How Does Culture Shape Financial Policies? A Macro-Level Analysis Using Instrumental Variables

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Abstract

How does culture affect countries' decisions to liberalize their financial sector? Although culture is receiving increasing attention from political-economists, it is still largely absent in the financial liberalization literature. This study seeks to fill this gap by providing a novel theory of the cultural factors that shape policies of financial openness. I argue that cultural distance between countries and cultural homogeneity within countries can explain policymakers' decisions regarding financial liberalization. Methodologically, this study offers innovative identification strategies for estimating the causal effect using genetic and pathogen factors as instrumental variables. Using dyadic and monadic panel data of 181 countries from 1970 to 2018, the analysis shows that culturally homogeneous countries tend to impose more capital controls and that culturally distant countries are less likely to integrate financially with each other. These findings have implications for the debate over the heterogeneous pattern of financial reforms across countries and regions, which became the focus of attention of scholars after the negative effect of the 2008 global financial crisis and the current COVID-19 pandemic. Additionally, this study helps in understanding the obstacles facing the internationalization of the Chinese currency. Since financial liberalization is essential to currency internationalization, culture provides an adequate explanation for the ongoing Chinese reluctance to free its capital account.

Keywords: Economic Integration, Financial Liberalization, Cultural Finance, International Political Economy

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Introduction

The flow of trade, people, and capital has slowed down drastically, initially due to the global financial crisis (GFC) of 2008 and the recent coronavirus pandemic. These days, the dominance of the American-led open system and the role of the dollar in the international monetary system are questioned by different parties. The most notable one is China that decided to promote the RMB's internationalization (also known as the Yuan or renminbi) to stop its dependency on the dollar. Examples of China's efforts are signing bilateral agreements with multiple foreign central banks (Liao and McDowell, 2016; McDowell, 2019; Zhang et al., 2017), launching Dim-Sum and Panda bonds (Burdekin and Tao, 2017; Wang, 2017; Chen and Cheung, 2011), establishing free trade zones in which the RMB is fully convertible (McNally and Gruin, 2017), and finally, promoting offshore RMB business (Li and Zhang, 2017; Prasad, 2017). However, RMB's international access and its exchange rate mainly remained under government control (Dixon et al., 2016; Zhang, 2019).

Thus, why does China hesitate to open its financial market and boost its currency internationalization? And in a broader sense, what causes countries to adopt a policy of financial liberalization? The political economy literature has consistently assumed that countries' development levels, stakeholders' pressures, and foreign policy adoption are the most important factors that explain financial integration. Scholars build theories on the tendency of developed democratic countries and right-wing parties to liberalize financially (Brooks and Kurtz 2007; Quinn and Inclan 1997), preferences of domestic agents for financial policies (Frieden 2015), and associated the adoption of financial policy in one country to another (Gilardi 2016; Simmons and Elkin 2004). However, the literature suffers from possible reverse causality and the omitted variables problem and still cannot account for the variance in financial policies among (non)democratic countries and (left)right-wing parties.

I focus on explaining changes in financial liberalization policies that profoundly impact citizens within and between countries. Financial liberalization stands for the process of deregulation of a country's financial sector and capital account, allowing capital to flow freely into and out of a country. Drawing on insights from the field of cultural finance, I offer

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a novel theory of the cultural factors that shape policymakers' financial decisions to open and free their financial sectors. The effect of culture was well known by the early economists, such as Adam Smith (1937) and Max Weber (1958), who argued that certain norms are required for capitalism to emerge. In recent years the role of culture in economic debates has received renewed attention. Such focus on culturally-based explanations is prevalent in bilateral trade (Guiso et al., 2009), wealth versus poverty (Acemoglu et al., 2002), and participation in stock markets (Guiso et al., 2008; Sapienza and Zingales, 2012). However, as I show below, much less is known about the relationship between culture and financial liberalization policies.

I argue that (1) countries that share cultural traits are more likely to interact financially with each other, (2) and culturally homogeneous countries are less likely to liberalize financially. To test my theoretical arguments, I estimated *de-jure* and *de-facto* financial openness of 181 countries from 1970 to 2018. To deal with reverse causality and omitted variables, I used instrumental variables 2SLS estimation to assess the effect of culture on countries' financial openness through macro-level genetic and pathogen factors. The analysis supports my arguments and shows that culture is a main factor in predicting countries' financial openness.

This study contributes to the growing field of cultural finance. To date, much of the literature has focused on micro-level analysis, testing the relationship between culture and individuals' financial behavior[1]. Much fewer studies examine this relationship at the macro-level[2]. Those that do, center their findings on the cultural dimensions of Hofstede (1984), merely the individualism-collectivism measurement, that received cross-discipline criticism. The results presented herein add another level to the cultural finance field, suggesting that cultural factors are also necessary to understand the international system while using different cultural measures.

A further contribution is to the currency internationalization and the "Rise of China" works of literature. As presented below, a plethora of papers exemplify the necessity of a free and open financial sector to gain currency power. However, China's reluctance to do

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[1]Examples can be found in Henrich (2005), Mahajna et al. (2008), and Rosenboim et al. (2010).
[2]See Chui et al. (2010), Lavezzolo et al. (2018), and Wang et al. (2016)

so while at the same time seeking to promote the RMB's international dominance is still an enigma to scholars and Western officials alike. This study suggests that culture can predict the stability of the global open capital system and the obstacles countries face when financially liberalizing and internationalizing their issuing currency.

Between Currency Internationalization and Financial Liberalization

Four distinct factors are known to influence currency internationalization – the global balance of power (Norrlof, 2014), political institutions (Prasad, 2017), diplomatic and economic strategies (Liao and McDowell, 2016; Pacheco Pardo et al., 2019), and stakeholders (Broz and Frieden, 2001; Frieden, 2014). But the most important factor is financial liberalization, as it must raise foreigners' demand to hold it for consumption or saving purposes (Cohen, 2015; Germain and Schwartz, 2017; Lu and Liu, 2020; McDowell and Steinberg, 2017). Hence, financial restrictions on the currency convertibility and capital flows cause two main related outcomes. First, the depth and sophistication of the financial market are not sufficient. Second, private and official agents cannot hold the currency or are not interested in holding it. It follows that to internationalize the renminbi, China needs to forego its current policy. However, China's hesitation in doing so is a puzzle that needs to be explained.

The political economy literature has identified various economic and political factors to explain the growing willingness of countries to open their capital accounts (Figure 1 presents this global trend). The most notable economic factors are derived from the macroeconomic trilemma. A country can only pursue two of three options: fixed exchange rate, free capital flows, and monetary autonomy (Aizenman et al., 2008; Vo and Daly, 2007; Yeyati et al., 2010). However, gains from liberalization must be balanced against social and political costs. Hence, the decision to liberalize is a political choice which economics alone cannot elucidate.

A large body of work has emphasized the role of liberal norms in making market-oriented policies. The main argument is that democratic and right-wing parties have a greater ten-

Figure 1: Global Financial Openness
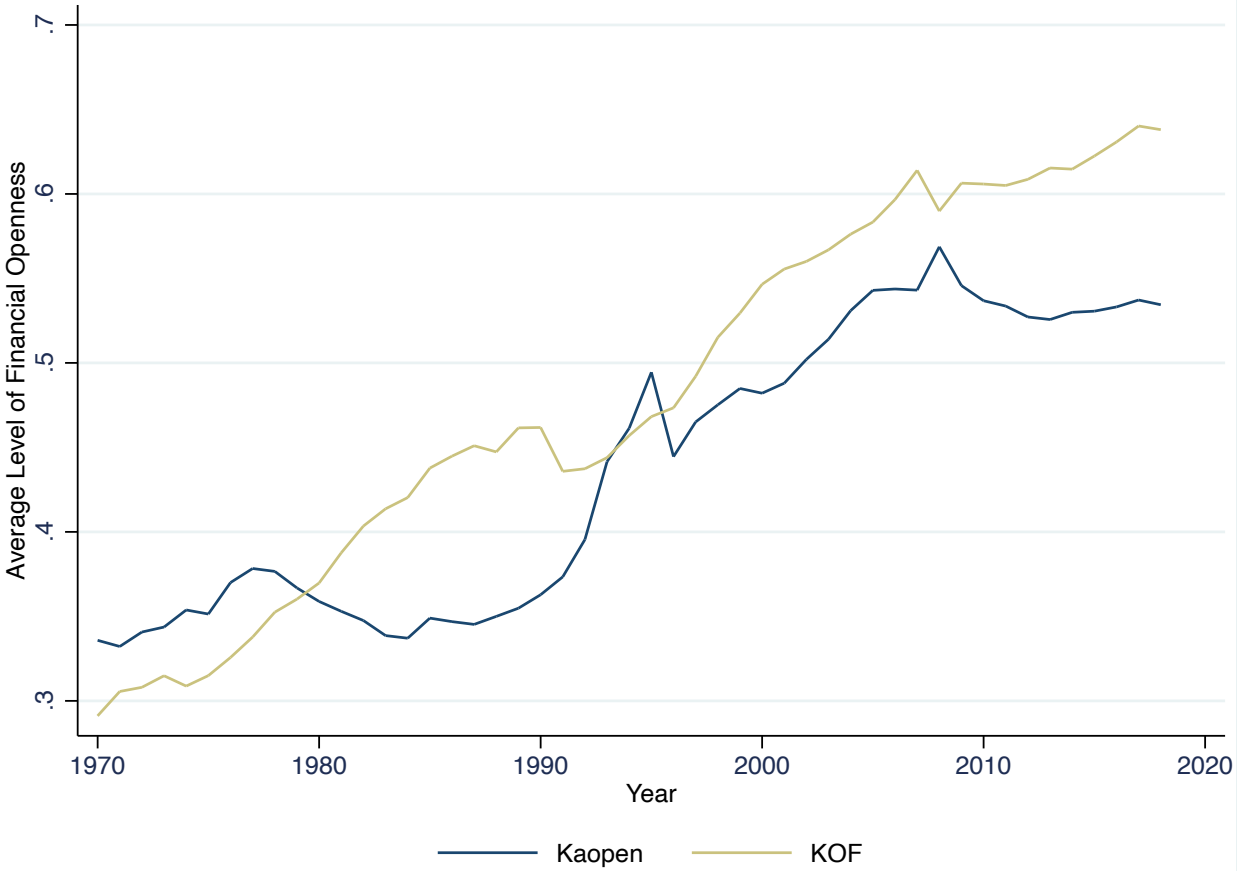
Note: The vertical axis is the mean of Kaopen index of capital account openness (Chinn and Ito 2008) and KOF financial globalization index. As presented, since the 1970s there is a global tendency toward financial liberalization, while this pace begins to moderate after the GFC.

dency toward financial liberalization. First, authoritarian countries utilize politically from a depressed financial market, whereas democratic countries that are founded on liberal-capitalist values and norms naturally prefer a free and open financial market (Brooks and Kurtz, 2007; Eichengreen and Leblang, 2008; Milner and Mukherjee, 2009). Second, left-wing parties are incentivized politically by sectors that do not profit from financial openness, while right-wing parties are interested in maximizing the economic welfare of opposite industries (Kastner and Rector, 2005; Milner and Mukherjee, 2009; Quinn and Inclan, 1997). However, one main concern regards the endogeneity problem, reflecting the concern that democratization is the result of economic development. Moreover, financial openness is not the share of democratic countries and right-wing parties alone. Hence, there is a need to explain

authoritarian and left-wing parties that decide to liberalize and vice versa.

A different perspective focuses on policy diffusion, in which the decision of others influences the choice to liberalize financially by a given country through *learning*, *competition*, *emulation*, or *coercion* (Graham et al., 2013; Gilardi, 2016; Simmons et al., 2006). For example, Simmons and Elkins (2004) show that countries are willing to learn from other countries with shared cultural traits or tend to match the financial policies of countries with which they compete to attract investments. The competition mechanism is also evidenced by the findings of Quinn and Toyoda (2007) and Steinberg et al. (2018). Coercion strategies are mostly concerned with the IMF stabilization programs. Crisis-hit countries could get assistance from the IMF, which in return might enforce financial liberalization reforms on the receiving countries (Chwieroth, 2009). However, this relationship may be false, reflecting the non-random nature of countries participating in these programs (Copelovitch, 2010; Mukherjee and Singer, 2010). Nevertheless, the spread of ideas does not necessarily result in policy adoption, but prior stages, such as framing, can shift countries from adopting a policy. Scholars' tendency to focus on policy adoption is causing to exclude important stages and prevent a clearer picture of the policy diffusion process (Gilardi et al., 2021).

To summarize, the literature has provided important contribution to explaining the openness of countries' financial sector. Yet, the variance in financial liberalization is still not fully understood. One of the remaining questions is what causes non-democratic countries to liberalize and democratic countries to impose capital controls? Also, why does China dedicates its efforts to promote the renminbi but still hesitates to liberalize its financial sector? Moreover, many efforts need to be made to solve the problem of reverse causality and omitted variables. In the next section, I develop a novel theory that fills this gap in the literature by drawing upon theories that study the relationship between culture and finance.

