Financing: Forms of Trust and Institutional Quality Matter "co-authored with Ruth Tacneng, from Université de Limoges–LAPE and Amine Tarazi, from Université de Limoges–LAPE and Institut Universitaire de France (IUF).

1. Introduction

Firms play an essential role in the economy. To attain a dynamic and inclusive economy, firms, especially micro, small and medium-sized enterprises (SMEs), should have access to stable funding to take advantage of growth and expansion opportunities. SMEs, however, are inclined to rely on internal and short-term financing sources (Ayyagari et al., 2017; Behr & Güttler, 2007). Studies reveal that age and firm size affect firms' access to external finance. Indeed, smaller firms and start-ups often have to rely on firm profits, owners' capital and family to finance their operations. This is because financial institutions, such as banks, do not have sufficient financial information (Nguyen & Canh, 2020, Beck et al., 2008, Demirgüç-Kunt and Maksimovic, 1998) to assess their default risk. In addition, interest rates cannot serve as an effective screening device to overcome asymmetric information among borrowers and lenders and hence to avoid excessive risk-taking, banks ration credit (Stiglitz and Weiss, 1981). Until recently when smaller firms have begun tapping on fintech lenders to finance their activities, they had to rely on informal sources such as moneylenders as alternative financing sources to excess profits and internal capital.

Several studies highlight the role of social capital, political connections and institutional factors mitigating the credit constraint problem (Liu and Spanjers, 2009), and in explaining cross-country differences in firm financing behavior and cash holding decisions (Nguyen Canh, 2020 and Dudley, 2021). Higher social capital and better quality of institutions are found to increase firms' use of external finance. Moreover, Duarte et al. (2012) and Moro and Fink (2013) study how impressions of trustworthiness and specific trust of loan managers to SME managers affect an individual's and small firm's access to debt finance, respectively. The literature also highlights that firms in transition economies use the trust embedded in their network ties with other economic actors to cope with institutional barriers and gain preferential access to resources, including financial capital (Ahlstrom and Bruton, 2006 and Wu and Chen, 2012). Several studies also find a significant influence of trust on firm's cash holding decisions (Dudley and Zhang,2016), and equity financing Dowling et al., 2019) indicate the influence of trust on equity financing, whereas Jin et al. (2019) provide evidence that a bank's risk-taking behavior is affected by trust in the respective country. Moreover, Degryse et al. (2021) document a positive effect of trust-based relationship banking in easing SME's access to credit constraints. Howorth and Moro (2012), meanwhile, find firms' trustworthiness evaluations by small banks' lending managers to be negatively associated to small businesses' cost of credit. Thus, trust is not only relevant for firm financing behavior but also for bank lending decisions. We note that most of the studies that explore the impact of trust on firms' funding outcomes mainly focus on the impact of societal trust and social capital, as well as specific trust between the borrower and the lender. To our knowledge, there are no studies that empirically examine the impact of trust in financial institutions, more particularly, trust in banks, and its interaction with generalized trust on firms' use of external finance. In this chapter, we explore the impact of

different forms of trust on firms' funding structure, more particularly their use of external financing sources, and the obstacles they face because of financing constraints.

According to the social capital view, trust, particularly institutional and generalized trust is essential in determining firms' financing preferences, financial constraints, and inclusion (Bidault et al., 2018; Guiso et al., 2008; Outila et al., 2018). Accordingly, this affects the willingness to enter into cooperative relations with counterparties (Glanville & Paxton, 2007; Knack & Keefer, 1995). Generalized trust stands for the general disposition for individuals in a society to trust others (Paxton, 2002). This form of trust is culturally bonded and is inclined to differ across countries with different levels of individualism-collectivism and social acceptance of the unequal distribution of power in a given country (Realo, Allik, & Greenfield, 2008). It plays a crucial role in reducing asymmetric information and moral hazard problems. Trust in a country's legal system and governance institutions is expressed in institutional trust (Mathews & Stokes, 2013). Besides generalized trust, trust in family and trust in banks and other financing institutions are essential in understanding firms' use of external finance. Without trust, banks cannot attract depositors or find households and firms willing to borrow money to finance their businesses and housing. Distrust in banks, thus, adversely affects the availability of capital for productive use and funding stability. The 2007-2008 Global Financial Crisis (GFC) triggered by financial institutions, and which impaired confidence in banks, has revealed the importance of well-functioning banks for the economy. Several studies link trust in banks to cultural norms, economic crises and uncertainty about the future, political values associated with helping society, and familiarity with them that imply higher educational level (Fungáčová et al., 2021; Fungáčová et al., 2019; Allen et al., 2016; Sapienza and Zingales, 2011). Moreover, trust in the financial system is found to positively influence household saving behavior, and the diversity and use of formal savings instruments (Beckmann and Mare, 2017). Thus, trust in banks may play an important role in individuals' and firms' propensity to use formal financial savings and credit instruments.

The objective of this chapter is fourfold. First, we examine the impact of different forms of trust, specifically generalized trust and trust in banks, on firms' reliance on external finance, and access to external finance using a sample of around 11000 firms in 25 countries worldwide. Second, we investigate how the interaction of generalized trust and trust in banks affects external financing choices and to which extent these two forms of trust are substitutes or complements. We hence consider the role played by institutional trust beyond lenders' trust to borrowers in explaining firms' external financing structure. Third, we analyze the extent to which generalized trust affects firms' obstacles due to limited access to finance according to the level of institutional quality. We specifically investigate the role played by generalized trust in improving firms' ability to conduct their operations in countries with poor legal rights protection for both lenders and borrowers. Lastly, we study whether the impact of generalized trust on the obstacles faced by firms differs according to

their size. We, therefore, examine the potentially significant role of social capital formation in increasing firms' access to finance, especially for small firms.

We provide empirical evidence of a significant relationship between both generalized trust and trust in banks and firms' external financing. We contribute to the firm financing literature in several ways. First, we bring new insights on the institutional drivers of SME financing behavior drawing on the social capital perspective of trust and its various forms. Second, we find that institutional quality, alongside trust, matters by showing that trust and quality of institutions taken together significantly influence financing behavior. The financing perspective largely ignores non-financial factors. However, we find that trust is also necessary to determine firms' attitudes towards financing options.

We empirically test the relationship between trust and firms' external finance and access to finance constraints using the instrumental variable estimation method to address endogeneity concerns for our trust variables. We find a significant influence of both generalized trust and trust in banks on firms' external finance. Moreover, we also find generalized trust complements trust in banks in significantly influencing external finance use. Indeed, we find increased generalized trust beneficial in increasing firms' external finance but only in countries where trust in banks is also high. We also find generalized trust negatively associated with firms' access to finance obstacles. Our results also show that generalized trust and institutional quality are substitutes in reducing access to external finance constraints faced by firms. These confirm that trust matters for firms' financial structure and that strengthening generalized trust is indispensable to reducing financial barriers in countries with poor institutional quality. Additionally, our results confirm that smaller firms benefit from a higher level of generalized trust in mitigating access to finance obstacles. This is because of the potentially more critical role of trust in reducing asymmetric information for small firms. Banks and other financial institutions indeed refrain from readily lending to medium and small firms because they are perceived to be riskier than their counterparts due to their stronger opacity.

The remainder of this chapter is organized as follows. Section 2 presents our research focus. Section 3 discusses the data used in the econometric analyses. Section 4 presents our empirical methodology and the results. Section 5 shows our robustness tests, while section 6 concludes the chapter.

2. Hypotheses

2.1 Forms of Trust and External Finance Preferences

Financing choices are amongst the most challenging and problematic decisions faced by firms. Firms, especially small firms, exhibit higher levels of asymmetric information, which leads to higher agency costs

for financiers (Norton, 1991). This could be a significant hindrance when they seek external capital. Firms may find themselves unable to fund their business operations and pursue market opportunities effectively.

Trust, an important mechanism for social capital, plays a significant role in enabling economic agents to operate efficiently since it lowers transaction costs. Trust is often conceptualized as reliability in transactions. Increased trust and cooperation reduce uncertainty about an economic agent's willingness to reciprocate. It thereby enables socially connected individuals with valuable information to share it within the network, anticipating future reciprocity. Arrow (1972) argues that every commercial transaction encompasses an element of trust, which allows agents to operate even in markets exposed to the "lemons" problem. Trust has important implications for the availability of external financing and consequently for investments from the perspective of incomplete contract theory (Grossman and Hart, 1986). Imperfect information and uncertainty about the future imply that all contracts are incomplete to some degree (Hart and Moore, 1999). Trust interacts with the degree of contract completeness and facilitates access to external financing where there is no well-developed formal system of contract enforcement.

Social capital can also improve economic efficiency and encourage building a reputation for honest dealing in transactions through the disciplinary mechanism of reputation loss (Kandori, 1992, McMillan and Woodruff, 2000). By increasing the cost of expropriation and breach, social capital provides a mechanism for contract enforcement. Through this channel, social capital diminishes the costs of financial contracting and facilitates access to external financing. In addition, social capital makes an alternative mechanism available for dispute resolution through voluntary cooperation within a social network that diminishes the expected breadth and costs of legal interventions. This makes it easier for the firm to obtain external financing.

SMEs, in particular, tend to follow the pecking order theory in choice of financing preferences, and therefore have an initial preference for internal sources of finance, followed by debt (López-Gracia & Sogorb-Mira, 2008). However, an increase or expansion in the scope of social ties is expected to be associated with higher usage of external finance, such as formal and informal finance. In formal financial contracts, lenders often require historical financial information from potential borrowers to screen and monitor them. In addition, they also often ask for collateral to ensure their credibility. Trust plays a crucial role in reducing adverse selection and moral hazard problems, especially in the case of smaller banks and those that delegate operational autonomy to local managers (Degryse et al., 2021). In contrast, informal financial transactions neither require financial information nor a reliable debtor guarantee. Informal finance lenders have to use personal relationships to reduce asymmetric information and use information built upon the network to screen the borrowers and price the loans. In this case, trust could facilitate the flow of private information about the credibility of the borrowers (Agarwal and Hauswald, 2010). Moreover, borrower-lender trust may provide

extra insurance for lenders and bridge potential opportunistic behaviors' in lending transactions (Anderson and Nyborg, 2011). Additionally, in fiduciary financial lending, lenders devote fewer resources to monitoring borrowers to prevent defaults. Thus, trust reduces financial contract costs and enables access to external financing. Furthermore, trust provides an alternative mechanism for conflict resolution through voluntary cooperation within a social network, which reduces the expected scope and costs of legal interventions (Javakhadze et al., 2016). Thus, trust facilitates firms' access to non-bank and informal finance. Based on the above arguments, we put forward our main hypothesis as follows:

Hypothesis 1 Generalized trust is positively associated with external finance

2.2 Interaction between Generalized Trust and Trust in Banks

The vast majority of the existing literature has focused only on generalized trust and its effect on economic and financial development. However, some recent works show the importance of specific trust measures. Carlson et al. (2020) demonstrate a weak correlation between generalized trust and specific institutions, when revealed by using the trust game or survey questions. However, the correlation between the trust in a particular institution, which is revealed through a trust game, and the trust expressed for the same institution, is stronger and statistically significant. Therefore, according to our findings, generalized trust is not an appropriate way in measuring institutional trust and more specific measures of institutional trust should be used.

Several studies (Sapienza and Zingales, 2012 and Knell and Stix, 2015) show that trust in banks fell sharply in countries hit hard by the GFC. The experience of loss in a banking crisis has become embedded in a society's memory and personal perceptions (Mudd et al. 2010), affecting decision-making and risk preferences (Malmendier and Nagel 2011). In addition, a recent paper by Fungáčová et al. (2021), investigating how past experience with banking crises impact an individual's trust in banks, find that both the experience of and the length of a banking crisis are negatively related to trust in banks, degrading the trust of especially older people. Distrust in banks may thus negatively affect both the availability and stability of funds via deposits, which could distort lending, especially to younger and smaller firms. Moreover, Beckmann and Mare (2017) find that trust in the financial system is positively associated with household saving behavior, the use of formal savings instruments and savings diversity.

Other factors could also affect an individual's trust in banks, such as cultural norms, values associated with wealth and helping the society, and familiarity with the financial system linked to higher educational level or financial literacy (Fungáčová et al., 2019; Allen et al., 2016; Sapienza and Zingales, 2011). Trust in

banks coupled with generalized trust, may thus foster the use of external finance, especially from formal financial institutions. We also argue that trust in banks, particularly in an environment where generalized trust is also high, may be linked a more substantial presence of individual and firm banking relationships. To the extent that credit scoring, a lending technology used by banks in screening borrowers, also relies on information about a firm's owner, existing banking relationships, not only confined to lending, may facilitate firm's access to external finance. We, therefore, posit that generalized trust and trust in banks act as complements in enhancing firm's use of external finance.

Hypothesis 2 Trust in banks complements generalized trust in positively influencing firms' use of external finance.

2.3 Forms of Trusts & Institutional Quality and Financial Obstacles

The literature studying financial obstacles essentially focuses on agency problems and uncertainty. However, trust can also be a tool that can reduce such concerns. The agency theory posits that the availability and the terms and structure of credit are constrained by agency problems deriving from asymmetric information and by conflicts of interest between borrowers and lenders. The agency problem for banks or formal financial institutions is especially exacerbated when evaluating small firms' creditworthiness because the information available on them is less transparent than in the case of larger firms (Berger et al., 2001; Mason and Stark, 2004). As discussed above, trust is essential in diminishing asymmetric information.

Previous studies have also found that high levels of trust in banks can allow credit transactions to take place, even if the bank faces an information gap (Hernández-Cánovas and Martínez-Solano, 2010; Moro and Fink, 2013; Palazuelos et al., 2018; Kautonen et al., 2020). This is the case because trust, regardless of the length and closeness of the relationship, may cover the residual uncertainty left when the bank has processed all formal information useful for assessing the firms' quality as a borrower (Moro and Fink, 2013). Furthermore, trust creates a positive expectation of the firms' behavior, even if it could take advantage of the bank's vulnerability (Mayer et al., 1995; Rousseau et al., 1998). In other words, trust allows the bank to act 'as if' the doubts and dangers inherent in the residual uncertainty did not matter (Möllering, 2006). At the same time, it allows the bank's lending posture to be more benevolent towards the firm.

On the basis of the above discussion, we form our hypothesis as follows:

Hypothesis 3.a Firms face less severe financing obstacles where there is high level of generalized trust

Hypothesis 3.b Firms face less severe financing obstacles where there is high level of trust in banks

Previous works show that in countries with well-developed institutions, such as financial and legal enforcement system, it is easier for firms to secure funds externally (Demirgüç-Kunt and Maksimovic, 1998; Gusio et al., 2004; Ahlerup et al., 2009; Wu et al., 2014). For example, Wu et al. (2014) find a substitutive relationship between generalized trust and the quality of the enforcement of property rights when firms borrow from their suppliers or customers in the form of trade credits. There are also examples of weak quality of institutions dissuading banks to provide finance to entrepreneurs, especially smaller ones (Antras & Foley, 2015). Moreover, Guiso et al. (2004) provide evidence that social capital increases households' participation in the financial market as well as their access to credit, and the positive effect of social capital is stronger when legal enforcement is weaker. In addition, Cline and Williamson (2020) highlights the significant role of trust as a complement to formal contract enforcement, particularly in countries with weak regulation.

Within this context, our analysis investigates the possible presence of a substitution effect between institutional quality, which is the strength of legal rights and the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending, and trust in predicting a firm's access to credit. We thus expect that generalized trust is more vital in countries with lower institutional quality with regard to obtaining credit. We state our third hypothesis as follows:

Hypothesis 3.c Trust and quality of institutions act as substitutes to diminish financing obstacles for firms.