Cultural Biases in Financial Behavior

One strand in the political economy literature focuses on the relationship between culture and verities of economic outcomes. Using three main indicators of culture - ethnicity, religion,

and language - scholars were able to compare the economic behavior of individuals and countries alike. And while certain scholars study the effect of culture on financial outcomes, the growing field of cultural finance has not yet investigated this effect on policies of financial liberalization. This study seeks to fill this space by providing a cultural-based theory that describes financial openness based on recent theoretical development in this field.

The bulk of cultural finance research has centered on cultural similarity between individuals to assess their financial behavior. For instance, the level of cultural commonality is shown to affect investors' behavior by leading individuals to allocate their securities suboptimally, systematically overweighting or underweighting their home securities relative to foreign securities. These attitudes mirror the "home-country-bias" or the "foreign-country-bias" (Karolyi, 2016). While theories of rational choice focuses on investors' asymmetric information or international investment barriers (Bae et al., 2008; Van Nieuwerburgh and Veldkamp, 2009), the behavioral perspective centers on the tendency of individuals to invest in markets that they know and trust. Trust, for that matter, stands for the belief in the other party's integrity and honesty, which are crucial for cooperation. Hence, individuals are likelier to prefer their home securities (Huberman, 2001) or foreign securities from a country with shared values to them (Beugelsdijk and Frijns, 2010; Grinblatt and Keloharju, 2001).

Approaching the effect of cultural similarity from a different angle, game theory experiments have shown that subjects offer higher rewards to players from their in-group (Chuah et al., 2009; Foddy et al., 2009). This tendency is enhanced when players think other members can see their actions, because they want to avoid violating a social norm requiring cooperation between in-group members (Habyarimana et al., 2007). Grumbach and Sahn (2020) even found evidence that American citizens tend to have greater participation in campaign finance when a candidate from their in-group is present.

Cultural similarity also seems to play a significant role in stock market participation based on the level of trust. Individuals tend to trust foreigners with whom they share cultural characteristics. In contrast, distrust is associated with lower participation in foreign stock markets (Guiso et al., 2008; Sapienza and Zingales, 2012) and with risk-aversion (Bottazzi et al., 2016). Using a field experiment to test the effect of stock market participation on individuals' political preferences, Margalit and Shayo (2020) show that trust is also important

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for investors' engagement in the local financial market. Individuals are often reluctant to invest in the stock market because they are not familiar with it, and when given a chance to gain confidence, they are more willing to invest.

Cultural commonality and familiarity, as it seems, play an essential role in evaluating the risk that comes with trust. Trust is risky because the expectation about the trustee's future behavior that the trustor holds might turn out to be false. Therefore, individuals tend to favor in-groups as a solution to the uncertainty that comes with financial markets since their actions are more predictable. If the trustor does not have any clue on how the trustee is going to act, she is better off transacting with someone else who is more predicted.

One arising question is whether confidence in financial markets is on a different scale in societies with high and low levels of trust toward foreigners. Among others, Francis Fukuyama and Robert Putnam have demonstrated that trust is crucial for institutions to function well (Fukuyama, 1995; Leonardi et al., 2001). This is especially true when it comes to financial exchanges since transactions involve uncertainty about their feasibility (people transfer money in exchange for promises). Thus, culture, that conditions the level of trust, can help in estimating the level of financial integration between agents.

A similar logic should underline the financial behavior of countries. States are not seen as actors in their own right but acting through people. It follows that the government is made up of governing elites who decide whether or not to liberalize financially. Those officials belong to the same cultural environment as other people in their society. Thus, if culture is known by the literature to shape individuals' financial preferences, when encountering a financial decision, such as financial openness, policymakers should act in a similar way. The only significant difference is that policymakers need to consider the societal effect of a specific policy. However, whether one evaluates a financial outcome in terms of self- or collective-interest, this evaluation is biased by the culture they share. In that case, laypeople and policymakers who tend to have lower trust in foreigners will also assess financial integration with foreigners as riskier.

If cultural biases affect all individuals - be they consumers, workers, entrepreneurs, corporate managers, investors, or policymakers - I conjecture that the level of *cultural distance* between a country and others can predict its willingness to integrate financially with them.

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It is safer for a country to interact financially with countries that believe and behave the same way, simply because they can be trusted more easily. Hence, countries with a distinct culture to the Western world, which is more open to financial transactions, tend to stay financially close. Figure 2 presents a simple cross-sectional correlation between cultural distance and both *de-jure* and *de-facto* financial openness. Financially open countries tend to be more culturally similar to the US. Figure 3 presents the average level of trust countries hold toward foreigners and their cultural distance from the US. As the cultural distance from the US increases, countries' level of trust in foreigners decreases.

Figure 2: Cultural Distance and Financial
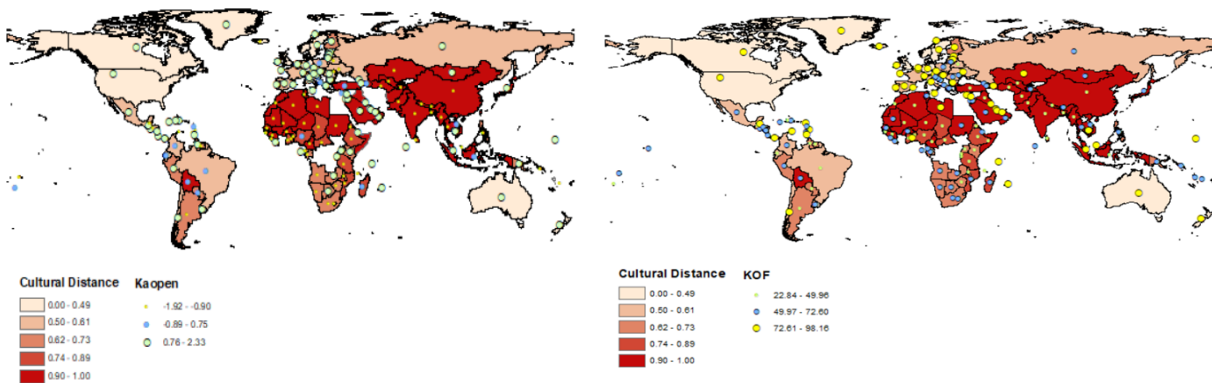
Note: Cultural distance and financial openness geographical prevalence. Higher values denote a wider cultural distance and greater financial openness. The Data & Method section and Appendix B provide more details on the measurements.

Trust can also be understood as a function of cultural commonality within countries. I suspect that culturally homogeneous countries tend to have lower trust in foreigners since they are not used to cultural diversity. A country is considered culturally homogeneous when most of its residents belong to the same in-group in terms of ethnicity, religion, and language. Therefore, *cultural homogeneity* can explain why specific countries impose capital controls by suggesting that financial openness requires the right amount of trust to let capital flow freely into and out of the country. Since financial transactions are based on trust and cultural similarity conditions the level of trust between parties, distrust is enhanced by homogeneity. Figure 4 presents the average level of trust countries hold toward foreigners and their level of cultural homogeneity[3]. The more a country is culturally heterogeneous, the more its

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[3]Figure 6 and 7 in Appendix B shows similar results but with more traditional cultural measurements.

Figure 3: Average Level of Trust by Countries' Cultural Distance from the US
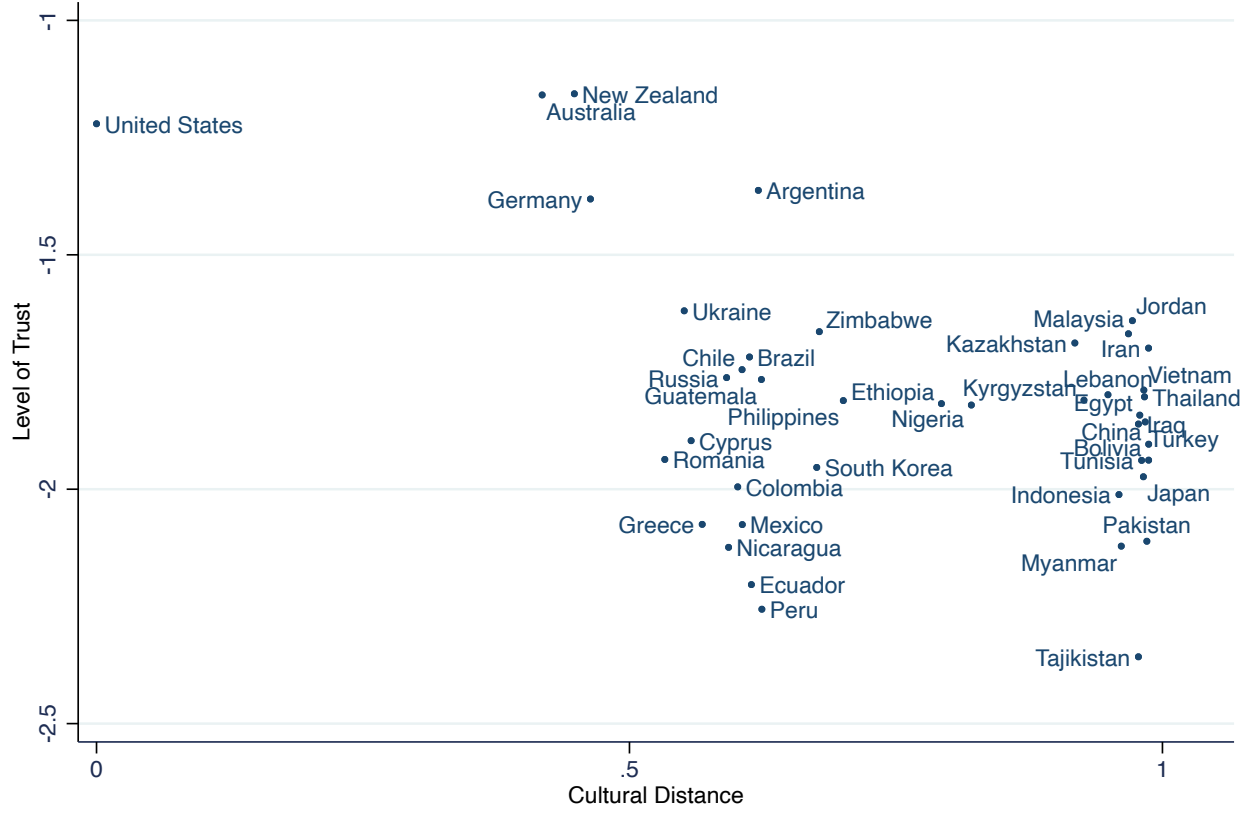
Note: The horizontal axis is the average trustiness score of a given country. The vertical axis scores countries by their cultural distance from the US. Further information can be found in Appendix B.

residents trust foreigners.

Taking China as an example, a policy of financial openness to the world seems too risky. As a culturally homogeneous country with a distinct culture, trust in other parties is low. This shapes China's preference to stay financially close to the rest of the world and more secure. In contrast, culturally heterogeneous countries and more culturally similar countries, such as the US and UK, tend to be open financially.

In sum, culture seems to have a major effect on individuals' financial decisions, but can it also explain different financial liberalization policies made by countries? Two main hypotheses are tested in this study, which derive from the arguments developed above:

Hypothesis 1: The level of international financial liberalization is higher between countries that share cultural traits.