2.4 Firm Size and Trust

Access to finance is widely perceived to be a crucial factor for firms, especially for small and medium-sized enterprises (SMEs), to maintain their day-to-day business and achieve their long-term goals. Hence, the experience of major financing obstacles or constraints could present considerable challenges to enterprises and economies in general as they pose a significant threat to productivity. The use of World Bank Enterprise Surveys (WBES) data allows the unique possibility to test whether firm characteristics, such as the size of firms, are valid predictors of financing obstacles across countries. The literature has documented that small firms have less access to external finance and tend to be more constrained in their operation and growth (Galindo and Schiantarelli, 2003). These findings reflect that smaller firms may represent greater risk, uncertainty in growth and difficulty in loan monitoring. Discussing the risks attached to smaller firms and the lack of access to traditional lending more generally, Allen et al., 2005, Allen et al., 2012a, and Allen et al., 2012b show that non-state, non-listed firms in China and India rely more on alternative financing channels,

such as funds from family and friends, in order to finance their activities.

As discussed in the literature, institutional development, trust and firm size matter for improvements in financial access. With regard to the financing sources, it is expected that weakening or strengthening the frame of social bonds may be associated with higher usage of external finance such as formal and informal finance. As mentioned above, trust is vital in tempering moral hazard problems and asymmetric information. Lenders can analyze financial information to screen and monitor borrowers in formal financial contracts. In some circumstances, they may also ask for collateral to guarantee dependability because of information asymmetry or moral hazard. However, trust is also essential in reducing asymmetric information, especially in the case of borrowers in informal finance contracts who neither supply adequate financial information nor dependable guarantee. Lenders in informal finance need to build personal relationships to decrease asymmetric information. They have to use information based on the social network to monitor the borrowers and price the loans. From this perspective, trust could pave the way for the flow of private information concerning the credibility of the borrowers (Agarwal and Hauswald, 2010). This information constitutes a vital instrument for the lenders to monitor and price loans. Trust between lenders and borrowers may provide lenders with additional guarantees in lending transactions (Anderson and Nyborg, 2011), requiring fewer resources to monitor borrowers. Small firms suffer more from lack of access to external formal financing (or are subject to financing constraints from banks) than larger firms; they are more likely to tap informal financing and internal financing. Therefore, trust may be more crucial for smaller firms to mitigate their access to finance constraints. Based on the above argument, we put forward our main hypothesis as follows:

Hypothesis 4 The impact of generalized trust in mitigating financing obstacles is larger for small firms.

3. Methods

3.1 Data and Sample

To explore the importance of trust and institutional quality on firm financing, we obtain firm-level information from the World Bank Enterprise Surveys (WBES) from 2015 to 2019 in 25 countries. We gather country-level trust and forms of trust data from the World Values Survey (WVS) and the European Values Study (EVS). We obtain the macroeconomic variables from the World Development Indicators of the World Bank. We collect institutional quality data from the Doing Business Database of the World Bank.

3.2 Measures of Trust

We measure country level generalized trust, family trust and trust in banks based on individual

responses to the Waves 6 (2012-2016), and 7 (2017-2020) of the World Values Survey, and the European Values Study, which are recognized as the main references and possibly the only reliable sources for comparisons of trust across regions and countries over time (Guiso et al., 2004; Algan and Cahuc, 2014, Dowling et al. 2019). The samples are selected using a combination of probability-proportional-to-size and multistage sampling techniques. There are three different types of questions that are used to distinguish between generalized, particularized trusts and institutional trust.

To quantify generalized trust (GeneralizedTrust), we rely on the respondents' answer to the question: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?". Two potential answers are: (i) Most people can be trusted, and (ii) You need to be very careful in dealing with people. We calculate the proportion of respondents who answer: "Most people can be trusted". Moreover, to assess the level of family trust (FamilyTrust), we calculate the proportion of respondents who answer that they can trust or somewhat trust their family members to the question: "Could you tell me whether you trust your member of family, somewhat, not very much or not at all".

To measure trust in banks (TrustinBanks), we calculate the proportion of respondents who answered having a 'great deal of confidence' or 'quite a lot of confidence' to the WVS question: Could you tell me how much confidence you have in banks: Is it a great deal of confidence (1), quite a lot of confidence (2), not very much confidence (3) or none at all (4)?

Although the WVS has been used in many cross-country and within-country studies, some researchers have questioned its appropriateness, such as translation difficulty, question and data inconsistency, and differential response bias. Nevertheless, it has been accepted as a valid measure of honesty, trust, and trustworthiness. For example, Knack and Keefer (1997) emphasize that such problems do not introduce noise, but rather capture universal interpersonal trust. Uslaner (2002), Bjørnskov (2007) and Sapienza et al. (2013) also provide evidence regarding the appropriateness of this measure from different perspectives.

3.3 Measures of a Firm's Access to External Finance

We obtain firm-level data on firms' access to finance across 25 countries over the period 2015 to 2019 from the World Bank Enterprise Surveys.

We mainly based our measures of firms' access to external finance on their responses to the WBES question: "Over the fiscal year, please estimate the proportion of this establishment's working capital, that is the funds available for day-to-day operations, that was financed from each of the following sources?". The sources of financing listed were (a) internal funds or retained earnings, (b) borrowed from banks, (c) borrowed

from non-bank financial institutions [microfinance institutions, credit cooperatives, credit unions, or finance companies], (d) purchases on credit from suppliers, and advances from customers, and others that include moneylenders, friends, relatives, etc. We only retain in the final sample those firms whose total reported proportion of working capital financing is at least 0.90.

We construct two types of indicators: proportion-based and dummy-based. For the proportion-based measures, we define four variables: ExternalFormalFinance, ExternalFinance, BankFinance, and NonBankFinance. ExternalFormalFinance is the proportion of a firm's working capital financed by banks and non-bank financial institutions. ExternalFinance is the proportion of a firm's working capital that is financed by banks, non-bank financial institutions, purchases on credit from suppliers and advances from customers, and others such as moneylenders, friends and relatives. BankFinance is the proportion of a firm's working capital financed by banks while NonBankFinance is the proportion of a firm's working capital financed by non-bank financial institutions. For the dummy-based measures, we define three variables: ExternalFormalFinance_D, OnlyExtFormalFinance_D, and BankFinance_D. ExternalFormalFinance_D is a dummy variable that is equal to one if a proportion of a firm's working capital was financed by banks and nonbank financial institutions in the last fiscal year, and zero, otherwise. OnlyExtFormallFinance_D is a dummy variable that is equal to one if the firm's working capital is entirely financed by banks and non-bank financial institutions and zero, otherwise. BankFinance_D is a dummy variable that is equal to one if a proportion of the firm's working capital was financed by banks.

We also consider the extent to which access to finance is an obstacle to firm's operations. We define two variables: FinancialObstacle and FinancialObstacle_D based on firms' responses to the WBES question: "Is access to financing, which includes availability and cost [interest rates, fees and collateral requirements] No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment?". FinancialObstacle is a categorical variable that is equal to zero if the firm responded "No Obstacle", one if "Minor Obstacle", two if "Moderate Obstacle", three if Major Obstacle" and four if "Very Severe Obstacle". Meanwhile, FinancialObstacle_D is a dummy variable that is equal to one if access to finance is either a major or a very severe obstacle to the firm's operations.

3.4 Control Variables

For control variables, we consider a range of firm-level and country-level factors that may affect a firm's access to external finance. At the firm level, we capture sector-specific differences by including sector dummies (Isic) in our estimations. Firmsize is a categorical variable that controls for firm size. It is equal to one for small firms, two for medium-sized firms, and three for large firms. Laborprod is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. Popmore1m is a measure of population of the city where

the firm is located. The selection of these firm-level measures is supported by prior studies on SME financing (Casey & O'Toole, 2014, and North et al., 2013).

To explain firm financing at the country-level, we follow La Porta et al. (1997) and use additional four variables to measure country institutional characteristics. We consider the origin of a country's legal system (Legal origin dummies). La Porta et al. (1997) show that the common law legal system tends to offer better creditor protection rights than other legal systems. Thus, firms in these countries may tend to have better access to finance. We also control for macroeconomic variables such as inflation rate (Inflation) and the natural logarithm of the real GDP per capita, orthogonalized with the three trust measures (LnGDP).

We also consider institutional quality. It is an index which is called Strength of legal rights index (QualityInst) obtained from the Doing Business Database of the World Bank. It measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders, and thus facilitate lending. The index ranges from 0 (weak) to 12(strong), with higher scores indicating that collateral and bankruptcy laws are better designed to expand access to credit.

Table 2. 1 contains all definitions, construction approaches, and sources for the variables used in the study. Table 2. 2 shows the summary statistics, and Tables 2.3 and 2.4 report the correlation matrix of the variables in our estimations.

Table 2. 1 Variable Definitions

Variables	Description	Source
ExternalFormalFinance	The proportion of working capital financed by banks and non-bank financial institutions	WBES
ExternalFinance	The proportion of working capital financed that is not financed by internal funds or profits. It includes financing from banks, non-bank financial institutions, purchases on credit from suppliers and informal finance from moneylenders	WBES
BankFinance	The proportion of working capital financed by banks	WBES
NonBankFinance	The proportion of working capital financed by non-bank financial institutions	WBES
ExternalFormalFinance_D	It is dummy variable equal to 1 if a firm's working capital is financed by banks or non-bank financial institutions, and zero otherwise	WBES
OnlyExtFormalFinance_D	It is a dummy variable equal to 1 if a firm's working capital is financed entirely by banks and non-bank financial institutions and zero otherwise	WBES
BankFinance_D	It is a dummy variable equal to 1 if the firm's working capital is financed by banks and zero otherwise	WBES
FinancialObstacle_D	It is a dummy variable that is equal to 1 if access to finance is a major or a very severe obstacle to firm's operations, and zero otherwise.	WBES
FinancialObstacle	It is degree to which access to finance is an obstacle to firm's operations. It ranges from of access the finance range between 0 (no obstacle) to 4 (very severe obstacle).	WBES
GeneralizedTrust	This captures the level of general trust, calculated based on responses to the question: ''Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" This variable corresponds to the proportion of the respondents in a given country who responded that most people can be trusted.	WVS
FamilyTrust	This captures the level of family trust, calculated based on responses to the question: «Could you tell me whether you trust your family completely, somewhat, not very much or not at all?" This variable corresponds to the proportion of respondents in a given country who responded: completely or somewhat value.	WVS
TrustinBanks	This captures the level of trust in banks, calculated based on responses to the question: "Could you tell me how much confidence you have in banks: Is it a great deal of confidence, quite a lot, not very much or none at all. This variable corresponds to the proportion of respondents who responded having a great deal or quite a lot of confidence in banks.	WVS
Firmsize	Categorical variable to measure firm size. It is equal to 1 if the firm is a small (1-50 full-time employees); 2 if medium-sized (50-200 full-time employees); and 3 if the firm is large (more than 200 employees), following the definition used in the WBES.	WBES
Laborprod	It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted	WBES
Popmore1m	It measures the population of the city where the firm is located.	
Isic	Sector dummies to take into account sector-specific differences	WBES
Legal origin dummies	Country-based dummy variable which identifies the legal origin of company law or commercial code of each country.	La Porta et al. (1997)
LnGDP	It is the natural logarithm of the real GDP per capita (constant 2010 USD), orthogonalized with the trust measures: GeneralizedTrust, FamilyTrust and TrustinBanks	World Bank
QualityInst	It is an index variable which measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12	Doing Business, World Bank

Table 2. 2 Summary Statistics

	OBS	Mean	Std Dev	Minimum	Maximum
ExternalFormalFinance	11645	0.1410	0.2350	0	1
ExternalFinance	11645	0.2927	0.3342	0	1
BankFinance	11645	0.1289	0.2248	0	1
NonBankFinance	11645	0.0121	0.0665	0	1
SupplierFinance	11645	0.1256	0.2241	0	1
FinancialObstacle_D	13315	0.1912	0.3933	0	1
FinancialObstacle	13315	1.2973	1.2513	0	4
GeneralizedTrust	14988	0.1430	0.0936	0.0214	0.3137
FamilyTrust	14988	0.9595	0.0386	0.8170	0.9958
TrustinBanks	14988	0.5502	0.2313	0.2174	0.9174
LaborProd	14988	0.0011	0.0857	5.29e-13	8.5714
QualityInst	14988	5.5346	3.0135	0	11
Popmore1m	14988	0.5013	0.5000	0	1
LnGDP	14988	8.6072	0.8421	7.0178	10.3764
Inflation	14988	4.5163	4.4113	-1.5664	15.1768
Isic	14988	36.4062	16.0873	15	7
Firmsize	14988	1.767472	0.781475	1	3
ExternalFormalFinance_D	11645	0.383426	0.4862	0	1
OnlyExtFormalFinance_D	11645	0.0225	0.1483	0	1
BankFinance_D	11645	0.3651	0.4815	0	1

Table 2. 3 Correlation matrix of External Finance Measures

	ExternalFormalFinance	ExternalFinance	BankFinance	NonBankFinance	SupplierFinance
ExternalFormalFinance	1				
ExternalFinance	0.671***	1			
BankFinance	0.959***	0.638***	1		
NonBankFinance	0.292***	0.212***	0.00904	1	
SupplierFinance	-0.0292**	0.642***	-0.0295***	-0.00371	1

Table 2. 4 Correlation matrix of variables used in estimations

Variables	Generalized Trust	Family Trust	Trustin Banks	Labor prod	Quality Inst	Popmore 1m	LnGDP	Inflation	Firm size	Legal origin dummies	Isic
GeneralizedTrust	1										
FamilyTrust	0.388	1.000									
TrustinBanks	0.058	0.325	1.000								
LaborProd	-0.019	-0.007	0.035	1.000							
QualityInst	0.261	-0.105	-0.332	-0.007	1.000						
Popmore1m	-0.083	-0.285	0.026	0.006	0.020	1.000					
LnGDP	-0.048	0.076	-0.059	0.018	0.167	0.023	1.000				
Inflation	-0.061	0.177	-0.032	0.005	0.057	0.192	0.000	1.000			
Firmsize	0.012	0.020	0.041	0.011	-0.017	0.042	0.049	0.006	1.000		
Legal origin dummies	-0.067	-0.011	0.114	0.010	-0.108	0.065	-0.127	0.020	-0.107	1.000	
Isic	-0.057	-0.081	-0.069	-0.002	0.027	-0.003	-0.084	-0.047	-0.187	0.026	1.000

3.5 Empirical Methodology and Results

3.5.1 Baseline Specification

In the literature, there is no agreement on the direction of causality between trust and economic performance. On the one hand, Uslaner (2008) and Algan and Cahuc (2010) put forward that the causality runs from social capital to economic growth because social capital presents a time-invariant heritable constituent that is passed on from generation to generation. On the other hand, some asserts that trust may change in due course and is an outcome of an individual's environment and experiences. Consequently, economic performance presumably has an effect on trust. For example, Dinesen (2012) finds that immigrants regulate their trust levels according to those of the natives in the target country. Additionally, Chan (2007) claims that the rise in trade gap may increase trust as long as income inequality is low.

We utilize the instrumental variable (IV) regression method by considering plausible endogeneity concerns related to our trust variables, mainly generalized trust and trust in banks because of a potential reverse causal relationship between trust and firm financing preference and measurement error. Judging from the existing literature, previous studies are centered on historical determinants of trust such as prior per capita income, past education, past political constraints, and legal origin (Knack and Keefer, 1997; Alesina and La Ferrara, 2002; Zak and Knack, 2001; Guiso et al., 2003). Cline and Williamson (2016) argue that one potential concern with most of these factors is that they are likely to be endogenous and present models including exogenous historical determinants of trust. Accordingly, we consider the following variables as instruments of trust: pronoun drop, ethnic fractionalization and absolute latitude (Knack and Keefer, 1997; Ahlerup et al. (2009), Cline and Williamson, 2016). We perform the Kleibergen-Paap rk LM test and the Hansen-J test, to check through the validity of our instruments and determine if our IV estimators are consistent. Besides, we run the C-statistic test of exogeneity to confirm whether generalized rust and trust in banks are indeed endogenous. In addition, we used the Poisson and Negative Binomial regressions when examining the impact of trust on access to finance obstacles.