Hypothesis 2: Culturally homogeneous countries are less supportive of international

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Figure 4: Average Level of Trust by Countries' Cultural Homogeneity Score
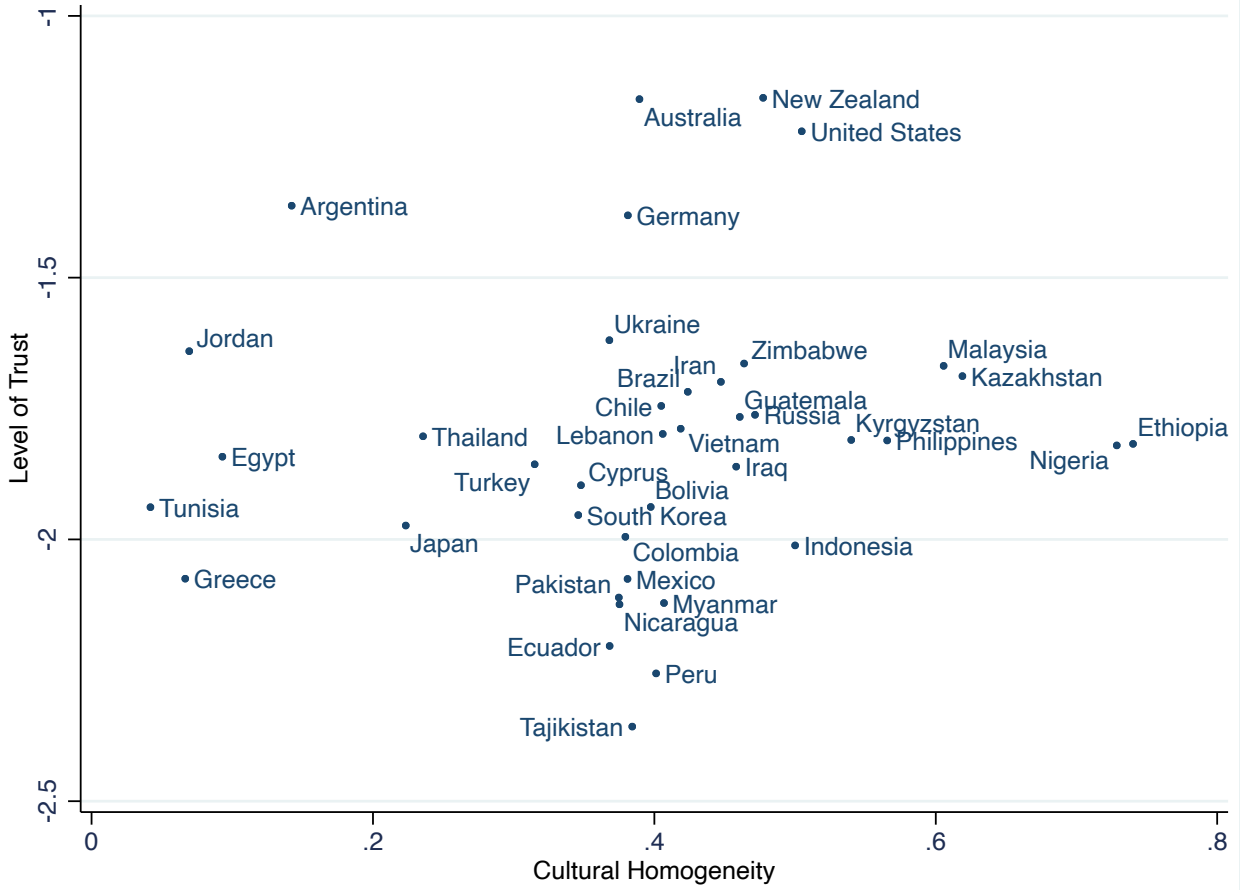
Note: The horizontal axis is the average trustiness score of a given country. The vertical axis scores countries by their average cultural homogeneity score. Further information can be found in Appendix B.

financial openness policies.

Data and Method

The analysis in this study employs data at the country-level, using panel data of 181 countries between 1970 to 2018. This time frame is ideal since it covers the main period of economic developments around the world. The main independent variables are cultural distance (CultDist) and cultural homogeneity (CultHmgn). I measure the cultural distance of each country in the dataset from the US[4], using Kolo's (2016) cultural distance index that

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[4]The US is the world's financial hub and some of the most heterogeneous countries and therefore provides a suitable baseline for this purpose.

is based on three cultural characteristics: language, ethnicity, and religious identification. Higher values denote a wider cultural distance from the US (see Appendix C inside the online Supporting Information (SI) for further information concerning this index).

Cultural homogeneity is measured by the average score of two cultural-fractionalization factors: ethnicity (EthnicHmgn) and religion (ReligionHmgn). The former is derived from Dražanová's (2020) Historical Index of Ethnic Fractionalization (HIEF) index. The latter is calculated by me in the same way as the HIEF index, using the Herfindahl-Hirschman Index (see SI for more information). Higher values denote a more culturally heterogenous country.

The effect of cultural homogeneity and distance tested on both *de-jure* and *de-facto* financial liberalization. The former is based on Chinn and Ito's (2008) KAOPEN index (Kaopen). The score is the first standardized principal component for four indicators of capital account openness: the use of multiple exchange rates, restrictions of current and capital account, and compulsory turnover of export receipts. This measurement of financial openness is the the most used one by scholars (Brooks and Kurtz, 2007; Eichengreen and Leblang, 2008; Mukherjee and Singer, 2010). The latter, is based on KOF index of globalization (KOF) (Dreher, 2006; Gygli et al., 2019), which I use as a robustness check [5].

A standard set of control variables from the literature are added to the analysis. I control for the macroeconomic trilemma dynamics by focusing on each country's exchange rate policy (ERS) and for the level of democracy (Democracy). A country that follows a fixed exchange rate is likelier to monitor capital controls, while democracies might be more financially open due to the need to follow citizens' marketization demands. Political constraints, such as the opposition of veto players to the government (Veto), may also shape policymakers' financial decisions. Controlling for partisanship orientation, a dummy variable that takes the value 1 for rightist- and 0 for leftist-parties is added to the analysis (Right Wing).

To control countries' development status, since developing countries are more vulnerable to a financial crisis and thus tend to be more averse to financial openness, I use countries' GDP per-capita (GDPpercap) measured by current US dollars. I also estimate control for the economy size and price levels by measuring countries' Gross Domestic Product (GDP)

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[5]The index is based on five indicators of financial openness: sum of FDIs, portfolio investment, international debt, international reserves, and international income payments. All divided by the country's GDP. See SI for additional information.

in current US dollars. I add the size of a country operationalized with its total population (Population) since it might correspond with openness. And lastly, geographically isolated countries might be less financially open because their citizens are unlikely to meet and do business with foreigners. Therefore, two dummies codes for islands (Island) and landlocked (Landlock) countries are added to the model. Table 6 in Appendix A provides detailed information on each variable's source, coverage, and descriptive statistics.

I use fixed effects[6] on time variant variables to control for latent factors by using Within and Between estimates, and robust standard errors to reduce serial correlation. Testing multicollinearity, I estimate the Variance Inflation Factor (VIF). The VIF reported is 1.49, suggesting that no multicollinearity is indicated. The regression equation is as follows:

$$FinancialOpenness_{it} = \alpha_0 + \beta_1 * CultDist_i + \beta_2 * CultHmgn_{it} +$$
$$\beta_3 * Controls_{it} + FE_{it} + \varepsilon_{it}$$
$$(1)$$

For country i at year t, FinancialOpenness refers to either the Kaopen or the KOF index. FE_{it} denotes within effects for variant variables[7], and ε_{it} denotes the idiosyncratic error. Controls are vectors of the control variables presented above. GDP, GDP per-capita, and countries' total population are logged variables.

Dyadic regression analysis will be used as a robustness check to the findings concerning H1. I use a gravity model when the dependent variable is the difference between country i's financial openness score and country j. Cultural distance between two countries is calculated by Kolo's (2016) paired index, and real GDP product (constant 2010 USD) is taken from the WDI. I also control the geographical distance between each pair (distance between capitals in km), using The GeoDist database of CEPII. The regression template is:

$$FinancialOpenness_{ijt} = \alpha_0 * \frac{(RealGDP)^\alpha}{CultDist_{ij}^\beta} * GeoDist_{ij} * Col_{ij} + YE_{it} + \varepsilon_{ijt} \qquad (2)$$

for (sending) country i towards (receiving) country j at year t. YE_{it} denotes year fixed

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[6]The Hausman test for fixed versus random effects strongly rejected the random effect models.

[7]Four variables, CultDist, Island, Landlock, and English, are time invariant.

effects, and ε_{ijt} denote the idiosyncratic error. RealGDP refers to real GDP product, GeoDist to the geographical distance between pairs, and Col to the sharing of colonial ties.

Instrumental Variables for Estimating Cultural Factors

Estimation by ordinary least squares (OLS) is an obvious starting point to test the above hypotheses. However, one main concern regards the relationship between cultural factors and financial openness is endogeneity[8]. The modernization theory suggests that economic development influences people's norms, values, and beliefs (Inglehart and Baker, 2000; Acemoglu et al., 2002). Specifically, it has been argued that economic policies boost countries' economic development and increase the likelihood of experiencing democratization. And although culture is slow-evolving, this process involves a shift toward a more egalitarian society. Alternatively, the relationship between culture and financial openness may simply result from an event that I have not modeled. In light of these concerns, OLS could lead to unreliable results by overestimating the effect in response to endogeneity and underestimating in case of a random measurement error. To tackle potential biases, I estimate a two-stage least square (2SLS) instrumental variable (IV) method using genetic factors and pathogen prevalence as instruments.

In what way genetic pools and pathogen prevalence affect the development of different cultures around the world? Although genetical evolution has contributed much to humans' survival by developing an extraordinary degree of cognition, this must be supported by cultural evolution of learning and sharing information. Historically, survival constraints shaped the way people have organized themselves into distinguished groups. For example, ecologies that encouraged relationships of interdependence, such as subsisting on agriculture, foster collective and homogenous unity. In contrast, ecologies that encourage independence, such as subsisting on hunting, created an individualistic society (Triandis, 1989). Cognition helped in generating complex communication structures and making composite tools, but it also cultivated culture to protect the survival of different human groups dealing with a

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[8]As I argued before, reverse causality is not merely a problem of this study alone, but it is prominent in the literature and needs to be solved by scholars trying to predict international financial openness.

variety of uncontrolled external forces.

Specific societies found to have a high frequency of short allele in the polymorphism 5-HTTLPR linked with depression and anxiety, and with the G-allele in polymorphism A118G that is linked to stress from social exclusion. Individuals living in these areas have a greater tendency to suicide, which, of course, in an unwanted outcome in terms of human evolution. Hence, culture has a significant role in protecting in-group individuals from potential harm. Specifically, in environments with a high frequency of these genetic mutations, the local culture has found to correspond with strong social links that safeguard individuals by providing psychological support and social meaning (Inglehart et al., 2014).

Based on this reasoning, genetic distance - the difference in gene distribution between two societies - can serve as a good instrument for cultural distance to predict the levels of financial openness. The usage of genetic distance to explain economic outcomes is not new. One well-known example is the study of Spolaore and Wacziarg (2009), which shows that genetic distance is correlated with countries' levels of development. Thus, I use Gorodnichenko and Roland's (2017) aggregate genetic distance measurement of blood type frequency available for 140 countries. Specifically, I use genetic distance from the US, one of the most culturally heterogeneous and financially open countries globally.

Disease prevalence may shape cultures as well (Alsan, 2015; Murray and Schaller, 2010; Fincher et al., 2008), from the way people eat to how they behave with others. The usage of spices[9] in some cuisines is discovered to be beneficial as it reduces illnesses and food poisoning (Sherman and Billing, 1999), when high levels of malaria prevalence are connected to collectivist societies with higher distrust levels to out-group members (Enke, 2019). To cope with life-threatening diseases, collectivist cultures practice strict social distancing norms from foreigners who can spread diseases among the closed in-group. Thus, culture is designed to help individuals cope with environmental demands since it acts as a "behavioral immune system" (Schaller and Park, 2011).

Cultural evolution theories contributed significantly to our understanding of cultural formation. Figure 5 illustrates the global frequency of pathogen and genetic factors. Nonethe-

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[9] "Hot" spices are highly used for their health properties, however, they induced pain. Culture, then, plays a significant role in changing pain into pleasure.

less, empirical results are mostly based on the relationship between the DNA mutations and the individualism versus collectivism cultural dimension of Hofstede's (1984) (Chiao and Blizinsky, 2010; Gorodnichenko and Roland, 2017). The operationalization and content validity of this cultural dimension have been widely criticized in the literature[10]. Therefore, I investigate their connection with more reliable measurements of cultural factors – cultural distance and cultural homogeneity.