We estimate the following baseline specifications (Equations 1 and 2):

$$Financing\ Decision_{ij} = \beta_0 + \beta_1 GeneralizedTrust_j + \beta_2 TrustinBanks_j + \beta_3 FamilyTrust_j + \Lambda X + \varepsilon_{ij}$$

(Eq. 1)

$$Financing\ Decision_{ij} = \beta_0 + \beta_1 GeneralizedTrust_j + \beta_2 TrustinBanks_j + \beta_3 FamilyTrust_j + \phi_1 (GeneralizedTrust*TrustinBanks)_j + \Lambda X + \varepsilon_{ij}$$

(Eq. 2)

Where Equation 1 which introduces the three forms of trust: generalized trust, family trust, trust in banks and, Financing decision represents the measures covering a firm's access to finance : ExternalFormalFinance, ExternalFinance, BankFinance, ExternalFormalFinance_D, OnlyExtFormalFinance_D, and BankFinance_D. X is a vector of country-specific, firm specific, and time-invariant variables that affect a firm's access to external finance such as firm size, firm productivity, sector dummies, the country's legal system, macroeconomic variables, the population where the firm is located, and institutional quality. The estimation results from Eq. 2 provide a better understanding of the dynamics of different forms of trust, particularly by interacting generalized trust with trust in banks. GeneralizedTrust∗TrustinBanks is the interaction term between generalized trust and trust in banks. We also calculate the marginal impact of generalized trust according to different levels of trust in banks (Low, Medium, and High) to test whether they exhibit complementary impact on firm's external finance.

3.5.2 Links Between Forms Trust and Financial Obstacles

First, we analyze the impact of different forms of trust on access to finance obstacles. Second, we investigate the beneficial effects of trust, in terms of diminishing of financial obstacles, depending on institutional quality and firm size. We expect that generalized trust plays a more crucial role where institutional quality is low and firm size is smaller in mitigating access to finance constraints. This is because trust could pave the way for the flow of private information concerning the credibility of the borrowers (Agarwal and Hauswald, 2010). This kind of information is vital instrument for the lenders to watch and price. In addition, trust increase participation of financial system even in the places institutional quality is weaker (Wu et al. 2014, Guiso et al., 2008). The trust between lenders and borrowers may provide lenders with additional guarantee and it bridges potential opportunistic behavior' in lending transactions. We thus test whether trust achieve to help financial obstacles depending on institutional quality and firm size.

We hence estimate the following equations (Equations 3, 4 and 5):

$$Financial\ Obstacle_i = \beta_0 + \beta_1 GeneralizedTrust_{it} + \beta_2 FamilyTrust_{it} + \beta_3 TrustinBanks_{it} + \Lambda X + \varepsilon_{it}$$

(Eq. 3)

$$Financial\ Obstacle_{it} = \beta_0 + \beta_1 GeneralizedTrust_{it} + \beta_2 FamilyTrust_{it} + \beta_3 TrustinBanks_{it} + \text{QualityInst}_{it} + \phi_2 (GeneralizedTrust * \text{QualityInst})_{it} + \Lambda X + \varepsilon_{it}$$

(Eq. 4)

$$Financial\ Obstacle_{it} = \beta_0 + \beta_1 GeneralizedTrust_{it} + \beta_2 FamilyTrust_{it} + \beta_3 TrustinBanks_{it} + \beta_4 Firmsize_{it} + \phi_2 (GeneralizedTrust * Firmsize)_{it} + \Lambda X + \varepsilon_{it}$$

(Eq. 5)

Where *Financial Obstacle* represents the two-measures covering financial obstacles; financial *obstacle dummy and financial obstacle category* and *GeneralizedTrust*∗*QualityInst* and *GeneralizedTrust*∗*Firmsize* are interaction terms between generalized trust and institutional quality, and generalized trust and firm size. To evaluate the impact of generalized trust, we calculate the marginal effects of generalized trust according to the level of institutional quality (Low=Quartile 1, Medium = Quartile 2, and High=Quartile 3) and according to firm size (Small, Medium, Large).

4. Main Results and Discussion

4.1 Results

We present the IV estimation results of Equations 1 and 2 in Tables 2. 4 and 2. 5, respectively, examining the relationship between different forms of trust and firms' use of external finance. We reject the null hypothesis of exogeneity of the variables generalized trust and trust in banks in Equation 1 and interaction terms between trust in banks and generalized trust in Equation 2 as indicated by the C-statistic test of exogeneity. Additionally, both the Kleibergen-Paap RK LM and Hansen J statistics confirm the validity of our instruments.

Table 2. 4 shows a negative and significant relationship between generalized trust and firm's use of

and the proportion of external finance to fund firms' working capital. We obtain such findings after controlling for inflation, GDP, quality of the institution and firm size. The result indicates that firms are disposed to use less external financing, particularly from the banks in countries with relatively higher levels of generalized trust. There is a similar result between firms' preference for external financing and family trust. In regions where family trust is high, we find that firms turn to various sources other than external financing regarding their financing needs. However, unsurprisingly, trust has two effects on the banking system; it increases the financing of companies from banks and their official and informal external financial uses outside of banks. This is explained in the research of Javakhadze et al. (2016). According to this study, the trust provides an alternative mechanism for conflict resolution through voluntary cooperation within a social network, which reduces the expected scope and costs of legal interventions. Such findings are not consistent with those of academics evaluating the relationship between trust (Vanneste et al. 2021) and social capital (broader networks, etc.) and external financing (Nguyen & Canh, 2020, Anderson and Nyborg 2011). However, the finding has a similar conclusion that firms with more generalized trust employ informal financing sources than formal financing sources. Thus, it is understood how important all types of trust are in the choice of financing type.

Table 2. 4 Forms of Trust and External Firm Financing, 2015-2019

	(Instrumental variable Regression)			Instrumental variable Probit regression		
	ExternalFormal Finance	ExternalFinance	BankFinance	ExternalFormal Finance_D	OnlyExtFormal Finance_D	BankFinance D
GeneralizedTrust	-0.79***	-1.49***	-0.69***	-3.65***	-4.90***	-3.48***
	(-10.45)	(-14.90)	(-9.55)	(-9.45)	(-5.74)	(-8.89)
TrustinBanks	0.06***	0.05***	0.02	0.54***	0.34*	0.43***
	(4.39)	(2.68)	(1.17)	(6.94)	(1.90)	(5.44)
FamilyTrust	-0.17	-1.14***	-0.05	-3.52***	1.28	-3.16***
	(-1.60)	(-8.24)	(-0.52)	(-6.42)	(1.18)	(-5.76)
LaborProd	-0.01***	-0.01	-0.01***	0.36	-964.37*	0.38
	(-5.99)	(-1.59)	(-3.91)	(0.83)	(-1.66)	(0.88)
QualityInst	0.02***	0.03***	0.01***	0.12***	0.05***	0.12***
	(18.51)	(26.95)	(15.97)	(25.84)	(4.92)	(24.31)
Firmsize	0.04***	0.04***	0.04***	0.28***	0.11***	0.30***
	(13.61)	(9.79)	(14.19)	(17.22)	(3.40)	(18.08)
Popmore1m	-0.00	0.01	0.01	-0.07**	-0.06	-0.04
	(-0.59)	(1.20)	(1.49)	(-2.17)	(-0.88)	(-1.28)
Isic	yes	yes	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes	yes	yes
LnGDP	0.04***	0.07***	0.03***	0.31***	0.22***	0.31***
	(9.13)	(11.82)	(7.27)	(14.93)	(5.34)	(14.67)
Inflation	-0.01***	-0.01***	-0.01***	-0.05***	-0.10***	-0.05***
	(-14.53)	(-12.36)	(-13.65)	(-12.34)	(-7.53)	(-11.63)
Constant	0.19**	1.30***	0.09	1.93***	-3.16***	1.58***
	(1.99)	(10.39)	(1.00)	(3.95)	(-3.33)	(3.23)
Obs	11645.00	11645.00	11645.00	11645.00	11645.00	11645.00
F-stat	106.96***	223.71***	94.61***	1735.0***	142.11***	1657.08***
Kleibergen-Paap LM	1442,88***	1442,88***	1442,88***			
Hansen J statistic	0.026***	1,637***	0.465**	175.35	58.33	145.70
Endogeneity test	219.7***	285.1***	177.39***			

This Table displays IV&Probit regression estimates of Equation (1) over the period 2015-2019. The external finance indicators are: *ExternalFormalFin* which is the proportion of bank and non-bank financing with respect to total financing of working capital, *ExternalFinance ,* which is the proportion of external financing of working capital (1 - internal financing), *BankFinance),* which was proportion of bank financing of working capital. *ExternalFormalFinance*, which is a dummy equal to 1 if the firm used either bank or non-bank financing to finance working capital and zero otherwise. *OnlyExtFormalFinance_D*, which is a dummy equal to 1 if the firm only used bank and non-bank financing to finance working capital and zero otherwise and *BankFinance*, which is a dummy variable equal to 1 if the firm used bank financing to finance working capital and zero otherwise. These are dependent variables measuring external finance preferences in all countries. The key variables of interest are, *GeneralizedTrust, FamilyTrust and TrustinBanks*. These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is proportion of people in how much confidence you have in banks is great deal of confidence or quite a lot of confidence. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size* is 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. *LaborProd* is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 4b. Marginal effects of generalized trust, banks trust and family trust on firms' external financial choice

	ExternalFormalFinancea_D	OnlyExtFormalFinance_D	BankFinance_D
GeneralizedTrust	-3.651***	-4.895***	-3.481***
	(.386)	(.853)	(.391)
TrustinBanks	.541***	.343	.428***
	(.0780)	(.180)	(.0787)
FamilyTrust	-3.515***	1.284	-3.164***
	(.5476)	(1.084)	(.549)

*delta standard errors in parentheses

Table 2. 5 presents the estimation results of Equation 2. The objective is to study if there are complementary effects between generalized trust and trust in banks. We report the computed marginal effects of generalized trust according to level of trust in banks on external finance in Table 5b. Our findings show a positive and significant effect of the interaction term between generalized trust and trust in banks across all external finance measures. Our results indicate a positive and significant impact of generalized trust on firms' external finance only when trust in banks is also high, implying complementary effects of the two forms of trust on firms' external finance. Further, we find a negative and significant effect of generalized trust on firms' reliance on external finance in countries where trust in banks is low. As argued in earlier sections, a high level of trust in banks may be linked with bank stability via deposits and a higher proportion of the population with banking relationships, which may be vital for firms, especially smaller firms, to obtain external finance, particularly bank credit.

	Instrumental variable Regression			Instrumental variable Probit Regression		
	ExternalFormal Finance	ExternalFinance	BankFinance	ExternalFormal Finance_D	OnlyExtFormal Finance_D	BankFinance_D
GeneralizedTrust	-2.61***	-4.81***	-2.33***	-13.03***	-23.01***	-18.38***
	(-13.58)	(-19.17)	(-12.04)	(-11.31)	(-9.60)	(-5.52)
GeneralizedTrust * TrustinBanks	3.58***	6.19***	3.28***	16.09***	32.57***	26.33***
	(13.55)	(17.94)	(4.04)	(10.38)	(10.50)	(6.10)
TrustinBanks	-0.37***	-0.71***	-0.64***	-1.34***	-3.85***	-2.72***
	(-11.07)	(-16.70)	(-11.66)	(-7.36)	(-11.52)	(-5.91)
FamilyTrust	-0.77***	-1.93***	-0.64***	-5.30***	-5.70***	-3.26***
	(-10.25)	(-19.32)	(-8.67)	(-13.58)	(-9.17)	(-3.76)
LaborProd	0.00	0.02***	0.00***	0.44	-558.75	-409.39
	(0.45)	(4.22)	(-6.95)	(0.96)	(-1.32)	(-0.87)
QualityInst	0.04***	0.12***	0.01***	0.29***	0.11***	0.13***
	(14.20)	(12.62)	(9.12)	(17.62)	(4.48)	(3.63)
Firmsize	-0.05***	-0.06***	0.04***	-0.24***	-0.36***	-0.45***
	(-8.67)	(-7.56)	(15.77)	(-7.45)	(-6.07)	(-5.86)
Popmore1m	0.00	-0.00*	-0.03	-0.00	0.00	0.00
	(0.71)	(-1.82)	(-6.49)	(-0.46)	(0.81)	(1.62)
Isic	yes	yes	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes	yes	yes
LnGDP	-0.00	0.00***	-0.00*	-0.02***	0.02*	-0.02
	(-0.84)	(3.55)	(-1.93)	(-3.46)	(1.75)	(-1.40)
Inflation	0.01***	0.02***	- 0.00***	0.10***	0.01	0.01
Constant	1.00***	2.53***	0.13***	4.72***	6.03***	2.60***
	(14.08)	(26.66)	(5.07)	(12.83)	(10.46)	(3.18)
				(-335.85)	(-335.85)	(-335.85)
Obs	11645	11645	11645	11645	11645	11645
Kleibergen-Paap LM	3786.200	3794.219	3786.20			
Hansen J statistic	0.064	24.794	0.886	134.59	548.98	53.81
F-stat	104.73***	206.07***	21.88***	1698.14***	98.84***	148.43***

Table 2. 5 Interaction between generalized trust and trust in banks on external firm financing, 2015-2019

This Table displays IV&Probit regression estimates of Equation (1) over the period 2015-2019. The external finance indicators are: *ExternalFormalFinance* which is the proportion of bank and non-bank financing with respect to total financing of working capital, *ExternalFinance* , which is the proportion of external financing of working capital (1 - internal financing), *BankFinance,* which was proportion of bank financing of working capital. *ExternalFormalFinance_D*, which is a dummy equal to 1 if the firm used either bank or non-bank financing to finance working capital and zero otherwise. *OnlyExtFormalFinance_D*, which is a dummy equal to 1 if the firm only used bank and non-bank financing to finance working capital and zero otherwise, and *BankFinance*, which is a dummy variable equal to 1 if the firm used bank financing to finance working capital and zero otherwise. These are dependent variables measuring external finance preferences in all countries. The key variables of interest are, *GeneralizedTrust, FamilyTrust and TrustinBanks*. These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is proportion of people in how much confidence you have in banks is great deal of confidence or quite a lot of confidence. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size* is 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. LaborProd is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 5b. Marginal effects of generalized trust according to different level of banks trust on firms' external financial choice, 2015-2019

	ExternalFormal Finance	ExternalFinance	Bank Finance	ExternalFormal Finance_D	OnlyExtFormalFinance_D	Bank Finance_D
Low	-9.007***	-1.486***	-11.179***	-1.714***	-3.259***	-1.510***
	(.773)	(1.634)	(2.263)	(0.134)	(0.178)	(0.129)
Medium	-2.573***	-1.839***	-1.265**	-.282 ***	-.782***	-.196 ***
	(-.237)	(.508)	(.669)	(0.041)	(0.055)	(0.040)
High	.482	4.349***	3.737***	.398 ***	.394***	.427***
	(-.260)	(.436)	(.563)	(0.046)	(0.061)	(0.044)

*delta standard errors in parentheses

4.2 Results: Trust and Financial Obstacles

Table 6a presents the estimation result of Equation 3 and calculated marginal effects of generalized trust, trust in banks and family trust on access to external finance obstacles. We study the link between financial obstacles and forms of trust. It is observed that access to finance becomes more difficult in countries with high family trust while generalized trust and trust in banks play an important role in overcoming financial difficulties. The calculated marginal effects of the forms of trust on access to finance constraints indicate similar results to support Hypotheses 3a and 3b.

Table 2. 6 Forms of Trust, Access to Finance Obstacles, 2015-2019

	FinancialObstacle_D Logit	FinancialObstacle_D IV-probit	FinancialObstacle Poisson	FinancialObstacle Negative Binomial
GeneralizedTrust	-0.49	-3.21***	-1.16***	-0.78***
	(-1.33)	(-4.29)	(-10.80)	(-2.64)
TrustinBanks	-1.20***	-1.72***	-0.61***	-0.72***
	(-10.39)	(-5.12)	(-11.27)	(-5.65)
FamilyTrust	4.06***	6.98***	1.41***	1.12*
	(6.63)	(4.08)	(4.68)	(1.69)
LaborProd	-2.30	-218.97	-6.57***	-20.01
	(-0.38)	(-0.64)	(-2.93)	(-0.48)
QualityInst	-0.01**	-0.00	0.03***	0.04***
	(-1.97)	(-0.16)	(8.78)	(4.22)
Firmsize	-0.06***	0.20	-0.06***	0.02
	(-3.09)	(1.54)	(-5.97)	(0.54)
Popmore1m	0.09**	0.04	-0.05**	-0.08
	(2.24)	(0.21)	(-2.46)	(-1.37)
Isic	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes
LnGDP	-0.22***	-0.39***	-0.20***	-0.07**
	(-8.88)	(-4.12)	(-16.55)	(-2.17)
Inflation	0.03***	0.04***	0.03***	0.02***
	(5.38)	(3.41)	(15.03)	(5.56)
Constant	-4.10***	-7.07***	-0.75***	-0.54
	(-7.35)	(-4.00)	(-2.65)	(-0.85)
N	10038	13315	13315	13315
Wald chi2(12)		223.32		
Wald test of exogeneity: chi2(2)		102.16 (0.0000)		
F	47.05***	10.12***		17.93***
N_strata	518			518

This Table displays Logit, Probit,Poisson and Negative Binomial regression estimates of Equation (3) over the period 2015-2019. *FinancialObstacle_D* is the dummy variable that equals 1 represents if access to finance is a major or very severe obstacle, and 0, otherwise. *FinancialObstacle is* degree of access the finance range between 1 to 4. *The key variables of interest are, GeneralizedTrust, FamilyTrust and TrustinBanks. These measures range from 0 to 1.* The key variables of interest are, *GeneralizedTrust, FamilyTrust and TrustinBanks*. These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is proportion of people in how much confidence you have in banks is great deal of confidence or quite a lot of confidence. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size* is 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. *LaborProd* is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 6b. Marginal effects of generalized trust, banks trust and family trust on access to finance obstacles 2015-2019

	FinancialObstacle_D	FinancialObstacle_D	FinancialObstacle	FinancialObstacle
GeneralizedTrust	-.458***	-.493	-.995**	-1.016***
	(.1086)	(.370)	(.382)	(.386)
TrustinBanks	-.245***	-1.202***	-.930***	-.932***
	(.0458)	(.115)	(.162)	(.1624)
FamilyTrust	.997***	4.059***	1.455	1.454
	(.254)	(.611)	(.872)	(.865)

*delta standard errors in parentheses

In Table 2.7, we present the regression results of Equation 4. We show the calculated marginal effects of generalized trust according to different levels of institutional quality as measured by the strength of legal rights of borrowers and lenders (Low, Medium, High) in Table 7b. The impact of generalized trust in easing access to credit constraints is larger for firms located in countries with weaker protection laws. Indeed, we only find a consistent negative impact of generalized trust on access to finance obstacles in countries where the quality of institutions is low.

Table 2. 7 Forms of Trust, Credit Institutional Quality, and Access to Finance Obstacles, 2015-2019

	FinancialObstacle_D	FinancialObstacle_D	FinancialObstacle	FinancialObstacle
GeneralizedTrust	-6.78***	-6.37***	-2.43***	-2.47***
	(-2.80)	(-9.06)	(-3.05)	(-3.10)
QualityInst	-0.06*	-0.09***	0.00	0.00
	(-1.68)	(-6.97)	(0.29)	(0.29)
QualityInst * GeneralizedTrust	0.54	1.05***	0.26**	0.27**
	(1.55)	(8.63)	(2.44)	(2.50)
TrustinBanks	-1.73***	-0.56***	-0.71***	-0.71***
	(-5.12)	(-4.39)	(-5.60)	(-5.60)
FamilyTrust	6.59***	1.65***	0.83	0.83
	(3.96)	(2.65)	(1.28)	(1.30)
LaborProd	-206.46	-5.51	-18.70	-19.06
	(-0.63)	(-0.27)	(-0.51)	(-0.50)
Firmsize	0.20	-0.09***	0.03	0.03
	(1.57)	(-4.65)	(0.58)	(0.60)
Popmore1m	0.05	0.09**	-0.08	-0.08
	(0.25)	(2.34)	(-1.33)	(-1.34)
Isic	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes
LnGDP	-0.37***	-0.14***	-0.06*	-0.05
	(-3.70)	(-5.46)	(-1.66)	(-1.63)
Inflation	0.04***	0.02***	0.02***	0.02***
	(3.56)	(4.89)	(5.81)	(5.77)
Constant	-6.45***	-1.62***	-0.15	-0.16
	(-3.78)	(-2.77)	(-0.24)	(-0.26)
N	13315.00	10038.00	13315.00	13315.00
Wald chi2(12)		191.05		
Wald test of exogeneity: chi2(3)		114.04*** (0.0000)		
F	14.65***	8.65***	15.32***	15.27***
N_strata	518.00	518.00	518.00	518.00

This Table displays Logit, Probit, Poisson and negative binomail regression estimates of Equation (4) over the period 2015-2019. *FinancialObstacle_D* is the dummy variable that equals 1 represents if access to finance is a major or very severe obstacle, and 0, otherwise. *FinancialObstacle is* degree of access the finance range between 1 to 4. *The key variables of interest are, GeneralizedTrust, FamilyTrust and TrustinBanks. These measures range from 0 to 1.* The key variables of interest are *GeneralizedTrust, FamilyTrust and TrustinBanks*. These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is proportion of people in how much confidence you have in banks is great deal of confidence or quite a lot of confidence. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size*, Small-sized, Medium-sized and Large-sized, are 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. *LaborProd* is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 7b. Marginal effects of generalized trust according to different level of institution quality on access to finance obstacles, 2015-2019

	FinancialObstacle_D	FinancialObstacle_D	FinancialObstacle	FinancialObstacle
Low	-.729***	-4.270***	-1.993***	-9.754***
	(.181)	(.509)	(.5621)	(1.04)
Medium	-.408***	.980*	-.765*	1.838***
	(.111)	(.436)	(.3851)	(.328)
High	-.267	3.080***	-.078	6.475***
	(.159)	(.608)	(.5302)	(.685)

*delta standard errors in parentheses

We present the regression results of Equation 5 in Table 2. 8 and the calculated marginal effects of generalized trust on firms' access to credit constraints across small, medium and large firms in Table 8b. Our findings show that generalized trust plays a more crucial role for small firms in easing their access to credit obstacles, confirming Hypothesis 4. Thus, reinforcing generalized trust is beneficial for small firms to reduce their access to external finance constraints. This result is consistent with the findings of Dowling et al., (2019) which show that trust affects firms' equity financing based on firm size.

Table 2. 8 Forms of Trust, Firm Size and Access to Finance Obstacles, 2015-2019

	FinancialObstacle_D Logit	FinancialObstacle_D IV-probit	FinancialObstacle Poisson	FinancialObstacle Negative Binomial
GeneralizedTrust	-4.38***	21.22***	-1.17***	-1.18***
	(-4.40)	(20.56)	(-3.27)	(-3.28)
Firmsize	-0.42	2.91***	-0.18	-0.18
	(-1.46)	(24.02)	(-1.46)	(-1.43)
Firmsize* GeneralizedTrust	3.37*	-12.22***	1.37**	1.36**
	(1.75)	(-27.06)	(2.09)	(2.07)
TrustinBanks	-1.76***	-0.30**	-0.73***	-0.73***
	(-5.22)	(-2.29)	(-5.82)	(-5.82)
FamilyTrust	6.72***	2.61***	1.03	1.03
	(3.97)	(4.24)	(1.56)	(1.57)
LaborProd	-207.71	-1.98	-17.33	-17.81
	(-0.58)	(-0.67)	(-0.59)	(-0.58)
QualityInst	-0.00	0.02***	0.04***	0.04***
	(-0.09)	(3.77)	(4.20)	(4.29)
Popmore1m	0.04	0.06**	-0.08	-0.08
	(0.25)	(1.99)	(-1.33)	(-1.34)
Isic	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes
LnGDP	-0.37***	-0.16***	-0.06*	-0.06*
	(-3.76)	(-7.71)	(-1.86)	(-1.85)
Inflation	0.04***	-0.01***	0.02***	0.02***
	(3.29)	(-3.85)	(5.50)	(5.46)
Constant	-6.41***	-3.80***	-0.36	-0.36
	(-3.82)	(-6.93)	(-0.57)	(-0.57)
N	13315	10,038.00	13315	13315
Wald chi2(13)		3955.76		
Wald test of Exogeneity: chi2(3)		616.17*** (0.0000)		
F	14.03***	8.22***	15.04***	14.89***
N_strata	518	518	518	518

This Table displays Logit, Probit, Poisson and negative binomial regression estimates of Equation (5) over the period 2015-2019. *FinancialObstacle_D* is the dummy variable that equals 1 represents if access to finance is a major or very severe obstacle, and 0, otherwise. *FinancialObstacle is* degree of access the finance range between 1 to 4. *The key variables of interest are, GeneralizedTrust, FamilyTrust and TrustinBanks. These measures range from 0 to 1.* The key variables of interest are, *GeneralizedTrust, FamilyTrust and TrustinBanks*. These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is proportion of people in how much confidence you have in banks is great deal of confidence or quite a lot of confidence. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size* is 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. *LaborProd* is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 8b. Marginal effects of generalized trust according to different level of firm size on access to finance obstacles, 2015-2019

	FinancialObstacle_D	FinancialObstacle_D	FinancialObstacle	FinancialObstacle
Small	-.584***	-1.173***	-1.508**	-4.599***
	(.136)		(.462)	
Medium	-.171	-1.068 ***	.250	.981**
	(.255)		(.763)	
Large	-.195	-.963*	-.286	-.562*
	(.226)		(.928)	

*delta standard errors in parentheses

6. Robustness Checks

We run a number of additional tests to explore alternative model specifications. Firstly, we employ three alternative measures for external finance, based on data obtained from the WBES. First is OnlyExternalFormal_D, which is a dummy variable equal to 1 if the firm only used bank and non-bank financial institutions to finance its working capital and zero otherwise; second is ExternalFinance_D, which is a dummy variable equal to 1 if the firm's working capital is not entirely financed by internal funds nor profits and zero otherwise; and the last one is NonbankFinance which is the proportion of working capital financed by non-bank financial institutions. We present the estimation results of Equations 1 and 2 using these alternative measures in Appendix 2. Lastly, we address potential endogeneity concerns, therefore, we run Equations 3, 4, and 5 using the instrumental variable Poisson regression. We report the results in the Appendix 2.

[Insert Appendix 2]

The estimation results show consistent findings with the baseline specifications.

7. Conclusion

This study investigates the determinants of firms' external financing decisions and access to finance obstacles. This is important as firms' growth and funding remains a major policy concern globally. We focus on different forms of trust, especially generalized trust and trust in banks, and institutional quality as two core determinants. First, we examine three radii of trust (generalized, family trust and trust in banks) and investigate their impact on firms' external finance and on financial obstacles. Second, we explore if specific combinations of trusts have an impact on external financing options. We examine how these two forms of trust substitute or complement each other. Third, we perform an analysis on how and to what extent generalized trust is affected by the quality of the institutional environment in firms' access to financing barriers. The findings of this study reveal that a firm's financing strategy depends on both the level of trust and institutional quality in a singular way. Our research suggests that country-specific trust in banks and generalized trust need to be part of how researchers and policy-makers seek to understand cross-country differences in firms' reliance on finance. Trust is a complex concept, drawing from both formal institutional and cultural sources, but trust clearly matters to better understand firms' attitudes towards external financing.

Chapter 3[8]

Democracy and Economic Development: Disentangling the Effect of Elections and Rule of Law

Abstract. This chapter explores how political settlements –rule of law and elections–affect economic development and enhance economic growth. Specifically, the conducted empirical work examines whether democracy affects the economic convergence of countries through the quality of institutions. A distinction is introduced between (i) the electoral component of democracy, and (ii) rule of law parameters as well as between Islamic and non-Islamic countries. The findings of this chapter indicate that the election parameter has a first-order effect on economic development; in Islamic countries, such a relationship is not confirmed and affected instead by the rule of law but to a lower extent. All the results are drawn from a sample of 167 countries during the 2010-2012 period.

[8] This chapter draws from Ogcem and Bakkar (2019) "Democracy and Economic Development: Disentangling the Effect of Elections and Rule of Law "Baltic Journal of European Studies Tallinn University of Technology (ISSN 2228-0588), Vol. 9, No. 4 (29)"co-written with Yassin Bakkar, from Queen's University Belfast.

1. Introduction

The paradigm of institutions and their effect on development has increasingly caught the attention of development economists, academicians, and policymakers. In their seminal work, North and Thomas (1973) find that institutions are one of the primary determinants of economic development and growth besides other factors such as physical and human capital, technological progress, etc. Previous studies have also shown that institutions are one of the main drivers causing income inequality between countries (Acemoglu et al., 2001; Rodrik et al., 2004; Acemoglu & Johnson, 2015). Rigobon and Rodrik (2005) find that rule of law substantially impacts economic performance, thus contributing to economic development, more specifically income. This chapter examines the impact of elections and the rule of law on economic development and their plausible heterogeneous effects in Islamic and non-Islamic countries, specifically European countries. Our understanding of how democracy affects economic development by disentangling the impact of elections from the rule of law tends to be limited in the literature. Thus, this chapter attempts to fill this gap in the literature.

Barro (2003) and Gerring (2005) find that democracy does not affect economic development, whereas Papaioannou and Siourounis (2008) find that democracy is more likely to emerge and consolidate in developed countries. In contrast, Acemoglu and Robinson (2015) indicate that democracy and the future gross domestic product (GDP) per capita are economically and statistically associated, rejecting the previous argument of Barro (2003) and Gerring (2005). Further, they state that a country transitioning from non-democracy to democracy achieves only about 20% higher GDP per capita in the next 25 years. Although a broad range of studies has examined different aspects of democracy, there is no clear-cut consensus on the effect of democracy on economic development. Researchers use different ways to measure or proxy democracy. Moreover, a new understanding has emerged where the concept of democracy is solely determined by 'electoral democracy' and this has given rise to several indexes, the most important of which is the index built by Przeworski and Limongi (1993). Zakaria (1997), however, highly objects to this interpretation in his research advocating the so-called 'illiberal democracy'. He argues that even if a government is elected, it may still violate its citizens' basic rights without any effective increase in income or GDP per capita. In a similar vein, Rodrik (2014) and Rodrik et al. (2004) argue that true democracy requires two sets of institutions: (i) an institution of representation, such as political parties, parliaments, and electoral systems, which are needed to elicit popular preferences and turn them into policy action, and (ii) institutions of restraint, such as independent judiciary and media, to uphold fundamental rights like freedom of speech and prevent governments from abusing their power. They argue that representation without restraint, election without the rule of law, is a recipe for the tyranny of the majority.

To prevent the conceptual mistakes stemming from democracy indexes, we study the effects of economic development by considering the two main aspects of real democracy: (i) the rule of law or the

constraint on executive power, and (ii) election, defined as the competitiveness of executive recruitment or the extent to which executives are chosen through competitive election. Hence, throughout this chapter, we look into how they contribute to economic development. We go beyond the literature addressing the nexus between democracy and economic development by considering potential differences in the democracy-economic relationship in underdeveloped Islamic countries vis-à-vis non-Islamic countries (mainly composed of the 28 European countries); this allows us to overcome the problem of using the democracy index.