Figure 5: Genetic and Pathogen Global Frequencies
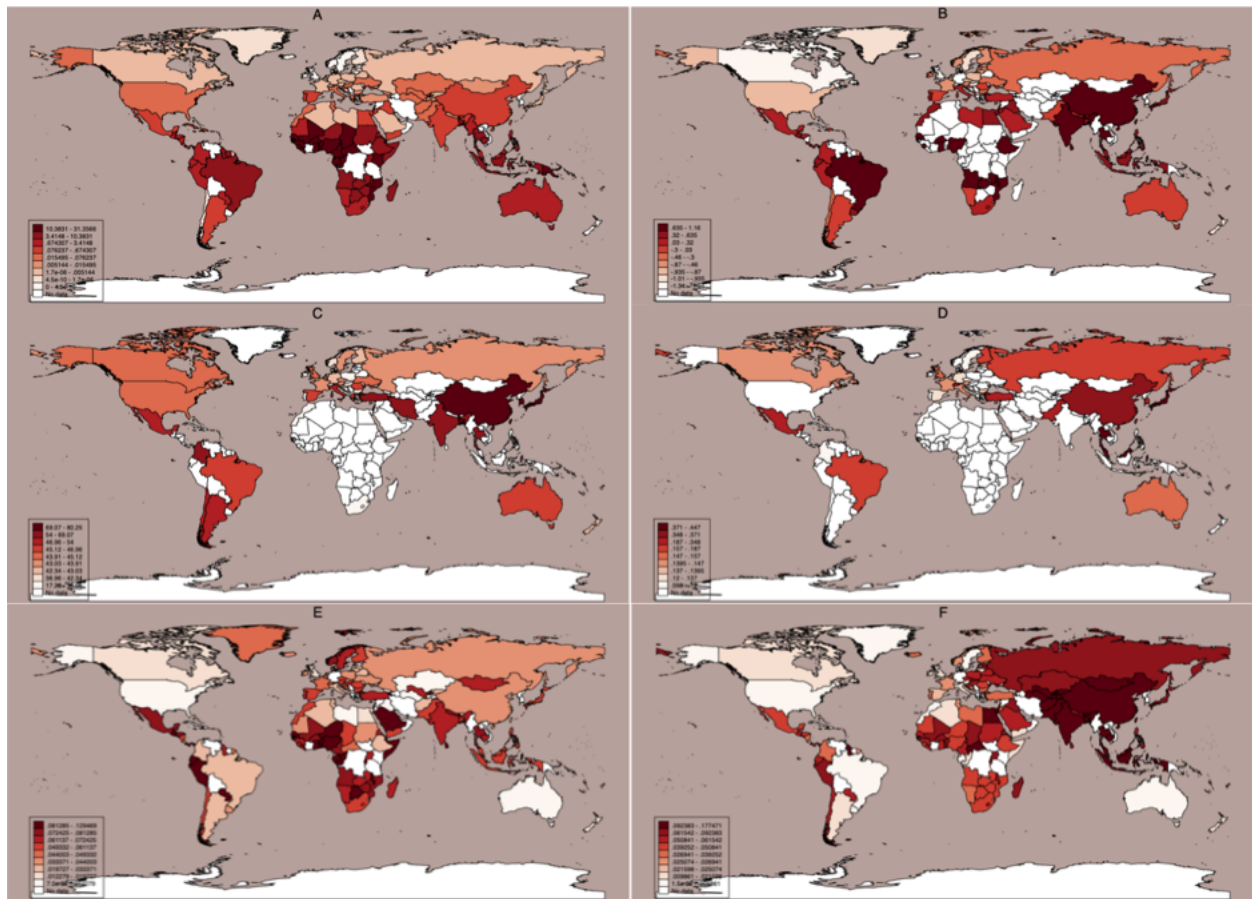
Note: Pathogenic and genetic factors' geographical prevalence. Coloured maps include all available data for each factor of interest, where white areas indicate geographical regions where no published data are available. (A) Colour map of frequency distribution of Malaria. (B) Colour map of frequency distribution of nine diseases. (C) Colour map of frequency distribution of HTTLPR. (D) Colour map of frequency distribution of A118G. (E) Colour map of frequency distribution of blood type A and (F) the distribution of blood type B (genetic distance from the US).

Genetic and pathogenic factors are appropriate instruments, as they are correlated with

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[10]For further information see Brewer and Venaik (2011) and Minkov et al. (2017).

cultural distance and homogeneity but cannot explain financial openness directly or be affected by the process of financial liberalization. First, they are not related to omitted variables that might correspond with financial openness, and they are unlikely to affect it not through culture. These specific DNA mutations are linked with personality traits (e.g., happiness) but not with evolutionary fitness (e.g., physical or mental disabilities) (Inglehart et al., 2014), nor do individuals living in geographical areas with higher pathogen prevalence. Blood type is also considered "neutral gene", since it does not matter for survival and fitness (Spolaore and Wacziarg, 2009). Lastly, it is far-fetched that financial openness can, in turn, affect genetic pools or pathogen prevalence, especially in the short term.

Descriptive statistics and data sources of the genetic and pathogen variables can be found in Table 6 in Appendix A. All variables are measured at the country-level, evaluating their frequencies in a given country. I estimated the following 2SLS model:

$$CultHmgn_{it}/CultDist_i = \delta + \theta * Genetic/Pathogen_i + Controls_{it}\pi + FE_{it} + \varepsilon_{it} \quad (3)$$

This specification is similar to the one estimated in the previous section for equation (1). Equation (3) represents the first stage regression. Here too, I robust the standard errors to deal with serial correlation.

Empirical Results

To determine whether OLS under(over)estimates the effect of culture, I first begin with estimating OLS regression. The upper plot in Figure 6 presents the effect of cultural factors on *de-jure* financial openness, while the bottom plot functions as a robustness check and tests the effect on *de-facto* financial openness. After comparing the results with those of the IV-2SLS estimation (Figure 7), I conclude that OLS underestimates the effect of culture on countries' financial policies.

Results support the prediction that cultural factors correspond with countries' financial integration with the world. Figure 6 presents the results of OLS regression for both *de-jure*

Figure 6: Culture and financial openness
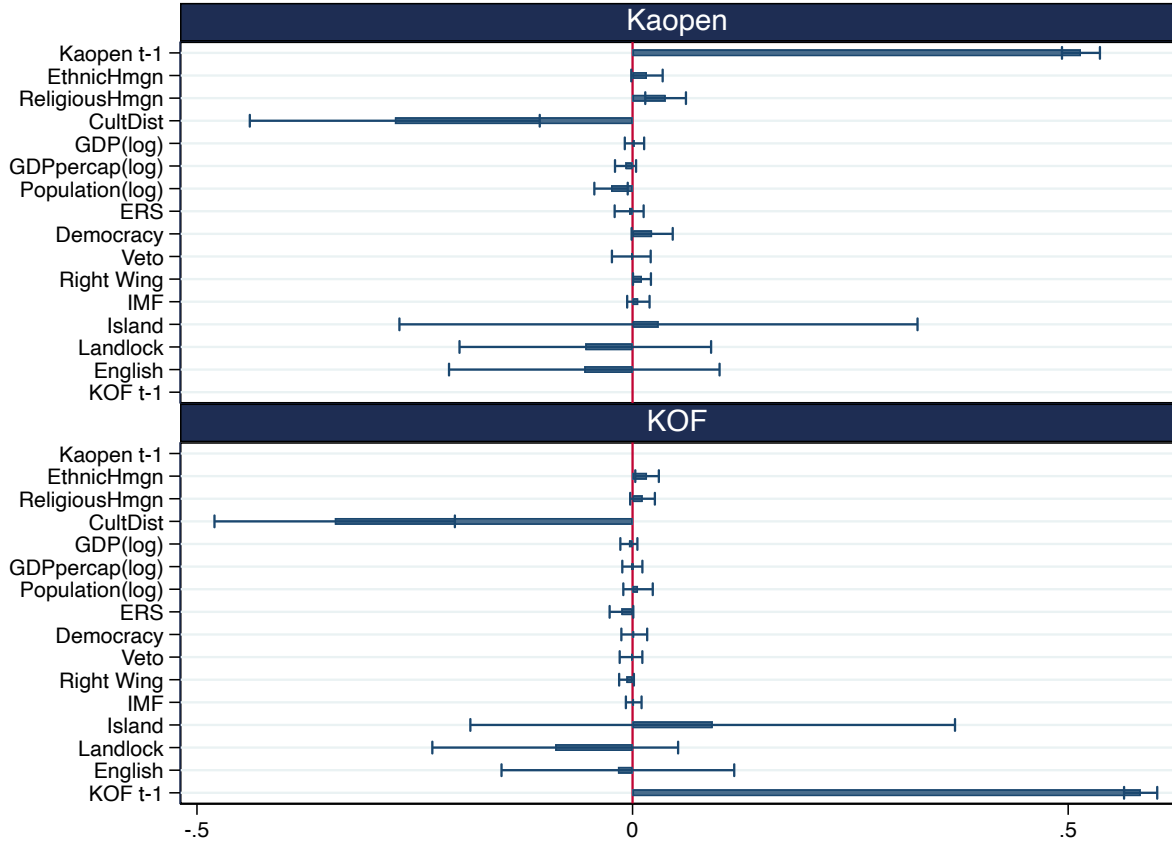
(upper plot) and *de-facto* (bottom plot) financial openness. The full regression models can be found in Tables 4 and 5 in Appendix A. Focusing on *de-jure* financial openness, religious homogeneity and cultural distance are statistically significant and with the right sign. One unit increase in religious homogeneity, meaning that a country is more heterogeneous, corresponds with an increase of 0.512 (model 1) or 1.189 (model 4) in *de-jure* financial openness. As a country becomes more religiously heterogeneous, it is likelier to free its capital account. One unit increase in cultural distance corresponds with a decrease of 2.375 (model 1) or 2.14 (model 4 and 5) in *de-jure* financial liberalization. This means that as the cultural distance between a country and the US increases, the less likely is it to free its capital account. Since

the global *de-jure* financial openness average score is -0.0013[11], substantively, the effect size of religious homogeneity is significant and even more so for cultural distance.

In line with the literature, right-wing parties have a greater tendency to liberalize financially than left-wing parties. Additionally, Table 1 suggests that large-sized countries tend to be less open financially, which corresponds with Robert Mendel's prediction that small countries have no choice but to open themselves to the world. Except for these two, the estimated coefficients of factors that are well known in the literature are far from being statistically significant in all models.

The bottom plot, presenting *de-facto* financial openness as a function of cultural factors, also support the cultural-based theory. One unit increase in cultural distance corresponds with a decrease of 29.68 (model 1) or 37.21 (model 5) in financial openness. Comparing these effects to the global average score of *de-facto* financial openness, which stands for 50.235[12], results suggest that the effect is strong and meaningful. CultDist's predictive margins suggest that a country that is close to the US (=0.2) is predicted to have a score of 1.53 on Kaopen and 76.66 on KOF, while a country with a higher value (t=0.6) is predicted to receive a score of 0.46 and 58.02[13]. However,results offer a different pattern for the effect of religious and ethnic homogeneity, the partisanship effect, and countries' size. That might be because the coefficients in OLS regression are biased. I then estimate IV-2SLS regression, starting with the first stage effect of genetic and pathogen factors on culture.

Table 6 in Appendix A reports the first stage estimates of cultural distance and homogeneity — identification here derived from between countries variation. Genetic distance, measured by blood type, is significant and with the correct sign. As the genetic distance between a given country and the US increases, so does the cultural distance between them. Considering ethnic homogeneity, pathogen prevalence seems to be the appropriate instrument, whereas the factor of 9 diseases prevalence has a greater effect. However, pathogen prevalence is a weak instrument for religious homogeneity. Since CultHmgn is the combination of both religion and ethnic homogeneity, pathogen prevalence is also a weak instrument

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[11]The average score of Kaopen for the US, representing the free and open part of the world, is 2.334, while China, representing the opposite side of the world, is -1.339.

[12]US' average KOF score is 50.395 and China's is 28.247.

[13]See Figure 11 in Appendix A

for this measurement.

Overall, the genetic mutations (HTTLPR and A118G) provide opposite signs, and Malaria prevalence has a minor effect on all cultural factors. These results might be because of (1) missing data[14], (2) and small geographical spread[15]. I, therefore, use blood types as instruments for cultural distance and pathogen prevalence as an instrument only for ethnic homogeneity, and not religious or cultural homogeneity, to predict their effects on financial openness.

Figure 7: Second Stage Estimates of Culture on Financial Openness
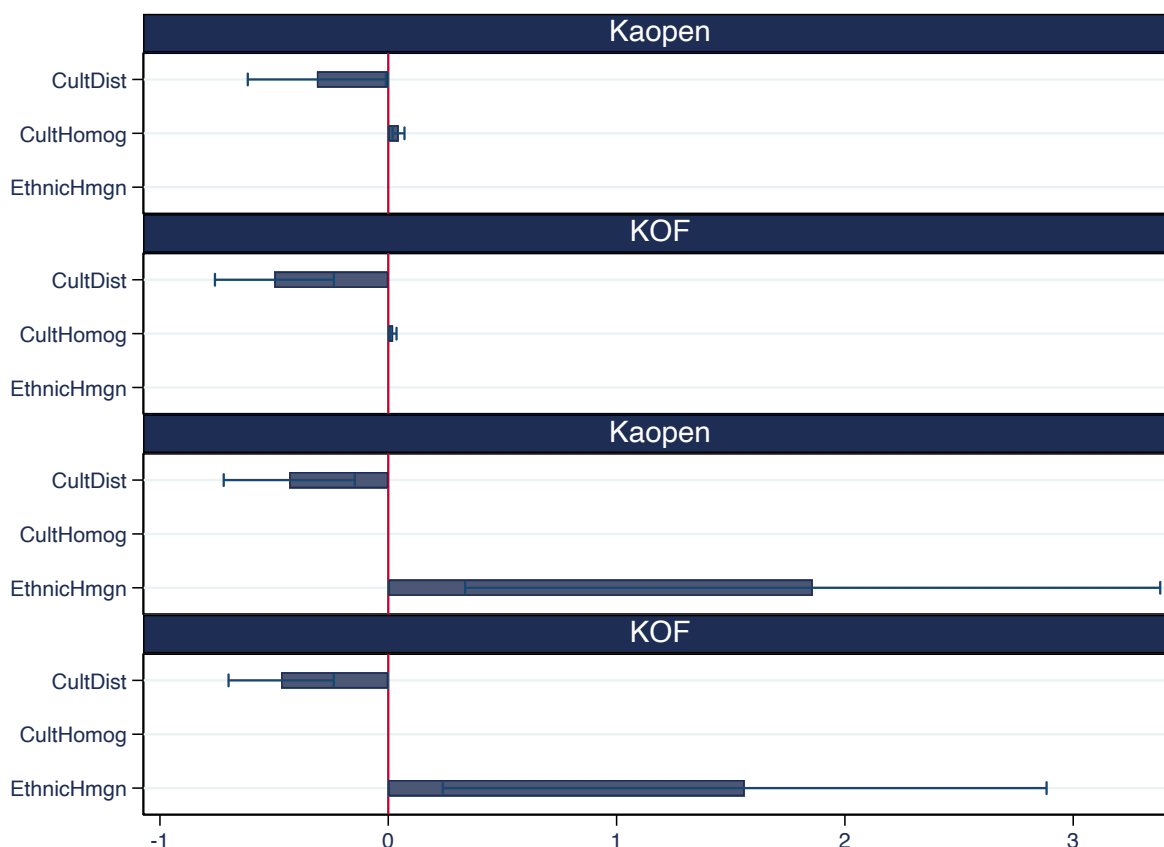
Note: Standard errors are robust. The upper two models present the second stage of CultDist by genetic distance, while the bottom two models are the second stage of EthnicHmgn by pathogen prevalence. FE is used in all models and denotes both country and year fixed effects.