The inherently unstable nature of democracy suggests that the perception of economic development may change depending on the opportunities and constraints that societies and economies may face in different environments and political regimes. Typically, in the emerging empirical literature on political economics and development, researchers often find Islamic countries relatively underdeveloped compared to non-Islamic countries. The power of the Middle Eastern rulers was reduced gradually compared with their Western European counterparts (see, e.g., Kuran, 2004; among others). Two main reasons can explain this. First, the development of democratic rights in Europe lasted for centuries. Second, the rule of law was strengthened after huge conflicts between the ruled and the rulers. For instance, citizens of France, England, and other European countries fought for their democratic rights. The struggle was particularly about judicial independence and the right to sue the royal family in independent courts. Also, limiting the power of adopting a government by checks and balances system was another area of institutions (see, e.g., Kuran, 2004; among others). In contrast, Islamic countries failed to keep up with Western European countries' (democratic) progression. Thus, we will investigate how relevant the rule of law and elections are for Islamic countries' economic development compared to non-Islamic European countries. We, therefore, provide a better understanding of the developmental role of democracy in Islamic and Non-Islamic countries.

To measure democracy, we use country-level data from the Polity IV Project and rely on information about executive power constraint. In this perspective, we include all the major countries available in the Polity IV dataset published by the Center of Systemic Peace from 2011 in our study. We run an ordinary least square regression using these measures to show the relationship between democracy, measured by election and the rule of law, and economic development. We also account for possible endogeneity issues by estimating a two-stage least squares model, where we isolate potentially exogenous and distinct sources of variations in the rule of law and election. The literature cites plausible instruments for the rule of law. We follow Acemoglu et al. (2001; 2002) and adopt the population density in the year 1500 as an instrument for the rule of law, and the lagged value of the election measurement as an instrument for the election variable. Our results are empirically consistent and provide strong evidence that election is a crucial determinant of economic development.

This chapter is organized as follows. Section 2 discusses existing institutions and development studies

in the literature. Section 3 describes the data collected from the Political Regime Characteristics and Transitions databases. After, we discuss the empirical methodology used in Section 4, while estimation results and robustness checks are displayed in Section 5. Section 6 concludes and offers policy implications and important directions for future research.

2. Literature Review

2.1 Growth and Development

The most important problems in political economics stem from the causes of cross-country differences in economic development and growth. What makes some countries wealthier than others? Why do some countries grow faster economically while others make no headway?

In traditional neoclassical growth models following Solow (1956), differences in per capita income are expressed in different forms of factor accumulation.

With regard to these neoclassical models, cross-country differences in factor accumulation are either due to differences in preferences, savings rates, or some other exogeneous parameters such as the growth of the total factor productivity. Several institutions, including agents, have well-defined property rights in these models. For example, they exchange goods and services. However, revenue and growth differences are not predicated upon the variation.

Growth theories primarily arise following the views of Romer (1986) and Lucas (1988). They perceive exogeneity as stemming from the accumulation of human and physical capital. They maintain that democracy is not a practical aspect of development and might lead to steady-state growth. However, they follow closely the neoclassical tradition. They provide evidence that the rate of growth varies with preferences and endowments. Those theories internalize steady-state growth and technical progress, while the income differences gradually get significant (see, e.g., Romer, 1990; among others). Correspondingly, according to Romer's (1990) model, if a country allocates more resources to innovation than another, its welfare may be higher. However, this is mainly determined by the technology features used to generate ideas and by preferences.

These theoretical underpinnings help explain the mechanics of economic growth. However, they may not provide an essential explanation for economic growth. North and Thomas (1973) argue that innovation, economies of scale, and education are not growth drivers but are growth themselves. Innovation and factor accumulation are only proximate causes of growth. Thus, North and Thomas (1973) assert that institutional variations explain cross-country economic growth.

What are ‘institutions’? According to North’s (1990) definition, institutions are similar to the rules of the game in a society. More formally, they are humanly devised constraints that form human interaction. Besides, he emphasizes the main effects of institutions and structures in human exchange incentives in politics, society, or economics.

In his book titled “Structure and Change in Economic History”, North (1981) distinguishes between a 'contract theory' and a 'predatory theory' of the state. According to the 'contract theory', the state and its institutions endow the legislative framework allowing private contracts to facilitate economic transactions. According to the latter theory, the state is a means to transfer resources between groups. In his aforementioned book, North also builds up an idea concerning the combination of the aforesaid theories (i.e., growth theories). He puts forward that a good institution fosters private contracts. Thus, a good institution checks against expropriation by the government or other groups holding political power. The consensus on the appropriateness of the construct of North among the political scientists and the economists is ever-increasing. The part of the state which primarily determines political performance are the institutions (namely the economic, political, legal, and social organization of society). However, the specific functions of the contracting institutions promoting private contracts and the property rights preventing government and elite expropriation are not foreseen to be determined in the modern literature (as in North, 1981; among others). North emphasizes the significance of a group of institutions, including those preserving private property rights and those supporting private contracts instead of well-grounded theoretical assertions, which emphasize each institution group. For instance, in the contract theory literature, such as in Bolton and Dewatripont (2005), the importance of the role of institutions supporting private contracts is pointed out. The emphasis is made by linking the types of contracts that can be prepared and enforced with the efficiency of organizations and societies. Contrarily, other authors stress the importance of property rights institutions, particularly by emphasizing their role against government expropriation.

2.2. Impact of Institutions

There are significant cross-country differences in terms of political and economic development. A huge amount of literature deals with the tremendous cross-country variations in economic institutions and the strength of the correlation between these institutions and economic performance. For example, Knack and Keefer (1995) examine international organizations' property enforcement precautions. Djankov et al. (2002) discuss the measures of barriers to entry. Many studies discuss the variation in educational institutions and the differences in human capital corresponding those differences. One can infer from these studies that major differences in the measures of economic institutions exist. Regarding their outcomes, there is a marked correlation between the precautions and economic performance indicators. According to a study by Djankov

et al. (2002), in the United States, the total cost necessary for opening a medium-sized firm in 2001 is less than 0.02% of GDP per capita. However, the corresponding total cost in the Dominican Republic was 4.95%, in Nigeria 2.7%, in Kenya 1.16%, and in Ecuador 0.91%. These barriers to entry are closely correlated with various economic outcomes, such as economic development and economic growth. Contrarily, such a connection does not mean that the cause of their poverty is their worse institutions. More likely, the differences in the economic, geographic, social, and cultural foundations compared to the United States, which may be the reason for the institutional differences, could be the reason behind their poor economic performance. Consequently, if institutions are the foreseeable factors of economic performance, it cannot be affirmed by evidence-based correlation.

Moreover, European colonization and domination of the major parts of the globe since the late fifteenth century can be perceived as a future research laboratory regarding these matters. As reported by Acemoglu et al. (2001), the imposition of different institutions and bodies, together with European dominance, exert social power. Acemoglu et al. (2002) think that the proximate causes of growth are macroeconomic decisions whereas the remote causes of growth are the institutions, which make those macroeconomic decisions. This discussion can be accompanied by the approach of Sachs (2003). He expresses that the fundamental cause of development could be the geographical conditions and natural resources of the countries. We may think that development by institutions is affected only by the geographical conditions and natural resources in the long term and by the adopted macro policies afterward (e.g., Rodrik et al., 2004). Although macro policies, institutions, and geography are essential for development, they come into play at different time intervals. Similarly, while discussing the causes of good institutions, we can state that some causes coincide with closer dates while others to farther dates. That is, when posing the question of what are characteristics of good institutions, we encounter another problem. We understand the underlying causes of each reason as the conditions determining good institutions get thinner. Hence, the best approach is whether we stop these causes at a certain point or pay attention to the temporal effects of these causes. Accordingly, as Acemoglu et al. (2001) state that the significance of political accountability and the participation of the general public in government decisions are so important that it has similar importance as the mortality of settlers in creating good institutions. However, it is actualized by the effect of the previous institutions on the subsequent institutions because of the time difference and causality.

2.3 Growth and Democracy

There are a lot of studies dedicated to handle the influence of democracy on economic development. Barro (2003) and Gerring (2005) think that democracy does not have an effect on economic development. Contrarily, according to Papaioannou and Siourounis (2008), democracy positively affects economic development. They state that "democracy is more likely to emerge and consolidate in developed countries".

In addition, Acemoglu and Robinson (2015) show an economic and statistical association between democracy and future GDP per capita. They reject Barro's (2003) argument. This, therefore, means that a country changing from non-democracy to democracy gains about 20% higher GDP per capita in the next 25 years; this counter-argument was also affirmed later by Gerring (2005).

It is common among economists and political scientists, who reveal these results mostly in the last 20 years, that democracy and its different measurements are the main issues. A new understanding of democracy solely determined by 'electoral democracy' arises. This paved the way for the introduction of several democracy indexes. The most important one is the data used/published by Przeworski and Limongi (1993). Zakaria (1997) thinks that even if the citizens elect a government, the regular violation of their rights could still take place. Taking Rodrik's (2014) consideration into account, a real democracy is a double-sided set of characteristics of institutions. First, democracy necessitates institutional limitations, such as an independent judiciary and media. It needs these restrictions to uphold fundamental rights like freedom of speech and prevent governments from abusing their power. Second, it requires adequate representation in institutions. For example, parties and parliaments are expected to reveal common preferences.

Therefore, to prevent the conceptual errors originating from democracy indexes, we will try to present the effects of economic development by looking into the two main factors of a 'real democracy' - the rule of law and election.

2.4 Institutions and Evidence from European Countries versus Islamic Countries

Historically, it is known that the Middle East and North Africa (MENA) region had a high standard of living until the 15th century. At that time, there are developed technology, agricultural productivity, literacy, and high level of institutional creativity. Therefore, the region mentioned is perceived as a developed part of the world. Diversely, the MENA region cannot deal with the speed of European countries as they enhance their production activities, exchange products, and increase resources over time. Institutional endowment in the MENA region does not stop. However, specific issues such as economic modernization, and the specific way of structural changes taking place in the West are not experienced in MENA. The lending practices of eighteenth-century Cairo resembles those in the fifteenth century. The initiative applied by investors and traders is very similar to those in the fifteenth century. In the nineteenth century, the MENA region is regarded as underdeveloped compared with Western Europe. By the twenty-first century, the region falls behind the Far East.

Kuran (2004) discusses the causes in most of his articles. He associates the economic underdevelopment with four different aspects. First is insufficient stock management and a financial system without an effective banking system. The second is due to the Waqf system. This is an unsaleable charitable

endowment under Islamic law. The law concerning this system typically includes donation of a building, plot of land, or other assets . Third, at the beginning of the modern global economy, there has been more material security in the West than in the MENA region. Finally, as the development level of the MENA region decreases, West European industrialists, merchants, and financiers act a growing part in its economy. Besides, Kuran (2004) primarily concentrates on the institutional difficulties behind these aspects. Therefore, because we pay attention to the measurement of the impacts on economic development, this chapter discusses the foremost ones: (i) the rule of law, and (ii) election as essential constituents of the democratic state. Kuran (2004) points out these two aspects of democracy as the most important reasons for the abovementioned results and problems.

Identifying the mechanisms that increase this divergence, by considering the institutional structure difference, in development and growth, particularly between the West and the East, is our main difficulty. As an introduction to identifying institutional differences in development, we point out the two aforementioned institutional aspects by focusing on international evidence.

3. Data and Variables

In terms of the dataset, we analyze the exhaustive sample of reported countries in the Polity IV (Political Regime Characteristics and Transitions) database, over the 2010–2012 period. The Polity IV's Center for Systemic Peace dataset covers all major independent states worldwide. We consider states with a total population of 500,000 or more. The study employs data from 167 countries, among which 28 are European countries, and compares 125 non-Islamic countries and 42 Islamic countries. The panel dataset is unbalanced due to some missing observations. For these countries, we collected structural cross-sectional data. Besides, we obtain country-level macroeconomic data from the Thomson Reuters Advanced Analytics and other economic and political information from the OECD Metadata stats and the World Bank database. Information on the sample composition by country can be found in the Polity IV report published on the Center of Systemic Peace website.

The constraint on executive power variable from the obtained dataset was retrieved to measure the rule of law and competitiveness of executive recruitment, to fully understand the effects of the election. Hence, the constraint on executive power is designed to capture institutionalized constraints on the decision-making powers of chief executives as in the previous studies (see, e.g., Glaser et al., 2004; among others). Therefore, according to this, good political institutions should contain the following characteristics: (i) the holder of executive power is accountable to political representatives or to citizens, (ii) the government is controlled and limited by checks and balances, and (iii) the rule of law. However, Acemoglu & Johnson (2005) state that the

variable includes a limitation of expropriation by other elites, such as the legislature.

Moreover, the constraint on the executive power index varies from 1 (which refers to unlimited authority) to 7 (which refers to accountable executive constrained by checks and balances). This suggests that the higher the index value, the better the quality of the institutions. One of the key advantages of using this variable is to capture the political procedures that constrain the political executive. Thus, a close relationship between property rights and politics could be drawn. However, the criticism is that this variable hardly observes and captures the constraints on the behavior of non-political elites and other branches of government. Therefore, solely addressing might be considered a significant issue, though it is likely to violate constraints in a way that keeps powers in the hands of elites (Acemoglu and Robinson, 2015).

Another important challenge is to capture the existence and efficiency of the election. To address this issue, we employ the competitiveness of executive recruitment variable, which ranges from 1 to 3, where 1 is the lowest and 3 is the highest grade in terms of performance measurement. Conceptualized by Gurr (1974), executive recruitment involves how social super-ordinates come to occupy their positions of political authority; that is, how institutionalized, competitive, and open are the mechanisms for selecting a political leader. According to modern democratic theory, a democratic system allows citizens to elect their political representatives by regularly scheduled, competitive, and open elections. If the power transfer is coded as unregulated '1' in regulation on executive recruitment; or if there is a transition from unregulated, then the code is '0'. For more information on the construction of these measures see Appendix (Table A1 and Table A2).

The estimated model includes a set of control variables -collected from the Thomson Reuters Advanced Analytics and from the World Bank database- that may have an additional impact on development/GDP growth beyond the key explanatory variables. We primarily control for the gross capital formation (or gross domestic investment), which is comprised of outlays in addition to fixed assets of the economy and net changes in inventory levels. We also consider the government's final consumption expenditure, which covers all the expenditures of the government to buy goods and services. Third, we included the employment-population ratio that accounts for the employed population of a country and its contribution to the GDP. Within this variable, people aged 15 or over are considered as the working-age population. The fourth control variable is stocks traded, representing the value of shares traded over a specific year. Stock prices affect consumer confidence and therefore contribute to GDP. Lastly, we included the log form of the annual inflation, indicating the rate of price change in the economy over a year. The summary statistics of all variables in the model are outlined in Table 1.

Table 1 provides descriptive statistics for the country-level variables we use to conduct our study and run regressions. Overall, across the sample period and all countries, we observe in Panel A of Table 1 that the average log GDP per capita equals 24.06 (USD per capita, in constant 2005 basis), the competitiveness of executive recruitment is strongly high and equals 2.07, whereas the executive constraint is relatively lower and equals to 4.97. Most of the remaining statistics and variables show the same results obtained in previous studies in the same field. Panels B and C provide the descriptive statistics for the subsamples of Islamic and non-Islamic countries. We report the pairwise correlation coefficients among the main explanatory variables in Panel D of Table 4.

Table 3. 1 Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Panel A: Entire sample of countries					
Log GDP	453	24.069	2.158	19.758	30.201
Competitiveness of executive	453	2.076	1.095	0	3
Executive constraints	453	4.974	2.058	1	7
Population density	453	1.000	1.678	-3.837	5.648
Inflation	453	8.850	8.610	-1.797	29.327
Government expenditure	453	15.424	6.121	2.743	36.694
Stocks trade	453	33.862	57.115	0	335.964
Gross capital	453	23.122	7.697	1.524	58.951
Panel B: Islamic countries					
Competitiveness of executive	117	1.233	0.959	0	3
Executive constraints	117	3.234	1.769	1	7
Panel C: Non-Islamic countries					
Competitiveness of executive	336	2.366	0.986	0	3
Executive constraints	336	5.580	1.789	1	7
Panel D: Correlation matrix	Competitiveness of executive		Executive constraints		Log GDP
Competitiveness of executive	1				
Executive constraints	0.847		1		
Log GDP	0.344		0.277		1

Panel A of this Table summarizes all of the variables in the model used to analyze the relationship between institutions' effects (Competitiveness of executive and Executive constraints) on economic development (GDP per capita (in constant 2005 USD)). For data sources and definitions of the variables, see above Section 3. Panel B and Panel C present the same statistics for the Islamic and non-Islamic countries subsamples. Panel D presents the pairwise correlation matrix for the main macroeconomics characteristics.

4. Empirical Methodology

4.1 Empirical specification: ordinary least square (OLS)

We consider an ordinary least square (OLS) regression with robust standard errors to estimate the baseline model with all dependent variables. We primarily run a simple OLS regression to show that GDP per capita is correlated with both the rule of law and election, represented by the following reduced-form model:

$$Y_{i,t} = \beta_0 + \beta_1 Rule\ of\ law_{i,t} + \beta_2 Election_{i,t} + \Lambda X_{i,t-1} + \mu_i \quad \{1\}$$

where, $Y_{i,t}$ is log form of GDP per capita (in USD, in constant 2005 basis); β's are the coefficients of our main regressors of investigations; $X_{i,t}$ represents the vector of control variables; Λ is a vector of coefficients that capture the effect of control variables on GDP per capita; and μ_i is an error term clustered at the individual country level. The main independent variables of interest are (i) rule of law, which is represented by the constraint of executive power measure, and (ii) election, which is represented by the competitiveness of executive recruitment measures. The control variables are inflation (GDP deflator), government consumption, gross capital formation, stocks traded, and employment to population ratio.

Furthermore, the relationship between GDP per capita and the aspects of democracy may depend on the political regimes and political cultures. Thus, regressions analyses differentiate three sets of regressions. We defined three groups: namely, all countries (167 countries, the entire sample), non-Islamic countries (125 countries, with the predominance of the European countries), and Islamic countries (42 countries), respectively. To distinguish between Islamic and non-Islamic countries, a dummy variable is utilized to address the second research question that aims to understand the effect of heterogeneity between the Islamic world and the rest of the countries.

Additionally, we also investigate whether or not there is a correlation between the rule of law and election measures. We find that those variables are highly correlated, as shown in the results reported in Panel D of Table 1. Consequently, we run two separate regressions, each including just one of the key explanatory variables, as shown in equations 1a and 1b. Thus, GDP per capita is formulated either under the baseline Eq. 1 or under the new specification, Eq. 1a and Eq. 1b, as follows:

$$Y_{i,t} = \beta_0 + \beta_1 Rule\ of\ law_{i,t} + \Lambda X_{i,t-1} + \mu_i \quad \{1a\}$$

$$Y_{i,t} = \beta_0 + \beta_1 Election_{i,t} + \Lambda X_{i,t-1} + \mu_i \quad \{1b\}$$

Finally, we test the presence of heteroskedasticity using the Breusch-Pagan and Cook-Weisberg tests. The results show that the error terms are heteroskedastic, hence, we use robust standard errors in the OLS and the 2SLS estimations.

4.2 Econometrics issues and two-stage least square (2SLS) model

There are two distinct limitations in estimating the above OLS models. Initially, both rule of law and election measures may have a reverse effect with GDP per capita, or be correlated with an unobservable factor such as religion, geography, or other variables that make the key explanatory variables endogenous. That is, our

empirical setup may suffer from reverse causality. Accordingly, this implies that OLS coefficient estimates do not measure the causal effect of the rule of law and election on economic growth, hence leading to an upward or downward bias (Acemoglu & Johnson, 2005). Additionally, both variables are measured with error, so there may be a downward attenuation bias. In addition, rule of law and election are correlated. Thus, the effect of the type of institution that is measured with greater error will load onto the other variable. We hence adopt an instrumental variable approach.

To account for the above problem, we slightly modify Eq. 1a, Eq. 1b and estimate the two-stage least squares (IV-2SLS) instrumental variables method with fixed effects specification.

In the first stage, we instrument and estimate the rule of law and election measures ($\widehat{Rule\ of\ law}$ and $\widehat{Election}$). It is important that these instruments are correlated with the endogenous regressors, but orthogonal to any other omitted characteristics. A relevant instrumental variable would correct for reverse causality and omitted variable biases.

The consistency of the 2SLS instrumental variables estimation depends on the relevance and the exogeneity of the instruments. Thus, we use population density in the year 1500, similarly to Acemoglu & Johnson (2005), as an instrumental variable for the rule-of-law measure. We do not use mortality rate as the second instrument variable as in Acemoglu & Johnson (2005), as it severely limits the sample size.

Having not been able to find a suitable second instrument variable for rule of law and election measures, we use the one-year lagged value of the rule of law and election as additional instruments for the rule-of-law and election variables, respectively. The relevance of the instrument set is assessed through the Kleibergen–Paap (KP) rank-LM (from the first stage) test for under-identification and the KP Wald rank F-statistic (Partial F-stat from the first stage) to test for weak identification (Kleibergen & Paap, 2006; Cragg & Donald, 1993). Subsequently, in the second stage, economic performance regressions incorporate the predicted values of rule of law and election from the first stage with the rest of the explanatory variables. The following reduced-form models represent the specification of the first stage regression:

$$Rule\ of\ law_{i,t} = \delta_1 P_i + \gamma_2 Election_{i,t-1} + \Lambda X_{i,t-1} + \mu_i \ \{2a\}$$

$$Election_{i,t} = \delta_1 P_i + \gamma_2 Rule\ of\ law_{i,t-1} + \Lambda X_{i,t-1} + \mu_i \ \{2b\}$$

where P is log form of the indigenous population density in the year 1500. This variable is used to instrument the rule of law and election. $Election_{i,t-1}$ and $Rule\ of\ law_{i,t-1}$ are the lagged values of election and the rule of law, which are used as instruments for the election and the rule of law, respectively. As we consider a IV-2SLS model, the second stage regressions are specified by including the predicted values of $Rule\ of\ Law_{i,t}$ and $Election_{i,t}$, respectively, in Equations 2a and Eq. 2b.

4.3 The population density in 1500 and lagged form of election measurement

The first instrument variable for the rule of law and election is the population density in the year 1500, which is used by Acemoglu et al. (2002; 2008). One of the most significant determinants of the strategy in European colonization was the indigenous population density and the mortality rate. Europeans invaded some parts of the world and forced the local population to work for them. Europeans settled in a region and did not develop extractive institutions if the local population of the specific region was relatively low. Acemoglu et al. (2002) reveal that there was an observable negative correlation between population density and GDP per capita income in the region under the control of the European countries due to inferior property rights institutions within these former colonies with high population densities in the sixteenth century. Hence, the density of the indigenous population is an appealing instrument.

Furthermore, the second instrument is either the lagged value of election or rule-of-law variables. As commonly used in the literature, the lagged value of an endogenous regressor is still an ideal instrument to use. Although it matches the important conditions of being a successful instrumental variable, it has a high correlation with the endogenous variable. However, the most crucial criticism is that the error term could be highly correlated with these instrumental variables, making it difficult to satisfy the exclusion condition that the instrumental variable must not be correlated with the error term in Eq. 1. In other words, if there is serial correlation in the error term, the lagged variable is highly likely to be correlated with the error term.

5. Empirical Results

5.1 Baseline results: Ordinary Least Squares (OLS)

Table 2 reports the regression results documenting the relationship between contracting and property rights institutions and log GDP per capita. Panel A shows the results of the ordinary least square (OLS) regressions without control variables as specified by Equations 1a and 1b. Different columns represent the two above regressions using the entire sample and subsamples of Islamic and non-Islamic countries. Overall, the results show that the key variables are statistically significant in the full sample and the non-Islamic countries subsample. However, this is not the case for the Islamic countries subsample. Subsequently, the results are economically important and the relative magnitudes of the estimated coefficients provide interesting insights. Using the full sample, the findings indicate that an increase in the rule of law score (executive constraint) by one increases GDP per capita by 29%, and an increase in the election score (competitiveness of executive) by one increases GDP per capita by 67% for all countries. Besides, there is a significant positive coefficient on election and rule of law in the OLS estimations covering non-Islamic countries. Interestingly, the magnitudes of the rule of law and election effects in non-Islamic countries are significantly different from zero and are larger than those in Islamic countries.

The inclusion of control variables is reported in Panel B of Table 1 and shows the changes in the coefficients of the two key explanatory variables of interest. Results display that the coefficient estimates have decreased using the full sample and the non-Islamic countries subsample. However, such changes are more drastic when considering Islamic or non-Islamic countries separately. The conclusions are similar and therefore robust to these alternative specifications.

Table 3. 2 Baseline regression. Institutions and economic development, using an ordinary least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Competitiveness of executive	0.671*** (0.138)		0.244 (0.312)		0.954*** 0.174	
Executive constraints		0.298*** (0.077)		0.0351 (0.176)		0.466*** (0.101)
Controls	No	No	No	No	No	No
Observations	396	396	59	59	337	337
R2	0.116	0.081	0.019	0.001	0.167	0.131
Panel B						
Competitiveness of executive	0.598** (0.234)		0.496** (0.207)		0.729* (0.413)	
Executive constraints		0.246** (0.101)		0.332*** (0.096)		0.243 (0.161)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	396	396	59	59	337	337
R^2	0.349	0.34	0.508	0.546	0.467	0.454

This table displays the cross-sectional OLS regressions results for the estimation of Equations 1, 1a, and 1b, for the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variables and with control variables, respectively). The estimation is carried out for three different samples: the full sample, non-Islamic countries and Islamic countries subsamples. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment) in 2005, measured as a rank from 1 to 3. Control variables include inflation, government expenditure, employment, stocks trade, gross capital, and inflation. Standard errors are in parentheses.
Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Panel A of Table 2 shows the strong effects of election and rule of law institutions on GDP per capita, in the univariate OLS regressions for the entire sample and the non-Islamic countries subsample. On the other hand, Panel B shows the strong effects of rule of law and election institutions on the GDP per capita in Islamic countries subsample, whereas for the non-Islamic countries subsample, only election has a strong positive and statistically significant effect on economic development.

Table 3. 3 The joint stance of institution's aspects on economic development, using an ordinary least squares estimator

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Competitiveness of executive	0.705** 0.289	0.46 0.487	0.802** 0.334
Executive constraints	-0.0215 0.157	-0.154 0.268	0.102 0.192
Controls	No	No	No
Observations	396	59	337
R2	0.116	0.03	0.169
Panel B			
Competitiveness of executive	0.507 0.451	-0.0286 0.527	0.717 0.609
Executive constraints	0.046 0.195	0.347 0.318	0.007 0.241
Controls	Yes	Yes	Yes
Observations	396	59	337
R^2	0.349	0.546	0.467

This table displays the cross-sectional OLS regressions results for the estimation Equations 1, 1a, and 1b, for the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variables and with control variables, respectively). The estimation is carried out for three different samples: the full sample, non-Islamic countries and Islamic countries subsamples. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. Standard errors are in parentheses.
Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

In Table 3, we provide the results regarding the joint effect of both rule of law and election on economic development. Using the entire sample, the results show that the coefficient estimate of the rule of law is not significant, whereas the coefficient of election enters positively and statistically significant. Comparing this result with the result in Table 1, the statically significant effect of the rule of law on economic development becomes non-existent (or strongly lessened). This nonsignificant relationship could be explained by the very high correlation between rule of law and election (0.85). Regarding the subsamples analysis, we find that the election coefficient of non-Islamic countries is strongly positive and statistically significant. In contrast, such a relationship is non-existent in the non-Islamic countries subsample.

In addition to this, we investigate how these results might change when using the IV-2SLS regression technique in the following subsection.

5.2 Main Results and Discussions

In this subsection, we provide the results of the IV-2SLS regressions. Table 4 reports the coefficient estimates of the main variables of interest. Panel A indicates the regression results of Equations 1a, 1b, 2a,

and 2b, without control variables. The first two columns show the results using the full sample comprising Islamic and non-Islamic countries. We find that the coefficient estimate of executive power's competitiveness is statistically different from zero at the 1% level. In a separate regression, column 2 shows that executive constraints are not significant. Looking into the Islamic countries subsample, we find that both of the two key variables are nonsignificant in determining the log GDP per capita. In contrast, looking at the non-Islamic countries subsample, we find that both the key variables are statistically significant. Therefore, we conclude that election and rule of law considerably affect economic development only in non-Islamic countries. Moreover, on the one hand, for election, the first-stage F-statistic is bigger than 10, these estimates do not suffer from a weak instrument problem. Similarly, for rule of law, the under-identification test is assessed by F-test for the excluded instruments (the null hypothesis of weak instruments is rejected if F-statistic is less than 10 or greater than the StockYogo's critical value (Stock & Yogo, 2005)). The F-statistic of the first stage is less than 10; thus, confirming the relevance of the instruments.

Table 3. 4 The relationship between institution's aspects and economic development, from a two-stage least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Competitiveness of executive	0.748*** (0.148)		0.361 (0.315)		1.054*** (0.194)	
Executive constraints		3.704 (4.216)		0.312 (0.469)		2.685* (1.588)
Controls	No	No	No	No	No	No
Observations	396	396	59	59	337	337
R2	0.116	0.864	0.036	0.083	0.166	0.960
Panel B						
Competitiveness of executive	0.639** (0.232)		0.496** (0.207)		0.804** (0.408)	
Executive constraints		-1,342 (2.100)		0.658 (0.566)		-11.96 (92.22)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	396	396	59	59	337	337
R^2	0.348	0.819	0.508	0.397	0.467	0.782

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variables and with control variables, respectively). The estimation is carried out for three different samples: the full sample, non-Islamic countries and Islamic countries subsamples. The Dependent variable is log GDP per capita (constant 2005 USD) in 2005. The key variables of interest are Rule of Law (Constraint on executive power) in 2005, measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment) in 2005, measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. The excluded instrument is constructed according to Equations 2a and 2b. For data sources and definitions of the variables, see above Section 3. F is the F statistics for weak identification. Standard errors are in parentheses.
Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 3. 5 The joint stance of institution's aspects on economic development, from a two-stage least squares estimator

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Competitiveness of executive	-4.226 (2.698)	-0.617 (0.789)	-3.927 (3.287)
Executive constraints	3.187* (1.661)	0.766 (0.560)	3.400 (2.111)
Controls	No	No	No
F	73.53	54.03	33.19
Observations	396	59	337
R2	0.539	0.249	0.037
Panel B			
Competitiveness of executive	28.90 (129.2)	-1.434 (2.278)	8.057 (15.23)
Executive constraints	-14.23 (64.91)	1.276 (1.504)	-3.974 (8.141)
Controls	Yes	Yes	Yes
F	79.08	80.4	70.43
Observations	396	59	337
R^2	0.995	0.271	0.985

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variables and with control variables, respectively). The estimation is carried out for three different samples: the full sample, non-Islamic countries and Islamic countries subsamples. The Dependent variable is log GDP per capita (constant 2005 USD) in 2000. The key variables of interest are Rule of Law (Constraint on executive power) in 2005, measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment) in 2000, measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Tables 4 and 5 display IV-2SLS estimations regarding the economic development for the entire sample of countries and across the Islamic a non-Islamic countries subsamples. The crucial result from Table 4 is that rule of law has a positive effect on GDP per capita. Hence, the economic relevance of the coefficient estimate indicates that an increase in rule of law would increase GDP per capita by 36%. Specifically, Panel A of Table 4 shows a strong positive and statistically significant effect of election institution on GDP per capita, only for the entire investigation and for the non-Islamıc countries. Panel B of Table 4 also displays a strong positive and statistically significant effect of election institution on GDP per capita, this is only effective for the Islamic countries subsample, whereas, for the entire sample of countries and the non-Islamic countries subsample, such a relationship is either non-existent or strongly lessened. Concerning the results of Table 5, overall, we find that the differences between Islamic and non-Islamic countries' subsamples are not significant.