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[14]As shown in Figure 2, data on the genetic mutations is limited.

[15]Both the genetic mutations and Malaria are located in high frequencies in Southern-Asia and Africa, respectively. Since this study aims to explain the global variance in financial liberalization, it is appropriate to use instruments that can predict culture globally.

Figure 7 presents the second stage for estimating financial openness (complete results are in Table 6 in Appendix A). Models 1 and 2, the two upper plots, use estimation for cultural distance using blood type as an instrument, and models 3 and 4, the two bottom plots, for ethnic homogeneity using pathogen prevalence as an instrument. Findings suggest that OLS underestimates the effect of cultural distance on financial openness. One standard deviation in cultural distance decreases *de-jure* and *de-facto* financial openness by 0.314 and 0.498 standard deviations, respectively. Considering the effect of ethnic homogeneity, one standard deviation in ethnic heterogeneity increases *de-jure* and *de-facto* financial openness by 1.9 and 1.58 standard deviations, respectively.

Figure 8: Financial Openness by Selected Countries and Cultural Distance
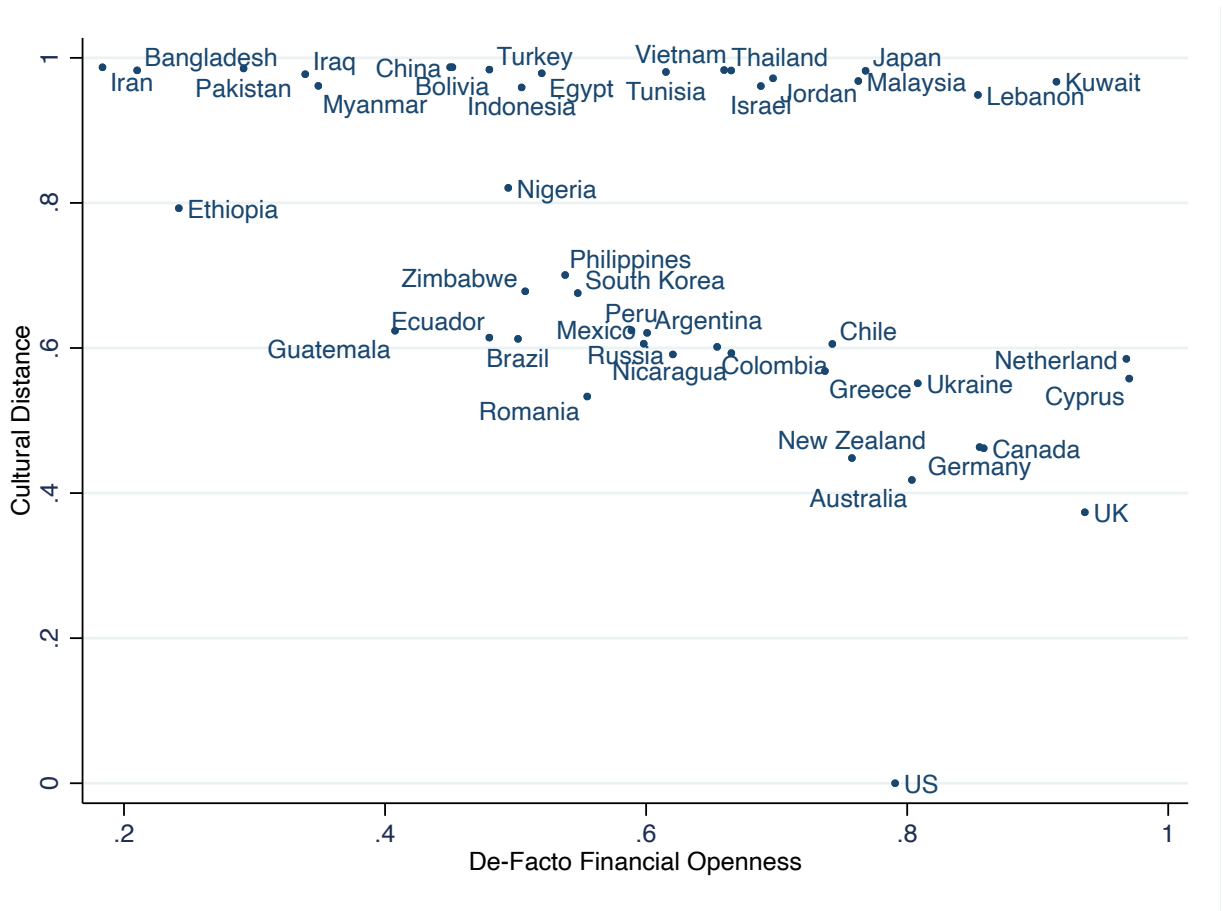
Note: The horizontal axis is the cultural distance of each country from the US. The vertical axis scores countries by their *de-facto* financial openness score in 2018.

Control variables seem not to affect financial openness once culture is included in the model. Neither democratization nor partisanship affects *de-jure* and *de-facto* openness.

Figure 9: Financial Openness by Selected Countries and Ethnic Homogeneity
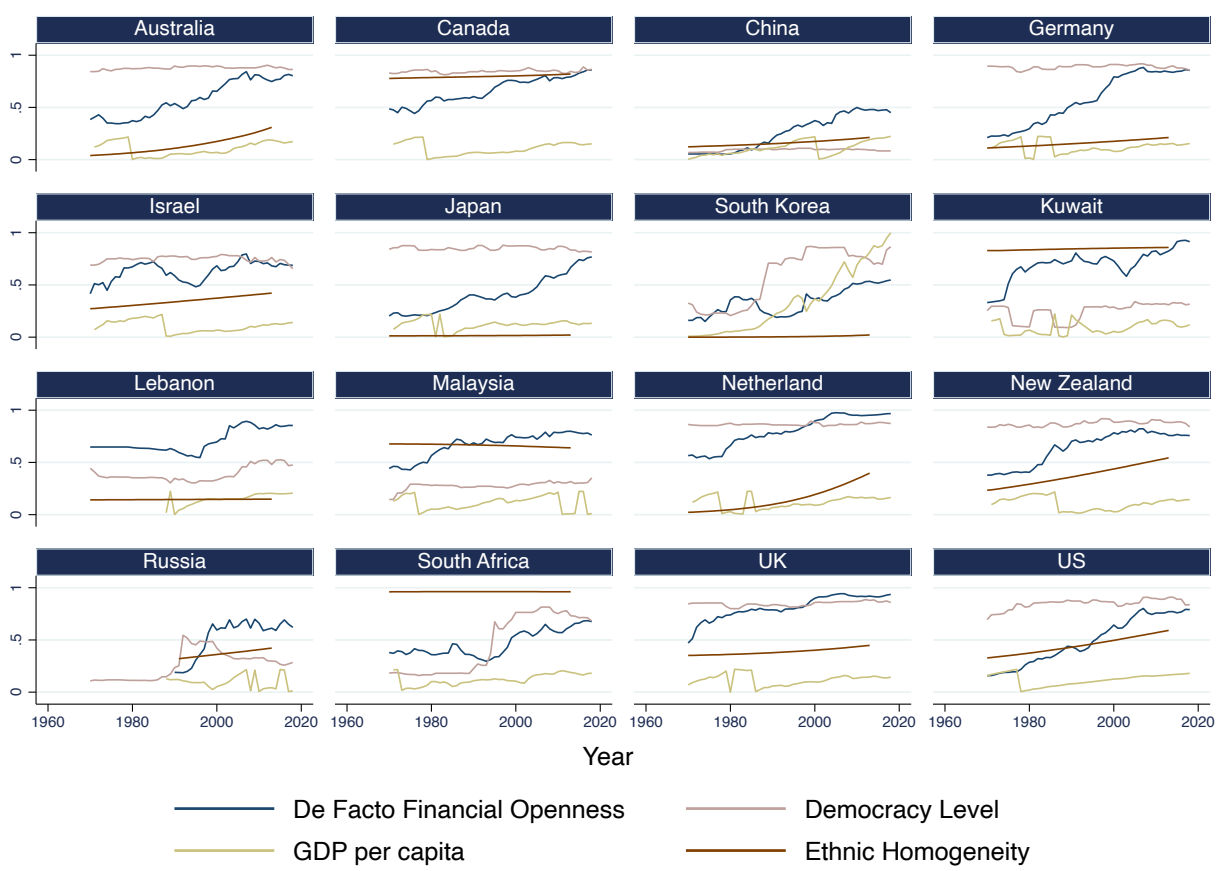
Note: All measurements are normalized. Higher values denote a more democratic country, a better-developed country, a more ethnically heterogeneous country, and more open financially.

Fixed exchange rate corresponds with financial openness only in model 2, emphasizing its endogenous effect on free capital flows. This is while the effect of population size holds only in model 1.

Figures 8 and 9 illustrate the link between culture and financial openness in several selected countries, alongside the two main alternative explanations in the literature - economic development and democracy level. Figure 8 presents the relationship between cultural distance and *de-facto* financial openness. Overall, as the cultural distance between a given country and the US increases, it is less open financially. Few countries do not fit this relationship, such as Kuwait, Lebanon, Malaysia, and Japan. Figure 9, hence, shows a correlation between ethnic homogeneity next to the two main alternative explanations in the literature -

GDP per-capita and democracy level - and financial openness [16]. As presented, ethnically heterogeneous countries tend to be more financially open or open financially relatively faster, even if they have a distinct culture to the US, have a lower level of democracy, and are less economically developed than others.

Figure 10 provides additional support to the relationship between cultural distance and financial openness. The greater the cultural distance between two countries, the more they differ in their financial openness policy. The impact of sharing a common border and colonial ties is not in line with the trade gravity literature, suggesting that financial interactions have a different pattern than trade.

Figure 10: Gravity Model of Financial Openness
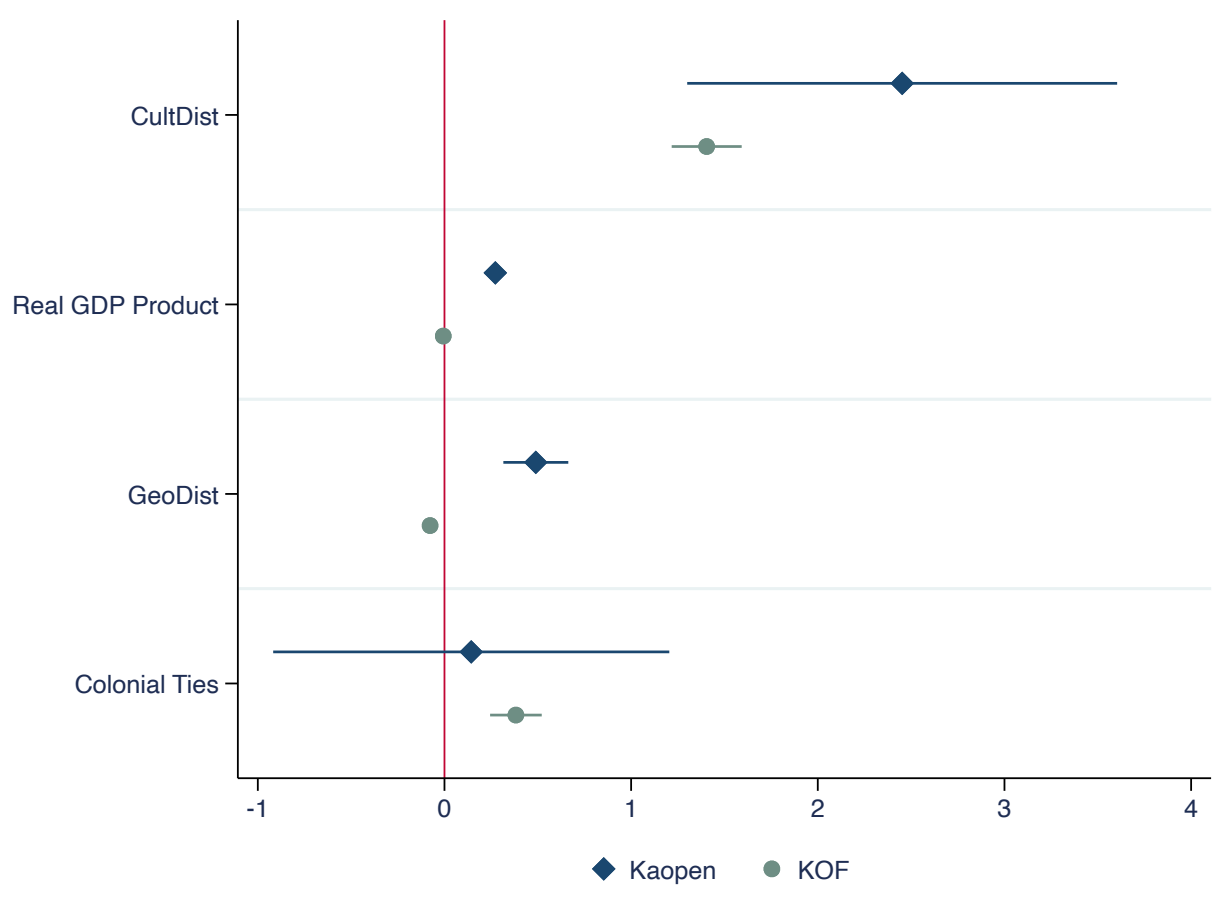
Note: All variables transformed to their natural log. Higher values in Cultist and CultGeo denote a greater cultural and geographical distance between pairs, respectively. Standard errors are robust with year fixed effects.