The empirical investigation reveals an interesting pattern: rule of law and election have a significant effect on the long-run growth income levels. More particularly, we find election, which determines the politicians' selection via competitive election, has a significant effect on economic development. Moreover, the impact of the election or the competitiveness of executive recruitment on the non-Islamic countries (mainly European countries) subsample is significantly higher than the effect for Islamic countries. Although the economic explanation of these results is beyond the scope of this chapter, we note that our results are consistent and are in line with the literature discussed above. We reveal that election plays a more crucial role in economic development than the rule of law.

Furthermore, investigating the processes and the channels through which election matters in economic outcomes and enhancing development could be a subject of future research.

5.3 Further Investigations and Robustness Checks

To check the robustness of our results, we collect data from the year 2000 to 2002 and run our estimation by using the same regression models as specified in Equations 1, 1a and 1b, 2a and 2b. Results are presented in the Appendix 3, in Tables A3-A6. The results in Panels A and B of Table 2 along with Table 5 indicate a strong relationship between institutions and GDP per capita in all countries and non-Islamic countries from 2000 to 2002, but for the Islamic countries subsample, the results have slightly changed (the significant impact of institutions at the 10% significance level) becomes insignificant in 2000).

Once we regress the key variables together, election and rule of law, the significance level neither goes down nor disappears in our two subsamples, which were collected from 2000 to 2002. Although the coefficient of election has a relatively larger effect on GDP per capita, this is not the case for the sample collected in 2000. In addition, in both periods, Islamic countries have been affected by the key variables that represent the rule of law and election.

In Appendix 3 Table A5, Panels A and B show similar results with results presented in Table 4; hence, the GDP per capita is significantly more affected by election than the rule of law. Interestingly, in contrast to the results of Panel B in Table 4 that indicates no significant effect for the subsample of Islamic countries subsample, Panel B of Table A5 shows a relatively significant effect at the 10% level. Overall, the oil price was more than doubled from 2000 to 2005, which had a large impact on the development of oil-producing countries. These countries are mostly Islamic countries. Importantly, this particular pattern is robust and attempts to develop a potential explanation. Additionally, over the 2000–2002 period, the quality of institutions ight have had more effect on development. Moreover, it is evident that the political conjecture had changed in the Middle East where mostly Islamic countries were located. This result might imply that election has played a more important role in economic development in both samples.

Overall, the results from the robustness checks and the main results mostly verify each other, and thus the conclusion remains unchanged. The R^2 coefficients are relatively higher for all regressions.

6. Conclusion

Why are some countries wealthier than others? Why do some countries present economic development as others make no progress? This chapter attempts to better understand cross-country variations in growth and development by focusing on two important aspects of institutions, which are perceived as the elements of a 'true democracy': election and the rule of law. Specifically, we reveal that the influence of the competitiveness of executive recruitment via election on economic development is comparatively stronger than the impact of the rule of law, using a sample of 165 countries over the 2010-2012 period. Based on our findings, the rule of law does not affect countries where elections are not held. Gains from a strong rule law are only accrued in the presence of elections. Thus, these results imply that elections are necessary conditions for economic development. Examining the subsamples of Islamic and non-Islamic countries, the findings show a stronger impact of competitive elections on economic development in non-Islamic countries vis-à-vis Islamic countries. The outcomes of this empirical analysis could be of substantial interest to both researchers and policymakers. We view this chapter as the first step . Further empirical and theoretical studies could be carried out to close the deficit between this chapter and the previous literature on the subject. In this chapter, the empirical study is provided to determine the effect of the institutions on development. Unless taking the robustness of the results into consideration, we can comment on some critique. The first criticism in our study would be the inadequacy of the dependent variables concerning long-term economic development. This criticism could be approached in further studies inquiring the development issue and institutions. Future studies could target a more inclusive indicator for election and rule of law index. Finding instrumental variables of better quality to check reverse causality and finding more related control variables could be focused. Additionally, because the observations in Islamic countries are inadequate, the inferences made about the economic underdevelopment of Islamic countries are restricted. Lastly, generating a dummy variable for oil-producing countries as well as searching for other ways help to thoroughly comprehend the weakness of development. Policymakers who are willing to learn from institutions are advised to consider following points: True democracy promotes economic development, and leaders of European and Islamic countries should be conscious of the democratic norms bringing more efficient development.

General Conclusion

In recent years, depending on the social capital phenomenon, various effects of trust on economic development and financing have been investigated using empirical methods. Generally, high generalized trust implies economic growth and high welfare level. A notable example would be Putnam's analysis of regional economic growth disparities in Italy after World War II in the context of social capital and trust (Putnam, 1993). In conclusion, one of the main topics covered in the literature is the link between trust and economic growth. In addition, the association between trust in institutions and the level of welfare is also addressed.

So far, the academic literature on trust has been built around discussions of social capital. Therefore, the social capital literature also mentions several basic building blocks of economic development. The most prominent among the elements of financial development is trust. Recent empirical research reveals the essential part trust plays in promoting financial development. Several studies have examined how trust promotes economic growth through financial inclusion and stability. The significance of trust in banks is also widely discussed in the literature. Along with trust in banks, the other two radii of trust are examined, and their connections with trust in banks are analyzed. In addition, the connection of economic development with institutions is another subject that has been discussed deeply in the literature. There are conflicting views in the literature. These are the view that good institutions, namely democracy, do not affect economic development, and the view that economic growth is positively affected by democracy.

This manuscript relates to the literature investigating the relationship between trust and economic development, trust and a firm’s external finance, and democracy and economic development. Distinguishing between different types of trust, the financial consequences of varying degrees of each form of trust are investigated. Furthermore, the analysis highlights how regional ethnic diversity influences how trust affects economic development. Precisely, this work is devoted to two major issues in the field of trust raised by the recent empirical research and economic fluctuation: how financial development is affected by the combination of different forms of trust, which is discussed in the context of the existence of ethnically divided populations, and how 'firms' external financing relates to the different forms and combinations of trust. It also sheds light on how economic development and growth are affected by political settlement, mainly elections and the rule of law. The findings are relevant for researchers and policymakers in Islamic and Non-Islamic states.

This manuscript tackled the three aforementioned issues byusing empirical methodologies to investigate the association of financial development with trust and democracy. Its aims are to address new research questions and expand answers related to trust and economic development. To attain this objective, we conducted three empirical essays, guided by the existing research gaps, each of them in a dedicated chapter.

In the first chapter, we have examined how specific trust in banks relates to financial development. However, we are careful in our examination, as these institutions may be adversely affected by cultural biases and differing views on the efficiency of these institutions. The second chapter has addressed the effect of trust on firm's access to external finance. Specifically, this chapter has provided an analysis of what determines firms' external financing and the barriers they face in accessing finance. This analysis is critical because firms' access to finance, especially small and medium enterprises, are crucial for inclusive growth. Our focus is on different trust forms, particularly generalized trust, trust in banks, and institutional quality. First, we aim to learn about the impact of firms' trust on external financing and its influence in mitigating or exacerbating access to financing barriers. Second, we have explored whether combinations of different forms of trust affect firms' external financing. Third, we have provided an analysis of the manner and extent to which generalized trust is affected by institutional quality. The findings indicate that the level of trust and institutional quality determine firms' external financing. The results suggest that country-specific trust on banks and generalized trust should be included when investigating cross-country variations in firms' external financing. The third chapter has investigated why countries grow and develop at different rates from each other. We consider two important aspects of institutions, election and the rule of law.

Overall, today, the importance of trust in economic development is discussed in the literature. In addition, the debate on the relationship between economic development and democracy takes a wide place in recent research. This work contributes to the literature on financial development by revealing that trust is fundamental in alleviating the adverse effects ethnic fractionalization has on the availability of deposits to fund loans. The outcomes of this work lend support particularly to the authorities to achieve financial inclusion by showing at the obstacles firms encounter because of external financing constraints may be mitiggeneralized trust.

Apart from the contributions mentioned above, this work has policy implications for states intending to foster economic development. With the improvement of institutional quality, a trusting society will naturally become actualized. A society with a high level of trust will achieve economic growth. Economic growth, trust, and institutional quality are mutually complementary and mutually reinforcing factors.

APPENDICES

Appendix 1

Appendix 1.A

Table 1.A Trust in banks and financial development in Turkey, 2011-2017.

	Instrumental variable (IV) regression			
	creditpercapita	depositpercapita	credit-to-income	deposit-to-income
generalizedtrust	1.710	4.465*	0.0948	0.842
	(1.02)	(1.92)	(0.17)	(1.16)
banktrust	4.555***	4.526***	1.353***	1.375***
	(5.29)	(4.10)	(4.52)	(3.80)
narrowtrust	2.181***	2.676***	0.425**	0.654***
	(4.10)	(4.53)	(2.37)	(3.41)
fractionalization	-4.078***	-6.750***	-0.360**	-0.992***
	(-8.78)	(-10.60)	(-2.36)	(-4.98)
sector-services	-0.0325	-0.0534	0.0655	0.0690
	(-0.23)	(-0.32)	(1.56)	(1.38)
dummy_Istanbul	1.746***	1.929***	0.422***	0.495***
	(16.66)	(15.15)	(9.75)	(11.99)
initialGDPgrowth	0.0349	0.0540	0.0131	0.0220
	(0.96)	(1.17)	(1.17)	(1.57)
Year dummies	yes	yes	yes	yes
Constant	-5.254	-7.491	-1.773	-2.816*
	(-1.35)	(-1.49)	(-1.47)	(-1.83)
N	84	84	84	84
F-stat	351.9***	252.7***	28.54***	186.6***
Kleibergen Paap LM stat	9.942***	9.942***	9.942***	9.942***
Hansen J stat	0.708	1.347	0.0558	2.602
p-value	0.400	0.246	0.813	0.107
Endogeneity test	35.47***	31.28***	23.81***	23.31***

This table displays IV regression estimates of equation 2. The financial development indicators are: creditpercapita, which is the natural logarithm of regional credit per capita (constant 2000, TL), depositpercapita, which is the natural logarithm of regional deposits per capita (constant 2000, TL), credit-to-income or regional credit to regional GDP and deposit-to-income or regional deposits to regional GDP (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and banktrust proportion of people in each region who responded that they have a great deal or quite a lot of confidence in banks. These measures range from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Variables treated as endogenous: generalizedtrust, banktrust; Excluded instruments: average generalizedtrust, banktrust, and narrowtrust of neighboring regions.

Table 1.B Trust and credit intermediation from stable funds, 2004-2017.

	OLS	Instrumental variable (IV) regression credit_over_deposit					
generalizedtrust	-1.928***	-3.443***	42.46**	-2.209	-15.58***	-12.20***	-5.084***
	(-4.10)	(-2.58)	(2.25)	(-1.45)	(-3.43)	(-4.10)	(-4.06)
narrowtrust	-0.448*	-0.172	5.009***	2.699**	0.691	-3.233**	1.391***
	(-1.93)	(-0.62)	(2.81)	(2.31)	(0.95)	(-2.31)	(3.98)
widetrust	0.0927	-0.528	2.872	7.940	-0.870	8.581**	-5.966***
	(0.40)	(-0.76)	(1.63)	(1.22)	(-0.52)	(2.48)	(-3.96)
Control variables	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes
fractionalization	2.445***	2.482***			-1.031	-50.69***	-6.365***
	(6.04)	(6.45)			(-0.88)	(-2.70)	(-4.36)
generalizedtrust*narrowtrust			-64.48**				
			(-2.53)				
widetrust*narrowtrust				-15.40**			
				(-2.03)			
generalizedtrust*fractionalization					62.11***		
					(2.93)		
narrowtrust*fractionalization						69.99***	
						(2.82)	
widetrust*fractionalization							60.56***
							(6.08)
Constant	4.119***	4.596**	-2.583	12.49***	3.404	-1.764	-3.693
	(3.86)	(2.21)	(-0.51)	(4.73)	(1.01)	(-0.44)	(-1.16)
Obs	168	168	168	168	168	168	168
F-stat	24.62***	24.15***	6.901***	9.560***	7.056***	6.602***	31.94***
Kleibergen Paap LM test		16.82***	11.45***	12.52***	9.714***	6.737***	18.62***
Hansen J test		2.714	0.0310	0.0808	2.679	0.163	1.711
p-value		0.0995	0.860	0.776	0.102	0.687	0.425
Endogeneity test		7.684**	32.55***	31.42***	38.65***	34.50***	40.97***

This table displays OLS and IV regression estimates of equations 2, 3a, 3b, 4a, 4b, and 4c. The dependent variable is credit to deposit ratio (credit_over_deposit) (constant 2000, TL). The key variables of interest are generalizedtrust or which is the proportion of people in each region who responded that most people can be trusted, narrowtrust or the proportion of people in each region who responded that they trust people they know personally somewhat or completely, and widetrust or the proportion of people in each region who responded that they trust people they meet for the first time somewhat or completely. These measures range from 0 to 1. We also consider regional ethnic fractionalization (fractionalization) in our regressions. We include the interaction terms between generalizedtrust and narrowtrust (generalizedtrust*narrowtrust), between widetrust and narrowtrust (widetrust*narrowtrust), between generalizedtrust and fractionalization (generalizedtrust* fractionalization), between narrowtrust and fractionalization (narrowtrust* fractionalization), and between widetrust and fractionalization (widetrust* fractionalization). Control variables include sector-services, dummy Istanbul, and initialGDPgrowth. The variable sector-services is a dummy variable indicating whether the services sector is the dominant sector (or has the highest share in regional GDP). Meanwhile, dummy Istanbul is a dummy variable indicating whether the financial capital, Istanbul, is in the region and initialGDPgrowth is the average regional GDP growth between 2000 and 2003. T-statistics are in parentheses. Standard errors are corrected for heteroskedasticity. Note: *** denotes significance at less than 1%; ** denotes significance at 5%; * denotes significance at 10%. Excluded instruments are the same as in previous estimations.

Table 1.B2. Marginal effects of generalized trust and wide trust across different levels of narrow trust in Turkey using regional data, 2004-2017.

	Marginal impact of generalizedtrust on credit_over_deposit	Marginal impact of widetrust on credit_over_deposit
Low narrow trust (P10)	-1.387	-2.536
	(3.069)	(1.633)
Median narrow trust (P50)	-7.191**	-3.922***
	(2.955)	(1.182)
High narrow trust (P90)	-17.507***	-6.387***
	(5.791)	(1.201)

*delta standard errors in parentheses

Table 1.B3. Marginal effect of generalized trust, narrow trust, and wide trust across varying levels of ethnic fractionalization using regional data in Turkey, 2004-2017.