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[16]I used ethnic homogeneity and not cultural homogeneity in this illustration since there is no available data on China's level of religious homogeneity.

To summarize, the most significant predictors in all models are cultural distance and homogeneity. Hence, culture is not merely a factor that needs to be controlled for but must be included in our estimations to fully understand countries' financial liberalization policies. Ignoring the effect of culture can lead to bias estimates and misleading conclusions. The above results perhaps even explain the contradictory findings in the literature.

Culture, Trade Openness, and FDIs

In what way culture explains trade and FDIs globalization? The main argument of this study is based on the reasoning that financial behavior involves the practice of trust between parties. The dominance of the dollar in the monetary system is only possible because private and officials agents trust its value and that others trust it too. Alternatively, they do not trust the Chinese currency enough, and thus, it still cannot challenge the dollar position in the global monetary system. Although there are different ways to gain investors' trust, no financial exchange will ever happen when trust is not available. Since trust is socially constructed, and as argued above, individuals tend to trust their in-groups more than out-groups, culture plays an essential role in financial exchanges.

However, one might suggest that culture involves in other economic outcomes too. Since the level of trust shapes the willingness of culturally homogeneous countries to open financially and countries might prefer to do business with their cultural peers, cultural distance and homogeneity may also explain their openness toward trade and FDIs. Here I test my argument on both economic outcomes by estimating the following regression model:

$$log(Trade/FDIopenness_{it}) = \alpha_0 + \beta_1 * CultDist_i + \beta_2 * CultHmgn$$
$$\beta_3 * Controls_{it} + RE_{it} + \varepsilon_{it} \tag{4}$$

This specification is similar to equation (1). Trade openness measured as trade intensity ratio - the sum of exports and imports divided by country's GDP. FDIs openness is calculated the same way. I run a fixed effect model since Hausman test strongly rejected the random

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effect models and I again use robust standard errors for dealing with serial correlation. Results are presented in Table 1.

Table 1: Culture, Trade and FDI Openness

DV	(1) Trade Openness	(2) Trade Openness	(3) Trade Openness	(4) FDI Openness	(5) FDI Openness	(6) FDI Openness
EthnicHmgn	0.355 (0.29)	0.282 (0.29)	27.032 (11.157)	5.41 (1.94)	5.547 (1.972)	50.3 (21.72)
ReligiousHmgn	0.341 (0.311)	0.336 (0.314)	−8.1 (4.1)	4.56 (1.75)	4.54 (1.765)	−8.94 (7.094)
CultDist	−0.331 (0.228)	0.13 (0.525)	−0.659 (0.380)	−2.93 (0.644)	−2.391 (1.614)	−3.643 (0.845)
Trade(t-1)	0.009 (0.001)	0.009 (0.001)	0.003 (0.004)			
FDI(t-1)				0.039 (0.012)	0.038 (0.012)	−0.018 (0.037)
GDP(log)	0.004 (0.007)	0.005 (0.007)	−0.011 (0.036)	0.081 (0.039)	0.082 (0.040)	−0.029 (0.059)
GDPpercap(log)	0.005 (0.007)	0.006 (0.007)	0.011 (0.045)	−0.043 (0.047)	−0.044 (0.049)	−0.095 (0.067)
Population(log)	0.004 (0.008)	0.004 (0.008)	−0.028 (0.045)	0.004 (0.052)	0.007 (0.053)	−0.013 (0.084)
ERS	−0.016 (0.036)	−0.021 (0.036)	−0.111 (0.237)	0.42 (0.206)	0.433 (0.21)	0.293 (0.411)
Democracy	0.264 (0.100)	0.263 (0.101)	0.744 (0.47)	2.359 (0.656)	2.373 (0.657)	3.57 (0.978)
Veto	−0.018 (0.043)	−0.018 (0.044)	−0.807 (0.388)	0.345 (0.329)	0.330 (0.335)	−0.828 (0.653)
Right Wing	−0.019 (0.020)	−0.020 (0.021)	0.16 (0.126)	0.053 (0.103)	0.049 (0.105)	0.354 (0.239)
IMF	0.015 (0.015)	0.015 (0.015)	−0.036 (0.075)	−0.043 (0.122)	−0.027 (0.123)	−0.118 (0.197)
Island	0.091 (0.249)	0.020 (0.265)	−0.024 (0.318)	1.131 (0.65)	1.025 (0.759)	0.56 (0.864)
Landlock	−0.02 (0.102)	−0.038 (0.110)	0.182 (0.165)	−0.503 (0.334)	−0.516 (0.386)	−0.434 (0.351)
English	−0.084 (0.121)	−0.064 (0.133)	0.106 (0.183)	0.222 (0.334)	0.376 (0.324)	0.45 (0.274)
Constant	4.353 (0.188)	3.993 (0.388)	4.641 (0.585)	2.208 (0.667)	1.803 (1.217)	3.725 (0.850)
N	2045	1994	1368	1832	1790	1305
R^2	0.510	0.510	0.044	0.246	0.248	0.147
FE	*YES*	*YES*	*YES*	*0YES*	*YES*	*YES*

Note: Robust standard errors in parentheses. Model 1 and 4 are OLS regression, estimating Trade and FDI openness, respectively. Models 2 and 4 estimate the effect of CultDist on Trade and FDI, respectively, using blood type as instrument. Models 3 and 6 estimate the effect of EthnicHmgn Trade and FDI, respectively, using pathogen prevalence as instrument. FE denotes both country and year fixed effects.

Results indicate that culture does not play a significant role in explaining other economic outcomes the same as in financial outcomes. Models 1 and 4 estimate OLS regression, while models 2, 3, 5, and 6 estimate 2SLS regression. Specifically, models 2 and 5 use blood type as the instrument of cultural distance, and models 3 and 6 use pathogen prevalence as the instrument of ethnic homogeneity. In both cases, using trade or FDI openness as the outcome variable, results are mixed. On the one hand, ethnic homogeneity is statistically significant and with the correct sign, supporting H2. Again, OLS found to underestimate the effect of ethnic homogeneity. On the other hand, cultural distance is not statistically significant. In agreement with the literature, higher democracy and economic development levels increase trade and FDI openness. However, democratization has a greater effect. A fixed exchange rate also seems relevant, but the model might capture its endogenous effect.

Culture, therefore, seems to be an essential predictor of financial outcomes but only partially explains other economic ones. In line with the above results, cultural homogeneity is a stronger predictor of economic openness to the rest of the world. Overall, homogeneous countries tend to trust foreigners less. Hence, they prefer to stay close in all economic aspects. In contrast, culturally distant countries allow themselves to be open to global trade since trust is more relevant in financial transactions.

Conclusion

The process of global financial liberalization has got the attention of many scholars over the years. From different economic and political perspectives, scholars were able to define the nature of financial liberalization and explain its consequences. However, few questions, such as why non-democratic countries liberalize financially while some democratic countries impose capital controls, remained unanswered and gave rise to this research.

The main argument of this study is that cultural distance between countries and cultural

homogeneity within countries explain their level of financial integration with the world. Controlling for well-known factors in the literature, I show that culturally homogeneous countries are less likely to liberalize financially. The most intuitive examples are China and the US. As a culturally homogeneous country, China tends to stay financially closed to the world since its level of trust in foreigners is low. The US presents the opposite case of a culturally heterogeneous country with a much greater level of trust. Cultural homogeneity even explains countries' openness to trade and FDIs - the more homogeneous a country is, the less likely it is to be open.

Results also show that when a country's cultural distinctiveness from the US increases, it is less likely to liberalize financially. However, cultural distance between countries seems not to determine trade and FDIs openness as they do for financial openness. One main reason behind these results is that non-financial behaviors do not involve trust as much as financial behaviors do.

In what way do these findings express the impact of culture on the diffusion of policies between countries? If culture conditions trust and trust conditions financial exchange between parties, it can also provide additional information to learning and imitating. Using a survey experiment with local government officials in the US, Butler et al. (2017) show that officials are less likely to learn from a policy that does not fit their ideological and partisan worldview. Thus, it is reasonable to believe that culture is another factor influencing agents' tendency to learn from others, whereas Simmons and Elkins (2004) provide preliminary findings to this kind of relationship. It is more convenient to learn from or imitate a country sharing the same culture as ours than a country with a distinct culture.

The conclusions also give rise to the question of how culture effect the financial behavior of individuals with different cultures. Game theory experiments are one example of testing how people act financially with their in-group compared to out-group players. Yet, studies that test these behaviors in issues that concern financial liberalization are still limited. Are people willing to invest in a stock market of a country with no shared culture to them?

Do subjects from culturally homogeneous countries are less likely to open a bank account in foreign countries? Answering these questions can help better understand the effect of culture on the way people behave financially and under what circumstances they tend to integrate financially with the rest of the world.

This study has two main implications. First, recognizing the effect of culture on financial outcomes can help policymakers settle the tension between the alternative system (known as the *Beijing Consensus*) that undermines the open capital system's dominance (the *Washington Consensus*). Since trust affects countries' willingness to open, which is conditioned by cultural factors, Western policymakers need to create a more trustful environment with their out-groups. Identifying the cultural obstacles to financial liberalization is the first step required to start thinking about solutions for the tension between some countries' cultures and the openness of their financial sector. Second, the above findings provide an adequate explanation for why the Chinese currency, the Yuan, has not yet become a top currency. As well argued in the literature, the promotion of the Yuan as an international currency depends on China's willingness to liberalize its financial sector. The current study explains China's reluctance, suggesting that it results from its high degree of cultural homogeneity and distance from the Western world. Thus, to strengthen the Yuan, China needs to work on its level of trust in foreigners.

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Supporting Information

Appendix A

Table 2: **Summary Statistics and Sources for Variables Included in the Analysis-Monadic Data**

Concept	Variable	Mean	SD	Min	Max	Source
Dependent Variables	Kaopen *de-jure*	-.001	1.53	-1.92	2.334	1
	KOF *de-facto*	50.235	21.345	3.06	99.205	2
	FDI Openness	4.999	21.192	-83.101	633.799	3
	Trade Openness	77.989	49.312	.021	442.62	3
Cultural Factors	Ethnic Fractionalization	.446	.268	.001	.89	4
	Religious Fractionalization	.389	.223	.002	.936	4
	Cultural Homogeneity	.416	.196	.023	.842	4
	Cultural Distance	.734	.196	0	.997	5
	English	.188	.391	0	1	6
Economic Conditions	GDP (in thousands)	3.734	2.161	1	7.477	3
	GDP per capita (in thousands)	3.734	2.161	1	7.476	3
	Exchange Rate Stability	.654	.329	.001	1	7
	IMF Program	.2880	.453	0	1	8
	Population	4359.239	2517.16	19	9996	3
Domestic Political Conditions	Democracy Level	.451	.287	.009	.924	9
	Right-wing party	.352	.478	0	1	10
	Veto Players	.339	.333	0	.894	11
Geography	Island	.204	.403	0	1	12
	Landlock	.191	.392	0	1	12
Genetic and Pathogen Factors	HTTLPR	48.174	13.461	17.28	80.25	13
	A118G	.199	.102	.098	.446	13
	Type Blood A	.055	.329	0	.129	13
	Type Blood B	.057	.042	0	.177	13
	9 Diseases	-.001	.642	-1.31	1.16	13
	Malaria	3.892	6.488	0	31.357	14

Data Source: (1) Chinn and Ito's kaopen Index, (2) KOF Financial Globalization Index, (3) World Development Indicator (WDI), (4) CREG dataset, (5) Kolo's (2016) Index of distance adjusted ethnolinguistic fractionalization, (6) Jon Haveman's dataset, `https://www.macalester.edu/research/economics/page/haveman/trade.resources/Data/Gravity/language.txt`, (7) The Trilemma Index by Aizenman et al (2008), (8) Kentikelenis et al.'s (2016) dataset, (9) Varieties of Democracy (V- Dem) (Coppedge et al., 2019), (10) Database of Political Institutions by the Inter-American Development Bank (IDB), (11) The Political Constraints Dataset (Henisz 2000), (12) CAI factbook, (13) Gorodnichenko and Roland's replication data (2017), (14) Enke's replication data (2017).

Table 3: **Summary Statistics and Sources for Variables Included in the Analysis-Dyadic Data**

Concept	Variable	Mean	SD	Min	Max	Source
Dependent Variables	Kaopen *de-jure*	.473	2.1	-4.25	4.25	1
	KOF *de-facto*	4.37	25.94	-84.55	89.84	2
Independent Variables	Cultural Distance	.81	.21	.03	.99	3
	Real GDP Product (in thousands)	8.65	1.24	8.85	.1.96	4
	Geographical Distance (in km)	7839.16	4454.33	10.48	19904.45	5
	Colonial Ties	.011	.105	0	1	5

Data Source: (1) Chinn and Ito's kaopen Index, (2) KOF Financial Globalization Index, (3) Kolo's (2016) Index of distance adjusted ethnolinguistic fractionalization, (4) World Development Indicator (WDI), (5) CEPII's GeoDist data.

Table 4: Culture and *de-jure* financial openness

	(1)	(2)	(3)	(4)	(5)
EthnicHmgn	0.286	0.306	0.798	0.799	
	(0.160)	(0.184)	(0.449)	(0.451)	
ReligiousHmgn	0.512	0.579	1.188	1.189	
	(0.134)	(0.140)	(0.374)	(0.374)	
CultHomog					2.068
					(0.598)
CultDist	-2.375	-2.263	-2.178	-2.140	-2.140
	(0.472)	(0.520)	(0.643)	(0.665)	(0.664)
Kaopen (t-1)	0.916	0.914	0.867	0.867	0.868
	(0.007)	(0.008)	(0.019)	(0.019)	(0.019)
GDP(log)		0.013	0.004	0.004	0.003
		(0.005)	(0.008)	(0.008)	(0.008)
GDPpercap(log)		0.004	-0.012	-0.012	-0.012
		(0.007)	(0.009)	(0.009)	(0.009)
Population(log)		-0.029	-0.023	-0.023	-0.023
		(0.007)	(0.011)	(0.011)	(0.011)
ERS		-0.039	-0.025	-0.025	-0.027
		(0.029)	(0.054)	(0.054)	(0.054)
Democracy			0.226	0.226	0.232
			(0.121)	(0.121)	(0.122)
Veto			-0.012	-0.011	-0.015
			(0.088)	(0.088)	(0.088)
Right Wing			0.047	0.048	0.049
			(0.023)	(0.023)	(0.023)
IMF			0.028	0.028	0.027
			(0.028)	(0.028)	(0.027)
Island				0.114	0.109
				(0.577)	(0.577)
Landlock				-0.214	-0.211
				(0.288)	(0.289)
English				-0.213	-0.213
				(0.310)	(0.310)
Constant	1.842	1.851	1.983	2.035	2.037
	(0.350)	(0.395)	(0.482)	(0.494)	(0.494)
N	5248	4781	2119	2110	2110
R^2	0.859	0.862	0.809	0.809	0.809
FE	*YES*	*YES*	*YES*	*YES*	*YES*

Note: Robust standard errors in parentheses. The dependent variable is de-jure financial openness measured by KAOPEN Index. FE denotes both country and year fixed effects.

Table 5: Culture and *de-facto* financial openness

	(1)	(2)	(3)	(4)	(5)
EthnicHmgn	5.681	7.069	11.057	11.415	
	(1.807)	(1.881)	(4.603)	(4.702)	
ReligiousHmgn	3.032	2.201	4.952	5.014	
	(1.578)	(1.380)	(3.130)	(3.158)	
CultHomog					14.759
					(4.688)
CultDist	−29.682	−32.792	−36.396	−37.156	−37.206
	(6.410)	(6.363)	(7.654)	(7.659)	(7.654)
KOF (t-1)	0.942	0.930	0.884	0.884	0.885
	(0.006)	(0.007)	(0.015)	(0.015)	(0.014)
GDP(log)		−0.033	−0.076	−0.091	−0.084
		(0.054)	(0.105)	(0.104)	(0.103)
GDPpercap(log)		−0.061	−0.016	−0.003	−0.006
		(0.061)	(0.122)	(0.121)	(0.121)
Population(log)		−0.063	0.053	0.057	0.058
		(0.068)	(0.123)	(0.123)	(0.122)
ERS		−0.856	−1.107	−1.126	−1.106
		(0.308)	(0.616)	(0.616)	(0.617)
Democracy			0.254	0.268	0.176
			(1.057)	(1.055)	(1.044)
Veto			−0.190	−0.197	−0.148
			(0.716)	(0.718)	(0.708)
Right Wing			−0.329	−0.428	−0.454
			(0.275)	(0.258)	(0.255)
IMF			0.074	0.079	0.103
			(0.269)	(0.269)	(0.268)
Island				4.847	4.945
				(7.523)	(7.507)
Landlock				−4.815	−4.820
				(3.912)	(3.913)
English				−0.936	−0.939
				(3.725)	(3.726)
Constant	72.226	76.012	78.048	79.387	79.395
	(4.936)	(4.893)	(6.002)	(5.895)	(5.883)
N	5656	5031	2217	2208	2208
R^2	0.914	0.905	0.844	0.847	0.847
FE	*YES*	*YES*	*YES*	*YES*	*YES*

Note: Robust standard errors in parentheses. The dependent variable is de-facto financial openness measured by KOF globalization Index. FE denotes both country and year fixed effects.

Table 6: First Stage Estimates of Cultural Factors

| DV	(1) CultDist	(2) EthnicHmgn	(3) ReligiousHmgn	(4) CultHmgn
BloodTypeA	0.709 (0.087)			
BloodTypeB	2.754 (0.051)			
HTTLPR		−0.015 (0.001)	−0.011 (0.001)	−0.011 (0.001)
A118G		1.08 (0.102)	0.134 (0.09)	0.555 (0.072)
Pathogen9		0.108 (0.015)	−0.063 (0.009)	0.035 (0.01)
Malaria		0.021 (0.003)	0.019 (0.002)	0.011 (0.004)
GDP(log)	−0.003 (0.006)	0.02 (0.006)	−0.012 (0.005)	0.003 (0.004)
GDPpercap(log)	0.005 (0.009)	−0.007 (0.006)	0.003 (0.005)	−0.003 (0.004)
Democracy	−0.311 (0.014)	0.072 (0.052)	0.174 (0.028)	0.126 (0.024)
Island	−0.007 (0.006)	−0.131 (0.017)	0.512 (0.019)	0.12 (0.024)
Landlock	−0.027 (0.005)	−0.076 (0.012)	−0.046 (0.013)	−0.055 (0.011)
English	−0.125 (0.006)	0.174 (0.027)	0.279 (0.01)	0.244 (0.014)
Constant	0.568 (0.021)	1.007 (0.064)	0.797 (0.063)	0.69 (0.057)
N	5688	811	867	781
R^2	0.346	0.335	0.477	0.427
Country FE	*YES*	*YES*	*YES*	*YES*
F-statistic (Excluded Instruments)	1493.29	101.75	191.88	25.84
F p-value	0.000	0.000	0.000	0.000

Note: Robust standard errors in parentheses. Model 1 estimates the effect of a country's genetic distance from the US on its cultural distance from the US. Model 2, 3, and 4 estimate the effect of both genetic and pathogen factors on ethnic homogeneity, religious homogeneity, and cultural homogeneity, respectively.

Table 7: Second Stage Estimates of Culture on Financial Openness

DV	(1) Kaopen	(2) KOF	(3) Kaopen	(4) KOF
CultDist	−2.459	−54.220	−3.414	−51.208
	(1.208)	(14.458)	(1.183)	(12.991)
CultHomog	2.084	14.091		
	(0.617)	(4.741)		
EthnicHmgn			93.090	1073.867
			(38.745)	(466.165)
ReligiousHmgn			−29.641	−308.555
			(16.295)	(162.810)
Kaopen (t-1)	0.863		0.792	
	(0.020)		(0.298)	
KOF(t-1)		0.882		0.299
		(0.015)		(0.310)
GDP(log)	0.004	−0.048	−0.115	−2.179
	(0.008)	(0.102)	(0.138)	(1.527)
GDPpercap(log)	−0.014	−0.002	0.060	0.699
	(0.009)	(0.123)	(0.151)	(1.649)
Population(log)	−0.025	0.127	−0.185	−0.804
	(0.011)	(0.118)	(0.181)	(1.830)
ERS	−0.042	−1.224	−0.227	−2.017
	(0.054)	(0.623)	(0.729)	(8.052)
Democracy	0.234	0.197	0.877	14.853
	(0.124)	(1.066)	(1.389)	(16.503)
Veto	−0.025	−0.221	−1.567	−19.543
	(0.093)	(0.724)	(1.181)	(13.399)
Right Wing	0.046	−0.481	0.706	8.502
	(0.024)	(0.262)	(0.405)	(4.926)
IMF	0.022	0.118	0.070	−0.913
	(0.028)	(0.270)	(0.264)	(2.910)
Island	0.181	7.445	0.432	2.142
	(0.581)	(7.302)	(0.824)	(6.647)
Landlock	−0.169	−4.115	0.204	2.245
	(0.284)	(3.908)	(0.598)	(6.098)
English	−0.195	−0.595	−0.285	5.178
	(0.332)	(3.602)	(0.443)	(4.455)
Constant	2.256	90.990	3.859	100.088
	(0.924)	(10.697)	(1.842)	(18.973)
N	2059	2157	1373	1436
R^2	0.802	0.843	0.086	0.132
FE	*YES*	*YES*	*YES*	*YES*

Note: Robust standard errors in parentheses. The DV in models 1 and 3 is de-jure financial openness measured by Kaopen, and the DV in models 2 and 4 is de-facto openness measured by KOF. FE denotes both country and year fixed effects.

Figure 11: Predictive margins with 95% CIs
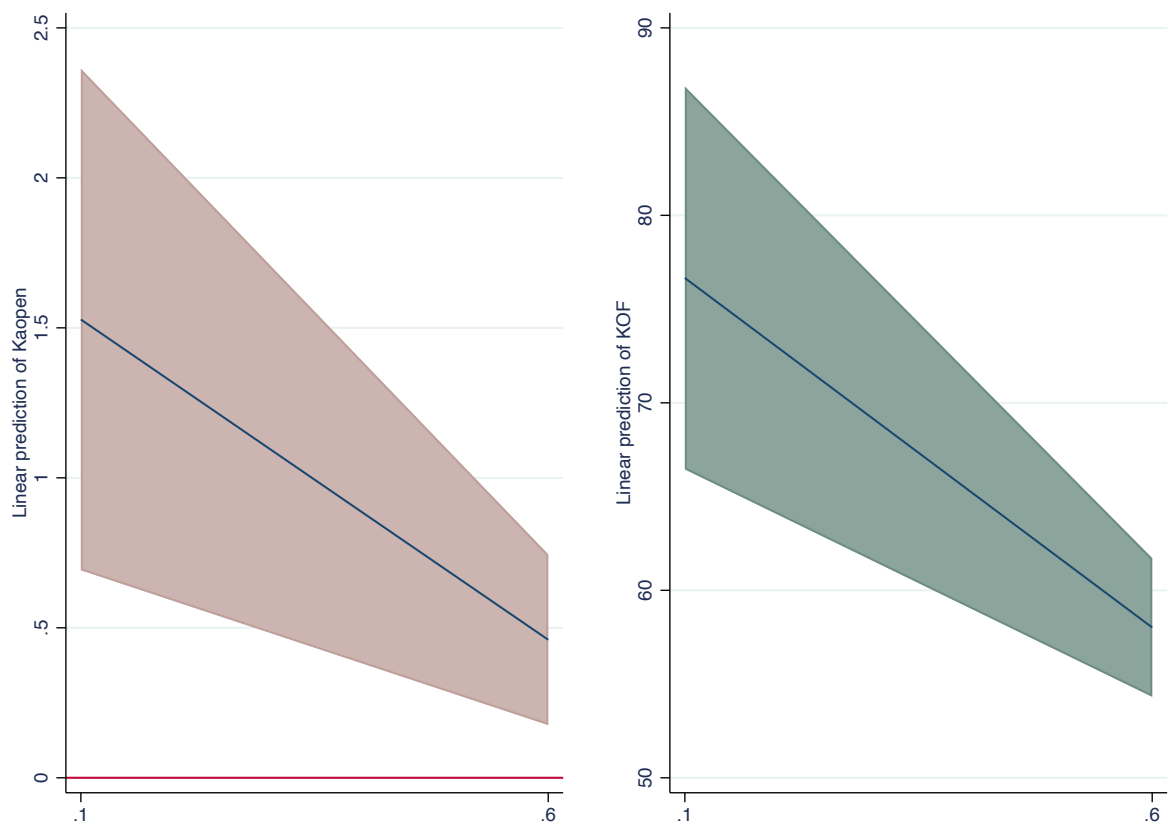
Note: Linear prediction using 2SLS model.The independent variable is CultDist

Appendix B

Trust and Culture

The proposed cultural-based theory suggests that trust plays a significant role in financial exchanges. Figure 3 in the paper shows a strong and negative relationship between the average trustiness of individuals in a given country and their cultural distance from the US. High values denote high levels of trust in foreigners. Cultural distance from the US is measured by Kolo's (2016) index of cultural distance (the next subsection presents further information about this index). The score of the US set as zero. High values denote widen cultural distance from the US. Additionally, Figure 4 suggests a positive correlation between trust and cultural heterogeneity. The next subsection provides further information about these twp indexes.