Ethnic fractionalization	Marginal impact of generalizedtrust on credit_over_deposit	Marginal impact of narrowtrust on credit_over_deposit	Marginal impact of widetrust on credit_over_deposit
Low (P10)	-14.960***	-1.834*	-4.755***
	(4.371)	(0.968)	(1.415)
Median (P50)	-12.166***	0.616	-2.635**
	(3.625)	(0.566)	(1.318)
High (P90)	-3.160***	10.765***	6.145***
	(2.507)	(3.718)	(1.793)

*delta standard errors in parentheses

Appendix 2

Table 2.A. Forms of Trust, Interaction between generalized trust and banks trust and external firm financing, 2015-2019

	Ivprobit	Ivprobit	Ivreg	Ivprobit	Ivprobit	Ivreg
	OnlyExternalFormal_D	ExternalFinance_D	NonBankFinance	OnlyExternalFormal_D	ExternalFinance_D	NonBankFinance
GeneralizedTrust	-6.59***	-4.90***	-0.09***	-23.01***	-18.38***	-0.28***
	(-12.18)	(-5.74)	(-4.33)	(-9.60)	(-5.52)	(-4.66)
TrustinBanks	0.02	0.34*	0.05***	-3.68***	-2.72***	0.01
	(0.17)	(1.90)	(10.90)	(-11.09)	(-5.91)	(0.82)
FamilyTrust	0.82	1.28	-0.12***	-5.77***	-3.26***	-0.12***
	(1.05)	(1.18)	(-4.17)	(-9.35)	(-3.76)	(-5.91)
GeneralizedTrust * TrustinBanks				32.57***	26.33***	0.30***
				(10.51)	(6.10)	(3.70)
laborprod	-5.14**	-4.37*	-0.00	-5.75	-09.39	-0.00
	(-2.26)	(-1.66)	(-0.40)	(-1.32)	(-0.87)	(-0.29)
QualityIns	0.06***	0.05***	0.00***	0.01*	0.01	0.00***
	(9.50)	(4.92)	(11.60)	(2.85)	(0.52)	(9.56)
Firmsize	0.10***	0.11***	0.00	0.11***	0.13***	0.00
	(4.12)	(3.40)	(0.12)	(4.00)	(3.63)	(0.12)
popmore1m	0.12**	-0.06	-0.01***	-0.36***	-0.45***	-0.01***
	(2.45)	(-0.88)	(-7.02)	(-4.66)	(-5.86)	(-8.14)
Isic	yes	yes	yes	yes	yes	yes
Legal origin dummies	yes	yes	yes	yes	yes	yes
LnGDP	0.23***	0.22***	0.01***	0.03***	0.31***	0.01***
	(7.23)	(5.34)	(8.05)	(8.24)	(5.43)	(8.74)
Inflation	-0.07***	-0.10***	-0.00***	0.0**	-0.02	-0.00
	(-9.74)	(-7.53)	(-4.28)	(4.11)	(-1.40)	(-1.34)
Constant LnGDP						
	-1.99***	-3.16***	0.10***	1.04***	2.60***	0.13***
	(-2.93)	(-3.33)	(3.90)	(16.00)	(3.18)	(6.51)
N	11645.00	11645.00	11645.00	11645.00	11645.00	11645.00
Wald chi2	152.60		7.077			13.786
Wald test of exogeneity: chi2(2)			1960.751 (0.000)	98.84 (0.000)	53.81 (0.000)	6153.266 (0.000)
F			23.65	61.06		20.15

This Table displays IV&Probit regression estimates of Equation (1&2) over the period 2015-2019. The external finance indicators are: OnlyExternalFormal_D, which is a dummy equal to 1 if the firm used bank or non-bank financing to finance working capital and zero otherwise (supplier credit included). ExternalFinance_D, which is a dummy equal to 1 if the firm only used bank and non-bank financing to finance working capital and zero otherwise). NonbankFinance which is the proportion of non-bank financing with respect to total financing of working capital. These are dependent variables measuring external finance preferences in all countries. The key variables of interest are, GeneralizedTrust, FamilyTrust and TrustinBanks. These measures range from 0 to 1. GeneralizedTrust is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. FamilyTrust is the proportion of people in each country who have responded that whether you trust your family completely or not at all. TrustinBanks is equal to one if responded the question that how much confidence you have in banks is great deal of confidence or quite a lot of confidence otherwise is zero. Control variables include Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic, Legal origin dummies and LnGDP. Firm size, Small-sized, Medium-sized and Large-sized, are 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. LaborProd is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. Popmore1m is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 2.B. Forms of Trust, Credit Institutional Quality and Firm Size Access to Financing Obstacles, 2015-2019

	IV poisson	IV poisson	IV poisson
	FinancialObstacle	FinancialObstacle	FinancialObstacle
GeneralizedTrust	-0.94***	27.77***	-14.39***
	(-3.08)	(7.55)	(-9.65)
TrustinBanks	-0.82***	-1.18***	-0.31***
	(-8.58)	(-8.95)	(-2.71)
FamilyTrust	1.46***	4.73***	-1.43***
	(2.93)	(9.90)	(-2.91)
Firmsize* GeneralizedTrust		-23.92***	
		(-6.79)	
QualityInst * GeneralizedTrust			2.32***
			(10.01)
Firmsize	-0.07***	3.15***	-0.10***
	(-4.40)	(8.42)	(-8.19)
LaborProd	-0.01	-2.46	-3.88**
	(-0.40)	(-1.22)	(-2.38)
QualityInst	0.03***	0.01	-0.15***
	(5.95)	(0.60)	(-7.36)
Popmore1m	-0.01	-0.00	0.03
	(-0.40)	(-0.08)	(1.13)
Isic	yes	yes	yes
Legal origin dummies	yes	yes	yes
LnGDP	-0.18***	0.03	-0.07***
	(-8.22)	(0.67)	(-3.94)
Inflation	0.01***	0.03***	0.03***
	(3.72)	(4.66)	(7.42)
Constant	0.26	-4.49***	2.75***
	(0.60)	(-9.69)	(6.30)
N	10038	10038	10038
F	48.67		

This Table displays IV,Poisson GMM regression estimates over the period 2015-2019. *FinancialObstacle is* degree of access the finance range between 1 to 4. *The key variables of interest are, GeneralizedTrust, FamilyTrust and TrustinBanks. These measures range from 0 to 1.* The key variables of interest are, *GeneralizedTrust, FamilyTrust and TrustinBanks.* These measures range from 0 to 1. *GeneralizedTrust* is the proportion of people in each country who have responded that most people can be trusted or that you need to be very careful. *FamilyTrust* is the proportion of people in each country who have responded that whether you trust your family completely or not at all. *TrustinBanks* is equal to one if responded the question that how much confidence you have in banks is great deal of confidence or quite a lot of confidence otherwise is zero. Control variables include *Firmsize, LaborProd, Popmore1m, QualityInst, Inflation, Isic*, *Legal origin dummies and LnGDP*. *Firm size* is 3 categorical variables that control for firm size. Small-sized takes 1, Medium-sized takes the value of two, and Large-sized takes the value of 3 in the case of large enterprises. *LaborProd* is a measure of labor productivity. It is the natural logarithm of the value of firm sales over the number of permanent employees, scaled three years before the survey was conducted. *Popmore1m* is measure of population of the city where the firm is located has more than 1 million people. *Legal origin dummies* are dummy variables representing the origin of a country's legal system. *QualityInst* measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 12.T-statistics are in parentheses. Standard errors are corrected for heteroscedasticity. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Appendix 3

A1: Data

Competitiveness of Executive Recruitment

Another important challenge is to capture the existence and efficiency of an election. To do so, the competitiveness of executive recruitment variable has been employed, which takes values from 1 to 3, where 1 is the lowest and 3 is the highest grade in terms of performance measurement. As first conceptualized by Gurr (1974), "executive recruitment involves how social superordinates come to occupy their positions of political authority; that is, how institutionalized, competitive and open are the mechanisms for selecting a political leader". According to modern democratic theory, the system where citizens have the opportunity to elect their political representatives by regularly scheduled, competitive, and open elections is called democratic. If the power transfer is coded as unregulated ('1') in regulation on executive recruitment; or if there is a transition from unregulated, then the code is ('0'). This concept can be measured by three categories:

(1) Selection: Chief executives are selected by their hereditary characteristics or by designation and sometimes a combination of both. For example, in monarchies, chief executives are appointed by the king or court. Unopposed election, repetitive replacement of presidents before their term ends, military intervention for the selection of civilian leaders, institutionalized single party, incumbent selection of successors, election boycotts by major opposition parties are some of the problems.

(2) Dual/Transitional: Two executives (dual system) where one of them is chosen by hereditary succession, and the other via competitive election. This is used for transitional arrangements between selection and competitive election.

(3) Election: Chief executives are chosen by competitive election, two or more major parties and candidates which match each other may compete (may be chosen by popular election or elected assembly).

Table 3.A Variable definitions and sources

Variable Name	Definitions	Source
Gross capital formation	Is comprised of outlays on additions to fixed assets of the economy and net changes in inventory levels.	The World Bank (2010)
General government final consumption	Average of the ratio of real government consumption expenditure of government, in billion USD.	The World Bank (2010)
Constraint on executive power	A seven-category scale, from 1 to 7, with a higher score indicating more constraint: 1 indicates unlimited authority; 3, slight to moderate limitations; 5, substantial limitations; 7, executive parity or subordination; 2, 4, and 6, intermediate values.	Polity IV dataset downloaded from I http://www. systemicpeace.org Director Monty 6. Marshall (2013)
Competitiveness of Executive Recruitment	Measured by leadership selection through popular elections contested by two or more parties or candidates.	Polity IV data set, downloaded from I http://www. systemicpeace.org Director Monty 6. Marshall (2013)
Population density	Log of population density in 1500 (population density is inhabitants per square kilometer.	Acemoglu et al. (2002)
Log GDP per capital	The logarithm of GDP per capita, on PPP basis in 2005	The World Bank (2010)
Inflation rate	The inflation rate is the average annual inflation in the consumer price index, 2005.	The World Bank World Development Indicators (2010)
Employment population ratio	Accounts for the employed population of a country and its contribution to GDP. People ages 15 or over are considered as the working-age population.	The World Bank (2010)
Stocks traded	The market value of all traded stocks as a percentage of GDP, base 2005	Beck et al. (2001)

Table 3.B Alternative period: individual effects of institution's aspects on economic development over the 2000–2002 period, using an ordinary least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Executive constraints	0.371*** (0.0633)		-0.0760 (0.160)		0.515*** (0.0733)	
Competitiveness of executive		0.728*** (0.104)		0.149 (0.267)		0.909*** (0.123)
Constant	6.092*** (0.337)	6.431*** (0.223)	7.609*** (0.592)	7.199*** (0.423)	5.278*** (0.412)	6.002*** (0.284)
Observations	444	444	114	114	330	330
R2	0.211	0.225	0.016	0.027	0.341	0.312
Panel B						
Executive constraints	0.211** (0.0858)		0.260* (0.134)		0.393*** (0.132)	
Competitiveness of executive		0.569*** (0.156)		0.314 (0.290)		0.901*** (0.199)
Inflation	-0.112 (0.152)	-0.0651 (0.148)	-0.166 (0.421)	-0.187 (0.499)	-0.254* (0.151)	-0.175 (0.146)
Government expenditure	0.118*** (0.0282)	0.127*** (0.0263)	0.242*** (0.0238)	0.222*** (0.0342)	0.0704** (0.0317)	0.0971*** (0.0299)
Employment	-0.0193 (0.0142)	-0.0164 (0.0135)	0.0395 (0.0226)	0.0388 (0.0241)	-0.0294* (0.0157)	-0.0224 (0.0141)
Stocks trade	0.00999*** (0.00193)	0.00965*** (0.00187)	0.0191** (0.00799)	0.0209* (0.00967)	0.00858*** (0.00198)	0.00821*** (0.00187)
Gross capital	0.00959 (0.0261)	0.0114 (0.0240)	-0.0130 (0.0477)	-0.0101 (0.0520)	0.0286 (0.0295)	0.0393 (0.0241)
Constant	6.215*** (1.249)	5.616*** (1.162)	2.031 (2.037)	2.741 (2.604)	6.212*** (1.604)	5.069*** (1.579)
Observations	444	444	114	114	330	330
R^2	0.510	0.537	0.739	0.675	0.577	0.615

This table displays the cross-sectional OLS regression results for the estimation Equations 1, 1a, and 1b, over the 2000–2002 period. (Panel A and Panel B represent OLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 4.B Alternative period: the joint stance of institution's aspects on economic development over the 2000–2002 period, using an ordinary least squares estimator

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Executive constraints	0.156 (0.131)	-0.347 (0.288)	0.348** (0.134)
Competitiveness of executive	0.470** (0.227)	0.634 (0.491)	0.361 (0.231)
Constant	6.192*** (0.342)	7.695*** (0.597)	5.365*** (0.421)
Observations	444	114	330
R2	0.234	0.056	0.354
Panel B			
Executive constraints	-0.0146 (0.130)	0.482* (0.229)	0.114 (0.175)
Competitiveness of executive	0.595** (0.250)	-0.648 (0.375)	0.742** (0.286)
Inflation	-0.0652 (0.149)	-0.124 (0.405)	-0.183 (0.146)
Government expenditure	0.127*** (0.0273)	0.242*** (0.0205)	0.0913*** (0.0315)
Employment	-0.0163 (0.0136)	0.0476* (0.0227)	-0.0217 (0.0145)
Stocks trade	0.00966*** (0.00189)	0.0187* (0.00835)	0.00810*** (0.00191)
Gross capital	0.0118 (0.0247)	0.00225 (0.0445)	0.0359 (0.0276)
Constant	5.619*** (1.165)	1.378 (1.948)	4.945*** (1.593)
Observations	444	114	330
R^2	0.537	0.768	0.619

This table displays the cross-sectional OLS regression results for the estimation Equations 1, 1a, and 1b, over the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment) in 2000, measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. Standard errors are in parentheses. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 5.A Alternative period: individual effects of institution's aspects on economic development over the 2000–2002 period, from a two-stage least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Executive constraints	1.116 (1.537)		-1.653 (1.479)		1.287* (0.685)	
Competitiveness of executive		0.734*** (0.107)		0.151 (0.293)		0.896*** (0.125)
Constant	2.520 (7.415)	6.436*** (0.232)	12.27*** (4.430)	7.197*** (0.446)	1.060 (3.803)	6.049*** (0.290)
F	10.31	45.38	31.97	14.47	15.98	21.22
Observations	444	444	114	114	330	330
R2	0.122	0.225	0.272	0.107	0.501	0.310
Panel B						
Executive constraints	0.773 (6.222)		-0.563 (3.112)		0.480 (0.994)	
Competitiveness of executive		0.503*** (0.170)		0.215 (0.323)		0.861*** (0.209)
Inflation	0.110 (2.610)	-0.0971 (0.158)	-0.0119 (0.708)	-0.181 (0.501)	-0.266 (0.190)	-0.181 (0.155)
Government expenditure	0.109 (0.0816)	0.125*** (0.0264)	0.104 (0.507)	0.218*** (0.0343)	0.0662 (0.0403)	0.0947*** (0.0301)
Employment	-0.00706 (0.128)	-0.0166 (0.0138)	0.0458 (0.0565)	0.0407 (0.0236)	-0.0255 (0.0452)	-0.0224 (0.0145)
Stocks trade	0.00746 (0.0270)	0.00968*** (0.00191)	0.0297 (0.0353)	0.0212* (0.0102)	0.00783* (0.00451)	0.00836*** (0.00190)
Gross capital	-0.0295 (0.375)	0.00820 (0.0261)	0.00528 (0.123)	-0.00539 (0.0525)	0.0239 (0.0556)	0.0386 (0.0267)
Constant	3.105 (36.05)	5.957*** (1.226)	5.339 (12.59)	2.730 (2.628)	5.700 (7.104)	5.229*** (1.685)
F	93.82	0.02	10.06	77.98	10.98	76.25
Observations	444	444	114	114	330	330
R^2	0.143	0.532	0.022	0.673	0.564	0.609

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2000–2002 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 6.A Alternative period: joint effect of institution's aspects on economic development over the 2000–2002 period, from a two-stage least squares estimator

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Executive constraints	0.981 (1.062)	-1.367 (0.883)	1.841 (1.348)
Competitiveness of executive	-0.863 (1.708)	1.939* (1.118)	-1.896 (2.016)
Constant	4.871*** (1.806)	9.161*** (1.581)	2.332 (2.930)
F	58.77	0.08	12.13
Observations	444	114	330
R2	0.234	0.056	0.354
Panel B			
Executive constraints	0.512 (1.904)	-1.031 (5.513)	0.426 (1.841)
Competitiveness of executive	-0.383 (3.374)	2.157 (10.07)	0.243 (2.595)
Inflation	-0.105 (0.183)	-0.123 (0.832)	-0.237 (0.262)
Government expenditure	0.110* (0.0588)	0.133 (0.431)	0.0728 (0.0958)
Employment	-0.0187 (0.0174)	0.0108 (0.177)	-0.0219 (0.0174)
Stocks trade	0.00921*** (0.00292)	0.0285 (0.0444)	0.00750** (0.00323)
Gross capital	-0.00921 (0.0724)	-0.0708 (0.306)	0.0257 (0.0890)
Constant	6.004*** (1.472)	7.006 (23.42)	5.013** (2.001)
F	18.08	20.93	67.98
Observations	444	114	330
R^2	0.432	0.075	0.582

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7, and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include government expenditure, employment, stocks trade, gross capital, and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses. Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

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