To measure countries' level of trust in foreigners, I used the average scores of the following items taken from the World-Value-Survey (WVS) for each country available in the dataset:

1) "*I'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all?* **People of another religion**".

2)"*I'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all?* **People of another nationality**".

A secondary test was conducted to evaluate the relationship between citizens' trustiness in foreigners and their culture by using the common, although questionable, cultural dimensions: individualism and egalitarianism (egalitarianism is measured by Schwartz' data and individualism is based on Hofstede's data). Since the Western world is more individualistic and egalitarian, these measures can be considered as an additional test for cultural distance. Figures 12 and 13 present a positive correlation. The more individualistic and egalitarian a country is, the more it trusts foreigners.

Figure 12: Average Level of Trust by Countries' Egalitarian Score
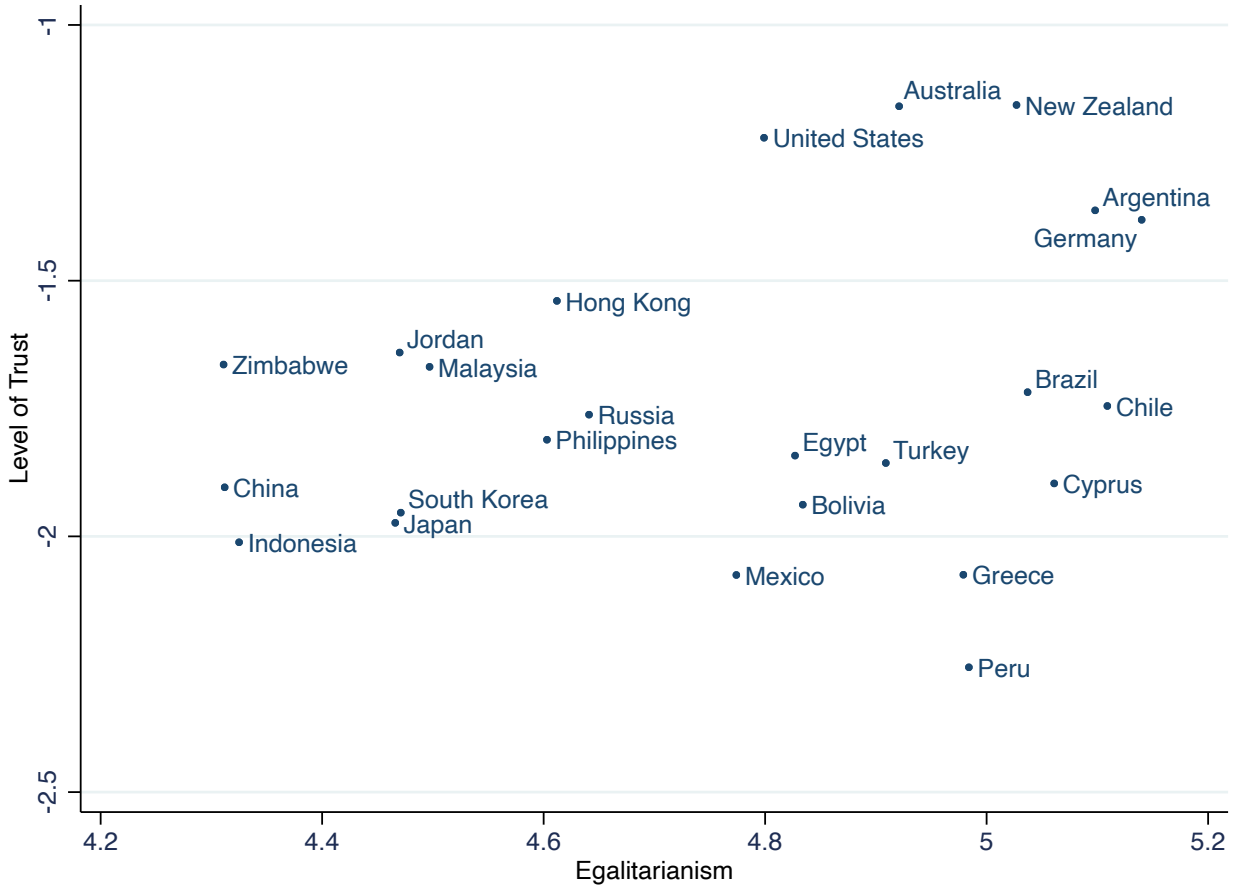
Note: The horizontal axis is the average trustiness score of a given country. The vertical axis scores countries by their egalitarian score.

Appendix C

Financial Openness Measurements

As Figure 1 in the main article shows, developments of *de-facto* and *de-jure* financial openness are slightly differed over time. Thus, I test the effect of culture on both *de-facto* and *de-jure* financial openness.

To measure *de-jure* financial openness, I use Chinn and Ito's KAOPEN index, one of the most used measures in the literature. The index codifies different restrictions that a country can impose on its capital account to control cross-border financial transactions into and out of the country. Four main indicators capture such capital controls:

Figure 13: Average Level of Trust by Countries' Individualistic Score
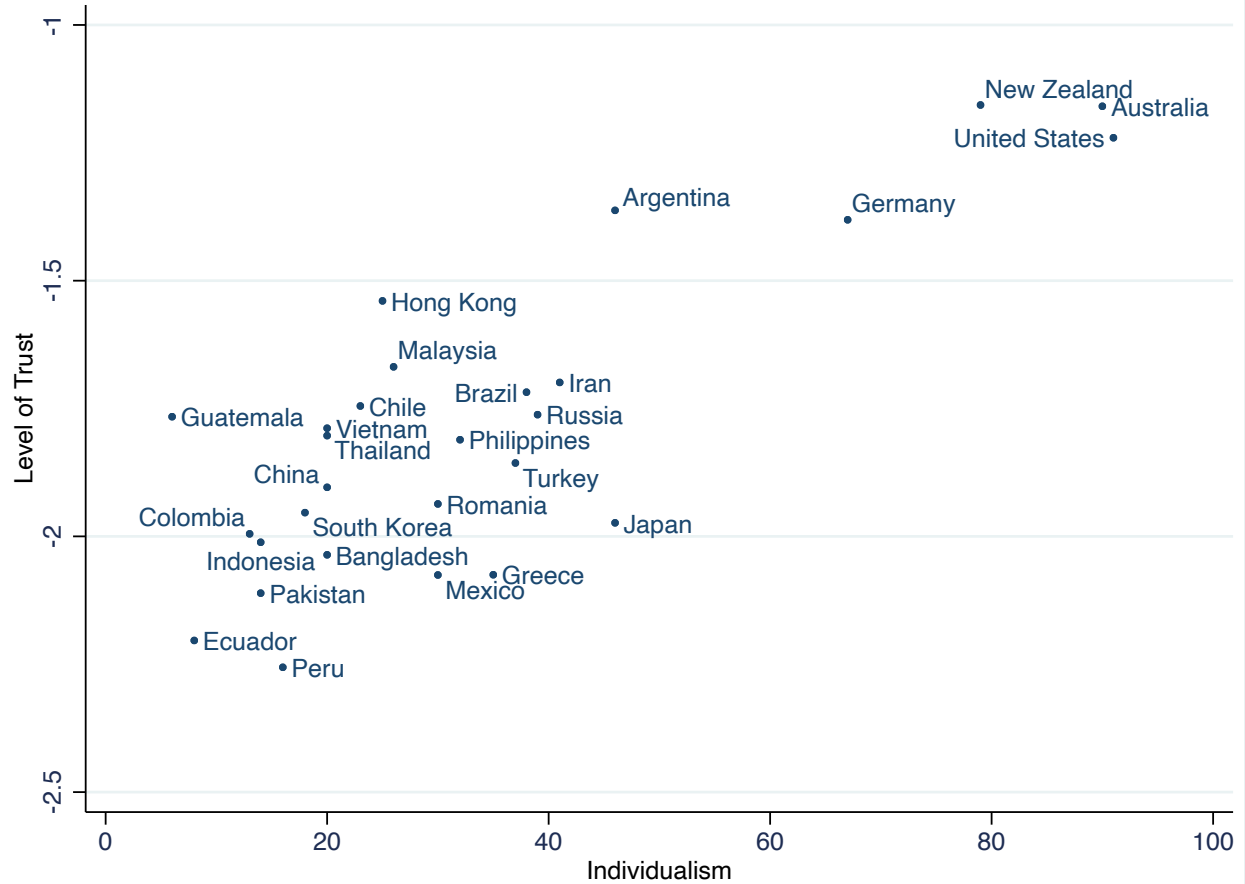
Note: The horizontal axis is the average trustiness score of a given country. The vertical axis scores countries by their individualistic score.

- The use of multiple exchange rates.

- Restrictions of current account.

- Restrictions of capital account.

- Compulsory turnover of export receipts.

Data about these restrictions are taken from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*. KAOPEN is the first standardized principal component of these four indicators, where restrictions on capital account are calculated as a 5-year average to control for the window-time in which capital controls were not in effect. Higher values of this index indicate that a country is more open to cross-border capital transactions.

Legal restrictions on cross-border capital flow can help understand countries' decisions in integrating financially with the world. Still, the level of integration and its effectiveness might vary in practice. To account for the practical nature of financial integration, I use *de-facto* financial openness based on KOF financial globalization index. The index is composed of five indicators:

- Foreign direct investments.

- Portfolio investments.

- International debt.

- International reserves (excluding gold).

- International income payments

All five indicators are calculated as the sum of stocks of assets and liabilities and normalized as a ratio to GDP. This quantity-based measure of financial integration that is based on actual flows allows to mitigate measurement errors.

Cultural Measurements

The most common cultural measure used by scholars is ethno-linguistic fractionalization index that is calculated via Herfindahl- Hirschman concentration index:

$$ELF_c = 1 - \Sigma_{i=1}^n S_i^2 \tag{5}$$

where ELF_c is the level of ethnic-linguistic fractionalization in country c, i indexes ethnic groups, and S_i is the proportion of the population in unit c belonging to ethnic group i $(i = 1, ..., n)$. Thus, a higher number indicates a more culturally heterogeneous society. The measures of ethnic and religious fractionalization that I use in this paper are calculated the same as above, while adding the dimension of time.

In turn, the distance-adjusted ethno-linguistic fractionalization index (DELF) of Kolo's (2016), uses a mutual similarity matrix (S) between individuals or countries and ranges between 0 and 1. When 1 indicates perfect similarity between individuals or countries and 0, otherwise.

$$0 \leqslant S_{ij} \leqslant 1 \tag{6}$$

where S denotes the similarity values between two individuals i and j. For a society with N individuals, all S_{ij} are contained in a NxN matrix, labeled similarity matrix S_N. In this society, N individuals belongs to K cultural groups. In each group, all individuals are perfectly similar. Similarity between two groups is equivalent to similarity between two individuals ($\hat{S}_{kl}$), where k and l indicate the two groups. The similarity matrix based on three cultural traits - language (L), ethnicity (E), and religion (R) - with equal weights to these components.

$$\hat{S_{kl}} = \frac{1}{3}[S_{kl}^{-L} + S_{kl}^{-E} + S_{kl}^{-R}] \tag{7}$$

To move from cultural distance within the country to cultural distance between countries, DELF uses the similarity matrix in one country and compares it to the similarity matrix in another country.

$$DELF_{ij} = 1 - \Sigma_{k=1}^{K}\Sigma_{M=1}^{m}P_{ik}P_{jm}\hat{S_{km}} \tag{8}$$

where country i hosts groups $k = 1, ..., K$, and country j groups $m = 1, ..., M$, respectively. The cultural distance between two groups k and m is given through $\hat{S_{km}}$ that calculates

the probability of two random individuals to belong to two different groups. The score of 1 indicates no similarity between the countries and 0, otherwise.